Appendix G
VISSIM Calibration Memo

1) Background and Purpose

The purpose of this document is to provide calibration and validation results for the existing VISSIM model that will be used as a basis for the traffic modeling to support the Interstate Access Point Approval (IAPA) for the I-495 and I-270 Managed Lane Study. Developing models to accurately depict existing conditions is critical to effectively evaluate future traffic operations along both corridors. Detailed assumptions and methodologies for existing model calibration and validation are outlined below.

2) Data Collection

The study area of this project includes I-270 from MD 85 to I-495 and I-495 from VA 193 to the Woodrow Wilson Bridge. The I-270 Spur between I-270 and I-495 is also included. All interchanges also include their ramp junctions, and adjacent signals are included at specific locations.

a) Peak Period Traffic Volumes

Peak period traffic volumes were developed for the study area. The AM and PM peak periods were determined to be 6:00 AM to 10:00 AM and 3:00 PM to 7:00 PM, respectively. The traffic demand was balanced throughout the network for both periods.

b) Signal Timings

Signal timing data was provided for signalized intersections within the study area to ensure that the VISSIM models included accurate existing signal timings.

c) Travel Times and Speeds

INRIX speed data obtained from the Regional Integrated Transportation Information System (RITIS) data was provided for segments along both I-495 and I-270 for the month of May 2017. Travel time data collected on Tuesdays, Wednesdays, and Thursdays of May 2017 were used to produce the target travel times and speeds.

3) VISSIM Model Development

MDOT SHA Travel Forecasting and Analysis Division (TFAD) provided a previously-calibrated VISSIM model for the study area. Lane geometry was confirmed based on aerial photography. Model calibration required specific updates, which included traffic volume inputs and routing decisions, traffic signal timings, turning speed reduction zones, driver and link behavior types, and lane change distances. These updates enabled the VISSIM model to simulate the typical weekday AM and PM peak periods under existing conditions. Discussed below is a summary of the VISSIM basic inputs, calibration requirements established for this study, and the model results and outputs.

a) Vehicle Inputs and Routing Decisions

The AM and PM models both include a seeding time of 3,600 seconds (1 hour) with four 3,600 second simulation periods for a total 14,400 seconds (4 hours) of actual simulation time, during which data was collected by the VISSIM model. The simulation time is equivalent to the aforementioned peak periods. The initialization time was necessary to populate the network and produce the appropriate congestion on the network prior to data recording.

The entry volume input data was coded for both the seeding period and each of the simulation hours in the peak period. The arrival distribution input data was set to "Exact Volume" rather than the default of "Stochastic Volume" to prevent significant volume variation at the turning movement level. Heavy vehicle and HOV percentages were established within the individual vehicle compositions as a component of the entry volume input data. Vehicle composition included 85% SOV, 12% HOV, and 3% truck volumes for all vehicle inputs.

The static routing decisions were coded in VISSIM such that the beginning of each route is as far upstream of the first decision point as possible; this method allows vehicles to make a routing decision as soon as possible, preventing unnecessary friction and congestion. In instances where routing decisions were close together, route combinations were applied to ensure realistic lane changing behavior.

b) Speeds

Posted speed limits were used as the desired speeds with +/- 5 mph linear distribution due to the severe congestion experienced along the corridor. This was the case for most locations within the study area. However, at select locations, the desired speeds were modified further for calibration purposes.

Turning movement speeds along the arterials were coded as:

i) Reduced Speed Right Turns: 8 MPH to 12 MPH
ii) Reduced Speed Left Turns: 11 MPH to 14 MPH
iii) Accelerated AM Right Turns: 7.5 MPH to 15.5 MPH
iv) Accelerated AM Left Turns: 12.4 MPH to 18.6 MPH
v) Accelerated PM Right Turns: 12 MPH to 15.5 MPH
vi) Accelerated PM Left Turns: 15 MPH to 20 MPH

4) VISSIM Calibration and Validation

Model calibration and validation refers to the process that confirms the model provides a reasonable approximation of existing field conditions and incorporates model refinements to bring it within an accepted range of validation targets. For this study, the model was run five times per peak period.

During the VISSIM model calibration; attention was given to the following parameters:

i) Modified lane changing distances to ensure smooth yet realistic traffic flow in both peak and off-peak directions.
ii) Modified driver behavior parameters and link behavior types; driver and link behavior types from the provided files were maintained, where possible.

The existing travel time data along both highways showed high variability between travel times in both the AM and PM peak hours. Travelers experienced a significant drop in speed during the peak periods. May 2017 INRIX speed data is shown in **Figure 1** for I-495 and **Figure 2** for I-270. High variability in travel times can be seen in the differences between the average speeds and the 95% confidence intervals.

INRIX speed data was used to produce additional figures comparing 2017 speed and travel time data to VISSIM model simulation results during the AM and PM peak hours. These figures are provided in Appendices A and B.

Figure 1: I-495 Existing Speed Graph (2017 INRIX Data)

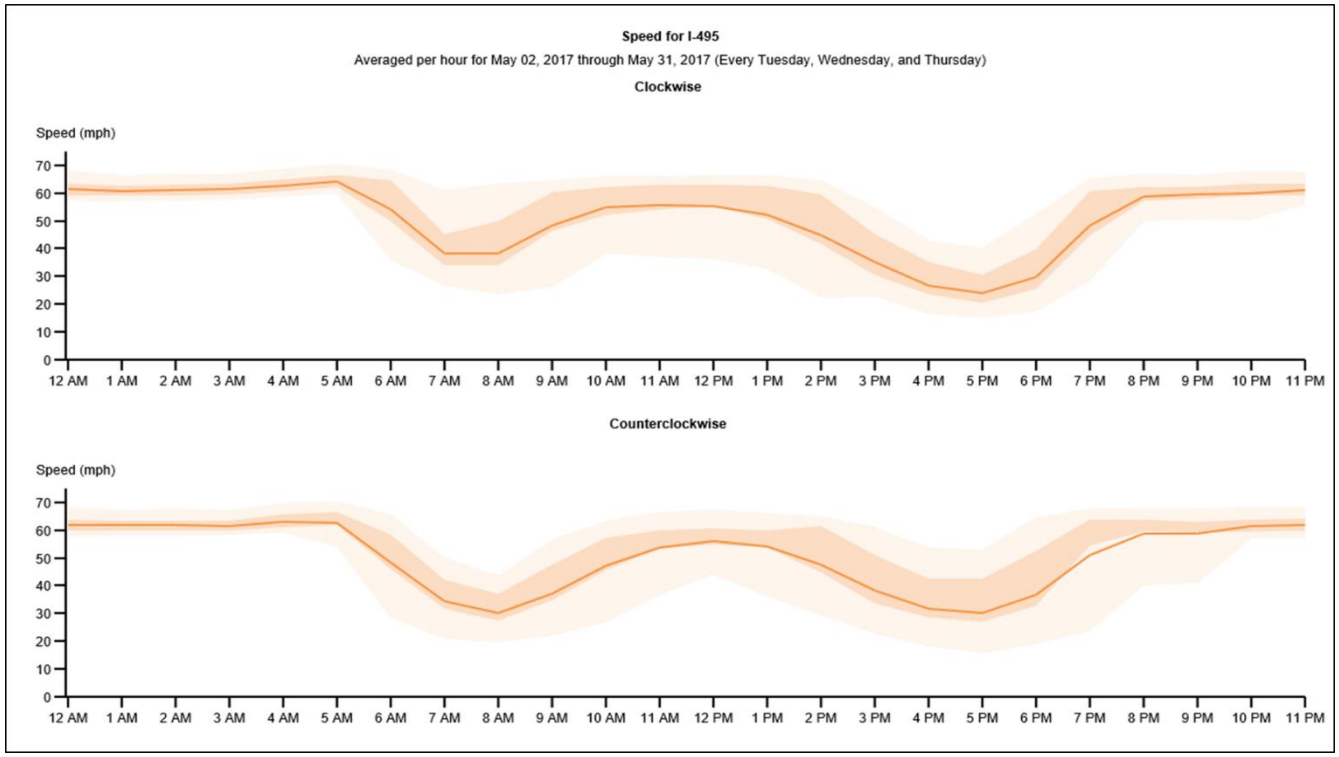
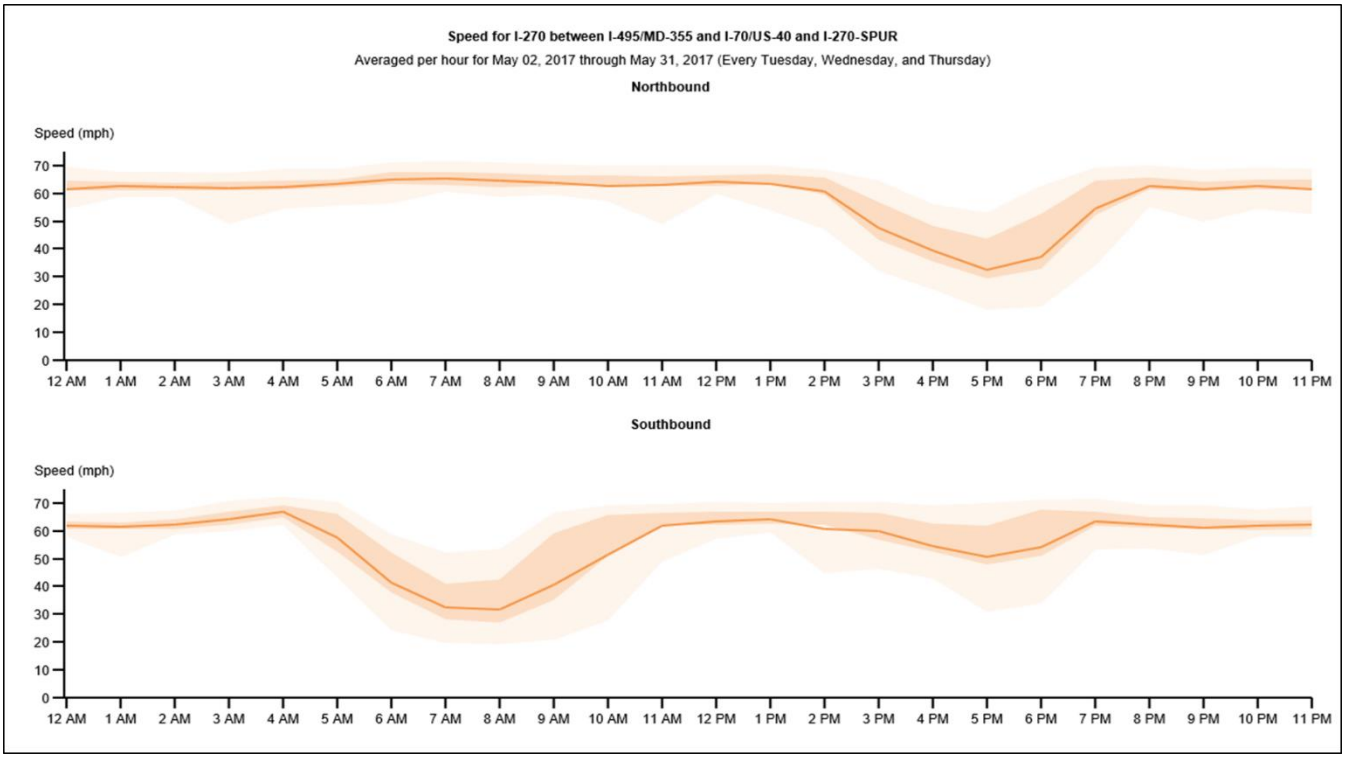


Figure 2: I-270 Existing Speed Graph (2017 INRIX Data)



The goal of calibrating the existing model is to develop a model that is representative of a typical day along the corridor, while also considering the volatility of the corridor and the reliability of each data set. It should be noted that for this project the speeds and travel times are reflective of May 2017 (Tuesdays, Wednesdays, and Thursdays), but the volumes were collected over multiple days, months, and years because there was not a cost-effective method to collect all volume data on the same day given the size of the study area. Both I-495 and I-270 corridors frequently experience oversaturated conditions where the observed volume does not represent the actual demand on each roadway facility. The calibration process was, therefore, pivoted to use travel time as the most reliable validation performance metric while volume was used as secondary benchmark criteria for comparison purposes.

The validation targets for the I-270 and I-495 model were:

1. Travel Time
    - VISSIM travel times fall within a 95% confidence level of INRIX travel times. The cumulative upper and lower bounds of the 95% confidence intervals were determined by first calculating the margin of error for each segment along the corridor.
2. Volumes
    - VISSIM simulated volumes fall within +/- 10% of balanced traffic count volumes

The AM and PM peak period results along the I-495 and I-270 corridors are summarized in the appendices with tables and graphics as follows:

- **APPENDIX A:** Speed heat maps and speed/travel time tables comparing simulated peak hour results to May 2017 INRIX data for all mainline segments. Speed heat maps have bottleneck segments boxed to correspond with the bottleneck summary list in the subsequent section of the memo.
- **APPENDIX B:** Travel time charts comparing simulated peak hour results to May 2017 INRIX data and confidence intervals for all mainline segments. INRIX travel time data from each Tuesday, Wednesday, and Thursday in May 2017 as well as the average travel time was plotted to illustrate high variability during peak hours. Simulated travel times are shown to typically fall within a 95% confidence level of INRIX data throughout the study corridors, with some exceptions detailed below.
- **APPENDIX C:** Volume tables comparing simulated peak hour results to balanced count volumes for all mainline segments.
- **APPENDIX D:** Volume charts comparing simulated peak hour results to balanced traffic count volumes for all mainline segments. Simulated volumes fall within 10% of balanced count volumes throughout the study corridors.

There are occurrences where the VISSIM travel time falls outside of the confidence intervals, specifically for the PM I-495 outer loop and AM I-270 southbound conditions; however, the existing conditions along these two roadways are highly volatile due to heavy congestion with multiple bottlenecks. As shown on the travel time graphs, there is significant travel time fluctuation between multiple days within the month of May. The VISSIM travel time generally follows the shape of the travel time line and falls within the individual runs along the corridor.

Bottleneck Locations

Bottlenecks can form due to several factors, including increased traffic demand, ramp merges and diverges, weaves, and lane drops. Bottlenecks may meter traffic volumes at downstream locations, resulting in higher downstream travel speeds and lower traffic volumes. A visual audit of the VISSIM simulation models was performed to ensure the models accurately replicate field observations, including the locations of bottlenecks and reduced speeds resulting from these bottlenecks. The bottlenecks were identified by reviewing RITIS travel time speed data and cross referencing the Maryland State Highway Mobility Report's list of most congested freeway sections in 2018. It should be noted that there are multiple bottleneck locations throughout the I-270 and I-495 corridors in the peak travel direction, and queuing from one bottleneck location frequently spills back into other bottleneck locations, making the individual bottlenecks difficult to locate and pinpoint.

The following is a summary of the most notable bottleneck locations identified based on speed data and observation.

I-270 Southbound (AM Peak)

- **I-270 from MD 109 and MD 85:** High traffic volumes entering I-270 from MD 109 and MD 80 onto a congested 2-lane section of I-270 create a bottleneck.
- **I-270 from Father Hurley to MD 124:** High traffic volumes merging onto I-270 from MD 124 westbound and MD 118 create a bottleneck.
- **I-270 from I-370 to Montrose Rd:** A combination of closely spaced interchanges, slip ramps between I-270 Local and Express lanes, and high traffic volumes entering and exiting I-270 from I-370, MD 28, MD 189, and Montrose Rd create heavy weaving conditions and reduce capacity along this stretch of I-270. After Montrose Road, I-270 Local lanes end and merge with I-270 Express lanes, resulting in traffic weaving as vehicles approach the I-270 spurs.
- **I-270 West Spur from I-270 split to I-495 West:** High traffic volume from I-270 southbound merges with heavy traffic volume from I-495 westbound, creating a bottleneck on the I-270 West Spur.

I-270 Northbound (PM Peak)

- **I-270 East/West Spurs at I-270 split:** High traffic volumes entering I-270 from I-495 inner and outer loops, coupled with traffic weaving to I-270 Local or Express lanes, creates a bottleneck at the start of I-270 northbound.
- **I-270 from I-370 to MD 124:** I-270 Local lanes ending after the MD 124 interchange and then merging with I-270 Express lanes' high traffic volumes causes a bottleneck.
- **I-270 between MD 109 and MD 121 interchanges:** A lane drop from 3 to 2 lanes, combined with high traffic volumes result in low speeds along this segment.

I-495 Inner Loop (AM Peak)

- **I-495 from MD 414 to I-295:** High traffic volumes from National Harbor enter a congested I-495 weave section, creating a bottleneck.
- **I-495 from American Legion Bridge to VA 193:** A weaving section occurs on the American Legion Bridge due to high traffic volumes entering from George Washington Memorial Parkway and exiting to Clara Barton Parkway, creating a bottleneck.

I-495 Inner Loop (PM Peak)

- **I-495 from VA193 to I-270 West Spur:** High traffic volumes entering the inner loop from VA 193, George Washington Memorial Parkway, Cabin John Parkway, and MD 190, coupled with a heavy weaving section prior to the I-270 northbound and I-495 westbound split, creates a bottleneck on I-495.
- **I-495 from MD 187 to MD 97:** High traffic volume entering the inner loop from MD 97 creates a bottleneck when merging onto a very high-volume section of I-495.
- **I-495 from I-95 to MD 201:** High traffic volumes entering the inner loop from I-95, US 1, and MD 201, combined with high traffic volumes on I-495, create a bottleneck on I-495.
- **I-495 from US 50 to MD 214***:* High traffic volumes entering the congested inner loop from US 50, MD 202, and MD 214, combined with vehicles weaving between Arena Drive and MD 214, create a bottleneck on I-495.

I-495 Outer Loop (AM Peak)

- **I-495 from I-95 and MD 97:** High traffic volume merging onto the outer loop from MD 97, combined with high traffic volume on I-495, creates a bottleneck that is exacerbated by additional heavy volume entering the inner loop from US 29, MD 193, MD 650, and I-95.
- **I-495 from MD 202 and Arena Drive:** I-495 local and express lanes merging and subsequently dropping from 6 to 4 lanes in under one mile creates a bottleneck that is worsened by high traffic volumes from MD 202 and Arena Drive.

I-495 Outer Loop (PM Peak)

- **I-495 from Clara Barton Parkway to I-270 West Spur:** High traffic volumes merging onto the outer loop from MD 190 and Clara Barton Parkway create a bottleneck.
- **I-495 from MD 450 to MD 201:** High traffic volumes entering the outer loop from MD 295, coupled with traffic exiting and entering from MD 201, creates a bottleneck along I-495.
- **I-495 from MD 202 to Arena Drive:** I-495 local and express lanes merging and subsequently dropping from 6 to 4 lanes in under one mile creates a bottleneck that is worsened by high traffic volumes from MD 202 and Arena Drive.

Speed heat maps were developed to confirm bottleneck locations and compare model speeds and trends with RITIS data across the entire study area for each peak period, with bottleneck locations boxed to correspond with the locations summarized above (see **APPENDIX A**). Comparison of the RITIS speed data to the VISSIM simulated travel times, as documented in the speed calibration tables, also indicates the model is generally replicating the speeds based on the location of bottlenecks along the corridor. Additionally, a visual review of model simulation indicates the model is accurately replicating the identified bottleneck locations.

5) Summary of Results

The complexity of the I-495 and I-270 VISSIM study area can be characterized by its large network size, long peak period duration, and high variability of daily speeds and volumes. When evaluating the model travel times and volumes compared to the field-collected data, the model is considered reasonably calibrated based on most segments meeting the aforementioned target criteria during both the AM and PM peaks. VISSIM simulated travel times typically fall within a 95% confidence level of INRIX travel times, with some exceptions attributed to the study area's heavy congestion that causes travel times to fluctuate widely across different days. The simulated volume throughputs fall within 10% of balanced traffic count volumes throughout the I-495 and I-270 corridors. This reasonableness provides the sensitivity necessary to evaluate the future year conditions for alternative analysis.

APPENDIX A

Appendix A.1: Speed Heat Maps

Appendix A.2: Speed and Travel Time Tables

Appendix A.1: Speed Heat Maps

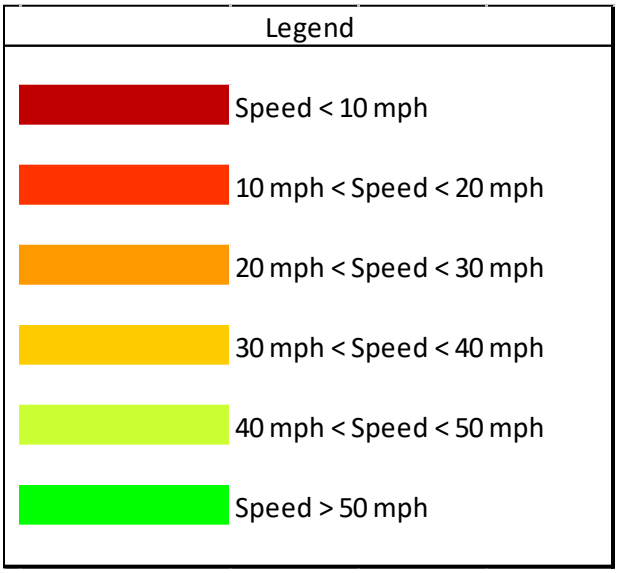


Figure A.1: I-270 Southbound Heat Map Comparison (AM)

I-270 SB			MAY 2017 AVERAGE SPEEDS (MPH) HOURLY				SIMULATED EXISTING SPEEDS (MPH) HOURLY			
NAME	MILES	MILE POINT	6:00 AM	7:00 AM	8:00 AM	9:00 AM	6:00 AM	7:00 AM	8:00 AM	9:00 AM
Between MD-85 on and off ramps	0.48	0.00								
From MD-85 on ramp to MD-80	4.84	0.48								
Between MD-80 on and off ramps	0.18	5.32								
From MD-80 on ramp to Md-109	3.51	5.50								
Between MD-109 on and off ramps	0.24	9.01								
From MD-109 on ramp to MD-121	3.50	9.25								
Between MD-121 on and off ramps	0.46	12.75								
From MD-121 to MD-27	2.04	13.21								
Between MD-27 on and off ramps	0.69	15.25								
From MD-27 on ramp to MD-118	0.39	15.94								
Between MD-118 on and off ramps	0.58	16.33								
From MD-118 on ramp to Middlebrook Rd	0.52	16.91								
Between Middlebrook Rd on and off ramps	0.28	17.43								
From Middlebrook Rd on ramp to MD-124	1.96	17.71								
Between MD-124 on and off ramps	0.24	19.67								
From MD-124 on ramp to MD-117	0.59	19.91								
Between MD-117 on and off ramps	0.26	20.50								
From MD-117 to I-370 interchange	0.79	20.76								
Between I-370 on and off ramps	0.76	21.55								
From I-370 on ramp to Shady Grove Rd	0.53	22.31								
Between Shady Grove Rd on and off ramps	0.39	22.84								
From Shady Grove Rd on ramp to MD-28	1.44	23.23								
Between MD-28 on and off ramps	0.58	24.67								
From MD-28 on ramp to MD-189	0.44	25.25								
Between MD-189 on and off ramps	0.55	25.69								
From MD-189 on ramp to Montrose Rd	0.64	26.24								
Between Montrose Rd on and off ramps	0.91	26.88								
From Montrose Rd on ramp to I-270 spur	0.98	27.79								
From I-270 spur MD-187	0.45	28.77								
Between MD-187 spur on and off ramps	0.79	29.22								
From MD-187 on ramp to I-495 interchange	1.16	30.01								
Between I-495 interchange on and off ramps	0.30	31.17								
From I-270 Spur Merge	0.58	31.47								
Between Democracy Blvd and I-270 Spur Merge	0.18	32.05								
Between Democracy Blvd on and off ramps	0.47	32.23								
Merge from I 495 to Democracy Blvd	0.76	32.70								

Figure A.2: I-270 Southbound Heat Map Comparison (PM)

I-270 SB			MAY 2017 AVERAGE SPEEDS (MPH) HOURLY				SIMULATED EXISTING SPEEDS (MPH) HOURLY			
NAME	MILES	MILE POINT	3:00 PM	4:00 PM	5:00 PM	6:00 PM	3:00 PM	4:00 PM	5:00 PM	6:00 PM
Between MD-85 on and off ramps	0.48	0.00								
From MD-85 on ramp to MD-80	4.84	0.48								
Between MD-80 on and off ramps	0.18	5.32								
From MD-80 on ramp to Md-109	3.51	5.50								
Between MD-109 on and off ramps	0.24	9.01								
From MD-109 on ramp to MD-121	3.50	9.25								
Between MD-121 on and off ramps	0.46	12.75								
From MD-121 to MD-27	2.04	13.21								
Between MD-27 on and off ramps	0.69	15.25								
From MD-27 on ramp to MD-118	0.39	15.94								
Between MD-118 on and off ramps	0.58	16.33								
From MD-118 on ramp to Middlebrook Rd	0.52	16.91								
Between Middlebrook Rd on and off ramps	0.28	17.43								
From Middlebrook Rd on ramp to MD-124	1.96	17.71								
Between MD-124 on and off ramps	0.24	19.67								
From MD-124 on ramp to MD-117	0.59	19.91								
Between MD-117 on and off ramps	0.26	20.50								
From MD-117 to I-370 interchange	0.79	20.76								
Between I-370 on and off ramps	0.76	21.55								
From I-370 on ramp to Shady Grove Rd	0.53	22.31								
Between Shady Grove Rd on and off ramps	0.39	22.84								
From Shady Grove Rd on ramp to MD-28	1.44	23.23								
Between MD-28 on and off ramps	0.58	24.67								
From MD-28 on ramp to MD-189	0.44	25.25								
Between MD-189 on and off ramps	0.55	25.69								
From MD-189 on ramp to Montrose Rd	0.64	26.24								
Between Montrose Rd on and off ramps	0.91	26.88								
From Montrose Rd on ramp to I-270 spur	0.98	27.79								
From I-270 spur MD-187	0.45	28.77								
Between MD-187 spur on and off ramps	0.79	29.22								
From MD-187 on ramp to I-495 interchange	1.16	30.01								
Between I-495 interchange on and off ramps	0.30	31.17								
I-270 Spur Merge	0.58	31.47								
Between Democracy Blvd and I-270 Spur Merg	0.18	32.05								
Between Democracy Blvd on and off ramps	0.47	32.23								
Merge from I 495 to Democracy Blvd	0.76	32.70								

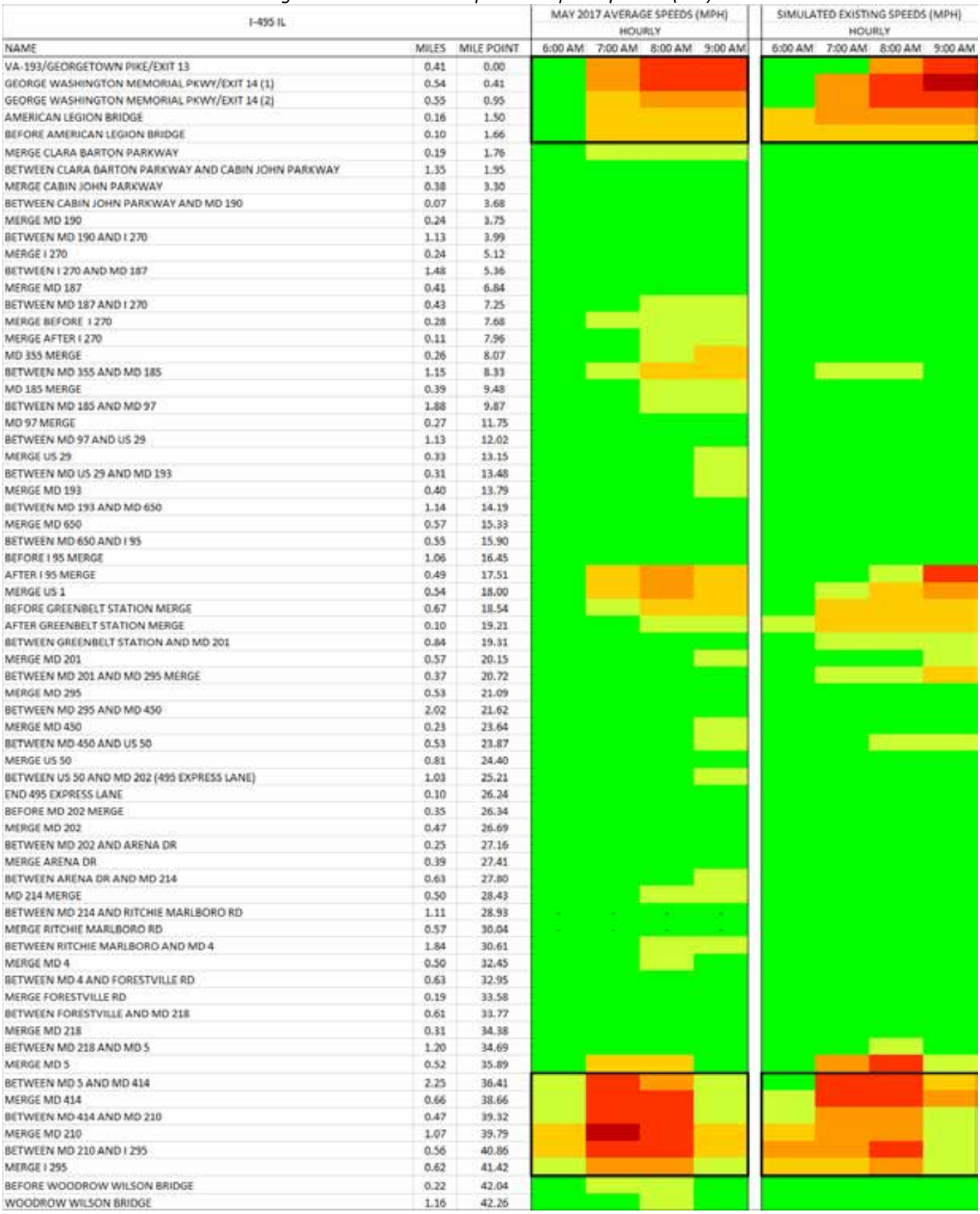
Figure A.3: I-270 Northbound Heat Map Comparison (AM)

I-270 NB			MAY 2017 AVERAGE SPEEDS (MPH) HOURLY				SIMULATED EXISTING SPEEDS (MPH) HOURLY			
NAME	MILES	MILE POINT	6:00 AM	7:00 AM	8:00 AM	9:00 AM	6:00 AM	7:00 AM	8:00 AM	9:00 AM
Between MD-355 and Grosvenor Lane	0.19	0.00								
From Grosvenor Lane to Exit 1A	1.21	0.19								
Between Exit 1A and 1B	0.71	1.40								
From MD-187 to I-270 spur	0.59	2.11								
From Tuckerman Lane to I-270 Local	0.89	2.70								
From I-270 Local to Exit 5 for I-270 Local	0.92	3.59								
From Exit 5 for I-270 Local to just south of Md-189	0.83	4.51								
Between MD-189 on and off ramps	0.36	5.34								
From MD-189 to just south of MD-28	0.51	5.70								
Between MD-28 on and off ramps	0.55	6.21								
From MD-28 on ramp to Redland Blvd	1.40	6.76								
Between Shady Grove Rd on and off ramps	0.48	8.16								
From Shady Grove Rd on ramp to I-370 interchange	0.42	8.64								
From I-370 interchange to Muddy Branch Rd	0.59	9.06								
From Muddy Branch Rd to just south of MD-117 interchange	0.94	9.65								
From just south of MD-117 interchange to MD-117	0.29	10.59								
From MD-117 to MD-124 off ramp	0.42	10.88								
Between MD-124 on and off ramps	0.71	11.30								
From MD-124 on ramp to just south of Middlebrook Rd	1.78	12.01								
Between Middlebrook Rd on and off ramps	0.25	13.79								
From Middlebrook Rd on ramp to MD-118 off ramp	0.45	14.04								
Between MD-118 on and off ramps	0.61	14.49								
From MD-118 on ramp to MD-27	0.32	15.10								
Between Md-27 on and off ramps	0.60	15.42								
From Md-27 on ramp to MD-121 off ramp	2.21	16.02								
Between MD-121 on and off ramps	0.18	18.23								
From MD-121 to Md-109	3.90	18.41								
Between MD-109 on and off ramps	0.21	22.31								
From MD-109 on ramp to MD-80	3.49	22.52								
Between MD-80 on and off ramps	0.19	26.01								
From MD-80 on ramp to MD-85	4.76	26.20								
Between MD-85 on and off ramps	0.50	30.96								
Merge from I 495	0.82	31.46								
Between Democracy Blvd on and off ramps	0.41	32.28								
Between I-270 Spur Merge and Democracy Blvd	0.38	32.69								
Merge I-270 Spur	0.49	33.07								

Figure A.4: I-270 Northbound Heat Map Comparison (PM)

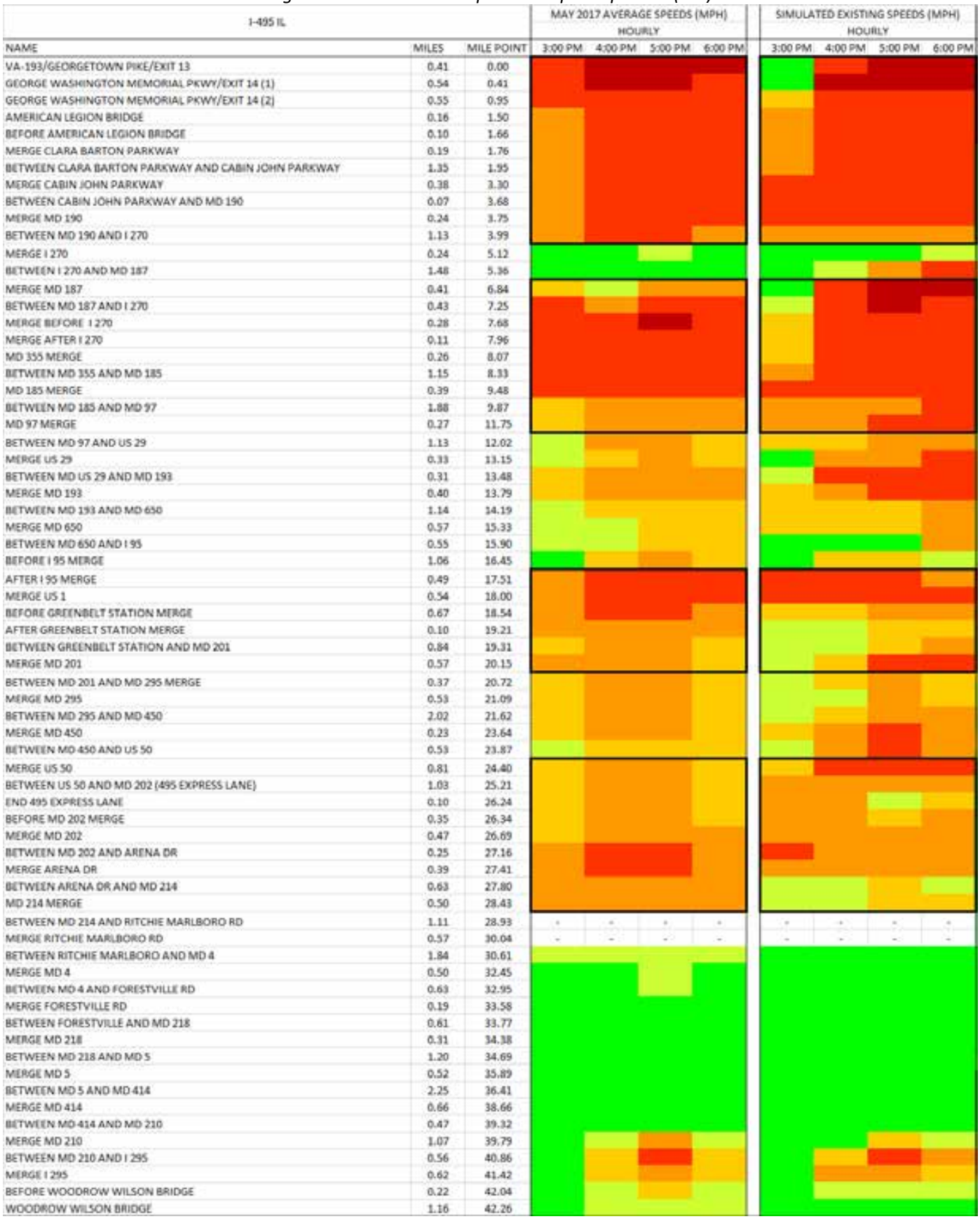
I-270 NB			MAY 2017 AVERAGE SPEEDS (MPH) HOURLY				SIMULATED EXISTING SPEEDS (MPH) HOURLY			
NAME	MILES	MILE POINT	3:00 PM	4:00 PM	5:00 PM	6:00 PM	3:00 PM	4:00 PM	5:00 PM	6:00 PM
Merge from I 495 to Democracy Blvd	0.82	0.00								
Between Democracy Blvd on and off ramps	0.41	0.82								
Between I-270 Spur Merge and Democracy Blvd	0.38	1.23								
Merge I-270 Spur	0.49	1.61								
Between MD-355 and Grosvenor Lane	0.19	2.10								
From Grosvenor Lane to Exit 1A	1.21	2.29								
Between Exit 1A and 1B	0.71	3.50								
From MD-187 to I-270 spur	0.59	4.21								
From Tuckerman Lane to I-270 Local	0.89	4.80								
From I-270 Local to Exit 5 for I-270 Local	0.92	5.69								
From Exit 5 for I-270 Local to just south of Md-189	0.83	6.61								
Between MD-189 on and off ramps	0.36	7.44								
From MD-189 to just south of MD-28	0.51	7.80								
Between MD-28 on and off ramps	0.55	8.31								
From MD-28 on ramp to Redland Blvd	1.40	8.86								
Between Shady Grove Rd on and off ramps	0.48	10.26								
From Shady Grove Rd on ramp to I-370 interchange	0.42	10.74								
From I-370 interchange to Muddy Branch Rd	0.59	11.16								
From Muddy Branch Rd to just south of MD-117 interchange	0.94	11.75								
From just south of MD-117 interchange to MD-117	0.29	12.69								
From MD-117 to MD-124 off ramp	0.42	12.98								
Between MD-124 on and off ramps	0.71	13.40								
From MD-124 on ramp to just south of Middlebrook Rd	1.78	14.11								
Between Middlebrook Rd on and off ramps	0.25	15.89								
From Middlebrook Rd on ramp to MD-118 off ramp	0.45	16.14								
Between MD-118 on and off ramps	0.61	16.59								
From MD-118 on ramp to MD-27	0.32	17.20								
Between Md-27 on and off ramps	0.60	17.52								
From Md-27 on ramp to MD-121 off ramp	2.21	18.12								
Between MD-121 on and off ramps	0.18	20.33								
From MD-121 to Md-109	3.90	20.51								
Between MD-109 on and off ramps	0.21	24.41								
From MD-109 on ramp to MD-80	3.49	24.62								
Between MD-80 on and off ramps	0.19	28.11								
From MD-80 on ramp to MD-85	4.76	28.30								
Between MD-85 on and off ramps	0.50	33.06								

Figure A.5: I-495 Inner Loop Heat Map Comparison (AM)



I-495 IL			MAY 2017 AVERAGE SPEEDS (MPH) HOURLY				SIMULATED EXISTING SPEEDS (MPH) HOURLY			
NAME	MILES	MILE POINT	6:00 AM	7:00 AM	8:00 AM	9:00 AM	6:00 AM	7:00 AM	8:00 AM	9:00 AM
VA-193/GEORGETOWN PIKE/EXIT 13	0.41	0.00								
GEORGE WASHINGTON MEMORIAL PKWY/EXIT 14 (1)	0.54	0.41								
GEORGE WASHINGTON MEMORIAL PKWY/EXIT 14 (2)	0.55	0.95								
AMERICAN LEGION BRIDGE	0.16	1.50								
BEFORE AMERICAN LEGION BRIDGE	0.10	1.66								
MERGE CLARA BARTON PARKWAY	0.19	1.76								
BETWEEN CLARA BARTON PARKWAY AND CABIN JOHN PARKWAY	1.35	1.95								
MERGE CABIN JOHN PARKWAY	0.38	3.30								
BETWEEN CABIN JOHN PARKWAY AND MD 190	0.07	3.68								
MERGE MD 190	0.24	3.75								
BETWEEN MD 190 AND I 270	1.13	3.99								
MERGE I 270	0.24	5.12								
BETWEEN I 270 AND MD 187	1.48	5.36								
MERGE MD 187	0.41	6.84								
BETWEEN MD 187 AND I 270	0.43	7.25								
MERGE BEFORE I 270	0.28	7.68								
MERGE AFTER I 270	0.11	7.96								
MD 355 MERGE	0.26	8.07								
BETWEEN MD 355 AND MD 185	1.15	8.33								
MD 185 MERGE	0.39	9.48								
BETWEEN MD 185 AND MD 97	1.88	9.87								
MD 97 MERGE	0.27	11.75								
BETWEEN MD 97 AND US 29	1.13	12.02								
MERGE US 29	0.33	13.15								
BETWEEN MD US 29 AND MD 193	0.31	13.48								
MERGE MD 193	0.40	13.79								
BETWEEN MD 193 AND MD 650	1.14	14.19								
MERGE MD 650	0.57	15.33								
BETWEEN MD 650 AND I 95	0.55	15.90								
BEFORE I 95 MERGE	1.06	16.45								
AFTER I 95 MERGE	0.49	17.51								
MERGE US 1	0.54	18.00								
BEFORE GREENBELT STATION MERGE	0.67	18.54								
AFTER GREENBELT STATION MERGE	0.10	19.21								
BETWEEN GREENBELT STATION AND MD 201	0.84	19.31								
MERGE MD 201	0.57	20.15								
BETWEEN MD 201 AND MD 295 MERGE	0.37	20.72								
MERGE MD 295	0.53	21.09								
BETWEEN MD 295 AND MD 450	2.02	21.62								
MERGE MD 450	0.23	23.64								
BETWEEN MD 450 AND US 50	0.53	23.87								
MERGE US 50	0.81	24.40								
BETWEEN US 50 AND MD 202 (495 EXPRESS LANE)	1.03	25.21								
END 495 EXPRESS LANE	0.10	26.24								
BEFORE MD 202 MERGE	0.35	26.34								
MERGE MD 202	0.47	26.69								
BETWEEN MD 202 AND ARENA DR	0.25	27.16								
MERGE ARENA DR	0.39	27.41								
BETWEEN ARENA DR AND MD 214	0.63	27.80								
MD 214 MERGE	0.50	28.43								
BETWEEN MD 214 AND RITCHIE MARLBORO RD	1.11	28.93								
MERGE RITCHIE MARLBORO RD	0.57	30.04								
BETWEEN RITCHIE MARLBORO AND MD 4	1.84	30.61								
MERGE MD 4	0.50	32.45								
BETWEEN MD 4 AND FORESTVILLE RD	0.63	32.95								
MERGE FORESTVILLE RD	0.19	33.58								
BETWEEN FORESTVILLE AND MD 218	0.61	33.77								
MERGE MD 218	0.31	34.38								
BETWEEN MD 218 AND MD 5	1.20	34.69								
MERGE MD 5	0.52	35.89								
BETWEEN MD 5 AND MD 414	2.25	36.41								
MERGE MD 414	0.66	38.66								
BETWEEN MD 414 AND MD 210	0.47	39.32								
MERGE MD 210	1.07	39.79								
BETWEEN MD 210 AND I 295	0.56	40.86								
MERGE I 295	0.62	41.42								
BEFORE WOODROW WILSON BRIDGE	0.22	42.04								
WOODROW WILSON BRIDGE	1.16	42.26								

Figure A.6: I-495 Inner Loop Heat Map Comparison (PM)



I-495 IL			MAY 2017 AVERAGE SPEEDS (MPH) HOURLY				SIMULATED EXISTING SPEEDS (MPH) HOURLY			
NAME	MILES	MILE POINT	3:00 PM	4:00 PM	5:00 PM	6:00 PM	3:00 PM	4:00 PM	5:00 PM	6:00 PM
VA-193/GEORGETOWN PIKE/EXIT 13	0.41	0.00								
GEORGE WASHINGTON MEMORIAL PKWY/EXIT 14 (1)	0.54	0.41								
GEORGE WASHINGTON MEMORIAL PKWY/EXIT 14 (2)	0.55	0.95								
AMERICAN LEGION BRIDGE	0.16	1.50								
BEFORE AMERICAN LEGION BRIDGE	0.10	1.66								
MERGE CLARA BARTON PARKWAY	0.19	1.76								
BETWEEN CLARA BARTON PARKWAY AND CABIN JOHN PARKWAY	1.35	1.95								
MERGE CABIN JOHN PARKWAY	0.38	3.30								
BETWEEN CABIN JOHN PARKWAY AND MD 190	0.07	3.68								
MERGE MD 190	0.24	3.75								
BETWEEN MD 190 AND I 270	1.13	3.99								
MERGE I 270	0.24	5.12								
BETWEEN I 270 AND MD 187	1.48	5.36								
MERGE MD 187	0.41	6.84								
BETWEEN MD 187 AND I 270	0.43	7.25								
MERGE BEFORE I 270	0.28	7.68								
MERGE AFTER I 270	0.11	7.96								
MD 355 MERGE	0.26	8.07								
BETWEEN MD 355 AND MD 185	1.15	8.33								
MD 185 MERGE	0.39	9.48								
BETWEEN MD 185 AND MD 97	1.88	9.87								
MD 97 MERGE	0.27	11.75								
BETWEEN MD 97 AND US 29	1.13	12.02								
MERGE US 29	0.33	13.15								
BETWEEN MD US 29 AND MD 193	0.31	13.48								
MERGE MD 193	0.40	13.79								
BETWEEN MD 193 AND MD 650	1.14	14.19								
MERGE MD 650	0.57	15.33								
BETWEEN MD 650 AND I 95	0.55	15.90								
BEFORE I 95 MERGE	1.06	16.45								
AFTER I 95 MERGE	0.49	17.51								
MERGE US 1	0.54	18.00								
BEFORE GREENBELT STATION MERGE	0.67	18.54								
AFTER GREENBELT STATION MERGE	0.10	19.21								
BETWEEN GREENBELT STATION AND MD 201	0.84	19.31								
MERGE MD 201	0.57	20.15								
BETWEEN MD 201 AND MD 295 MERGE	0.37	20.72								
MERGE MD 295	0.53	21.09								
BETWEEN MD 295 AND MD 450	2.02	21.62								
MERGE MD 450	0.23	23.64								
BETWEEN MD 450 AND US 50	0.53	23.87								
MERGE US 50	0.81	24.40								
BETWEEN US 50 AND MD 202 (495 EXPRESS LANE)	1.03	25.21								
END 495 EXPRESS LANE	0.10	26.24								
BEFORE MD 202 MERGE	0.35	26.34								
MERGE MD 202	0.47	26.69								
BETWEEN MD 202 AND ARENA DR	0.25	27.16								
MERGE ARENA DR	0.39	27.41								
BETWEEN ARENA DR AND MD 214	0.63	27.80								
MD 214 MERGE	0.50	28.43								
BETWEEN MD 214 AND RITCHIE MARLBORO RD	1.11	28.93	-	-	-	-	-	-	-	-
MERGE RITCHIE MARLBORO RD	0.57	30.04	-	-	-	-	-	-	-	-
BETWEEN RITCHIE MARLBORO AND MD 4	1.84	30.61								
MERGE MD 4	0.50	32.45								
BETWEEN MD 4 AND FORESTVILLE RD	0.63	32.95								
MERGE FORESTVILLE RD	0.19	33.58								
BETWEEN FORESTVILLE AND MD 218	0.61	33.77								
MERGE MD 218	0.31	34.38								
BETWEEN MD 218 AND MD 5	1.20	34.69								
MERGE MD 5	0.52	35.89								
BETWEEN MD 5 AND MD 414	2.25	36.41								
MERGE MD 414	0.66	38.66								
BETWEEN MD 414 AND MD 210	0.47	39.32								
MERGE MD 210	1.07	39.79								
BETWEEN MD 210 AND I 295	0.56	40.86								
MERGE I 295	0.62	41.42								
BEFORE WOODROW WILSON BRIDGE	0.22	42.04								
WOODROW WILSON BRIDGE	1.16	42.26								

Figure A.7: I-495 Outer Loop Heat Map Comparison (AM)

I-495 OL			MAY 2017 AVERAGE SPEEDS (MPH) HOURLY				SIMULATED EXISTING SPEEDS (MPH) HOURLY			
NAME	MILES	MILE POINT	6:00 AM	7:00 AM	8:00 AM	9:00 AM	6:00 AM	7:00 AM	8:00 AM	9:00 AM
VA-193/GEORGETOWN PIKE/EXIT 13 (1)	0.43	0.00								
VA-193/GEORGETOWN PIKE/EXIT 13 (2)	0.37	0.43								
GEORGE WASHINGTON MEMORIAL PKWY/EXIT 14 (1)	0.52	0.80								
GEORGE WASHINGTON MEMORIAL PKWY/EXIT 14 (2)	0.15	1.32								
AMERICAN LEGION BRIDGE	0.16	1.47								
BEFORE AMERICAN LEGION BRIDGE	0.10	1.63								
MERGE CLARA BARTON PARKWAY	0.28	1.73								
BETWEEN CLARA BARTON PARKWAY AND CABIN JOHN PARKWAY	1.20	2.01								
MERGE CABIN JOHN PARKWAY	0.45	3.21								
BETWEEN CABIN JOHN PARKWAY AND MD 190	0.07	3.66								
MERGE MD 190	0.30	3.73								
BETWEEN MD 190 AND I 270	1.06	4.03								
MERGE I 270	0.29	5.09								
BETWEEN I 270 WEST AND MD 187	1.44	5.38								
MERGE MD 187	0.36	6.82								
BETWEEN I 270 EAST AND MD 187	0.58	7.18								
MERGE BEFORE I 270	0.23	7.76								
MERGE AFTER I 270	0.02	7.99								
MD 355 MERGE	0.27	8.01								
BETWEEN MD 355 AND MD 185	1.19	8.28								
MD 185 MERGE	0.62	9.47								
BETWEEN MD 185 AND MD 97	1.67	10.09								
MD 97 MERGE	0.33	11.76								
BETWEEN MD 97 AND US 29	1.12	12.09								
MERGE US 29	0.22	13.21								
BETWEEN MD US 29 AND MD 193	0.50	13.43								
MERGE MD 193	0.26	13.93								
BETWEEN MD 193 AND MD 650	1.20	14.19								
MERGE MD 650	0.48	15.39								
BETWEEN MD 650 AND I 95	0.77	15.87								
I 95 MERGE	0.85	16.64								
BETWEEN US 1 AND I 95	0.58	17.49								
MERGE US 1	0.52	18.07								
BETWEEN GREENBELT STATION AND US 1	0.78	18.59								
BETWEEN GREENBELT STATION AND MD 201	0.88	19.37								
MERGE MD 201	0.58	20.25								
BETWEEN MD 201 AND MD 295 MERGE	0.38	20.83								
MERGE MD 295	0.49	21.21								
BETWEEN MD 295 AND MD 450	2.04	21.70								
MERGE MD 450	0.36	23.74								
BETWEEN MD 450 AND US 50	0.46	24.10								
MERGE US 50	0.70	24.56								
BETWEEN US 50 AND MD 202 (495 EXPRESS LANE)	1.09	25.26								
END 495 EXPRESS LANE	0.10	26.35								
BEFORE MD 202 MERGE	0.20	26.45								
MERGE MD 202	0.68	26.65								
BETWEEN MD 202 AND ARENA DR	0.23	27.33								
MERGE ARENA DR	0.46	27.56								
BETWEEN ARENA DR AND MD 214	0.53	28.02								
MERGE MD 214	0.50	28.55								
BETWEEN MD 214 AND RITCHIE MARLBORO RD	1.18	29.05								
MERGE RITCHIE MARLBORO RD	0.45	30.23								
BETWEEN RITCHIE MARLBORO AND MD 4	1.87	30.68								
MERGE MD 4	0.58	32.55								
BETWEEN MD 4 AND FORESTVILLE RD	0.61	33.13								
MERGE MD 337	0.17	33.74								
BETWEEN FORESTVILLE AND MD 218	0.90	33.91								
MERGE MD 218	0.05	34.81								
BETWEEN MD 218 AND MD 5	1.09	34.86								
MERGE MD 5	0.72	35.95								
BETWEEN MD 5 AND MD 414	2.32	36.67								
MERGE MD 414	0.57	38.99								
BETWEEN MD 414 AND MD 210	0.83	39.56								
MERGE MD 210	1.64	40.39								
BETWEEN MD 210 AND I 295	0.07	42.03								
MERGE I 295	0.19	42.10								
BEFORE WOODROW WILSON BRIDGE	0.12	42.29								
WOODROW WILSON BRIDGE	1.18	42.41								

Figure A.8: I-495 Outer Loop Heat Map Comparison (PM)

I-495 OL			MAY 2017 AVERAGE SPEEDS (MPH) HOURLY				SIMULATED EXISTING SPEEDS (MPH) HOURLY			
NAME	MILES	MILE POINT	3:00 PM	4:00 PM	5:00 PM	6:00 PM	3:00 PM	4:00 PM	5:00 PM	6:00 PM
VA-193/GEORGETOWN PIKE/EXIT 13 (1)	0.43	0.00								
VA-193/GEORGETOWN PIKE/EXIT 13 (2)	0.37	0.43								
GEORGE WASHINGTON MEMORIAL PKWY/EXIT 14 (1)	0.52	0.80								
GEORGE WASHINGTON MEMORIAL PKWY/EXIT 14 (2)	0.15	1.32								
AMERICAN LEGION BRIDGE	0.16	1.47								
BEFORE AMERICAN LEGION BRIDGE	0.10	1.63								
MERGE CLARA BARTON PARKWAY	0.28	1.73								
BETWEEN CLARA BARTON PARKWAY AND CABIN JOHN PARKWAY	1.20	2.01								
MERGE CABIN JOHN PARKWAY	0.45	3.21								
BETWEEN CABIN JOHN PARKWAY AND MD 190	0.07	3.66								
MERGE MD 190	0.30	3.73								
BETWEEN MD 190 AND I 270	1.06	4.03								
MERGE I 270	0.29	5.09								
BETWEEN I 270 WEST AND MD 187	1.44	5.38								
MERGE MD 187	0.36	6.82								
BETWEEN I 270 EAST AND MD 187	0.58	7.18								
MERGE BEFORE I 270	0.23	7.76								
MERGE AFTER I 270	0.02	7.99								
MD 355 MERGE	0.27	8.01								
BETWEEN MD 355 AND MD 185	1.19	8.28								
MD 185 MERGE	0.62	9.47								
BETWEEN MD 185 AND MD 97	1.67	10.09								
MD 97 MERGE	0.33	11.76								
BETWEEN MD 97 AND US 29	1.12	12.09								
MERGE US 29	0.22	13.21								
BETWEEN MD US 29 AND MD 193	0.50	13.43								
MERGE MD 193	0.26	13.93								
BETWEEN MD 193 AND MD 650	1.20	14.19								
MERGE MD 650	0.48	15.39								
BETWEEN MD 650 AND I 95	0.77	15.87								
I 95 MERGE	0.85	16.64								
BETWEEN US 1 AND I 95	0.58	17.49								
MERGE US 1	0.52	18.07								
BETWEEN GREENBELT STATION AND US 1	0.78	18.59								
BETWEEN GREENBELT STATION AND MD 201	0.88	19.37								
MERGE MD 201	0.58	20.25								
BETWEEN MD 201 AND MD 295 MERGE	0.38	20.83								
MERGE MD 295	0.49	21.21								
BETWEEN MD 295 AND MD 450	2.04	21.70								
MERGE MD 450	0.36	23.74								
BETWEEN MD 450 AND US 50	0.46	24.10								
MERGE US 50	0.70	24.56								
BETWEEN US 50 AND MD 202 (495 EXPRESS LANE)	1.09	25.26								
END 495 EXPRESS LANE	0.10	26.35								
BEFORE MD 202 MERGE	0.20	26.45								
MERGE MD 202	0.68	26.65								
BETWEEN MD 202 AND ARENA DR	0.23	27.33								
MERGE ARENA DR	0.46	27.56								
BETWEEN ARENA DR AND MD 214	0.53	28.02								
MERGE MD 214	0.50	28.55								
BETWEEN MD 214 AND RITCHIE MARLBORO RD	1.18	29.05								
MERGE RITCHIE MARLBORO RD	0.45	30.23	-	-	-	-	-	-	-	-
BETWEEN RITCHIE MARLBORO AND MD 4	1.87	30.68	-	-	-	-	-	-	-	-
MERGE MD 4	0.58	32.55								
BETWEEN MD 4 AND FORESTVILLE RD	0.61	33.13								
MERGE MD 337	0.17	33.74								
BETWEEN FORESTVILLE AND MD 218	0.90	33.91								
MERGE MD 218	0.05	34.81								
BETWEEN MD 218 AND MD 5	1.09	34.86								
MERGE MD 5	0.72	35.95								
BETWEEN MD 5 AND MD 414	2.32	36.67								
MERGE MD 414	0.57	38.99								
BETWEEN MD 414 AND MD 210	0.83	39.56								
MERGE MD 210	1.64	40.39								
BETWEEN MD 210 AND I 295	0.07	42.03								
MERGE I 295	0.19	42.10								
BEFORE WOODROW WILSON BRIDGE	0.12	42.29								
WOODROW WILSON BRIDGE	1.18	42.41								

Appendix A.2: Speed and Travel Time Tables

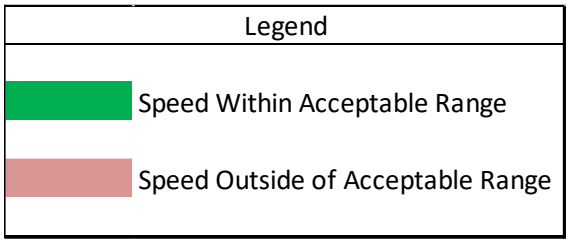


Figure A.9: I-495 Inner Loop 7-8 AM Speed and Travel Time

Travel Segments	Distance (feet)	Distance (miles)	7-8 AM						
			Speeds (MPH)			Travel Times (sec)		Difference	
			Field (mph)	Simulated (mph)	Speed In Range?	Field (sec)	Simulated (sec)	Difference (sec)	Difference (%)
I-495 Inner Loop	**228612**	**43.3**				**3945.8**	**3718.1**	**227.6**	**6%**
VA-193/GEORGETOWN PIKE/EXIT 13	2729	0.5	25.7	55.4	No	72.3	33.6	38.7	54%
GEORGE WASHINGTON MEMORIAL PKWY/EXIT 14 (1)	2453	0.5	25.6	28.1	Yes	65.2	59.4	5.8	9%
GEORGE WASHINGTON MEMORIAL PKWY/EXIT 14 (2)	1935	0.4	30.7	20.7	Yes	42.9	63.7	-20.8	-48%
AMERICAN LEGION BRIDGE	794	0.2	38.9	26.7	Yes	13.9	20.2	-6.3	-46%
BEFORE AMERICAN LEGION BRIDGE	508	0.1	37.6	36.4	Yes	9.2	9.5	-0.3	-3%
MERGE CLARA BARTON PARKWAY	1055	0.2	43.3	52.1	Yes	16.6	13.8	2.8	17%
BETWEEN CLARA BARTON PARKWAY AND CABIN JOHN PARKWAY	7287	1.4	53.0	55.9	Yes	93.7	88.9	4.8	5%
MERGE CABIN JOHN PARKWAY	2126	0.4	60.8	56.8	Yes	23.8	25.5	-1.7	-7%
BETWEEN CABIN JOHN PARKWAY AND MD 190	259	0.0	63.1	59.7	Yes	2.8	3.0	-0.2	-6%
MERGE MD 190	1235	0.2	63.5	56.5	Yes	13.3	14.9	-1.6	-12%
BETWEEN MD 190 AND I 270	6468	1.2	63.6	56.0	Yes	69.3	78.7	-9.4	-14%
MERGE I 270	867	0.2	59.9	57.4	Yes	9.9	10.3	-0.4	-4%
BETWEEN I 270 AND MD 187	7828	1.5	59.9	55.8	Yes	89.1	95.6	-6.5	-7%
MERGE MD 187	2140	0.4	60.5	54.2	Yes	24.1	26.9	-2.8	-12%
BETWEEN MD 187 AND I 270	2278	0.4	54.0	52.4	Yes	28.7	29.6	-0.9	-3%
MERGE BEFORE I 270	1306	0.2	47.9	50.4	Yes	18.6	17.7	0.9	5%
MERGE AFTER I 270	564	0.1	51.5	59.8	Yes	7.5	6.4	1.0	14%
MD 355 MERGE	1371	0.3	52.0	57.7	Yes	18.0	16.2	1.8	10%
BETWEEN MD 355 AND MD 185	6065	1.1	49.4	41.6	Yes	83.7	99.3	-15.5	-19%
MD 185 MERGE	2074	0.4	55.9	56.7	Yes	25.3	24.9	0.3	1%
BETWEEN MD 185 AND MD 97	9907	1.9	56.0	57.6	Yes	120.7	117.4	3.4	3%
MD 97 MERGE	1461	0.3	59.5	57.3	Yes	16.8	17.4	-0.6	-4%
BETWEEN MD 97 AND US 29	5965	1.1	60.4	58.8	Yes	67.3	69.2	-1.9	-3%
MERGE US 29	1734	0.3	60.9	59.7	Yes	19.4	19.8	-0.4	-2%
BETWEEN MD US 29 AND MD 193	1640	0.3	60.2	60.6	Yes	18.6	18.5	0.1	1%
MERGE MD 193	2099	0.4	61.7	58.4	Yes	23.2	24.5	-1.3	-6%
BETWEEN MD 193 AND MD 650	6046	1.1	62.3	56.9	Yes	66.2	72.4	-6.2	-9%
MERGE MD 650	3008	0.6	61.0	57.4	Yes	33.6	35.7	-2.1	-6%
BETWEEN MD 650 AND I 95	2869	0.5	60.5	59.2	Yes	32.3	33.0	-0.7	-2%
BEFORE I 95 MERGE	5612	1.1	62.5	61.2	Yes	61.2	62.5	-1.3	-2%
AFTER I 95 MERGE	2578	0.5	39.7	56.8	No	44.2	30.9	13.3	30%
MERGE US 1	2873	0.5	37.7	45.4	Yes	52.0	43.2	8.8	17%
BEFORE GREENBELT STATION MERGE	3544	0.7	45.1	38.0	Yes	53.6	63.6	-10.0	-19%
AFTER GREENBELT STATION MERGE	595	0.1	54.4	39.8	Yes	7.5	10.2	-2.7	-37%
BETWEEN GREENBELT STATION AND MD 201	4415	0.8	56.9	49.9	Yes	52.9	60.3	-7.4	-14%
MERGE MD 201	3066	0.6	56.8	52.5	Yes	36.8	39.8	-3.0	-8%
BETWEEN MD 201 AND MD 295 MERGE	1900	0.4	56.2	49.9	Yes	23.0	26.0	-2.9	-13%
MERGE MD 295	2725	0.5	60.2	54.1	Yes	30.8	34.4	-3.5	-11%
BETWEEN MD 295 AND MD 450	10677	2.0	62.0	54.2	Yes	117.3	134.3	-17.0	-14%
MERGE MD 450	1203	0.2	57.3	54.8	Yes	14.3	15.0	-0.7	-5%
BETWEEN MD 450 AND US 50	2809	0.5	54.6	50.5	Yes	35.1	37.9	-2.8	-8%
MERGE US 50	4270	0.8	54.7	56.8	Yes	53.2	51.3	1.9	4%
BETWEEN US 50 AND MD 202 (495 EXPRESS LANE)	5460	1.0	54.0	54.7	Yes	69.0	68.1	0.9	1%
END 495 EXPRESS LANE	515	0.1	61.7	55.1	Yes	5.7	6.4	-0.7	-12%
BEFORE MD 202 MERGE	1817	0.3	60.5	56.4	Yes	20.5	22.0	-1.5	-7%
MERGE MD 202	2462	0.5	60.2	57.4	Yes	27.9	29.2	-1.3	-5%
BETWEEN MD 202 AND ARENA DR	1355	0.3	58.3	55.6	Yes	15.9	16.6	-0.8	-5%
MERGE ARENA DR	2059	0.4	56.2	56.0	Yes	25.0	25.1	-0.1	0%
BETWEEN ARENA DR AND MD 214	3333	0.6	54.6	56.7	Yes	41.6	40.0	1.6	4%
MD 214 MERGE	2564	0.5	51.7	55.9	Yes	33.8	31.3	2.6	8%
BETWEEN MD 214 AND RITCHIE MARLBORO RD	5923	1.1							
MERGE RITCHIE MARLBORO RD	3041	0.6							
BETWEEN RITCHIE MARLBORO AND MD 4	9698	1.8	55.4	53.0	Yes	119.4	124.9	-5.5	-5%
MERGE MD 4	2628	0.5	60.0	57.1	Yes	29.9	31.4	-1.5	-5%
BETWEEN MD 4 AND FORESTVILLE RD	3339	0.6	61.1	58.7	Yes	37.2	38.8	-1.5	-4%
MERGE FORESTVILLE RD	930	0.2	62.1	60.2	Yes	10.2	10.5	-0.3	-3%
BETWEEN FORESTVILLE AND MD 218	3213	0.6	62.4	62.8	Yes	35.1	34.9	0.2	1%
MERGE MD 218	1660	0.3	63.4	63.1	Yes	17.8	18.0	-0.1	-1%
BETWEEN MD 218 AND MD 5	6410	1.2	60.9	56.2	Yes	71.8	77.8	-6.0	-8%
MERGE MD 5	2751	0.5	32.0	27.5	Yes	58.7	68.2	-9.5	-16%
BETWEEN MD 5 AND MD 414	11958	2.3	18.2	14.2	Yes	447.5	575.5	-127.9	-29%
MERGE MD 414	3478	0.7	14.6	10.4	Yes	162.9	228.0	-65.0	-40%
BETWEEN MD 414 AND MD 210	2470	0.5	15.7	22.6	Yes	107.3	74.4	32.9	31%
MERGE MD 210	5648	1.1	7.7	21.3	Yes	500.4	180.9	319.5	64%
BETWEEN MD 210 AND I 295	2959	0.6	10.1	20.1	Yes	200.4	100.2	100.2	50%
MERGE I 295	3328	0.6	22.6	30.6	Yes	100.3	74.2	26.1	26%
BEFORE WOODROW WILSON BRIDGE	1217	0.2	48.8	56.8	Yes	17.0	14.6	2.4	14%
WOODROW WILSON BRIDGE	6059	1.1	50.2	57.5	Yes	82.4	71.9	10.5	13%

Figure A.10: I-495 Outer Loop 7-8 AM Speed and Travel Time

Travel Segments	Distance (feet)	Distance (miles)	7-8 AM						
			Speeds (MPH)			Travel Times (sec)		Difference	
			Field (mph)	Simulated (mph)	Speed In Range?	Field (sec)	Simulated (sec)	Difference (sec)	Difference (%)
I-495 Outer Loop	**230042**	**43.6**				**4173.2**	**4148.3**	**24.9**	**1%**
WOODROW WILSON BRIDGE	6160	1.2	49.3	57.4	Yes	85.3	73.1	12.1	14%
BEFORE WOODROW WILSON BRIDGE	644	0.1	53.6	60.2	Yes	8.2	7.3	0.9	11%
MERGE I 295	1023	0.2	59.4	59.0	Yes	11.7	11.8	-0.1	-1%
BETWEEN MD 210 AND I 295	377	0.1	57.3	60.6	Yes	4.5	4.2	0.2	5%
MERGE MD 210	8656	1.6	57.7	58.1	Yes	102.3	101.5	0.8	1%
BETWEEN MD 414 AND MD 210	4452	0.8	61.8	58.5	Yes	49.2	51.9	-2.7	-6%
MERGE MD 414	2984	0.6	62.8	59.0	Yes	32.4	34.5	-2.1	-7%
BETWEEN MD 5 AND MD 414	12214	2.3	60.0	53.0	Yes	138.9	157.2	-18.4	-13%
MERGE MD 5	3740	0.7	62.3	53.4	Yes	40.9	47.7	-6.8	-17%
BETWEEN MD 218 AND MD 5	5897	1.1	60.4	52.5	Yes	66.5	76.6	-10.1	-15%
MERGE MD 218	238	0.0	59.0	54.4	Yes	2.7	3.0	-0.2	-9%
BETWEEN FORESTVILLE AND MD 218	4910	0.9	57.0	54.4	Yes	58.7	61.6	-2.9	-5%
MERGE MD 337	912	0.2	55.2	54.7	Yes	11.3	11.4	-0.1	-1%
BETWEEN MD 4 AND FORESTVILLE RD	3145	0.6	52.0	52.4	Yes	41.2	40.9	0.3	1%
MERGE MD 4	3108	0.6	48.1	54.1	Yes	44.0	39.2	4.9	11%
BETWEEN RITCHIE MARLBORO AND MD 4	9857	1.9							
MERGE RITCHIE MARLBORO RD	2341	0.4							
BETWEEN MD 214 AND RITCHIE MARLBORO RD	6303	1.2	43.2	52.8	Yes	99.4	81.4	18.0	18%
MERGE MD 214	2618	0.5	41.8	55.4	Yes	42.7	32.2	10.5	25%
BETWEEN ARENA DR AND MD 214	2789	0.5	41.4	51.3	Yes	46.0	37.1	8.9	19%
MERGE ARENA DR	2437	0.5	39.8	47.1	Yes	41.7	35.3	6.5	15%
BETWEEN MD 202 AND ARENA DR	1179	0.2	33.3	35.2	Yes	24.1	22.9	1.3	5%
MERGE MD 202	3055	0.6	27.7	22.4	Yes	75.2	93.1	-17.9	-24%
BEFORE MD 202 MERGE	908	0.2	28.2	11.3	No	22.0	54.6	-32.6	-148%
END 495 EXPRESS LANE	594	0.1	24.5	14.5	Yes	16.5	27.9	-11.4	-69%
BETWEEN US 50 AND MD 202 (495 EXPRESS LANE)	6101	1.2	33.3	40.0	Yes	124.9	104.1	20.8	17%
MERGE US 50	3680	0.7	37.7	54.8	No	66.5	45.8	20.7	31%
BETWEEN MD 450 AND US 50	2561	0.5	32.2	28.8	Yes	54.2	60.6	-6.4	-12%
MERGE MD 450	2100	0.4	37.4	27.4	Yes	38.3	52.3	-14.0	-36%
BETWEEN MD 295 AND MD 450	10674	2.0	51.0	46.2	Yes	142.7	157.6	-14.9	-10%
MERGE MD 295	2479	0.5	54.1	52.4	Yes	31.2	32.2	-1.0	-3%
BETWEEN MD 201 AND MD 295 MERGE	1996	0.4	56.1	51.5	Yes	24.2	26.4	-2.2	-9%
MERGE MD 201	3054	0.6	59.2	51.8	Yes	35.2	40.2	-5.1	-14%
BETWEEN GREENBELT STATION AND MD 201	4643	0.9	59.2	52.7	Yes	53.4	60.0	-6.6	-12%
BETWEEN GREENBELT STATION AND US 1	4102	0.8	58.3	56.9	Yes	48.0	49.2	-1.2	-2%
MERGE US 1	2739	0.5	51.8	57.8	Yes	36.1	32.3	3.8	11%
BETWEEN US 1 AND I 95	3225	0.6	42.2	56.7	No	52.1	38.8	13.3	26%
I 95 MERGE	4389	0.8	11.3	54.9	No	265.4	54.5	210.9	79%
BETWEEN MD 650 AND I 95	4048	0.8	9.8	11.0	Yes	283.0	251.1	31.9	11%
MERGE MD 650	2547	0.5	9.6	9.6	Yes	181.2	181.1	0.1	0%
BETWEEN MD 193 AND MD 650	6315	1.2	11.1	11.0	Yes	387.9	390.5	-2.6	-1%
MERGE MD 193	1353	0.3	13.5	11.8	Yes	68.2	78.0	-9.8	-14%
BETWEEN MD US 29 AND MD 193	2722	0.5	14.3	15.2	Yes	129.6	121.8	7.8	6%
MERGE US 29	1127	0.2	15.3	13.9	Yes	50.3	55.4	-5.1	-10%
BETWEEN MD 97 AND US 29	5926	1.1	21.1	19.1	Yes	191.4	211.4	-20.0	-10%
MD 97 MERGE	1734	0.3	24.9	16.3	Yes	47.5	72.4	-24.9	-52%
BETWEEN MD 185 AND MD 97	8746	1.7	41.0	31.7	Yes	145.4	188.2	-42.8	-29%
MD 185 MERGE	3315	0.6	45.4	53.0	Yes	49.8	42.6	7.1	14%
BETWEEN MD 355 AND MD 185	6287	1.2	52.7	51.5	Yes	81.3	83.3	-1.9	-2%
MD 355 MERGE	1401	0.3	56.8	53.2	Yes	16.8	17.9	-1.1	-7%
MERGE AFTER I 270	61	0.0	56.4	54.1	Yes	0.7	0.8	0.0	-4%
MERGE BEFORE I 270	1298	0.2	55.1	49.2	Yes	16.1	18.0	-1.9	-12%
BETWEEN I 270 EAST AND MD 187	3092	0.6	56.7	53.3	Yes	37.2	39.6	-2.4	-7%
MERGE MD 187	1936	0.4	59.2	52.6	Yes	22.3	25.1	-2.8	-13%
BETWEEN I 270 WEST AND MD 187	7643	1.4	60.2	52.8	Yes	86.5	98.7	-12.1	-14%
MERGE I 270	1490	0.3	54.1	50.8	Yes	18.8	20.0	-1.2	-7%
BETWEEN MD 190 AND I 270	5753	1.1	54.3	42.1	Yes	72.2	93.2	-21.0	-29%
MERGE MD 190	1537	0.3	57.5	51.9	Yes	18.2	20.2	-2.0	-11%
BETWEEN CABIN JOHN PARKWAY AND MD 190	214	0.0	57.2	51.4	Yes	2.6	2.8	-0.3	-11%
MERGE CABIN JOHN PARKWAY	2397	0.5	55.8	44.3	Yes	29.3	36.9	-7.6	-26%
BETWEEN CLARA BARTON PARKWAY AND CABIN JOHN PARKWAY	6336	1.2	56.2	42.5	Yes	76.8	101.5	-24.7	-32%
MERGE CLARA BARTON PARKWAY	1463	0.3	57.9	49.6	Yes	17.2	20.1	-2.9	-17%
BEFORE AMERICAN LEGION BRIDGE	746	0.1	57.8	52.0	Yes	8.8	9.8	-1.0	-11%
AMERICAN LEGION BRIDGE	790	0.1	57.2	53.0	Yes	9.4	10.2	-0.7	-8%
GEORGE WASHINGTON MEMORIAL PKWY EXIT 14 (2)	843	0.2	56.5	52.1	Yes	10.2	11.0	-0.8	-8%
GEORGE WASHINGTON MEMORIAL PKWY EXIT 14 (1)	4288	0.8	58.6	52.4	Yes	49.9	55.8	-5.9	-12%
VA-193/GEORGETOWN PIKE EXIT 13 (2)	679	0.1	59.6	52.8	Yes	7.8	8.8	-1.0	-13%
VA-193/GEORGETOWN PIKE EXIT 13 (1)	1669	0.3	59.4	52.6	Yes	19.2	21.6	-2.5	-13%

Figure A.11: I-270 Southbound 7-8 AM Speed and Travel Time

Travel Segments	Distance (feet)	Distance (miles)	7-8 AM						
			Speeds (MPH)			Travel Times (sec)		Difference	
			Field (mph)	Simulated (mph)	Speed In Range?	Field (sec)	Simulated (sec)	Difference (sec)	Difference (%)
I-270 SB	176479	33.4				3945.8	4280.1	-334.3	-8%
BETWEEN MD-85 ON AND OFF RAMPS	2549	0.5	55.3	57.5	Yes	31.4	30.2	1.2	4%
FROM MD-85 ON RAMP TO MD-80	25540	4.8	34.8	44.4	Yes	499.7	391.9	107.8	22%
BETWEEN MD-80 ON AND OFF RAMPS	845	0.2	24.4	19.2	Yes	23.6	30.1	-6.4	-27%
FROM MD-80 ON RAMP TO MD-109	18767	3.6	33.4	24.5	Yes	382.6	522.7	-140.1	-37%
BETWEEN MD-109 ON AND OFF RAMPS	922	0.2	31.0	22.7	Yes	20.3	27.7	-7.4	-37%
FROM MD-109 ON RAMP TO MD-121	18329	3.5	45.8	45.2	Yes	273.1	276.3	-3.2	-1%
BETWEEN MD-121 ON AND OFF RAMPS	2354	0.4	39.8	52.7	Yes	40.4	30.5	9.9	24%
FROM MD-121 TO MD-27	10608	2.0	29.9	32.9	Yes	242.1	220.1	22.0	9%
BETWEEN MD-27 ON AND OFF RAMPS	3802	0.7	15.8	12.5	Yes	163.7	206.6	-42.9	-26%
FROM MD-27 ON RAMP TO MD-118	1852	0.4	16.6	12.3	Yes	76.0	102.8	-26.8	-35%
BETWEEN MD-118 ON AND OFF RAMPS	3278	0.6	17.8	14.6	Yes	125.7	153.0	-27.3	-22%
FROM MD-118 ON RAMP TO MIDDLEBROOK RD	2587	0.5	23.1	26.0	Yes	76.2	67.7	8.5	11%
BETWEEN MIDDLEBROOK RD ON AND OFF RAMPS	1460	0.3	26.3	31.7	Yes	37.9	31.4	6.5	17%
FROM MIDDLEBROOK RD ON RAMP TO MD-124	10210	1.9	27.5	26.0	Yes	253.0	267.8	-14.8	-6%
BETWEEN MD-124 ON AND OFF RAMPS	1613	0.3	25.2	17.3	Yes	43.6	63.5	-19.9	-46%
FROM MD-124 ON RAMP TO MD-117	3042	0.6	29.6	22.0	Yes	70.0	94.4	-24.3	-35%
BETWEEN MD-117 ON AND OFF RAMPS	1463	0.3	34.6	30.4	Yes	28.9	32.8	-4.0	-14%
FROM MD-117 TO I-370 INTERCHANGE	3727	0.7	38.0	33.0	Yes	66.9	77.0	-10.1	-15%
BETWEEN I-370 ON AND OFF RAMPS	3154	0.6	29.6	27.1	Yes	72.5	79.3	-6.8	-9%
FROM I-370 ON RAMP TO SHADY GROVE RD	4729	0.9	18.4	15.1	Yes	174.8	213.2	-38.3	-22%
BETWEEN SHADY GROVE RD ON AND OFF RAMPS	77	0.0	21.0	28.3	Yes	2.5	1.9	0.6	26%
FROM SHADY GROVE RD ON RAMP TO MD-28	9889	1.9	19.6	26.4	Yes	344.3	255.8	88.5	26%
BETWEEN MD-28 ON AND OFF RAMPS	52	0.0	27.7	29.6	Yes	1.3	1.2	0.1	7%
FROM MD-28 ON RAMP TO MD-189	4132	0.8	29.6	22.6	Yes	95.1	124.5	-29.4	-31%
BETWEEN MD-189 ON AND OFF RAMPS	3083	0.6	26.0	18.2	Yes	80.9	115.6	-34.7	-43%
FROM MD-189 ON RAMP TO MONTROSE RD	3383	0.6	22.5	17.5	Yes	102.7	131.9	-29.3	-29%
BETWEEN MONTROSE RD ON AND OFF RAMPS	4822	0.9	28.1	20.3	Yes	116.9	162.3	-45.4	-39%
FROM MONTROSE RD ON RAMP TO I-270 SPUR	6153	1.2	40.6	28.0	Yes	103.4	149.8	-46.4	-45%
FROM I-270 SPUR MD-187	1248	0.2	56.5	57.4	Yes	15.1	14.8	0.2	2%
BETWEEN MD-187 SPUR ON AND OFF RAMPS	4256	0.8	60.6	62.6	Yes	47.9	46.3	1.6	3%
FROM MD-187 ON RAMP TO I-495 INTERCHANGE	6196	1.2	58.7	61.6	Yes	71.9	68.6	3.4	5%
BETWEEN I-495 INTERCHANGE ON AND OFF RAMPS	1395	0.3	52.4	62.7	Yes	18.2	15.2	3.0	16%
I-270 SPUR MERGE	1150	0.2	25.2	21.9	Yes	31.1	35.8	-4.6	-15%
BETWEEN US-1 AND I-270 SPUR MERGE	2883	0.5	29.9	22.5	Yes	65.8	87.2	-21.4	-33%
MERGE US-1	2749	0.5	32.9	28.4	Yes	57.0	66.0	-9.0	-16%
MERGE I-495	4180	0.8	31.9	33.8	Yes	89.3	84.3	5.0	6%

Figure A.12: I-270 Northbound 7-8 AM Speed and Travel Time

Travel Segments	Distance (feet)	Distance (miles)	7-8 AM						
			Speeds (MPH)			Travel Times (sec)		Difference	
			Field (mph)	Simulated (mph)	Speed In Range?	Field (sec)	Simulated (sec)	Difference (sec)	Difference (%)
I-270 NB	177527	33.6				1854.7	1919.5	-64.8	-3%
BETWEEN MD-355 AND GROSVENOR LANE	1044	0.2	53.9	60.9	No	13.2	11.7	1.5	12%
FROM GROSVENOR LANE TO EXIT 1A	6217	1.2	58.4	62.8	Yes	72.5	67.5	5.1	7%
BETWEEN EXIT 1A AND 1B	4042	0.8	60.6	63.9	Yes	45.5	43.1	2.4	5%
FROM MD-187 TO I-270 SPUR	341	0.1	60.7	63.0	Yes	3.8	3.7	0.1	4%
FROM TUCKERMAN LANE TO I-270 LOCAL	7076	1.3	63.0	63.2	Yes	76.6	76.3	0.3	0%
FROM I-270 LOCAL TO EXIT 5 FOR I-270 LOCAL	5080	1.0	66.6	62.7	Yes	52.0	55.3	-3.3	-6%
FROM EXIT 5 FOR I-270 LOCAL TO JUST SOUTH OF MD-189	3227	0.6	65.8	63.2	Yes	33.4	34.8	-1.4	-4%
BETWEEN MD-189 ON AND OFF RAMPS	3080	0.6	66.4	63.4	Yes	31.6	33.1	-1.5	-5%
FROM MD-189 TO JUST SOUTH OF MD-28	4076	0.8	66.4	63.3	Yes	41.9	43.9	-2.1	-5%
BETWEEN MD-28 ON AND OFF RAMPS	49	0.0	66.3	62.9	Yes	0.5	0.5	0.0	-5%
FROM MD-28 ON RAMP TO REDLAND BLVD	10016	1.9	65.8	64.0	Yes	103.7	106.7	-3.0	-3%
BETWEEN SHADY GROVE RD ON AND OFF RAMPS	74	0.0	66.9	63.6	Yes	0.8	0.8	0.0	-5%
FROM SHADY GROVE RD ON RAMP TO I-370 INTERCHANGE	4827	0.9	67.4	63.8	Yes	48.8	51.6	-2.8	-6%
FROM I-370 INTERCHANGE TO MUDDY BRANCH RD	172	0.0	67.6	64.0	Yes	1.7	1.8	-0.1	-6%
FROM MUDDY BRANCH RD TO JUST SOUTH OF MD-117 INTERCHANGE	7943	1.5	66.7	63.0	Yes	81.2	85.9	-4.7	-6%
FROM JUST SOUTH OF MD-117 INTERCHANGE TO MD-117	29	0.0	66.6	63.2	Yes	0.3	0.3	0.0	-5%
FROM MD-117 TO MD-124 OFF RAMP	3249	0.6	66.9	63.2	Yes	33.1	35.1	-1.9	-6%
BETWEEN MD-124 ON AND OFF RAMPS	27	0.0	66.8	64.0	Yes	0.3	0.3	0.0	-4%
FROM MD-124 ON RAMP TO JUST SOUTH OF MIDDLEBROOK RD	12046	2.3	66.2	63.5	Yes	124.0	129.3	-5.3	-4%
BETWEEN MIDDLEBROOK RD ON AND OFF RAMPS	1221	0.2	65.0	63.8	Yes	12.8	13.0	-0.2	-2%
FROM MIDDLEBROOK RD ON RAMP TO MD-118 OFF RAMP	2423	0.5	64.4	63.5	Yes	25.7	26.0	-0.3	-1%
BETWEEN MD-118 ON AND OFF RAMPS	3423	0.6	64.7	63.2	Yes	36.1	36.9	-0.8	-2%
FROM MD-118 ON RAMP TO MD-27	1487	0.3	64.5	63.2	Yes	15.7	16.1	-0.3	-2%
BETWEEN MD-27 ON AND OFF RAMPS	3356	0.6	65.9	63.6	Yes	34.7	36.0	-1.3	-4%
FROM MD-27 ON RAMP TO MD-121 OFF RAMP	11527	2.2	64.8	63.5	Yes	121.3	123.8	-2.5	-2%
BETWEEN MD-121 ON AND OFF RAMPS	959	0.2	64.9	62.9	Yes	10.1	10.4	-0.3	-3%
FROM MD-121 TO MD-109	20431	3.9	66.8	63.2	Yes	208.7	220.4	-11.8	-6%
BETWEEN MD-109 ON AND OFF RAMPS	920	0.2	65.2	64.6	Yes	9.6	9.7	-0.1	-1%
FROM MD-109 ON RAMP TO MD-80	18686	3.5	66.6	62.5	Yes	191.4	203.8	-12.4	-6%
BETWEEN MD-80 ON AND OFF RAMPS	946	0.2	66.0	60.9	Yes	9.8	10.6	-0.8	-8%
FROM MD-80 ON RAMP TO MD-85	24888	4.7	66.3	62.8	Yes	255.9	270.3	-14.4	-6%
BETWEEN MD-85 ON AND OFF RAMPS	2482	0.5	61.5	63.1	Yes	27.5	26.8	0.7	2%
MERGE FROM I 495	4953	0.9	62.7	59.6	Yes	53.9	56.6	-2.8	-5%
MERGE US-1	2620	0.5	63.8	63.4	Yes	28.0	28.2	-0.2	-1%
BETWEEN I-270 SPUR MERGE AND US 1	2977	0.6	64.2	63.7	Yes	31.6	31.8	-0.2	-1%
MERGE I-270 SPUR	1612	0.3	64.8	63.3	Yes	17.0	17.4	-0.4	-2%

Figure A.13: I-495 Inner Loop 8-9 AM Speed and Travel Time

Travel Segments	Distance (feet)	Distance (miles)	8-9 AM						
			Speeds (MPH)			Travel Times (sec)		Difference	
			Field (mph)	Simulated (mph)	Speed In Range?	Field (sec)	Simulated (sec)	Difference (sec)	Difference (%)
I-495 Inner Loop	**225612**	**43.3**				**3969.6**	**3711.1**	**258.4**	**7%**
VA-193/GEORGETOWN PIKE/EXIT 13	2729	0.5	17.1	20.3	Yes	108.9	91.8	17.0	16%
GEORGE WASHINGTON MEMORIAL PKWY/EXIT 14 (1)	2453	0.5	18.3	10.2	Yes	91.5	163.9	-72.4	-79%
GEORGE WASHINGTON MEMORIAL PKWY/EXIT 14 (2)	1935	0.4	25.8	16.4	Yes	51.1	80.2	-29.1	-57%
AMERICAN LEGION BRIDGE	794	0.2	35.9	26.0	Yes	15.1	20.8	-5.8	-38%
BEFORE AMERICAN LEGION BRIDGE	508	0.1	35.5	36.1	Yes	9.7	9.6	0.2	2%
MERGE CLARA BARTON PARKWAY	1055	0.2	42.7	52.0	Yes	16.9	13.8	3.0	18%
BETWEEN CLARA BARTON PARKWAY AND CABIN JOHN PARKWAY	7287	1.4	52.6	55.6	Yes	94.5	89.3	5.2	5%
MERGE CABIN JOHN PARKWAY	2126	0.4	58.4	56.6	Yes	24.8	25.6	-0.8	-3%
BETWEEN CABIN JOHN PARKWAY AND MD 190	259	0.0	59.9	59.6	Yes	2.9	3.0	0.0	-1%
MERGE MD 190	1235	0.2	60.0	56.4	Yes	14.0	14.9	-0.9	-6%
BETWEEN MD 190 AND I 270	6468	1.2	59.8	54.5	Yes	73.8	80.9	-7.2	-10%
MERGE I 270	867	0.2	58.6	57.8	Yes	10.1	10.2	-0.1	-1%
BETWEEN I 270 AND MD 187	7828	1.5	59.0	56.3	Yes	90.4	94.7	-4.3	-5%
MERGE MD 187	2140	0.4	58.2	56.0	Yes	25.1	26.1	-1.0	-4%
BETWEEN MD 187 AND I 270	2278	0.4	49.4	55.6	Yes	31.5	27.9	3.5	11%
MERGE BEFORE I 270	1306	0.2	48.3	51.7	Yes	18.4	17.2	1.2	7%
MERGE AFTER I 270	564	0.1	47.0	60.8	Yes	8.2	6.3	1.9	23%
MD 355 MERGE	1371	0.3	45.4	55.6	Yes	20.6	16.8	3.8	18%
BETWEEN MD 355 AND MD 185	6065	1.1	38.6	44.8	Yes	107.2	92.2	15.0	14%
MD 185 MERGE	2074	0.4	48.5	57.7	Yes	29.2	24.5	4.7	16%
BETWEEN MD 185 AND MD 97	9907	1.9	47.5	57.7	Yes	142.1	117.0	25.1	18%
MD 97 MERGE	1461	0.3	56.1	58.0	Yes	17.8	17.2	0.6	3%
BETWEEN MD 97 AND US 29	5965	1.1	58.0	59.2	Yes	70.1	68.7	1.4	2%
MERGE US 29	1734	0.3	60.0	59.6	Yes	19.7	19.8	-0.1	-1%
BETWEEN MD US 29 AND MD 193	1640	0.3	59.3	60.7	Yes	18.9	18.4	0.4	2%
MERGE MD 193	2099	0.4	60.3	58.3	Yes	23.7	24.5	-0.8	-3%
BETWEEN MD 193 AND MD 650	6046	1.1	60.2	54.5	Yes	68.5	75.6	-7.1	-10%
MERGE MD 650	3008	0.6	59.5	57.6	Yes	34.5	35.6	-1.1	-3%
BETWEEN MD 650 AND I 95	2869	0.5	59.9	60.0	Yes	32.6	32.6	0.1	0%
BEFORE I 95 MERGE	5612	1.1	58.1	61.6	Yes	65.8	62.1	3.7	6%
AFTER I 95 MERGE	2578	0.5	26.2	40.0	Yes	67.0	43.9	23.1	34%
MERGE US 1	2873	0.5	25.9	32.9	Yes	75.7	59.5	16.3	21%
BEFORE GREENBELT STATION MERGE	3544	0.7	34.4	35.0	Yes	70.2	69.1	1.1	2%
AFTER GREENBELT STATION MERGE	595	0.1	49.6	38.1	Yes	8.2	10.7	-2.5	-30%
BETWEEN GREENBELT STATION AND MD 201	4415	0.8	54.4	49.5	Yes	55.3	60.8	-5.5	-10%
MERGE MD 201	3066	0.6	54.8	51.1	Yes	38.2	40.9	-2.7	-7%
BETWEEN MD 201 AND MD 295 MERGE	1900	0.4	54.2	44.5	Yes	23.9	29.1	-5.2	-22%
MERGE MD 295	2725	0.5	58.1	53.0	Yes	32.0	35.1	-3.1	-10%
BETWEEN MD 295 AND MD 450	10677	2.0	59.3	53.5	Yes	122.8	136.2	-13.4	-11%
MERGE MD 450	1203	0.2	53.7	51.5	Yes	15.3	15.9	-0.6	-4%
BETWEEN MD 450 AND US 50	2809	0.5	52.9	43.5	Yes	36.2	44.0	-7.8	-22%
MERGE US 50	4270	0.8	53.5	56.2	Yes	54.4	51.8	2.6	5%
BETWEEN US 50 AND MD 202 (495 EXPRESS LANE)	5460	1.0	50.6	52.4	Yes	73.5	71.0	2.5	3%
END 495 EXPRESS LANE	515	0.1	61.8	54.2	Yes	5.7	6.5	-0.8	-14%
BEFORE MD 202 MERGE	1817	0.3	60.7	55.4	Yes	20.4	22.4	-1.9	-10%
MERGE MD 202	2462	0.5	60.7	56.7	Yes	27.6	29.6	-2.0	-7%
BETWEEN MD 202 AND ARENA DR	1355	0.3	59.5	54.7	Yes	15.5	16.9	-1.4	-9%
MERGE ARENA DR	2059	0.4	56.2	55.2	Yes	25.0	25.4	-0.4	-2%
BETWEEN ARENA DR AND MD 214	3333	0.6	50.9	56.2	Yes	44.7	40.4	4.2	9%
MD 214 MERGE	2564	0.5	44.0	55.4	Yes	39.8	31.6	8.2	21%
BETWEEN MD 214 AND RITCHIE MARLBORO RD	5923	1.1							
MERGE RITCHIE MARLBORO RD	3041	0.6							
BETWEEN RITCHIE MARLBORO AND MD 4	9698	1.8	42.6	55.7	Yes	155.3	118.7	36.6	24%
MERGE MD 4	2628	0.5	49.3	56.8	Yes	36.3	31.5	4.8	13%
BETWEEN MD 4 AND FORESTVILLE RD	3339	0.6	53.1	57.6	Yes	42.9	39.5	3.3	8%
MERGE FORESTVILLE RD	930	0.2	59.7	59.4	Yes	10.6	10.7	-0.1	-1%
BETWEEN FORESTVILLE AND MD 218	3213	0.6	60.7	62.5	Yes	36.1	35.0	1.1	3%
MERGE MD 218	1660	0.3	61.9	62.9	Yes	18.3	18.0	0.3	2%
BETWEEN MD 218 AND MD 5	6410	1.2	61.0	43.5	No	71.7	100.4	-28.8	-40%
MERGE MD 5	2751	0.5	37.2	19.0	No	50.5	98.8	-48.3	-96%
BETWEEN MD 5 AND MD 414	11958	2.3	20.0	18.3	Yes	407.2	446.3	-39.1	-10%
MERGE MD 414	3478	0.7	15.6	18.1	Yes	151.7	131.0	20.7	14%
BETWEEN MD 414 AND MD 210	2470	0.5	18.6	29.9	Yes	90.3	56.3	34.1	38%
MERGE MD 210	5648	1.1	11.3	28.3	No	339.8	135.9	203.9	60%
BETWEEN MD 210 AND I 295	2959	0.6	12.9	19.7	Yes	156.3	102.5	53.7	34%
MERGE I 295	3328	0.6	23.0	29.3	Yes	98.6	77.4	21.2	22%
BEFORE WOODROW WILSON BRIDGE	1217	0.2	41.4	56.4	No	20.0	14.7	5.3	27%
WOODROW WILSON BRIDGE	6059	1.1	43.5	57.4	Yes	95.0	71.9	23.1	24%

Figure A.14: I-495 Outer Loop 8-9 AM Speed and Travel Time

Travel Segments	Distance (feet)	Distance (miles)	8-9 AM						
			Speeds (MPH)			Travel Times (sec)		Difference	
			Field (mph)	Simulated (mph)	Speed In Range?	Field (sec)	Simulated (sec)	Difference (sec)	Difference (%)
I-495 Outer Loop	**230042**	**43.6**				**4792.2**	**4275.8**	**516.4**	**11%**
WOODROW WILSON BRIDGE	6160	1.2	56.7	56.9	Yes	74.1	73.8	0.3	0%
BEFORE WOODROW WILSON BRIDGE	644	0.1	57.1	60.1	Yes	7.7	7.3	0.4	5%
MERGE I 295	1023	0.2	59.9	59.0	Yes	11.6	11.8	-0.2	-2%
BETWEEN MD 210 AND I 295	377	0.1	57.9	60.6	Yes	4.4	4.2	0.2	4%
MERGE MD 210	8656	1.6	59.5	58.2	Yes	99.2	101.5	-2.2	-2%
BETWEEN MD 414 AND MD 210	4452	0.8	61.7	58.6	Yes	49.2	51.8	-2.7	-5%
MERGE MD 414	2984	0.6	63.8	59.2	Yes	31.9	34.4	-2.5	-8%
BETWEEN MD 5 AND MD 414	12214	2.3	64.5	53.0	Yes	129.2	157.0	-27.9	-22%
MERGE MD 5	3740	0.7	60.2	52.9	Yes	42.3	48.3	-5.9	-14%
BETWEEN MD 218 AND MD 5	5897	1.1	48.0	53.0	Yes	83.8	75.9	7.9	9%
MERGE MD 218	238	0.0	44.7	55.2	Yes	3.6	2.9	0.7	19%
BETWEEN FORESTVILLE AND MD 218	4910	0.9	41.3	54.6	Yes	81.1	61.3	19.9	25%
MERGE MD 337	912	0.2	38.9	54.9	No	16.0	11.3	4.7	29%
BETWEEN MD 4 AND FORESTVILLE RD	3145	0.6	40.6	53.3	Yes	52.8	40.2	12.6	24%
MERGE MD 4	3108	0.6	39.5	54.6	No	53.6	38.8	14.8	28%
BETWEEN RITCHIE MARLBORO AND MD 4	9857	1.9							
MERGE RITCHIE MARLBORO RD	2341	0.4							
BETWEEN MD 214 AND RITCHIE MARLBORO RD	6303	1.2	40.5	45.3	Yes	106.0	94.9	11.2	11%
MERGE MD 214	2618	0.5	39.5	33.1	Yes	45.2	53.9	-8.8	-19%
BETWEEN ARENA DR AND MD 214	2789	0.5	39.0	25.3	Yes	48.7	75.2	-26.5	-54%
MERGE ARENA DR	2437	0.5	35.0	27.6	Yes	47.4	60.2	-12.8	-27%
BETWEEN MD 202 AND ARENA DR	1179	0.2	26.1	25.7	Yes	30.8	31.3	-0.5	-2%
MERGE MD 202	3055	0.6	22.1	21.0	Yes	94.0	99.1	-5.1	-5%
BEFORE MD 202 MERGE	908	0.2	23.8	10.7	Yes	26.0	57.8	-31.8	-123%
END 495 EXPRESS LANE	594	0.1	20.0	14.4	Yes	20.2	28.2	-8.0	-39%
BETWEEN US 50 AND MD 202 (495 EXPRESS LANE)	6101	1.2	30.4	39.7	Yes	136.9	104.7	32.2	24%
MERGE US 50	3680	0.7	34.8	56.7	No	72.2	44.3	27.9	39%
BETWEEN MD 450 AND US 50	2561	0.5	29.2	28.8	Yes	59.7	60.6	-0.9	-2%
MERGE MD 450	2100	0.4	33.4	28.2	Yes	42.9	50.8	-7.9	-18%
BETWEEN MD 295 AND MD 450	10674	2.0	47.9	45.8	Yes	151.9	158.8	-6.9	-5%
MERGE MD 295	2479	0.5	54.8	52.8	Yes	30.9	32.0	-1.2	-4%
BETWEEN MD 201 AND MD 295 MERGE	1996	0.4	57.5	51.9	Yes	23.7	26.2	-2.6	-11%
MERGE MD 201	3054	0.6	61.7	52.5	Yes	33.8	39.7	-5.9	-18%
BETWEEN GREENBELT STATION AND MD 201	4643	0.9	61.9	52.9	Yes	51.1	59.8	-8.7	-17%
BETWEEN GREENBELT STATION AND US 1	4102	0.8	57.2	57.2	Yes	48.9	48.9	0.0	0%
MERGE US 1	2739	0.5	52.2	57.9	Yes	35.8	32.3	3.5	10%
BETWEEN US 1 AND I 95	3225	0.6	45.8	56.8	Yes	48.0	38.7	9.3	19%
I 95 MERGE	4389	0.8	10.5	58.1	No	285.7	51.5	234.2	82%
BETWEEN MD 650 AND I 95	4048	0.8	8.3	12.5	Yes	334.3	221.5	112.8	34%
MERGE MD 650	2547	0.5	7.7	9.7	Yes	226.8	179.7	47.1	21%
BETWEEN MD 193 AND MD 650	6315	1.2	8.5	10.5	Yes	507.0	410.5	96.5	19%
MERGE MD 193	1353	0.3	10.4	11.4	Yes	88.3	81.1	7.3	8%
BETWEEN MD US 29 AND MD 193	2722	0.5	11.5	14.4	Yes	161.9	129.0	32.9	20%
MERGE US 29	1127	0.2	12.7	13.1	Yes	60.6	58.8	1.9	3%
BETWEEN MD 97 AND US 29	5926	1.1	17.9	17.9	Yes	226.3	226.4	-0.1	0%
MD 97 MERGE	1734	0.3	21.3	15.6	Yes	55.4	75.6	-20.2	-36%
BETWEEN MD 185 AND MD 97	8746	1.7	40.2	32.4	Yes	148.3	184.2	-35.9	-24%
MD 185 MERGE	3315	0.6	46.2	52.8	Yes	48.9	42.8	6.2	13%
BETWEEN MD 355 AND MD 185	6287	1.2	49.9	44.4	Yes	85.9	96.6	-10.7	-12%
MD 355 MERGE	1401	0.3	53.4	52.9	Yes	17.9	18.1	-0.2	-1%
MERGE AFTER I 270	61	0.0	53.1	54.1	Yes	0.8	0.8	0.0	2%
MERGE BEFORE I 270	1298	0.2	52.1	49.5	Yes	17.0	17.9	-0.9	-5%
BETWEEN I 270 EAST AND MD 187	3092	0.6	52.8	53.5	Yes	39.9	39.4	0.5	1%
MERGE MD 187	1936	0.4	50.5	52.8	Yes	26.1	25.0	1.1	4%
BETWEEN I 270 WEST AND MD 187	7643	1.4	48.1	53.0	Yes	108.4	98.3	10.1	9%
MERGE I 270	1490	0.3	39.2	51.6	Yes	25.9	19.7	6.2	24%
BETWEEN MD 190 AND I 270	5753	1.1	40.2	44.2	Yes	97.6	88.7	8.9	9%
MERGE MD 190	1537	0.3	39.6	52.1	Yes	26.4	20.1	6.3	24%
BETWEEN CABIN JOHN PARKWAY AND MD 190	214	0.0	39.4	51.4	Yes	3.7	2.8	0.9	23%
MERGE CABIN JOHN PARKWAY	2397	0.5	36.8	50.8	Yes	44.4	32.2	12.2	28%
BETWEEN CLARA BARTON PARKWAY AND CABIN JOHN PARKWAY	6336	1.2	43.0	44.0	Yes	100.5	98.3	2.3	2%
MERGE CLARA BARTON PARKWAY	1463	0.3	48.1	48.6	Yes	20.7	20.5	0.2	1%
BEFORE AMERICAN LEGION BRIDGE	746	0.1	50.3	51.1	Yes	10.1	9.9	0.2	2%
AMERICAN LEGION BRIDGE	790	0.1	47.5	52.4	Yes	11.3	10.3	1.1	9%
GEORGE WASHINGTON MEMORIAL PKWY EXIT 14 (2)	843	0.2	47.1	51.9	Yes	12.2	11.1	1.1	9%
GEORGE WASHINGTON MEMORIAL PKWY EXIT 14 (1)	4288	0.8	42.9	52.3	Yes	68.2	55.9	12.2	18%
VA-193/GEORGETOWN PIKE EXIT 13 (2)	679	0.1	40.3	52.8	Yes	11.5	8.8	2.7	24%
VA-193/GEORGETOWN PIKE EXIT 13 (1)	1669	0.3	45.2	50.6	Yes	25.2	22.5	2.7	11%

Figure A.15: I-270 Southbound 8-9 AM Speed and Travel Time

Travel Segments	Distance (feet)	Distance (miles)	8-9 AM						
			Speeds (MPH)			Travel Times (sec)		Difference	
			Field (mph)	Simulated (mph)	Speed In Range?	Field (sec)	Simulated (sec)	Difference (sec)	Difference (%)
I-270 SB	176479	33.4				3704.4	3645.4	59.0	2%
BETWEEN MD-85 ON AND OFF RAMPS	2549	0.5	58.6	57.5	Yes	29.7	30.2	-0.6	-2%
FROM MD-85 ON RAMP TO MD-80	25540	4.8	50.6	34.6	Yes	344.3	503.6	-159.3	-46%
BETWEEN MD-80 ON AND OFF RAMPS	845	0.2	36.3	16.3	No	15.9	35.3	-19.5	-123%
FROM MD-80 ON RAMP TO MD-109	18767	3.6	40.9	24.4	Yes	313.1	524.0	-210.8	-67%
BETWEEN MD-109 ON AND OFF RAMPS	922	0.2	36.2	23.0	Yes	17.3	27.4	-10.0	-58%
FROM MD-109 ON RAMP TO MD-121	18329	3.5	46.0	44.9	Yes	271.5	278.4	-6.9	-3%
BETWEEN MD-121 ON AND OFF RAMPS	2354	0.4	39.7	48.7	Yes	40.5	32.9	7.6	19%
FROM MD-121 TO MD-27	10608	2.0	29.4	35.9	Yes	245.9	201.3	44.6	18%
BETWEEN MD-27 ON AND OFF RAMPS	3802	0.7	18.3	27.3	Yes	141.9	94.8	47.1	33%
FROM MD-27 ON RAMP TO MD-118	1852	0.4	19.9	26.4	Yes	63.6	47.8	15.8	25%
BETWEEN MD-118 ON AND OFF RAMPS	3278	0.6	21.2	25.6	Yes	105.5	87.3	18.2	17%
FROM MD-118 ON RAMP TO MIDDLEBROOK RD	2587	0.5	28.3	38.1	Yes	62.3	46.3	16.0	26%
BETWEEN MIDDLEBROOK RD ON AND OFF RAMPS	1460	0.3	33.2	46.0	Yes	30.0	21.6	8.4	28%
FROM MIDDLEBROOK RD ON RAMP TO MD-124	10210	1.9	32.1	34.0	Yes	217.1	204.7	12.4	6%
BETWEEN MD-124 ON AND OFF RAMPS	1613	0.3	27.8	17.8	Yes	39.6	61.8	-22.2	-56%
FROM MD-124 ON RAMP TO MD-117	3042	0.6	32.0	20.9	Yes	64.7	99.4	-34.6	-54%
BETWEEN MD-117 ON AND OFF RAMPS	1463	0.3	38.0	30.7	Yes	26.3	32.4	-6.2	-23%
FROM MD-117 TO I-370 INTERCHANGE	3727	0.7	43.4	34.3	Yes	58.6	74.0	-15.4	-26%
BETWEEN I-370 ON AND OFF RAMPS	3154	0.6	37.1	38.4	Yes	57.9	56.0	1.9	3%
FROM I-370 ON RAMP TO SHADY GROVE RD	4729	0.9	19.3	23.1	Yes	167.4	139.5	28.0	17%
BETWEEN SHADY GROVE RD ON AND OFF RAMPS	77	0.0	19.4	28.3	Yes	2.7	1.8	0.8	31%
FROM SHADY GROVE RD ON RAMP TO MD-28	9889	1.9	17.6	46.7	No	383.5	144.3	239.1	62%
BETWEEN MD-28 ON AND OFF RAMPS	52	0.0	25.0	42.4	No	1.4	0.8	0.6	41%
FROM MD-28 ON RAMP TO MD-189	4132	0.8	25.6	35.9	Yes	110.2	78.4	31.8	29%
BETWEEN MD-189 ON AND OFF RAMPS	3083	0.6	22.0	29.2	Yes	95.8	72.1	23.7	25%
FROM MD-189 ON RAMP TO MONTROSE RD	3383	0.6	19.8	25.3	Yes	116.4	91.2	25.2	22%
BETWEEN MONTROSE RD ON AND OFF RAMPS	4822	0.9	26.8	26.0	Yes	122.8	126.3	-3.5	-3%
FROM MONTROSE RD ON RAMP TO I-270 SPUR	6153	1.2	39.4	31.7	Yes	106.5	132.5	-26.0	-24%
FROM I-270 SPUR MD-187	1248	0.2	55.2	57.6	Yes	15.4	14.8	0.6	4%
BETWEEN MD-187 SPUR ON AND OFF RAMPS	4256	0.8	59.0	62.8	Yes	49.2	46.2	2.9	6%
FROM MD-187 ON RAMP TO I-495 INTERCHANGE	6196	1.2	54.1	61.8	Yes	78.1	68.4	9.8	13%
BETWEEN I-495 INTERCHANGE ON AND OFF RAMPS	1395	0.3	47.6	62.8	Yes	20.0	15.1	4.8	24%
I-270 SPUR MERGE	1150	0.2	23.3	24.0	Yes	33.7	32.7	1.0	3%
BETWEEN US-1 AND I-270 SPUR MERGE	2883	0.5	26.4	24.9	Yes	74.4	78.9	-4.5	-6%
MERGE US-1	2749	0.5	27.4	27.8	Yes	68.4	67.4	1.0	1%
MERGE I-495	4180	0.8	25.2	37.6	Yes	113.0	75.7	37.3	33%

Figure A.16: I-270 Northbound 8-9 AM Speed and Travel Time

Travel Segments	Distance (feet)	Distance (miles)	8-9 AM						
			Speeds (MPH)			Travel Times (sec)		Difference	
			Field (mph)	Simulated (mph)	Speed In Range?	Field (sec)	Simulated (sec)	Difference (sec)	Difference (%)
I-270 NB	177527	33.6				1872.8	1932.7	-59.9	-3%
BETWEEN MD-355 AND GROSVENOR LANE	1044	0.2	51.5	60.4	No	13.8	11.8	2.0	15%
FROM GROSVENOR LANE TO EXIT 1A	6217	1.2	57.7	61.9	Yes	73.4	68.5	4.9	7%
BETWEEN EXIT 1A AND 1B	4042	0.8	61.0	63.4	Yes	45.2	43.5	1.7	4%
FROM MD-187 TO I-270 SPUR	341	0.1	60.5	61.9	Yes	3.8	3.8	0.1	2%
FROM TUCKERMAN LANE TO I-270 LOCAL	7076	1.3	61.5	62.2	Yes	78.4	77.5	0.9	1%
FROM I-270 LOCAL TO EXIT 5 FOR I-270 LOCAL	5080	1.0	65.4	62.5	Yes	52.9	55.4	-2.5	-5%
FROM EXIT 5 FOR I-270 LOCAL TO JUST SOUTH OF MD-189	3227	0.6	65.0	62.9	Yes	33.9	35.0	-1.1	-3%
BETWEEN MD-189 ON AND OFF RAMPS	3080	0.6	65.2	63.1	Yes	32.2	33.3	-1.1	-3%
FROM MD-189 TO JUST SOUTH OF MD-28	4076	0.8	65.4	62.8	Yes	42.5	44.3	-1.8	-4%
BETWEEN MD-28 ON AND OFF RAMPS	49	0.0	65.4	61.3	Yes	0.5	0.5	0.0	-7%
FROM MD-28 ON RAMP TO REDLAND BLVD	10016	1.9	64.0	63.8	Yes	106.8	107.0	-0.2	0%
BETWEEN SHADY GROVE RD ON AND OFF RAMPS	74	0.0	66.4	63.3	Yes	0.8	0.8	0.0	-5%
FROM SHADY GROVE RD ON RAMP TO I-370 INTERCHANGE	4827	0.9	66.9	63.6	Yes	49.2	51.7	-2.5	-5%
FROM I-370 INTERCHANGE TO MUDDY BRANCH RD	172	0.0	67.2	63.7	Yes	1.7	1.8	-0.1	-5%
FROM MUDDY BRANCH RD TO JUST SOUTH OF MD-117 INTERCHANGE	7943	1.5	66.2	62.8	Yes	81.8	86.2	-4.4	-5%
FROM JUST SOUTH OF MD-117 INTERCHANGE TO MD-117	29	0.0	66.3	62.9	Yes	0.3	0.3	0.0	-5%
FROM MD-117 TO MD-124 OFF RAMP	3249	0.6	66.7	63.1	Yes	33.2	35.1	-1.9	-6%
BETWEEN MD-124 ON AND OFF RAMPS	27	0.0	66.8	63.9	Yes	0.3	0.3	0.0	-4%
FROM MD-124 ON RAMP TO JUST SOUTH OF MIDDLEBROOK RD	12046	2.3	66.0	63.3	Yes	124.5	129.8	-5.3	-4%
BETWEEN MIDDLEBROOK RD ON AND OFF RAMPS	1221	0.2	63.9	63.6	Yes	13.0	13.1	-0.1	-1%
FROM MIDDLEBROOK RD ON RAMP TO MD-118 OFF RAMP	2423	0.5	63.3	63.3	Yes	26.1	26.1	0.0	0%
BETWEEN MD-118 ON AND OFF RAMPS	3423	0.6	63.6	63.2	Yes	36.7	36.9	-0.2	-1%
FROM MD-118 ON RAMP TO MD-27	1487	0.3	63.8	63.2	Yes	15.9	16.0	-0.1	-1%
BETWEEN MD-27 ON AND OFF RAMPS	3356	0.6	65.5	63.5	Yes	34.9	36.0	-1.1	-3%
FROM MD-27 ON RAMP TO MD-121 OFF RAMP	11527	2.2	65.1	63.5	Yes	120.8	123.8	-3.0	-2%
BETWEEN MD-121 ON AND OFF RAMPS	959	0.2	64.6	62.9	Yes	10.1	10.4	-0.3	-3%
FROM MD-121 TO MD-109	20431	3.9	66.5	63.2	Yes	209.4	220.6	-11.1	-5%
BETWEEN MD-109 ON AND OFF RAMPS	920	0.2	65.0	64.5	Yes	9.7	9.7	-0.1	-1%
FROM MD-109 ON RAMP TO MD-80	18686	3.5	66.1	62.4	Yes	192.7	204.3	-11.5	-6%
BETWEEN MD-80 ON AND OFF RAMPS	946	0.2	65.7	60.7	Yes	9.8	10.6	-0.8	-8%
FROM MD-80 ON RAMP TO MD-85	24888	4.7	66.3	62.7	Yes	255.9	270.6	-14.7	-6%
BETWEEN MD-85 ON AND OFF RAMPS	2482	0.5	61.7	63.1	Yes	27.4	26.8	0.6	2%
MERGE FROM I 495	4953	0.9	60.6	53.4	No	55.7	63.3	-7.5	-13%
MERGE US-1	2620	0.5	61.9	62.9	Yes	28.9	28.4	0.5	2%
BETWEEN I-270 SPUR MERGE AND US 1	2977	0.6	61.8	63.3	Yes	32.9	32.1	0.8	2%
MERGE I-270 SPUR	1612	0.3	62.5	63.0	Yes	17.6	17.4	0.1	1%

Figure A.17: I-495 Inner Loop 4-5 PM Speed and Travel Time

Travel Segments	Distance (feet)	Distance (miles)	4-5 PM						
			Speeds (MPH)			Travel Times (sec)		Difference	
			Field (mph)	Simulated (mph)	Speed In Range?	Field (sec)	Simulated (sec)	Difference (sec)	Difference (%)
I-495 Inner Loop	**228612**	**43.3**				**5846.4**	**5433.0**	**413.5**	**7%**
VA-193/GEORGETOWN PIKE/EXIT 13	2729	0.5	8.2	18.2	Yes	227.9	102.2	125.7	55%
GEORGE WASHINGTON MEMORIAL PKWY/EXIT 14 (1)	2453	0.5	8.9	9.6	Yes	187.8	174.3	13.5	7%
GEORGE WASHINGTON MEMORIAL PKWY/EXIT 14 (2)	1935	0.4	12.2	12.5	Yes	108.4	105.9	2.4	2%
AMERICAN LEGION BRIDGE	794	0.2	14.4	17.1	Yes	37.6	31.7	6.0	16%
BEFORE AMERICAN LEGION BRIDGE	508	0.1	14.5	16.4	Yes	23.8	21.1	2.7	12%
MERGE CLARA BARTON PARKWAY	1055	0.2	14.7	16.0	Yes	49.1	45.1	4.0	8%
BETWEEN CLARA BARTON PARKWAY AND CABIN JOHN PARKWAY	7287	1.4	13.8	15.1	Yes	360.9	329.4	31.5	9%
MERGE CABIN JOHN PARKWAY	2126	0.4	11.9	13.2	Yes	122.1	109.7	12.4	10%
BETWEEN CABIN JOHN PARKWAY AND MD 190	259	0.0	13.4	14.9	Yes	13.1	11.8	1.3	10%
MERGE MD 190	1235	0.2	13.5	14.4	Yes	62.4	58.6	3.9	6%
BETWEEN MD 190 AND I 270	6468	1.2	18.6	23.5	Yes	236.6	187.8	48.8	21%
MERGE I 270	867	0.2	51.3	55.0	Yes	11.5	10.7	0.8	7%
BETWEEN I 270 AND MD 187	7828	1.5	60.9	49.1	Yes	87.7	108.6	-20.9	-24%
MERGE MD 187	2140	0.4	47.4	13.7	No	30.8	106.8	-76.0	-247%
BETWEEN MD 187 AND I 270	2278	0.4	20.7	12.1	Yes	74.9	128.7	-53.8	-72%
MERGE BEFORE I 270	1306	0.2	10.9	15.4	Yes	81.7	57.8	23.9	29%
MERGE AFTER I 270	564	0.1	14.0	14.6	Yes	27.5	26.4	1.1	4%
MD 355 MERGE	1371	0.3	13.8	12.7	Yes	68.0	73.6	-5.7	-8%
BETWEEN MD 355 AND MD 185	6065	1.1	14.0	16.0	Yes	294.6	257.8	36.8	12%
MD 185 MERGE	2074	0.4	14.1	14.5	Yes	100.1	97.4	2.6	3%
BETWEEN MD 185 AND MD 97	9907	1.9	21.6	24.8	Yes	312.4	272.5	39.9	13%
MD 97 MERGE	1461	0.3	23.9	21.5	Yes	41.6	46.4	-4.8	-11%
BETWEEN MD 97 AND US 29	5965	1.1	29.2	35.9	Yes	139.3	113.2	26.0	19%
MERGE US 29	1734	0.3	30.1	29.4	Yes	39.3	40.2	-0.9	-2%
BETWEEN MD US 29 AND MD 193	1640	0.3	26.2	18.2	Yes	42.7	61.4	-18.8	-44%
MERGE MD 193	2099	0.4	26.3	20.2	Yes	54.4	70.8	-16.4	-30%
BETWEEN MD 193 AND MD 650	6046	1.1	37.1	32.8	Yes	111.1	125.7	-14.6	-13%
MERGE MD 650	3008	0.6	42.4	39.8	Yes	48.3	51.5	-3.2	-7%
BETWEEN MD 650 AND I 95	2869	0.5	41.1	51.3	Yes	47.5	38.2	9.4	20%
BEFORE I 95 MERGE	5612	1.1	36.3	30.1	Yes	105.6	127.2	-21.6	-20%
AFTER I 95 MERGE	2578	0.5	14.9	19.5	Yes	117.8	90.0	27.8	24%
MERGE US 1	2873	0.5	15.3	15.9	Yes	128.2	123.4	4.8	4%
BEFORE GREENBELT STATION MERGE	3544	0.7	18.5	33.0	Yes	130.8	73.1	57.6	44%
AFTER GREENBELT STATION MERGE	595	0.1	22.4	47.4	No	18.1	8.6	9.5	53%
BETWEEN GREENBELT STATION AND MD 201	4415	0.8	22.8	47.8	No	131.9	62.9	69.0	52%
MERGE MD 201	3066	0.6	21.2	34.4	Yes	98.6	60.8	37.8	38%
BETWEEN MD 201 AND MD 295 MERGE	1900	0.4	25.5	34.1	Yes	50.8	38.0	12.7	25%
MERGE MD 295	2725	0.5	26.4	42.7	No	70.4	43.6	26.8	38%
BETWEEN MD 295 AND MD 450	10677	2.0	27.9	33.8	Yes	260.6	215.4	45.1	17%
MERGE MD 450	1203	0.2	27.1	23.3	Yes	30.3	35.2	-4.9	-16%
BETWEEN MD 450 AND US 50	2809	0.5	32.9	23.7	Yes	58.2	80.7	-22.4	-38%
MERGE US 50	4270	0.8	24.7	12.9	Yes	117.7	225.8	-108.1	-92%
BETWEEN US 50 AND MD 202 (495 EXPRESS LANE)	5460	1.0	27.3	23.5	Yes	136.3	158.7	-22.4	-16%
END 495 EXPRESS LANE	515	0.1	24.2	25.4	Yes	14.5	13.8	0.7	5%
BEFORE MD 202 MERGE	1817	0.3	25.0	20.4	Yes	49.6	60.7	-11.1	-22%
MERGE MD 202	2462	0.5	21.3	20.4	Yes	78.9	82.4	-3.5	-4%
BETWEEN MD 202 AND ARENA DR	1355	0.3	18.5	20.0	Yes	49.9	46.1	3.8	8%
MERGE ARENA DR	2059	0.4	19.1	24.8	Yes	73.6	56.6	17.0	23%
BETWEEN ARENA DR AND MD 214	3333	0.6	21.8	45.3	No	104.3	50.1	54.2	52%
MD 214 MERGE	2564	0.5	22.9	42.9	No	76.3	40.8	35.5	47%
BETWEEN MD 214 AND RITCHIE MARLBORO RD	5923	1.1							
MERGE RITCHIE MARLBORO RD	3041	0.6							
BETWEEN RITCHIE MARLBORO AND MD 4	9698	1.8	42.9	51.1	Yes	154.0	129.5	24.5	16%
MERGE MD 4	2628	0.5	53.7	51.7	Yes	33.3	34.7	-1.3	-4%
BETWEEN MD 4 AND FORESTVILLE RD	3339	0.6	53.4	51.5	Yes	42.6	44.2	-1.6	-4%
MERGE FORESTVILLE RD	930	0.2	54.2	52.5	Yes	11.7	12.1	-0.4	-3%
BETWEEN FORESTVILLE AND MD 218	3213	0.6	54.8	61.7	Yes	40.0	35.5	4.5	11%
MERGE MD 218	1660	0.3	55.0	63.0	Yes	20.6	18.0	2.6	13%
BETWEEN MD 218 AND MD 5	6410	1.2	59.8	59.6	Yes	73.1	73.3	-0.2	0%
MERGE MD 5	2751	0.5	63.0	62.7	Yes	29.8	29.9	-0.1	0%
BETWEEN MD 5 AND MD 414	11958	2.3	64.4	62.9	Yes	126.6	129.5	-2.9	-2%
MERGE MD 414	3478	0.7	63.6	63.2	Yes	37.3	37.5	-0.3	-1%
BETWEEN MD 414 AND MD 210	2470	0.5	61.4	60.4	Yes	27.4	27.9	-0.4	-2%
MERGE MD 210	5648	1.1	48.9	60.9	Yes	78.7	63.2	15.5	20%
BETWEEN MD 210 AND I 295	2959	0.6	34.5	36.5	Yes	58.4	55.3	3.1	5%
MERGE I 295	3328	0.6	34.5	26.2	Yes	65.7	86.5	-20.8	-32%
BEFORE WOODROW WILSON BRIDGE	1217	0.2	44.7	46.8	Yes	18.6	17.7	0.8	5%
WOODROW WILSON BRIDGE	6059	1.1	49.7	52.5	Yes	83.2	78.6	4.6	5%

Figure A.18: I-495 Outer Loop 4-5 PM Speed and Travel Time

Travel Segments	Distance (feet)	Distance (miles)	4-5 PM						
			Speeds (MPH)			Travel Times (sec)		Difference	
			Field (mph)	Simulated (mph)	Speed In Range?	Field (sec)	Simulated (sec)	Difference (sec)	Difference (%)
I-495 Outer Loop	**230042**	**43.6**				**4639.4**	**4785.1**	**-145.8**	**-3%**
WOODROW WILSON BRIDGE	6160	1.2	48.4	55.4	Yes	86.8	75.8	11.0	13%
BEFORE WOODROW WILSON BRIDGE	644	0.1	52.6	59.7	Yes	8.3	7.4	1.0	12%
MERGE I 295	1023	0.2	57.7	58.8	Yes	12.1	11.9	0.2	2%
BETWEEN MD 210 AND I 295	377	0.1	54.6	60.3	Yes	4.7	4.3	0.4	9%
MERGE MD 210	8656	1.6	53.5	57.9	Yes	110.4	102.0	8.4	8%
BETWEEN MD 414 AND MD 210	4452	0.8	53.4	55.9	Yes	56.8	54.3	2.5	4%
MERGE MD 414	2984	0.6	45.3	57.8	Yes	44.9	35.2	9.8	22%
BETWEEN MD 5 AND MD 414	12214	2.3	30.9	52.5	No	269.6	158.6	110.9	41%
MERGE MD 5	3740	0.7	21.0	53.1	No	121.7	48.1	73.6	61%
BETWEEN MD 218 AND MD 5	5897	1.1	21.5	44.7	No	186.6	89.9	96.7	52%
MERGE MD 218	238	0.0	21.2	30.1	Yes	7.7	5.4	2.3	30%
BETWEEN FORESTVILLE AND MD 218	4910	0.9	19.5	21.1	Yes	171.7	158.9	12.8	7%
MERGE MD 337	912	0.2	19.6	19.1	Yes	31.8	32.5	-0.8	-2%
BETWEEN MD 4 AND FORESTVILLE RD	3145	0.6	24.9	37.1	Yes	86.3	57.8	28.4	33%
MERGE MD 4	3108	0.6	26.9	52.6	No	78.7	40.3	38.4	49%
BETWEEN RITCHIE MARLBORO AND MD 4	9857	1.9							
MERGE RITCHIE MARLBORO RD	2341	0.4							
BETWEEN MD 214 AND RITCHIE MARLBORO RD	6303	1.2	39.6	22.3	Yes	108.5	192.9	-84.4	-78%
MERGE MD 214	2618	0.5	41.0	11.9	No	43.6	149.7	-106.1	-244%
BETWEEN ARENA DR AND MD 214	2789	0.5	36.6	14.1	No	51.9	135.2	-83.3	-160%
MERGE ARENA DR	2437	0.5	31.1	13.8	Yes	53.4	120.5	-67.1	-126%
BETWEEN MD 202 AND ARENA DR	1179	0.2	24.1	12.8	Yes	33.4	62.9	-29.5	-88%
MERGE MD 202	3055	0.6	21.2	13.1	Yes	98.4	159.4	-61.1	-62%
BEFORE MD 202 MERGE	908	0.2	21.8	10.1	Yes	28.3	61.4	-33.1	-117%
END 495 EXPRESS LANE	594	0.1	19.4	15.5	Yes	20.9	26.2	-5.3	-26%
BETWEEN US 50 AND MD 202 (495 EXPRESS LANE)	6101	1.2	31.2	30.7	Yes	133.5	135.3	-1.9	-1%
MERGE US 50	3680	0.7	50.7	58.6	Yes	49.5	42.8	6.7	14%
BETWEEN MD 450 AND US 50	2561	0.5	41.3	53.2	Yes	42.3	32.8	9.4	22%
MERGE MD 450	2100	0.4	40.0	44.8	Yes	35.8	32.0	3.8	11%
BETWEEN MD 295 AND MD 450	10674	2.0	40.2	26.3	Yes	181.1	277.2	-96.1	-53%
MERGE MD 295	2479	0.5	32.0	13.1	Yes	52.8	128.8	-76.0	-144%
BETWEEN MD 201 AND MD 295 MERGE	1996	0.4	31.3	14.0	Yes	43.5	97.5	-53.9	-124%
MERGE MD 201	3054	0.6	33.6	17.0	Yes	62.0	122.3	-60.3	-97%
BETWEEN GREENBELT STATION AND MD 201	4643	0.9	42.5	23.5	No	74.4	134.6	-60.2	-81%
BETWEEN GREENBELT STATION AND US 1	4102	0.8	56.1	31.6	No	49.8	88.4	-38.6	-77%
MERGE US 1	2739	0.5	57.4	57.2	Yes	32.5	32.7	-0.1	0%
BETWEEN US 1 AND I 95	3225	0.6	58.0	57.2	Yes	37.9	38.4	-0.5	-1%
I 95 MERGE	4389	0.8	63.1	58.6	Yes	47.4	51.1	-3.7	-8%
BETWEEN MD 650 AND I 95	4048	0.8	51.1	53.3	Yes	54.0	51.8	2.2	4%
MERGE MD 650	2547	0.5	41.7	53.5	Yes	41.7	32.5	9.2	22%
BETWEEN MD 193 AND MD 650	6315	1.2	31.6	52.0	No	136.4	82.7	53.7	39%
MERGE MD 193	1353	0.3	34.6	54.0	No	26.7	17.1	9.6	36%
BETWEEN MD US 29 AND MD 193	2722	0.5	31.3	52.6	No	59.2	35.3	24.0	40%
MERGE US 29	1127	0.2	28.9	51.4	No	26.6	15.0	11.6	44%
BETWEEN MD 97 AND US 29	5926	1.1	29.8	51.2	No	135.5	78.9	56.7	42%
MD 97 MERGE	1734	0.3	33.0	53.1	No	35.9	22.3	13.6	38%
BETWEEN MD 185 AND MD 97	8746	1.7	39.6	50.4	Yes	150.6	118.3	32.3	21%
MD 185 MERGE	3315	0.6	47.8	46.1	Yes	47.3	49.0	-1.7	-4%
BETWEEN MD 355 AND MD 185	6287	1.2	48.1	47.1	Yes	89.1	90.9	-1.8	-2%
MD 355 MERGE	1401	0.3	45.9	53.2	Yes	20.8	17.9	2.9	14%
MERGE AFTER I 270	61	0.0	45.2	54.1	Yes	0.9	0.8	0.2	16%
MERGE BEFORE I 270	1298	0.2	44.2	49.4	Yes	20.0	17.9	2.1	10%
BETWEEN I 270 EAST AND MD 187	3092	0.6	40.8	53.3	Yes	51.6	39.6	12.1	23%
MERGE MD 187	1936	0.4	30.4	52.6	No	43.5	25.1	18.4	42%
BETWEEN I 270 WEST AND MD 187	7643	1.4	21.1	43.1	No	246.5	121.0	125.5	51%
MERGE I 270	1490	0.3	16.5	20.3	Yes	61.7	50.1	11.6	19%
BETWEEN MD 190 AND I 270	5753	1.1	17.3	19.2	Yes	226.5	204.1	22.4	10%
MERGE MD 190	1537	0.3	17.8	14.9	Yes	58.9	70.2	-11.3	-19%
BETWEEN CABIN JOHN PARKWAY AND MD 190	214	0.0	17.8	13.2	Yes	8.2	11.0	-2.8	-34%
MERGE CABIN JOHN PARKWAY	2397	0.5	17.7	14.4	Yes	92.6	113.8	-21.2	-23%
BETWEEN CLARA BARTON PARKWAY AND CABIN JOHN PARKWAY	6336	1.2	23.8	22.2	Yes	181.6	194.2	-12.6	-7%
MERGE CLARA BARTON PARKWAY	1463	0.3	27.3	37.4	Yes	36.6	26.6	9.9	27%
BEFORE AMERICAN LEGION BRIDGE	746	0.1	33.1	44.3	Yes	15.3	11.5	3.9	25%
AMERICAN LEGION BRIDGE	790	0.1	28.5	35.9	Yes	18.9	15.0	3.9	21%
GEORGE WASHINGTON MEMORIAL PKWY EXIT 14 (2)	843	0.2	32.3	27.6	Yes	17.8	20.8	-3.0	-17%
GEORGE WASHINGTON MEMORIAL PKWY EXIT 14 (1)	4288	0.8	25.3	21.3	Yes	115.5	137.1	-21.6	-19%
VA-193/GEORGETOWN PIKE EXIT 13 (2)	679	0.1	22.9	13.7	Yes	20.2	33.9	-13.7	-67%
VA-193/GEORGETOWN PIKE EXIT 13 (1)	1669	0.3	28.4	14.9	Yes	40.1	76.2	-36.1	-90%

Figure A.19: I-270 Southbound 4-5 PM Speed and Travel Time

Travel Segments	Distance (feet)	Distance (miles)	4-5 PM						
			Speeds (MPH)			Travel Times (sec)		Difference	
			Field (mph)	Simulated (mph)		Field (sec)	Simulated (sec)	Difference (sec)	Difference (%)
I-270 SB	176479	33.4				2388.9	2112.8	276.1	12%
BETWEEN MD-85 ON AND OFF RAMPS	2549	0.5	60.0	58.3	Yes	29.0	29.8	-0.9	-3%
FROM MD-85 ON RAMP TO MD-80	25540	4.8	49.4	61.5	No	352.3	283.1	69.2	20%
BETWEEN MD-80 ON AND OFF RAMPS	845	0.2	64.1	61.1	Yes	9.0	9.4	-0.4	-5%
FROM MD-80 ON RAMP TO MD-109	18767	3.6	64.9	58.4	Yes	197.3	219.0	-21.7	-11%
BETWEEN MD-109 ON AND OFF RAMPS	922	0.2	65.1	59.3	Yes	9.6	10.6	-1.0	-10%
FROM MD-109 ON RAMP TO MD-121	18329	3.5	64.2	57.7	Yes	194.7	216.6	-21.9	-11%
BETWEEN MD-121 ON AND OFF RAMPS	2354	0.4	66.1	62.7	Yes	24.3	25.6	-1.3	-5%
FROM MD-121 TO MD-27	10608	2.0	67.6	63.5	Yes	106.9	114.0	-7.1	-7%
BETWEEN MD-27 ON AND OFF RAMPS	3802	0.7	65.2	63.5	Yes	39.8	40.8	-1.0	-3%
FROM MD-27 ON RAMP TO MD-118	1852	0.4	64.3	63.3	Yes	19.6	19.9	-0.3	-2%
BETWEEN MD-118 ON AND OFF RAMPS	3278	0.6	65.3	63.5	Yes	34.2	35.2	-1.0	-3%
FROM MD-118 ON RAMP TO MIDDLEBROOK RD	2587	0.5	65.2	61.6	Yes	27.0	28.6	-1.6	-6%
BETWEEN MIDDLEBROOK RD ON AND OFF RAMPS	1460	0.3	66.7	62.9	Yes	14.9	15.8	-0.9	-6%
FROM MIDDLEBROOK RD ON RAMP TO MD-124	10210	1.9	66.5	63.2	Yes	104.7	110.1	-5.4	-5%
BETWEEN MD-124 ON AND OFF RAMPS	1613	0.3	64.7	62.7	Yes	17.0	17.5	-0.6	-3%
FROM MD-124 ON RAMP TO MD-117	3042	0.6	62.6	61.6	Yes	33.1	33.6	-0.5	-1%
BETWEEN MD-117 ON AND OFF RAMPS	1463	0.3	63.2	61.1	Yes	15.8	16.3	-0.5	-3%
FROM MD-117 TO I-370 INTERCHANGE	3727	0.7	62.6	61.3	Yes	40.6	41.5	-0.9	-2%
BETWEEN I-370 ON AND OFF RAMPS	3154	0.6	65.3	63.5	Yes	32.9	33.9	-0.9	-3%
FROM I-370 ON RAMP TO SHADY GROVE RD	4729	0.9	65.3	63.9	Yes	49.4	50.5	-1.1	-2%
BETWEEN SHADY GROVE RD ON AND OFF RAMPS	77	0.0	65.6	59.9	Yes	0.8	0.9	-0.1	-10%
FROM SHADY GROVE RD ON RAMP TO MD-28	9889	1.9	66.2	59.7	Yes	101.8	112.9	-11.1	-11%
BETWEEN MD-28 ON AND OFF RAMPS	52	0.0	65.4	60.0	Yes	0.5	0.6	0.0	-9%
FROM MD-28 ON RAMP TO MD-189	4132	0.8	64.8	60.1	Yes	43.5	46.9	-3.4	-8%
BETWEEN MD-189 ON AND OFF RAMPS	3083	0.6	65.4	60.1	Yes	32.1	35.0	-2.9	-9%
FROM MD-189 ON RAMP TO MONTROSE RD	3383	0.6	66.9	60.2	Yes	34.5	38.3	-3.8	-11%
BETWEEN MONTROSE RD ON AND OFF RAMPS	4822	0.9	67.1	60.3	Yes	49.0	54.5	-5.6	-11%
FROM MONTROSE RD ON RAMP TO I-270 SPUR	6153	1.2	64.3	59.4	Yes	65.2	70.7	-5.4	-8%
FROM I-270 SPUR MD-187	1248	0.2	61.4	59.2	Yes	13.9	14.4	-0.5	-4%
BETWEEN MD-187 SPUR ON AND OFF RAMPS	4256	0.8	62.3	58.8	Yes	46.6	49.3	-2.7	-6%
FROM MD-187 ON RAMP TO I-495 INTERCHANGE	6196	1.2	46.5	37.2	Yes	90.8	113.5	-22.7	-25%
BETWEEN I-495 INTERCHANGE ON AND OFF RAMPS	1395	0.3	18.7	15.3	Yes	50.9	62.1	-11.2	-22%
I-270 SPUR MERGE	1150	0.2	57.2	58.9	Yes	13.7	13.3	0.4	3%
BETWEEN US-1 AND I-270 SPUR MERGE	2883	0.5	46.3	59.8	No	42.4	32.9	9.6	23%
MERGE US-1	2749	0.5	14.6	58.7	No	128.5	31.9	96.6	75%
MERGE I-495	4180	0.8	8.8	34.1	No	322.3	83.7	238.7	74%

Figure A.20: I-270 Northbound 4-5 PM Speed and Travel Time

Travel Segments	Distance (feet)	Distance (miles)	4-5 PM						
			Speeds (MPH)			Travel Times (sec)		Difference	
			Field (mph)	Simulated (mph)		Field (sec)	Simulated (sec)	Difference (sec)	Difference (%)
I-270 NB	177527	33.6				3194.1	3082.7	111.4	3%
BETWEEN MD-355 AND GROSVENOR LANE	1044	0.2	34.0	57.7	No	20.9	12.3	8.6	41%
FROM GROSVENOR LANE TO EXIT 1A	6217	1.2	37.4	51.5	Yes	113.3	82.4	31.0	27%
BETWEEN EXIT 1A AND 1B	4042	0.8	24.4	27.7	Yes	113.0	99.4	13.5	12%
FROM MD-187 TO I-270 SPUR	341	0.1	19.8	24.2	Yes	11.8	9.6	2.2	18%
FROM TUCKERMAN LANE TO I-270 LOCAL	7076	1.3	29.8	47.0	No	161.8	102.7	59.0	36%
FROM I-270 LOCAL TO EXIT 5 FOR I-270 LOCAL	5080	1.0	44.3	48.5	Yes	78.3	71.5	6.8	9%
FROM EXIT 5 FOR I-270 LOCAL TO JUST SOUTH OF MD-189	3227	0.6	55.0	51.3	Yes	40.0	42.8	-2.8	-7%
BETWEEN MD-189 ON AND OFF RAMPS	3080	0.6	57.4	52.5	Yes	36.6	40.0	-3.4	-9%
FROM MD-189 TO JUST SOUTH OF MD-28	4076	0.8	56.8	51.9	Yes	48.9	53.5	-4.6	-9%
BETWEEN MD-28 ON AND OFF RAMPS	49	0.0	57.7	50.0	Yes	0.6	0.7	-0.1	-16%
FROM MD-28 ON RAMP TO REDLAND BLVD	10016	1.9	52.5	50.9	Yes	130.0	134.2	-4.1	-3%
BETWEEN SHADY GROVE RD ON AND OFF RAMPS	74	0.0	51.8	40.0	Yes	1.0	1.3	-0.3	-30%
FROM SHADY GROVE RD ON RAMP TO I-370 INTERCHANGE	4827	0.9	46.5	29.3	No	70.8	112.2	-41.3	-58%
FROM I-370 INTERCHANGE TO MUDDY BRANCH RD	172	0.0	42.2	26.5	Yes	2.8	4.4	-1.7	-59%
FROM MUDDY BRANCH RD TO JUST SOUTH OF MD-117 INTERCHANGE	7943	1.5	33.8	21.3	Yes	160.0	253.7	-93.6	-59%
FROM JUST SOUTH OF MD-117 INTERCHANGE TO MD-117	29	0.0	28.4	19.1	Yes	0.7	1.0	-0.3	-45%
FROM MD-117 TO MD-124 OFF RAMP	3249	0.6	25.7	20.2	Yes	86.3	109.8	-23.5	-27%
BETWEEN MD-124 ON AND OFF RAMPS	27	0.0	24.5	20.6	Yes	0.8	0.9	-0.1	-19%
FROM MD-124 ON RAMP TO JUST SOUTH OF MIDDLEBROOK RD	12046	2.3	32.5	37.3	Yes	252.9	220.5	32.4	13%
BETWEEN MIDDLEBROOK RD ON AND OFF RAMPS	1221	0.2	42.7	19.8	No	19.5	42.1	-22.6	-116%
FROM MIDDLEBROOK RD ON RAMP TO MD-118 OFF RAMP	2423	0.5	40.0	25.3	Yes	41.3	65.2	-23.9	-58%
BETWEEN MD-118 ON AND OFF RAMPS	3423	0.6	38.7	39.2	Yes	60.3	59.6	0.7	1%
FROM MD-118 ON RAMP TO MD-27	1487	0.3	34.3	48.2	Yes	29.5	21.0	8.5	29%
BETWEEN MD-27 ON AND OFF RAMPS	3356	0.6	27.7	47.7	No	82.6	47.9	34.6	42%
FROM MD-27 ON RAMP TO MD-121 OFF RAMP	11527	2.2	29.6	39.3	Yes	265.4	200.2	65.2	25%
BETWEEN MD-121 ON AND OFF RAMPS	959	0.2	19.9	26.0	Yes	32.9	25.1	7.8	24%
FROM MD-121 TO MD-109	20431	3.9	39.7	45.6	Yes	350.7	305.4	45.2	13%
BETWEEN MD-109 ON AND OFF RAMPS	920	0.2	49.4	54.5	Yes	12.7	11.5	1.2	9%
FROM MD-109 ON RAMP TO MD-80	18686	3.5	45.5	52.1	Yes	280.0	244.4	35.5	13%
BETWEEN MD-80 ON AND OFF RAMPS	946	0.2	46.3	50.7	Yes	13.9	12.7	1.2	9%
FROM MD-80 ON RAMP TO MD-85	24888	4.7	55.2	51.8	Yes	307.6	327.5	-19.9	-6%
BETWEEN MD-85 ON AND OFF RAMPS	2482	0.5	52.2	53.1	Yes	32.4	31.9	0.5	2%
MERGE FROM I 495	4953	0.9	22.3	29.5	Yes	151.6	114.6	37.0	24%
MERGE US-1	2620	0.5	22.3	16.0	Yes	80.0	111.7	-31.8	-40%
BETWEEN I-270 SPUR MERGE AND US 1	2977	0.6	28.7	26.5	Yes	70.6	76.5	-5.9	-8%
MERGE I-270 SPUR	1612	0.3	33.6	34.1	Yes	32.7	32.2	0.5	2%

Figure A.21: I-495 Inner Loop 5-6 PM Speed and Travel Time

Travel Segments	Distance (feet)	Distance (miles)	5-6 PM						
			Speeds (MPH)			Travel Times (sec)		Difference	
			Field (mph)	Simulated (mph)	Speed In Range?	Field (sec)	Simulated (sec)	Difference (sec)	Difference (%)
I-495 Inner Loop	228612	43.3				6551.1	6631.9	-80.7	-1%
VA-193/GEORGETOWN PIKE/EXIT 13	2729	0.5	7.8	7.0	Yes	237.6	266.9	-29.3	-12%
GEORGE WASHINGTON MEMORIAL PKWY/EXIT 14 (1)	2453	0.5	8.8	6.9	Yes	190.7	243.0	-52.3	-27%
GEORGE WASHINGTON MEMORIAL PKWY/EXIT 14 (2)	1935	0.4	12.0	11.3	Yes	110.1	116.4	-6.3	-6%
AMERICAN LEGION BRIDGE	794	0.2	13.7	15.3	Yes	39.6	35.4	4.2	11%
BEFORE AMERICAN LEGION BRIDGE	508	0.1	13.8	14.2	Yes	25.0	24.3	0.7	3%
MERGE CLARA BARTON PARKWAY	1055	0.2	13.5	13.9	Yes	53.1	51.7	1.4	3%
BETWEEN CLARA BARTON PARKWAY AND CABIN JOHN PARKWAY	7287	1.4	12.5	13.1	Yes	397.3	378.7	18.6	5%
MERGE CABIN JOHN PARKWAY	2126	0.4	10.5	11.8	Yes	137.8	122.5	15.3	11%
BETWEEN CABIN JOHN PARKWAY AND MD 190	259	0.0	11.5	13.3	Yes	15.4	13.2	2.1	14%
MERGE MD 190	1235	0.2	11.6	12.9	Yes	72.8	65.5	7.2	10%
BETWEEN MD 190 AND I 270	6468	1.2	16.4	20.1	Yes	268.2	219.7	48.5	18%
MERGE I 270	867	0.2	49.5	54.9	Yes	11.9	10.8	1.2	10%
BETWEEN I 270 AND MD 187	7828	1.5	58.8	20.3	No	90.8	262.5	-171.7	-189%
MERGE MD 187	2140	0.4	28.7	6.5	No	50.9	225.0	-174.1	-342%
BETWEEN MD 187 AND I 270	2278	0.4	10.9	9.0	Yes	142.5	173.5	-31.0	-22%
MERGE BEFORE I 270	1306	0.2	9.5	12.6	Yes	93.9	70.5	23.3	25%
MERGE AFTER I 270	564	0.1	10.4	13.2	Yes	37.2	29.2	8.0	21%
MD 355 MERGE	1371	0.3	10.4	11.5	Yes	89.9	81.1	8.8	10%
BETWEEN MD 355 AND MD 185	6065	1.1	12.6	15.2	Yes	327.8	271.7	56.0	17%
MD 185 MERGE	2074	0.4	13.3	13.3	Yes	106.5	106.2	0.3	0%
BETWEEN MD 185 AND MD 97	9907	1.9	21.4	22.8	Yes	316.0	296.4	19.5	6%
MD 97 MERGE	1461	0.3	24.1	19.2	Yes	41.3	51.8	-10.5	-25%
BETWEEN MD 97 AND US 29	5965	1.1	28.5	29.8	Yes	142.6	136.5	6.2	4%
MERGE US 29	1734	0.3	28.5	21.5	Yes	41.5	54.9	-13.4	-32%
BETWEEN MD US 29 AND MD 193	1640	0.3	23.4	16.5	Yes	47.8	67.6	-19.8	-41%
MERGE MD 193	2099	0.4	23.5	18.7	Yes	60.8	76.7	-15.9	-26%
BETWEEN MD 193 AND MD 650	6046	1.1	32.1	31.3	Yes	128.3	131.5	-3.3	-3%
MERGE MD 650	3008	0.6	33.8	37.3	Yes	60.7	55.0	5.7	9%
BETWEEN MD 650 AND I 95	2869	0.5	32.2	50.6	No	60.8	38.7	22.1	36%
BEFORE I 95 MERGE	5612	1.1	25.7	38.9	Yes	149.1	98.5	50.6	34%
AFTER I 95 MERGE	2578	0.5	12.6	19.0	Yes	139.9	92.6	47.3	34%
MERGE US 1	2873	0.5	13.7	14.9	Yes	142.7	131.6	11.1	8%
BEFORE GREENBELT STATION MERGE	3544	0.7	17.1	29.3	Yes	140.9	82.4	58.5	42%
AFTER GREENBELT STATION MERGE	595	0.1	21.0	36.3	Yes	19.3	11.2	8.1	42%
BETWEEN GREENBELT STATION AND MD 201	4415	0.8	21.5	32.7	Yes	140.0	92.0	48.0	34%
MERGE MD 201	3066	0.6	20.2	18.0	Yes	103.3	116.4	-13.2	-13%
BETWEEN MD 201 AND MD 295 MERGE	1900	0.4	25.6	26.8	Yes	50.6	48.2	2.3	5%
MERGE MD 295	2725	0.5	26.2	22.8	Yes	70.8	81.6	-10.8	-15%
BETWEEN MD 295 AND MD 450	10677	2.0	28.3	22.7	Yes	257.1	320.1	-63.0	-25%
MERGE MD 450	1203	0.2	27.2	19.4	Yes	30.2	42.4	-12.2	-40%
BETWEEN MD 450 AND US 50	2809	0.5	31.2	18.9	Yes	61.4	101.4	-39.9	-65%
MERGE US 50	4270	0.8	21.8	12.0	Yes	133.8	241.8	-108.1	-81%
BETWEEN US 50 AND MD 202 (495 EXPRESS LANE)	5460	1.0	26.4	27.2	Yes	141.1	136.8	4.2	3%
END 495 EXPRESS LANE	515	0.1	24.7	44.3	No	14.2	7.9	6.3	44%
BEFORE MD 202 MERGE	1817	0.3	24.0	32.4	Yes	51.7	38.3	13.4	26%
MERGE MD 202	2462	0.5	21.0	24.4	Yes	80.0	68.8	11.2	14%
BETWEEN MD 202 AND ARENA DR	1355	0.3	18.9	21.7	Yes	49.0	42.5	6.4	13%
MERGE ARENA DR	2059	0.4	19.6	25.2	Yes	71.7	55.7	16.0	22%
BETWEEN ARENA DR AND MD 214	3333	0.6	22.9	34.1	Yes	99.1	66.7	32.4	33%
MD 214 MERGE	2564	0.5	25.1	30.2	Yes	69.5	57.8	11.7	17%
BETWEEN MD 214 AND RITCHIE MARLBORO RD	5923	1.1							
MERGE RITCHIE MARLBORO RD	3041	0.6							
BETWEEN RITCHIE MARLBORO AND MD 4	9698	1.8	42.2	51.0	Yes	156.6	129.7	26.9	17%
MERGE MD 4	2628	0.5	49.0	51.9	Yes	36.6	34.5	2.1	6%
BETWEEN MD 4 AND FORESTVILLE RD	3339	0.6	47.9	51.8	Yes	47.5	43.9	3.6	8%
MERGE FORESTVILLE RD	930	0.2	50.4	52.7	Yes	12.6	12.0	0.6	4%
BETWEEN FORESTVILLE AND MD 218	3213	0.6	52.0	61.7	Yes	42.1	35.5	6.6	16%
MERGE MD 218	1660	0.3	52.6	62.9	Yes	21.5	18.0	3.6	17%
BETWEEN MD 218 AND MD 5	6410	1.2	56.3	60.0	Yes	77.7	72.8	4.9	6%
MERGE MD 5	2751	0.5	61.4	62.8	Yes	30.6	29.9	0.7	2%
BETWEEN MD 5 AND MD 414	11958	2.3	63.6	62.9	Yes	128.2	129.6	-1.4	-1%
MERGE MD 414	3478	0.7	62.6	63.3	Yes	37.9	37.5	0.4	1%
BETWEEN MD 414 AND MD 210	2470	0.5	55.7	60.4	Yes	30.2	27.9	2.3	8%
MERGE MD 210	5648	1.1	21.9	33.4	Yes	175.5	115.3	60.3	34%
BETWEEN MD 210 AND I 295	2959	0.6	16.7	15.5	Yes	120.9	129.9	-9.1	-7%
MERGE I 295	3328	0.6	22.8	21.2	Yes	99.4	107.3	-7.8	-8%
BEFORE WOODROW WILSON BRIDGE	1217	0.2	38.4	46.9	Yes	21.6	17.7	4.0	18%
WOODROW WILSON BRIDGE	6059	1.1	42.1	52.7	Yes	98.2	78.5	19.8	20%

Figure A.22: I-495 Outer Loop 5-6 PM Speed and Travel Time

Travel Segments	Distance (feet)	Distance (miles)	5-6 PM						
			Speeds (MPH)			Travel Times (sec)		Difference	
			Field (mph)	Simulated (mph)	Speed In Range?	Field (sec)	Simulated (sec)	Difference (sec)	Difference (%)
I-495 Outer Loop	**230042**	**43.6**				**4885.5**	**5334.6**	**-446.1**	**-9%**
WOODROW WILSON BRIDGE	6160	1.2	47.8	55.1	Yes	87.8	76.3	11.5	13%
BEFORE WOODROW WILSON BRIDGE	644	0.1	52.4	59.7	Yes	8.4	7.4	1.0	12%
MERGE I 295	1023	0.2	56.7	58.9	Yes	12.3	11.9	0.4	4%
BETWEEN MD 210 AND I 295	377	0.1	51.5	60.3	Yes	5.0	4.3	0.7	15%
MERGE MD 210	8656	1.6	48.6	57.9	Yes	121.4	102.0	19.4	16%
BETWEEN MD 414 AND MD 210	4452	0.8	50.9	56.1	Yes	59.6	54.1	5.5	9%
MERGE MD 414	2984	0.6	48.0	57.9	Yes	42.4	35.2	7.2	17%
BETWEEN MD 5 AND MD 414	12214	2.3	35.6	52.5	Yes	234.0	158.5	75.5	32%
MERGE MD 5	3740	0.7	24.6	53.1	No	103.6	48.0	55.6	54%
BETWEEN MD 218 AND MD 5	5897	1.1	24.4	41.5	Yes	164.7	96.9	67.9	41%
MERGE MD 218	238	0.0	24.3	25.6	Yes	6.7	6.3	0.3	5%
BETWEEN FORESTVILLE AND MD 218	4910	0.9	22.2	18.9	Yes	151.0	177.3	-26.3	-17%
MERGE MD 337	912	0.2	22.3	18.9	Yes	27.9	32.8	-4.9	-18%
BETWEEN MD 4 AND FORESTVILLE RD	3145	0.6	28.2	35.7	Yes	76.1	60.1	16.1	21%
MERGE MD 4	3108	0.6	31.9	45.0	Yes	66.5	47.1	19.4	29%
BETWEEN RITCHIE MARLBORO AND MD 4	9857	1.9							
MERGE RITCHIE MARLBORO RD	2341	0.4							
BETWEEN MD 214 AND RITCHIE MARLBORO RD	6303	1.2	42.8	28.9	Yes	100.5	148.9	-48.4	-48%
MERGE MD 214	2618	0.5	41.2	14.1	No	43.3	126.9	-83.6	-193%
BETWEEN ARENA DR AND MD 214	2789	0.5	34.9	14.9	No	54.5	127.9	-73.4	-135%
MERGE ARENA DR	2437	0.5	27.7	13.5	Yes	60.0	123.0	-63.0	-105%
BETWEEN MD 202 AND ARENA DR	1179	0.2	19.9	11.9	Yes	40.4	67.7	-27.2	-67%
MERGE MD 202	3055	0.6	16.7	12.2	Yes	124.4	170.7	-46.4	-37%
BEFORE MD 202 MERGE	908	0.2	18.0	9.5	Yes	34.4	65.0	-30.6	-89%
END 495 EXPRESS LANE	594	0.1	15.7	14.7	Yes	25.8	27.5	-1.7	-6%
BETWEEN US 50 AND MD 202 (495 EXPRESS LANE)	6101	1.2	24.5	29.9	Yes	169.5	139.2	30.3	18%
MERGE US 50	3680	0.7	26.1	47.0	No	96.3	53.4	42.9	45%
BETWEEN MD 450 AND US 50	2561	0.5	21.5	26.9	Yes	81.1	65.0	16.1	20%
MERGE MD 450	2100	0.4	23.0	17.2	Yes	62.3	83.2	-20.9	-33%
BETWEEN MD 295 AND MD 450	10674	2.0	28.5	16.2	Yes	255.0	449.1	-194.2	-76%
MERGE MD 295	2479	0.5	23.4	11.7	Yes	72.4	145.1	-72.7	-100%
BETWEEN MD 201 AND MD 295 MERGE	1996	0.4	23.6	13.2	Yes	57.6	103.2	-45.5	-79%
MERGE MD 201	3054	0.6	26.5	16.0	Yes	78.6	130.6	-51.9	-66%
BETWEEN GREENBELT STATION AND MD 201	4643	0.9	37.3	22.4	Yes	85.0	141.6	-56.7	-67%
BETWEEN GREENBELT STATION AND US 1	4102	0.8	54.3	30.9	No	51.5	90.5	-39.0	-76%
MERGE US 1	2739	0.5	56.1	57.0	Yes	33.3	32.8	0.5	1%
BETWEEN US 1 AND I 95	3225	0.6	54.7	57.2	Yes	40.2	38.5	1.8	4%
I 95 MERGE	4389	0.8	62.2	58.6	Yes	48.1	51.1	-3.0	-6%
BETWEEN MD 650 AND I 95	4048	0.8	48.9	53.2	Yes	56.4	51.9	4.6	8%
MERGE MD 650	2547	0.5	42.7	53.3	Yes	40.7	32.6	8.1	20%
BETWEEN MD 193 AND MD 650	6315	1.2	42.4	50.0	Yes	101.6	86.2	15.5	15%
MERGE MD 193	1353	0.3	42.2	54.0	Yes	21.9	17.1	4.8	22%
BETWEEN MD US 29 AND MD 193	2722	0.5	40.0	52.6	Yes	46.4	35.3	11.2	24%
MERGE US 29	1127	0.2	38.3	49.6	Yes	20.1	15.5	4.6	23%
BETWEEN MD 97 AND US 29	5926	1.1	37.6	49.7	Yes	107.3	81.3	26.0	24%
MD 97 MERGE	1734	0.3	35.2	52.9	Yes	33.6	22.4	11.2	33%
BETWEEN MD 185 AND MD 97	8746	1.7	39.8	51.0	Yes	149.7	116.9	32.8	22%
MD 185 MERGE	3315	0.6	43.5	45.9	Yes	51.9	49.3	2.6	5%
BETWEEN MD 355 AND MD 185	6287	1.2	38.0	44.0	Yes	112.7	97.4	15.3	14%
MD 355 MERGE	1401	0.3	36.5	41.2	Yes	26.1	23.2	2.9	11%
MERGE AFTER I 270	61	0.0	39.1	50.3	Yes	1.1	0.8	0.2	22%
MERGE BEFORE I 270	1298	0.2	36.2	49.1	Yes	24.4	18.0	6.4	26%
BETWEEN I 270 EAST AND MD 187	3092	0.6	35.6	53.0	Yes	59.1	39.8	19.4	33%
MERGE MD 187	1936	0.4	24.5	45.2	No	54.0	29.2	24.8	46%
BETWEEN I 270 WEST AND MD 187	7643	1.4	20.0	20.5	Yes	260.9	254.3	6.6	3%
MERGE I 270	1490	0.3	14.6	9.0	Yes	69.8	113.3	-43.5	-62%
BETWEEN MD 190 AND I 270	5753	1.1	16.2	13.7	Yes	242.5	286.5	-44.0	-18%
MERGE MD 190	1537	0.3	16.5	12.9	Yes	63.4	81.5	-18.2	-29%
BETWEEN CABIN JOHN PARKWAY AND MD 190	214	0.0	16.5	11.6	Yes	8.9	12.6	-3.7	-42%
MERGE CABIN JOHN PARKWAY	2397	0.5	16.4	13.1	Yes	99.6	125.1	-25.4	-26%
BETWEEN CLARA BARTON PARKWAY AND CABIN JOHN PA	6336	1.2	21.8	21.2	Yes	198.2	203.4	-5.2	-3%
MERGE CLARA BARTON PARKWAY	1463	0.3	24.8	38.8	Yes	40.2	25.7	14.5	36%
BEFORE AMERICAN LEGION BRIDGE	746	0.1	31.2	48.7	Yes	16.3	10.4	5.8	36%
AMERICAN LEGION BRIDGE	790	0.1	32.1	51.8	No	16.8	10.4	6.4	38%
GEORGE WASHINGTON MEMORIAL PKWY/EXIT 14 (2)	843	0.2	34.3	50.2	Yes	16.8	11.4	5.3	32%
GEORGE WASHINGTON MEMORIAL PKWY/EXIT 14 (1)	4288	0.8	26.9	30.6	Yes	108.6	95.6	13.0	12%
VA-193/GEORGETOWN PIKE/EXIT 13 (2)	679	0.1	24.2	20.5	Yes	19.1	22.6	-3.5	-18%
VA-193/GEORGETOWN PIKE/EXIT 13 (1)	1669	0.3	29.3	17.2	Yes	38.8	66.2	-27.4	-71%

Figure A.23: I-270 Southbound 5-6 PM Speed and Travel Time

Travel Segments	Distance (feet)	Distance (miles)	5-6 PM						
			Speeds (MPH)			Travel Times (sec)		Difference	
			Field (mph)	Simulated (mph)		Field (sec)	Simulated (sec)	Difference (sec)	Difference (%)
I-270 SB	176479	33.4				2500.4	2360.4	139.9	6%
BETWEEN MD-85 ON AND OFF RAMPS	2549	0.5	54.2	58.1	Yes	32.1	29.9	2.2	7%
FROM MD-85 ON RAMP TO MD-80	25540	4.8	50.9	61.0	Yes	342.1	285.5	56.6	17%
BETWEEN MD-80 ON AND OFF RAMPS	845	0.2	62.7	60.3	Yes	9.2	9.6	-0.4	-4%
FROM MD-80 ON RAMP TO MD-109	18767	3.6	64.3	57.3	Yes	198.9	223.4	-24.6	-12%
BETWEEN MD-109 ON AND OFF RAMPS	922	0.2	64.1	57.6	Yes	9.8	10.9	-1.1	-11%
FROM MD-109 ON RAMP TO MD-121	18329	3.5	63.6	55.8	Yes	196.4	223.9	-27.4	-14%
BETWEEN MD-121 ON AND OFF RAMPS	2354	0.4	66.4	62.5	Yes	24.2	25.7	-1.5	-6%
FROM MD-121 TO MD-27	10608	2.0	68.1	63.3	Yes	106.1	114.3	-8.1	-8%
BETWEEN MD-27 ON AND OFF RAMPS	3802	0.7	65.4	63.5	Yes	39.6	40.8	-1.2	-3%
FROM MD-27 ON RAMP TO MD-118	1852	0.4	64.5	63.0	Yes	19.6	20.1	-0.5	-2%
BETWEEN MD-118 ON AND OFF RAMPS	3278	0.6	65.0	63.3	Yes	34.4	35.3	-0.9	-3%
FROM MD-118 ON RAMP TO MIDDLEBROOK RD	2587	0.5	64.7	61.2	Yes	27.3	28.8	-1.5	-6%
BETWEEN MIDDLEBROOK RD ON AND OFF RAMPS	1460	0.3	66.6	62.8	Yes	14.9	15.9	-0.9	-6%
FROM MIDDLEBROOK RD ON RAMP TO MD-124	10210	1.9	66.6	63.0	Yes	104.6	110.5	-5.9	-6%
BETWEEN MD-124 ON AND OFF RAMPS	1613	0.3	64.5	62.6	Yes	17.0	17.6	-0.5	-3%
FROM MD-124 ON RAMP TO MD-117	3042	0.6	62.6	61.2	Yes	33.1	33.9	-0.8	-2%
BETWEEN MD-117 ON AND OFF RAMPS	1463	0.3	62.9	60.6	Yes	15.9	16.5	-0.6	-4%
FROM MD-117 TO I-370 INTERCHANGE	3727	0.7	62.3	60.7	Yes	40.8	41.8	-1.0	-3%
BETWEEN I-370 ON AND OFF RAMPS	3154	0.6	65.8	63.4	Yes	32.7	33.9	-1.2	-4%
FROM I-370 ON RAMP TO SHADY GROVE RD	4729	0.9	65.8	63.7	Yes	49.0	50.6	-1.6	-3%
BETWEEN SHADY GROVE RD ON AND OFF RAMPS	77	0.0	65.8	59.3	Yes	0.8	0.9	-0.1	-11%
FROM SHADY GROVE RD ON RAMP TO MD-28	9889	1.9	66.2	59.1	Yes	101.8	114.1	-12.3	-12%
BETWEEN MD-28 ON AND OFF RAMPS	52	0.0	63.6	59.0	Yes	0.6	0.6	0.0	-8%
FROM MD-28 ON RAMP TO MD-189	4132	0.8	64.0	59.5	Yes	44.0	47.3	-3.3	-7%
BETWEEN MD-189 ON AND OFF RAMPS	3083	0.6	64.9	59.5	Yes	32.4	35.4	-2.9	-9%
FROM MD-189 ON RAMP TO MONTROSE RD	3383	0.6	64.5	59.6	Yes	35.8	38.7	-2.9	-8%
BETWEEN MONTROSE RD ON AND OFF RAMPS	4822	0.9	63.8	59.6	Yes	51.5	55.1	-3.7	-7%
FROM MONTROSE RD ON RAMP TO I-270 SPUR	6153	1.2	62.6	59.1	Yes	67.0	70.9	-3.9	-6%
FROM I-270 SPUR MD-187	1248	0.2	60.5	59.1	Yes	14.1	14.4	-0.3	-2%
BETWEEN MD-187 SPUR ON AND OFF RAMPS	4256	0.8	59.4	58.9	Yes	48.8	49.3	-0.4	-1%
FROM MD-187 ON RAMP TO I-495 INTERCHANGE	6196	1.2	25.9	22.6	Yes	163.1	186.8	-23.7	-15%
BETWEEN I-495 INTERCHANGE ON AND OFF RAMPS	1395	0.3	14.5	14.5	Yes	65.8	65.4	0.3	1%
I-270 SPUR MERGE	1150	0.2	52.4	58.6	Yes	15.0	13.4	1.6	11%
BETWEEN US-1 AND I-270 SPUR MERGE	2883	0.5	41.5	59.7	No	47.4	32.9	14.5	31%
MERGE US-1	2749	0.5	12.4	42.6	No	151.6	44.0	107.6	71%
MERGE I-495	4180	0.8	9.1	12.8	Yes	313.1	222.5	90.6	29%

Figure A.24: I-270 Northbound 5-6 PM Speed and Travel Time

Travel Segments	Distance (feet)	Distance (miles)	5-6 PM						
			Speeds (MPH)			Travel Times (sec)		Difference	
			Field (mph)	Simulated (mph)		Field (sec)	Simulated (sec)	Difference (sec)	Difference (%)
I-270 NB	177527	33.6				3773.2	3540.8	232.4	6%
BETWEEN MD-355 AND GROSVENOR LANE	1044	0.2	24.2	30.4	Yes	29.4	23.4	5.9	20%
FROM GROSVENOR LANE TO EXIT 1A	6217	1.2	28.1	26.0	Yes	151.0	163.2	-12.2	-8%
BETWEEN EXIT 1A AND 1B	4042	0.8	20.6	16.5	Yes	134.1	166.6	-32.5	-24%
FROM MD-187 TO I-270 SPUR	341	0.1	17.5	19.2	Yes	13.3	12.1	1.2	9%
FROM TUCKERMAN LANE TO I-270 LOCAL	7076	1.3	27.9	47.0	No	172.7	102.5	70.2	41%
FROM I-270 LOCAL TO EXIT 5 FOR I-270 LOCAL	5080	1.0	43.2	48.8	Yes	80.2	71.0	9.1	11%
FROM EXIT 5 FOR I-270 LOCAL TO JUST SOUTH OF MD-189	3227	0.6	50.9	51.3	Yes	43.2	42.8	0.4	1%
BETWEEN MD-189 ON AND OFF RAMPS	3080	0.6	50.7	52.5	Yes	41.4	40.0	1.4	3%
FROM MD-189 TO JUST SOUTH OF MD-28	4076	0.8	45.0	52.1	Yes	61.8	53.3	8.4	14%
BETWEEN MD-28 ON AND OFF RAMPS	49	0.0	45.7	50.4	Yes	0.7	0.7	0.1	9%
FROM MD-28 ON RAMP TO REDLAND BLVD	10016	1.9	33.0	36.7	Yes	206.7	186.0	20.7	10%
BETWEEN SHADY GROVE RD ON AND OFF RAMPS	74	0.0	38.0	25.2	Yes	1.3	2.0	-0.7	-51%
FROM SHADY GROVE RD ON RAMP TO I-370 INTERCHANGE	4827	0.9	28.6	23.2	Yes	115.2	141.7	-26.4	-23%
FROM I-370 INTERCHANGE TO MUDDY BRANCH RD	172	0.0	23.3	22.9	Yes	5.0	5.1	-0.1	-2%
FROM MUDDY BRANCH RD TO JUST SOUTH OF MD-117 INTERCHANGE	7943	1.5	22.7	21.2	Yes	238.9	255.6	-16.7	-7%
FROM JUST SOUTH OF MD-117 INTERCHANGE TO MD-117	29	0.0	23.4	18.2	Yes	0.8	1.1	-0.2	-29%
FROM MD-117 TO MD-124 OFF RAMP	3249	0.6	22.0	18.8	Yes	100.6	117.8	-17.2	-17%
BETWEEN MD-124 ON AND OFF RAMPS	27	0.0	21.3	19.2	Yes	0.9	1.0	-0.1	-11%
FROM MD-124 ON RAMP TO JUST SOUTH OF MIDDLEBROOK RD	12046	2.3	29.7	33.3	Yes	276.9	246.5	30.4	11%
BETWEEN MIDDLEBROOK RD ON AND OFF RAMPS	1221	0.2	38.5	19.8	No	21.6	42.0	-20.4	-94%
FROM MIDDLEBROOK RD ON RAMP TO MD-118 OFF RAMP	2423	0.5	34.7	25.4	Yes	47.6	65.0	-17.4	-37%
BETWEEN MD-118 ON AND OFF RAMPS	3423	0.6	32.6	39.5	Yes	71.5	59.0	12.5	17%
FROM MD-118 ON RAMP TO MD-27	1487	0.3	29.6	48.3	No	34.2	21.0	13.2	39%
BETWEEN MD-27 ON AND OFF RAMPS	3356	0.6	25.0	40.2	Yes	91.5	56.9	34.6	38%
FROM MD-27 ON RAMP TO MD-121 OFF RAMP	11527	2.2	27.6	26.6	Yes	285.2	295.5	-10.3	-4%
BETWEEN MD-121 ON AND OFF RAMPS	959	0.2	18.4	19.0	Yes	35.6	34.5	1.1	3%
FROM MD-121 TO MD-109	20431	3.9	31.8	42.4	Yes	437.8	328.2	109.6	25%
BETWEEN MD-109 ON AND OFF RAMPS	920	0.2	42.9	54.5	Yes	14.6	11.5	3.1	21%
FROM MD-109 ON RAMP TO MD-80	15686	3.5	40.9	52.1	Yes	311.6	244.8	66.8	21%
BETWEEN MD-80 ON AND OFF RAMPS	946	0.2	44.8	50.7	Yes	14.4	12.7	1.7	12%
FROM MD-80 ON RAMP TO MD-85	24888	4.7	52.8	51.8	Yes	321.3	327.6	-6.3	-2%
BETWEEN MD-85 ON AND OFF RAMPS	2482	0.5	47.8	53.1	Yes	35.4	31.8	3.6	10%
MERGE FROM I 495	4953	0.9	20.2	25.1	Yes	167.3	134.3	33.0	20%
MERGE US-1	2620	0.5	19.2	13.9	Yes	92.9	128.4	-35.4	-38%
BETWEEN I-270 SPUR MERGE AND US 1	2977	0.6	25.3	24.8	Yes	80.2	81.7	-1.5	-2%
MERGE I-270 SPUR	1612	0.3	30.4	33.0	Yes	36.1	33.4	2.8	8%

APPENDIX B

Travel Time Charts

Figure B.1: I-495 Inner Loop – 7-8 AM VISSIM Model and INRIX Travel Time Comparison

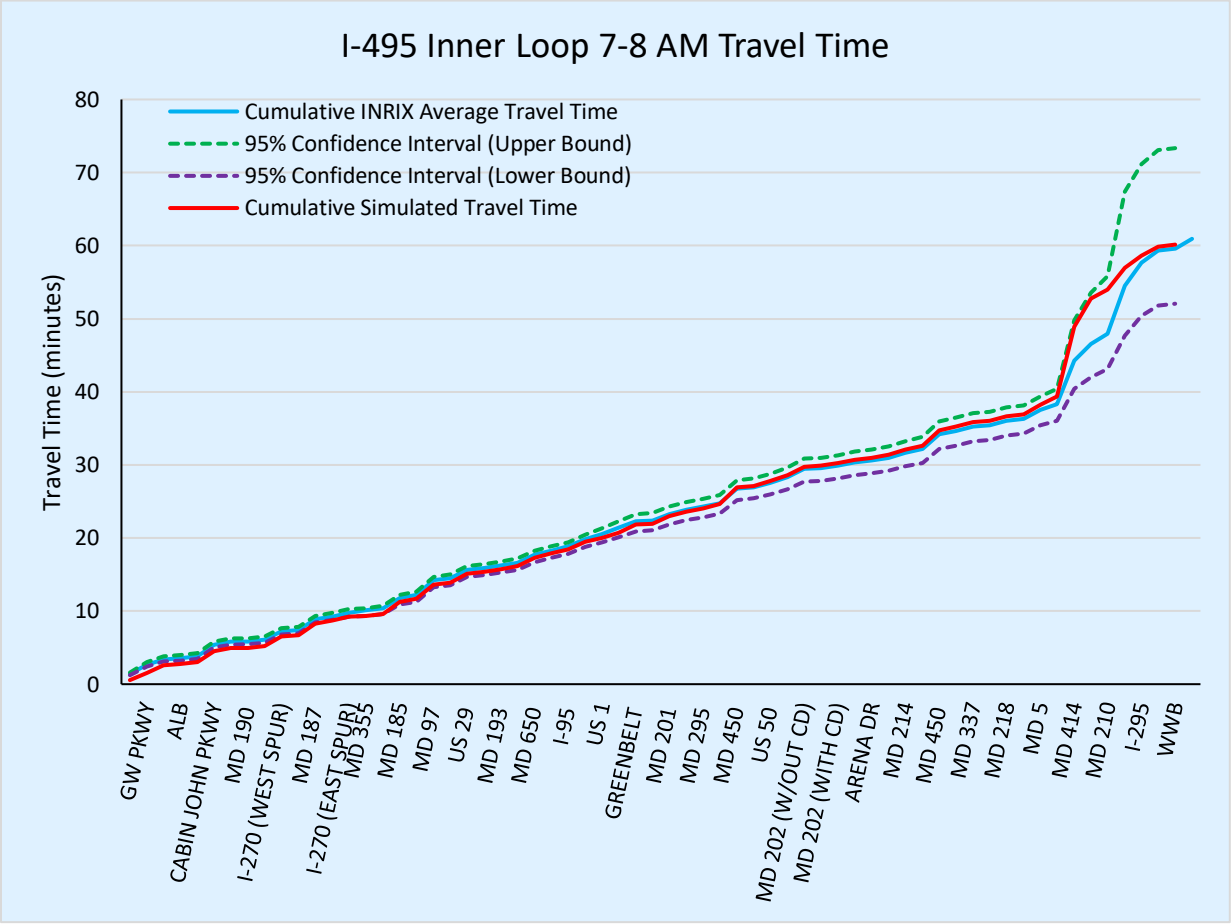


Figure B.2: I-495 Inner Loop – 8-9 AM VISSIM Model and INRIX Travel Time Comparison

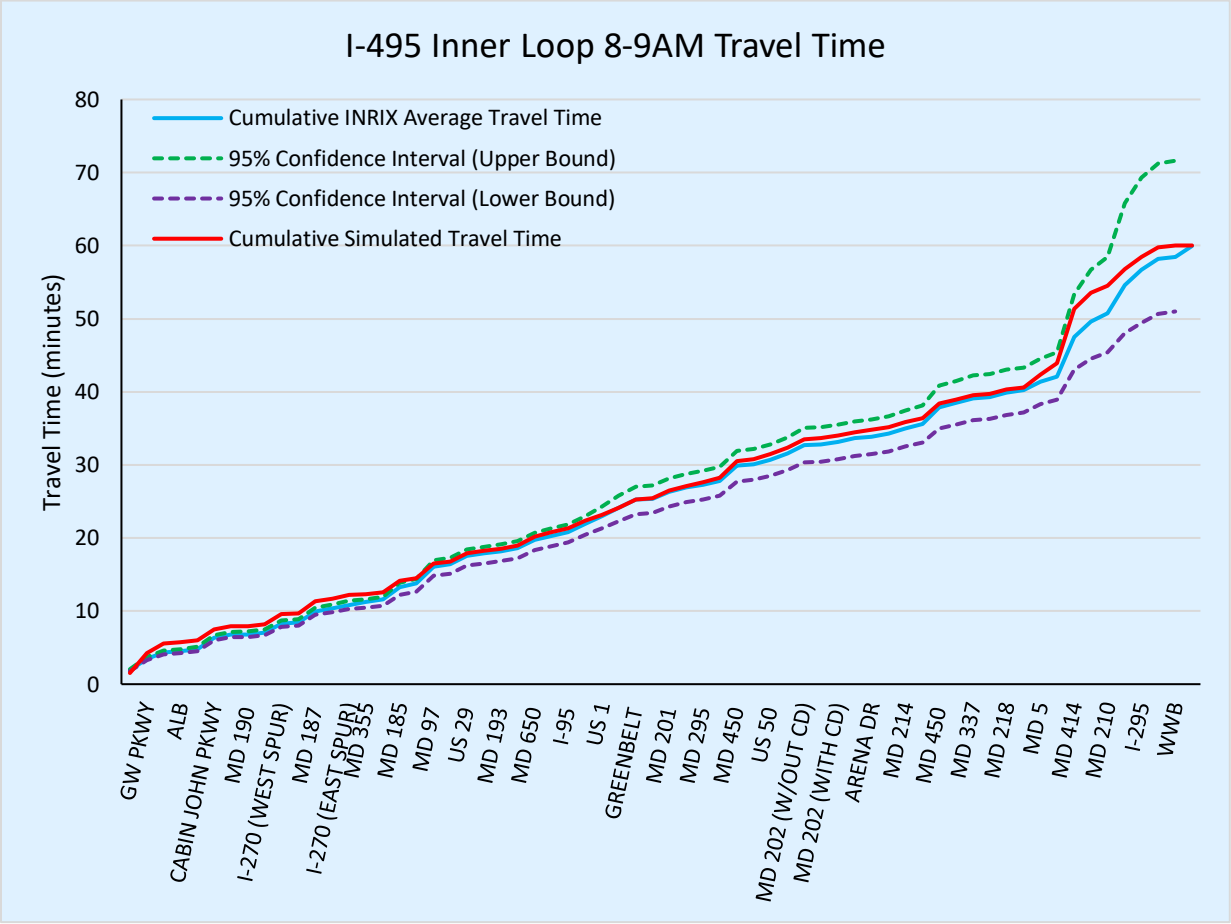


Figure B.3: I-495 Inner Loop – 4-5 PM VISSIM Model and INRIX Travel Time Comparison

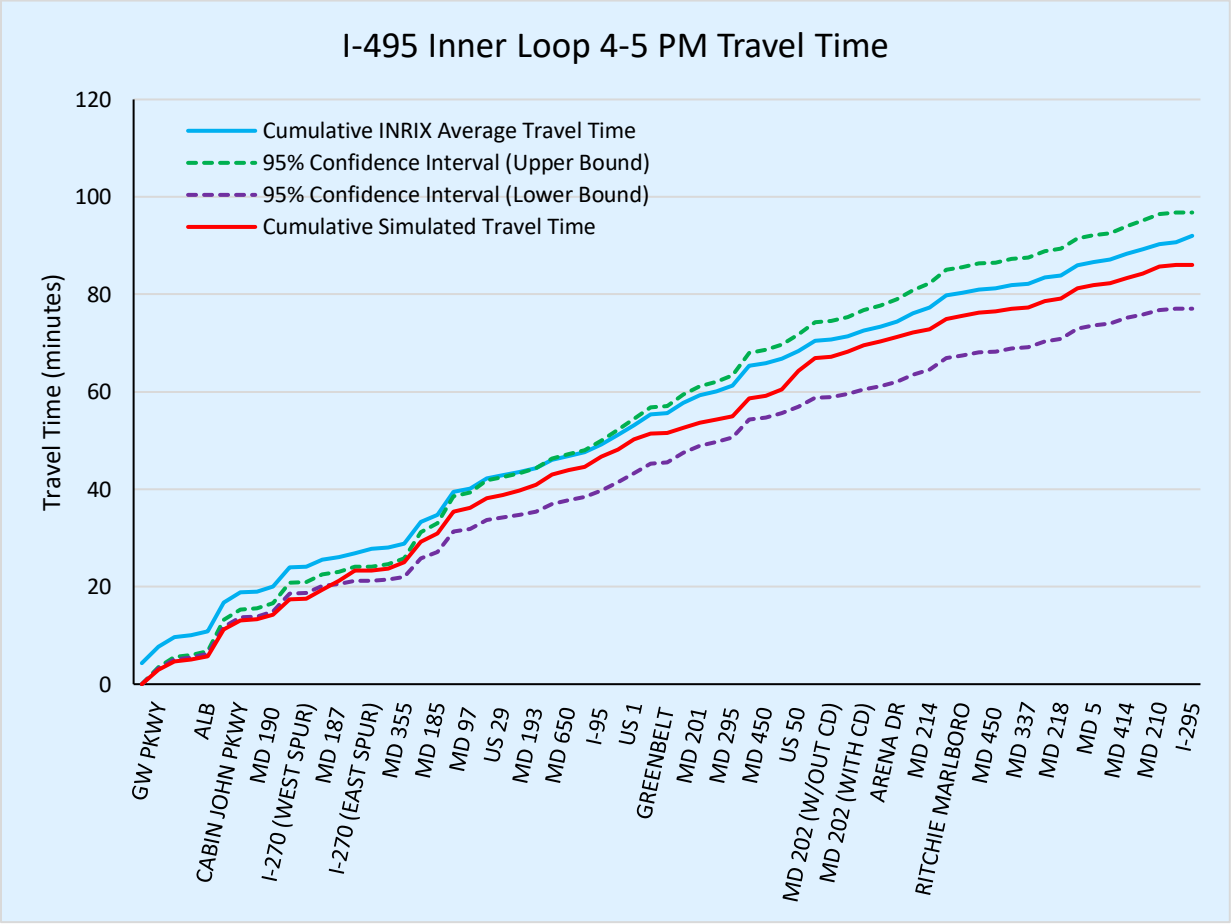


Figure B.4: I-495 Inner Loop – 5-6 PM VISSIM Model and INRIX Travel Time Comparison

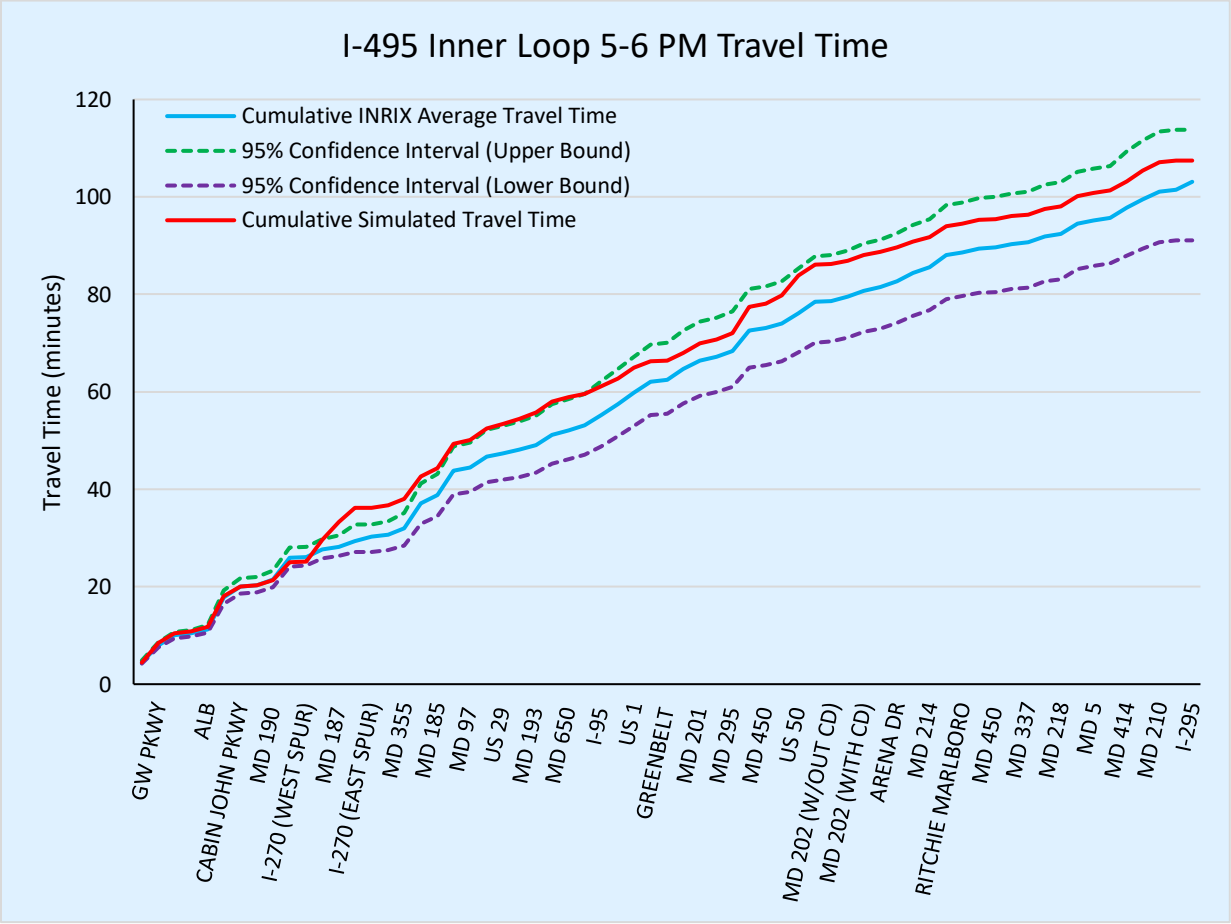


Figure B.5: I-495 Outer Loop – 7-8 AM VISSIM Model and INRIX Travel Time Comparison

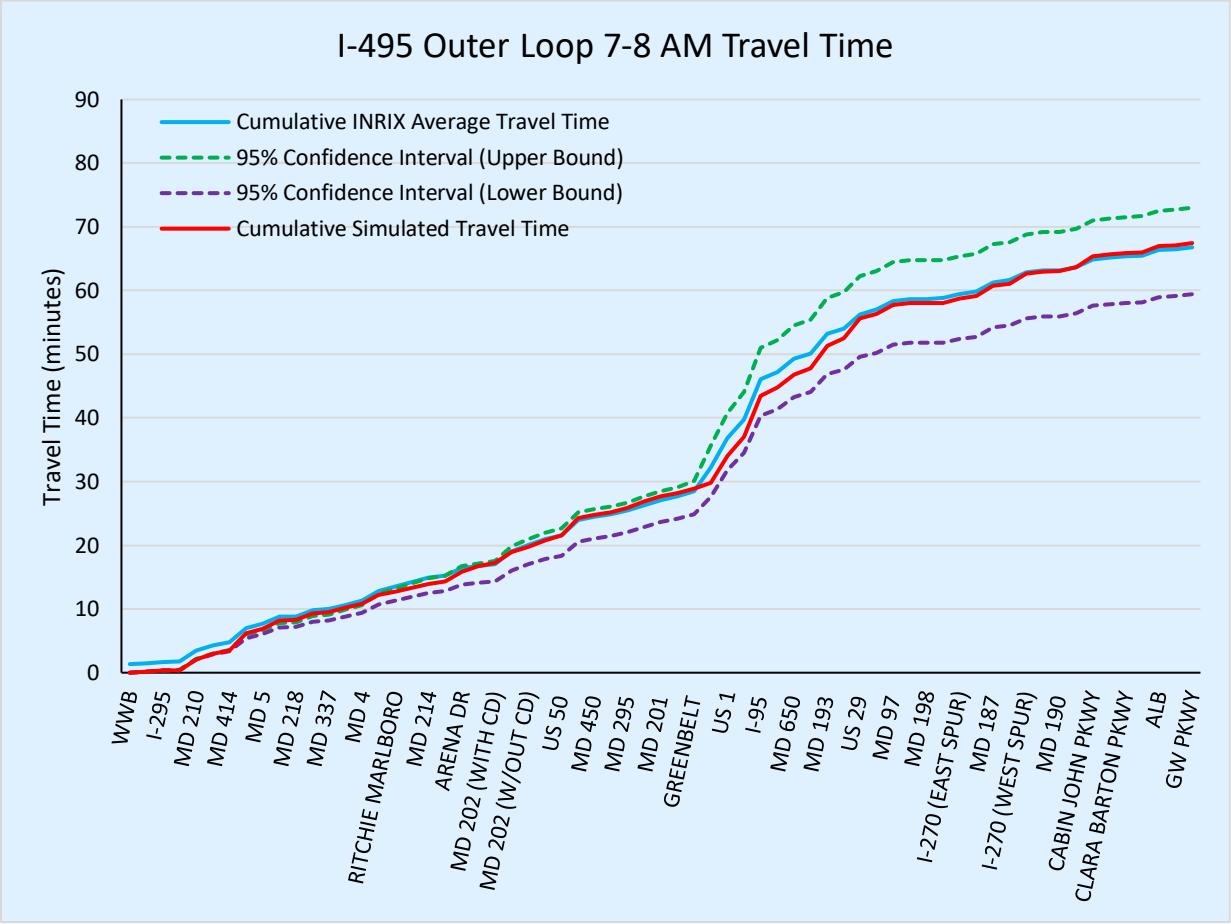


Figure B.6: I-495 Outer Loop – 8-9 AM VISSIM Model and INRIX Travel Time Comparison

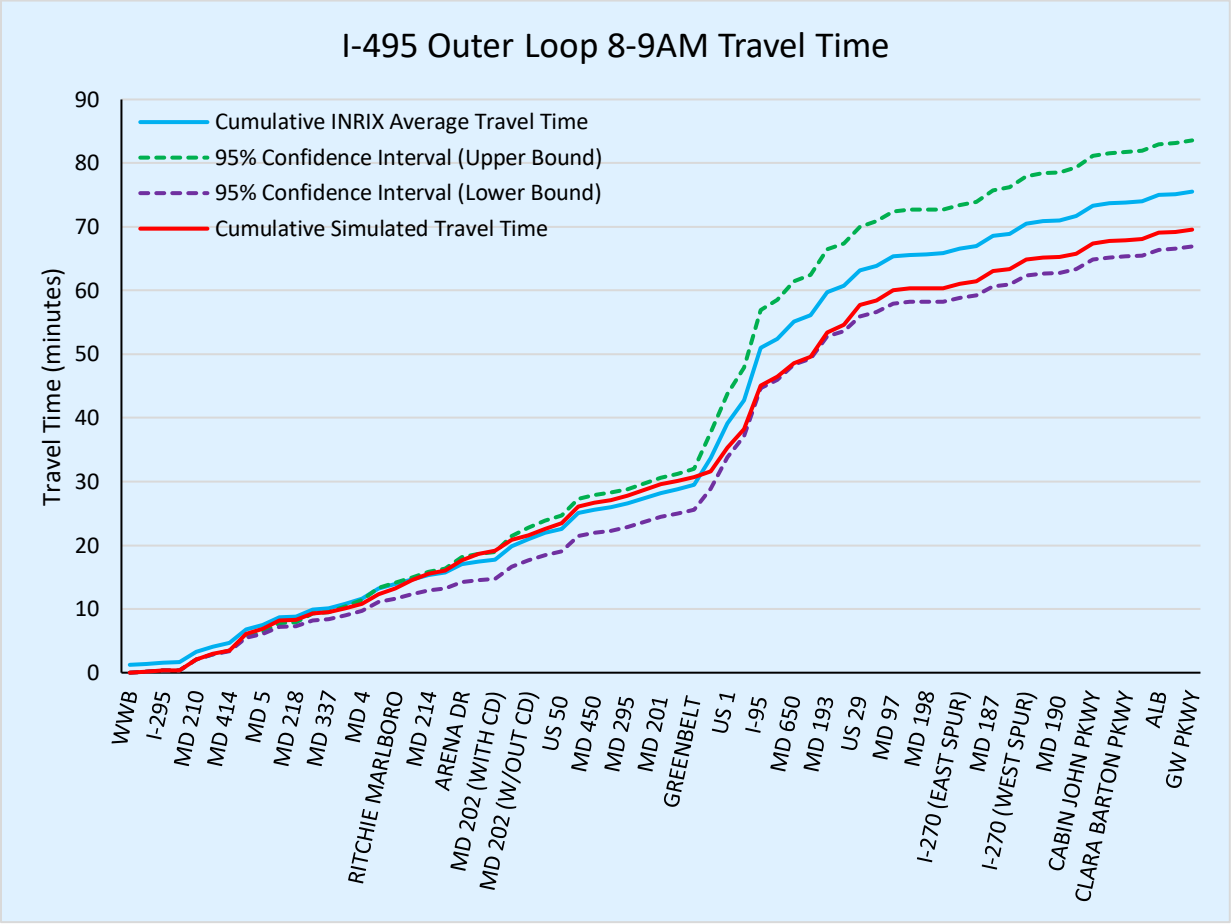


Figure B.7: I-495 Outer Loop – 4-5 PM VISSIM Model and INRIX Travel Time Comparison

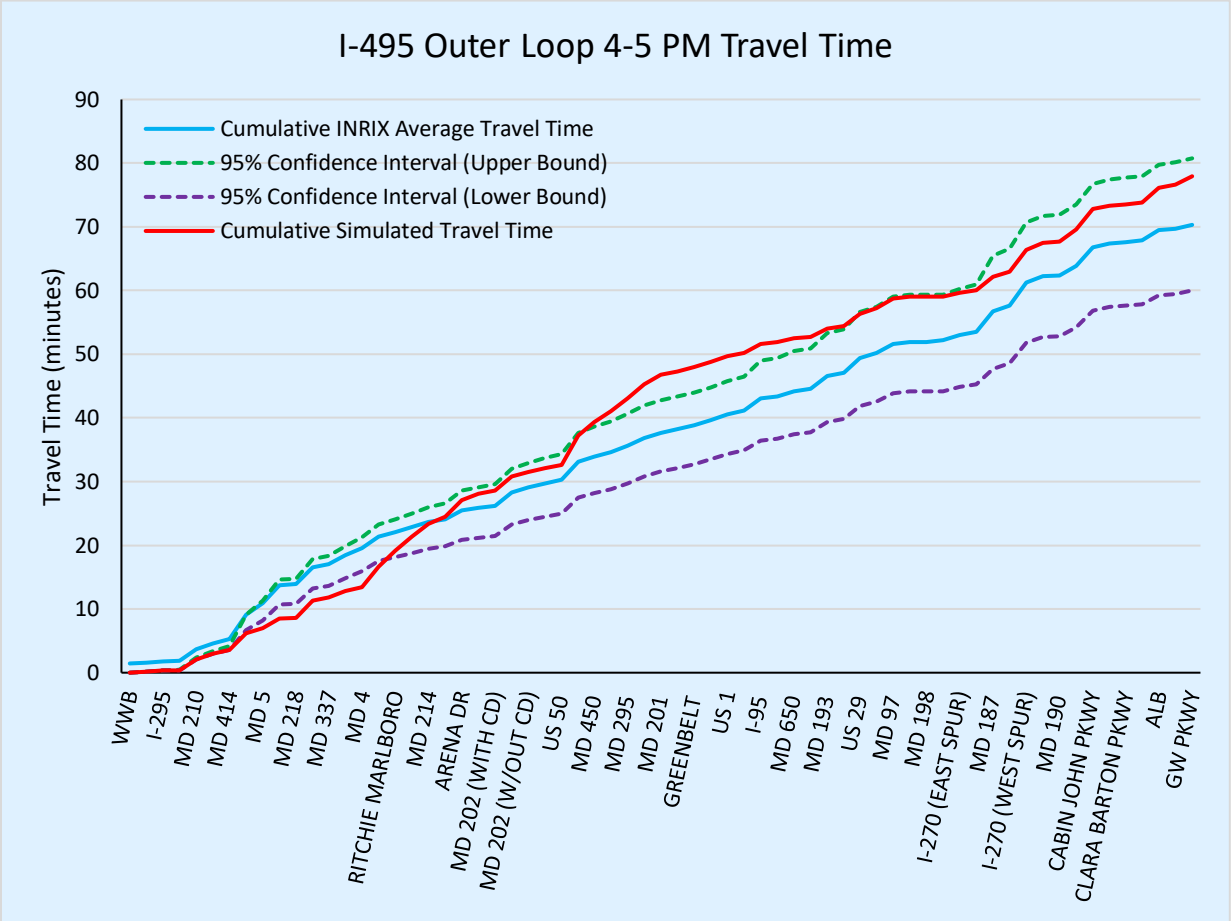


Figure B.8: I-495 Outer Loop – 5-6 PM VISSIM Model and INRIX Travel Time Comparison

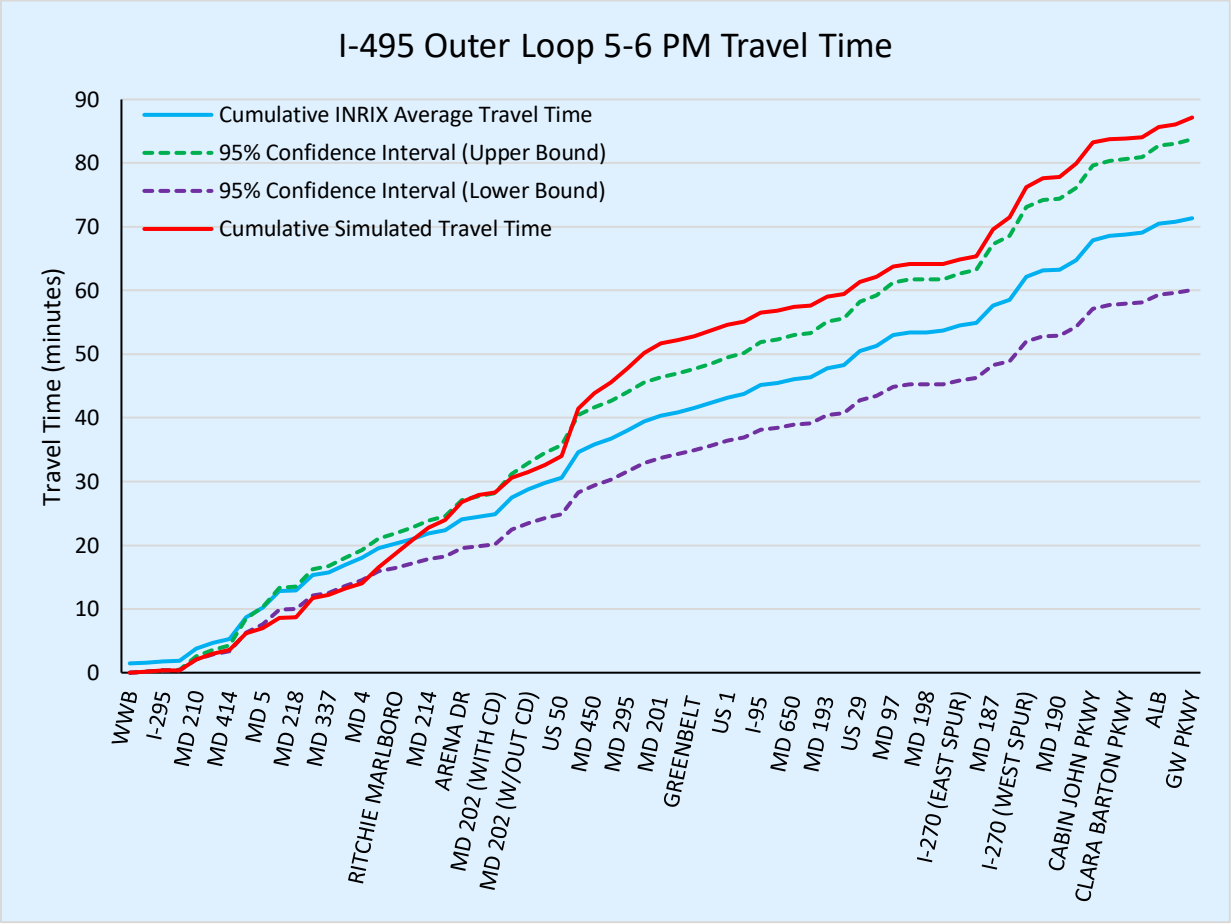


Figure B.9: I-270 Southbound – 7-8 AM VISSIM Model and INRIX Travel Time Comparison

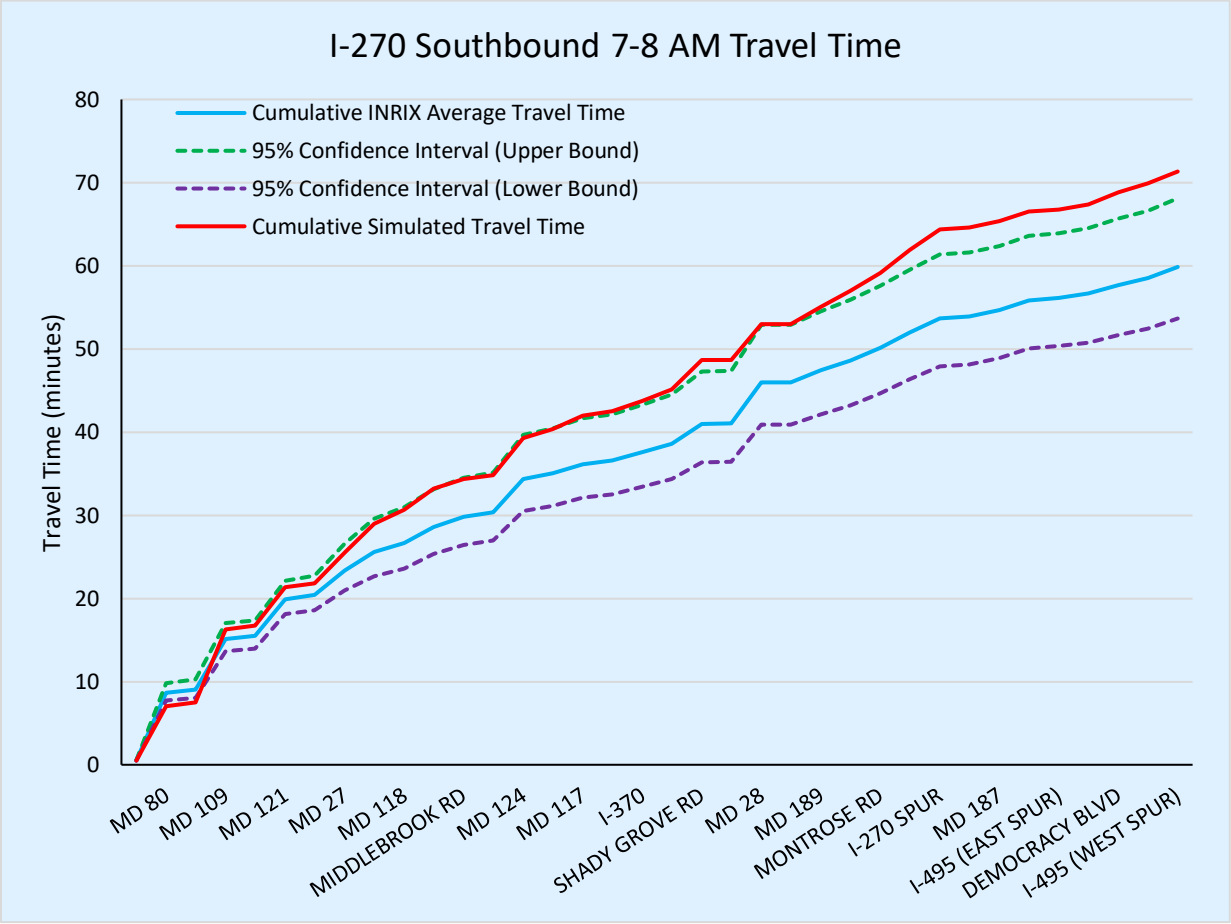


Figure B.10: I-270 Southbound – 8-9 AM VISSIM Model and INRIX Travel Time Comparison

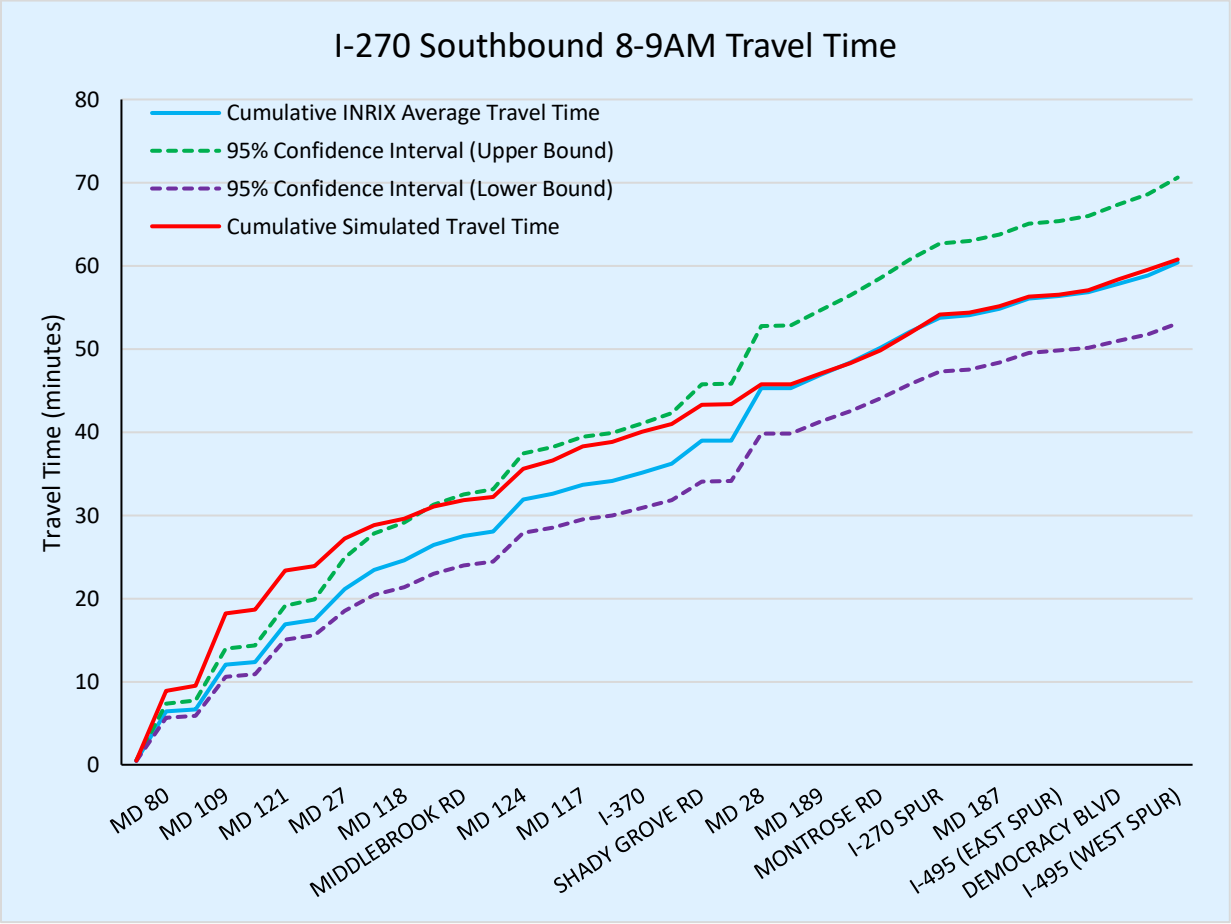


Figure B.11: I-270 Southbound – 4-5 PM VISSIM Model and INRIX Travel Time Comparison

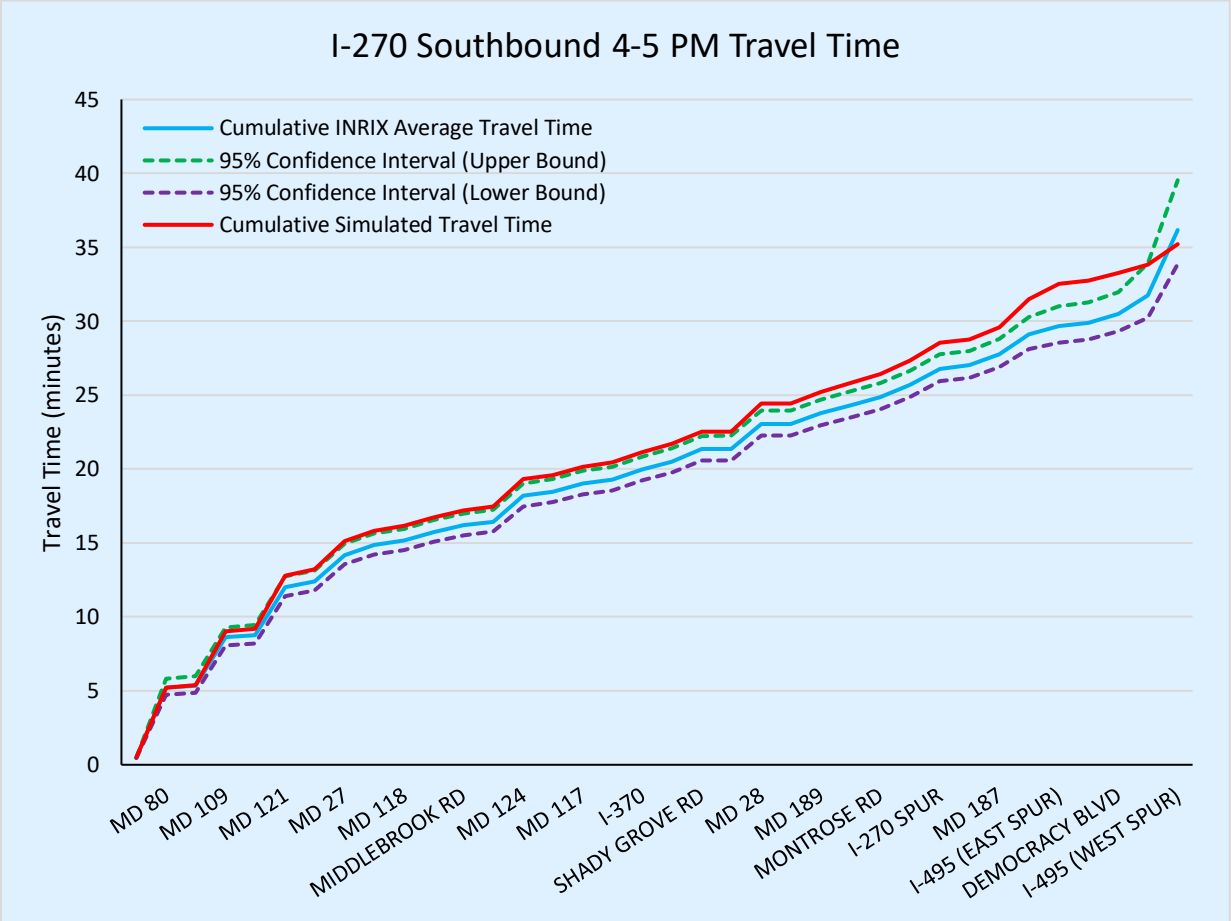


Figure B.12: I-270 Southbound – 5-6 PM VISSIM Model and INRIX Travel Time Comparison

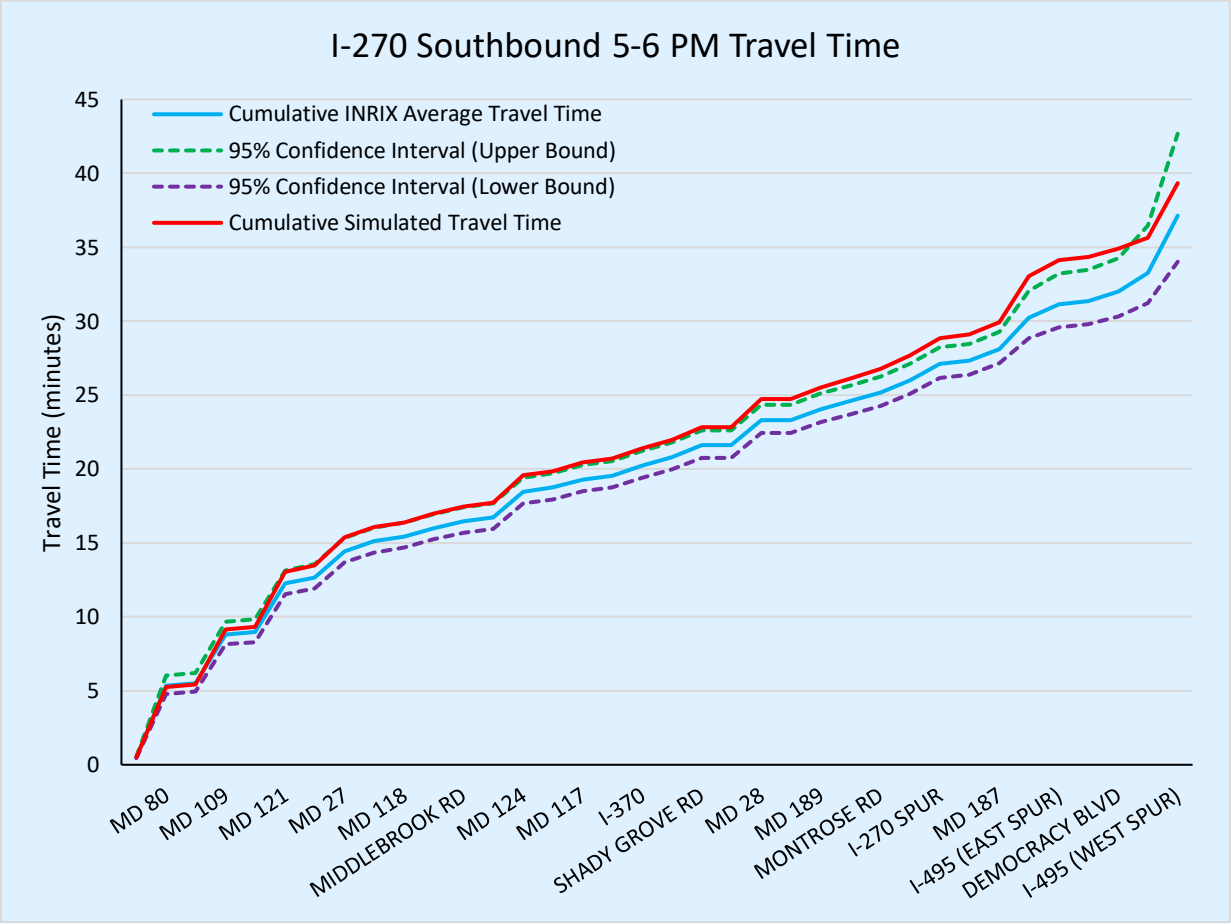


Figure B.13: I-270 Northbound – 7-8 AM VISSIM Model and INRIX Travel Time Comparison

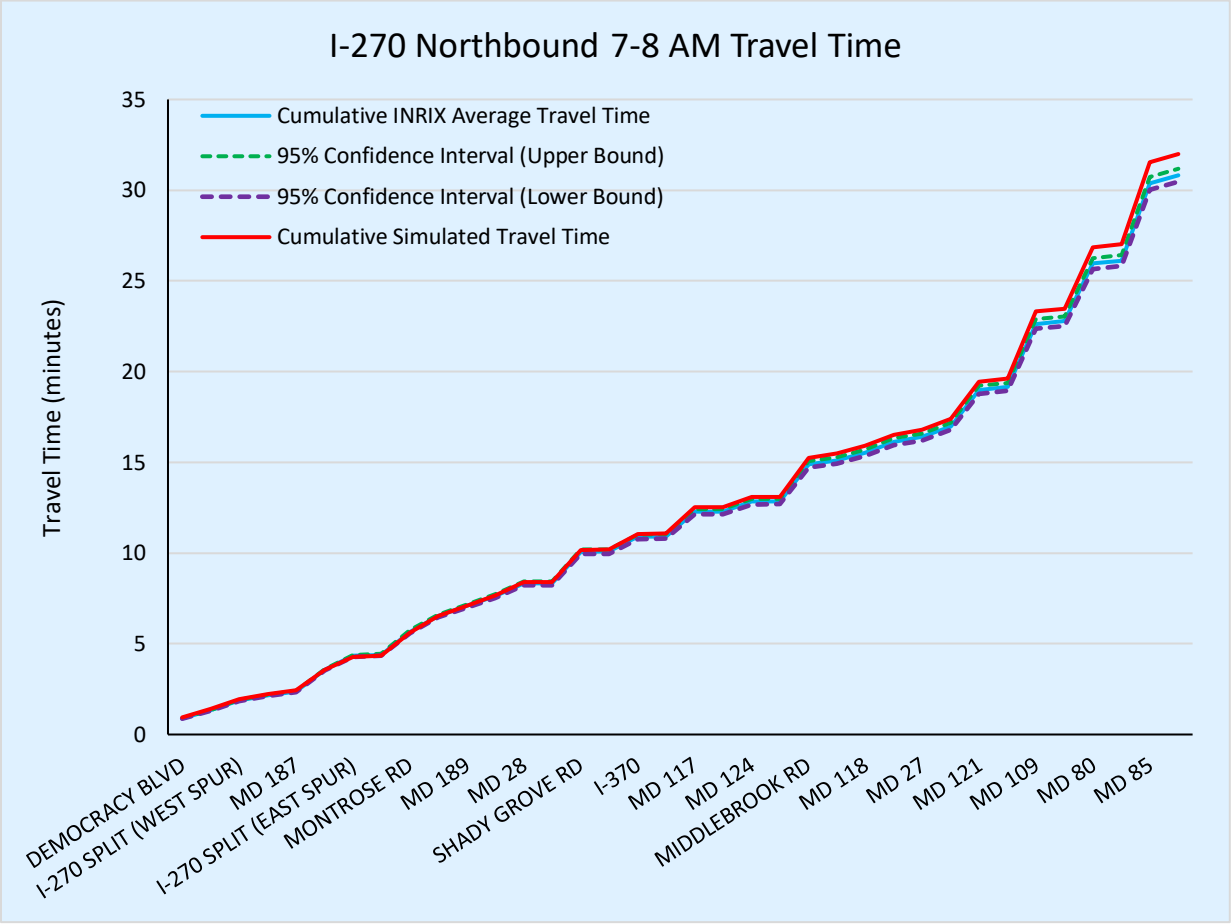


Figure B.14: I-270 Northbound – 8-9 AM VISSIM Model and INRIX Travel Time Comparison

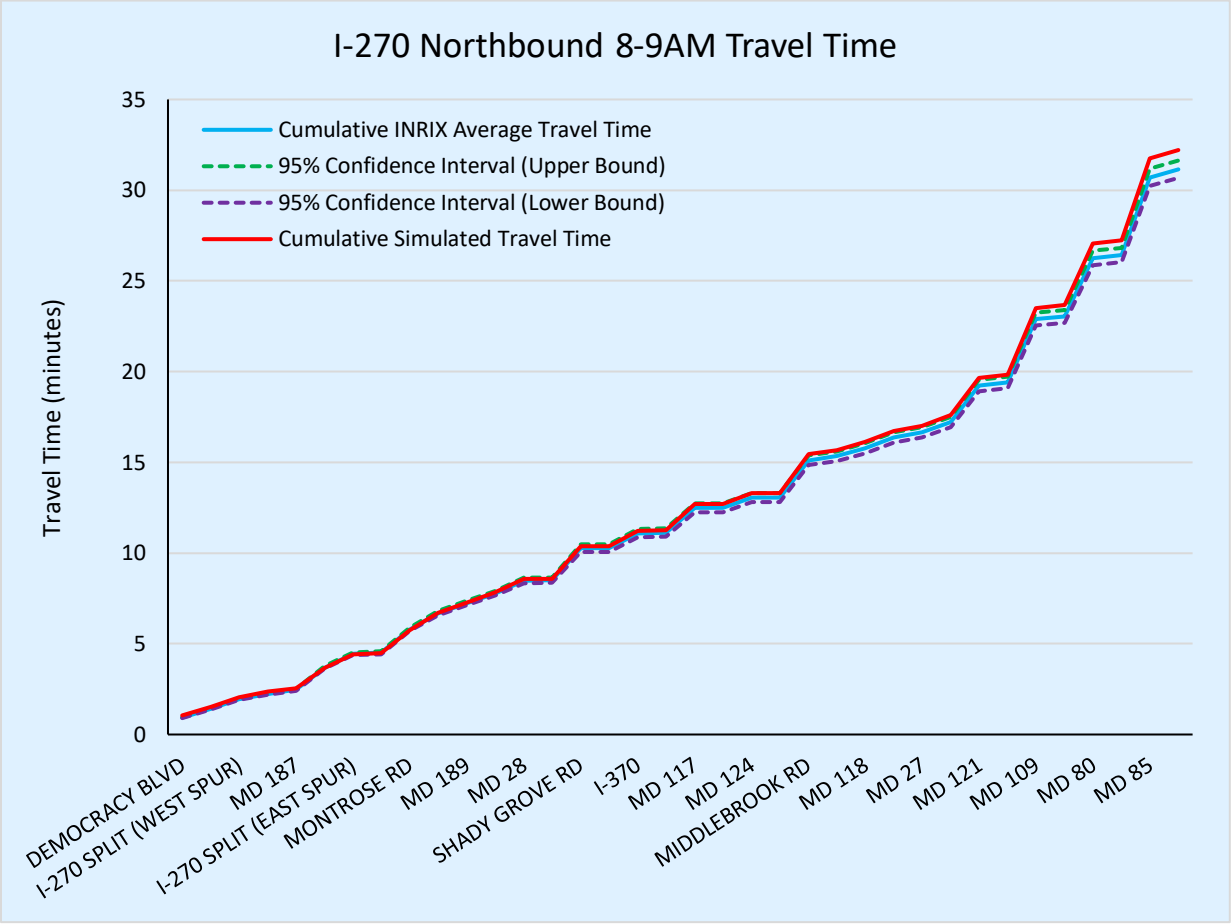


Figure B.15: I-270 Northbound – 4-5 PM VISSIM Model and INRIX Travel Time Comparison

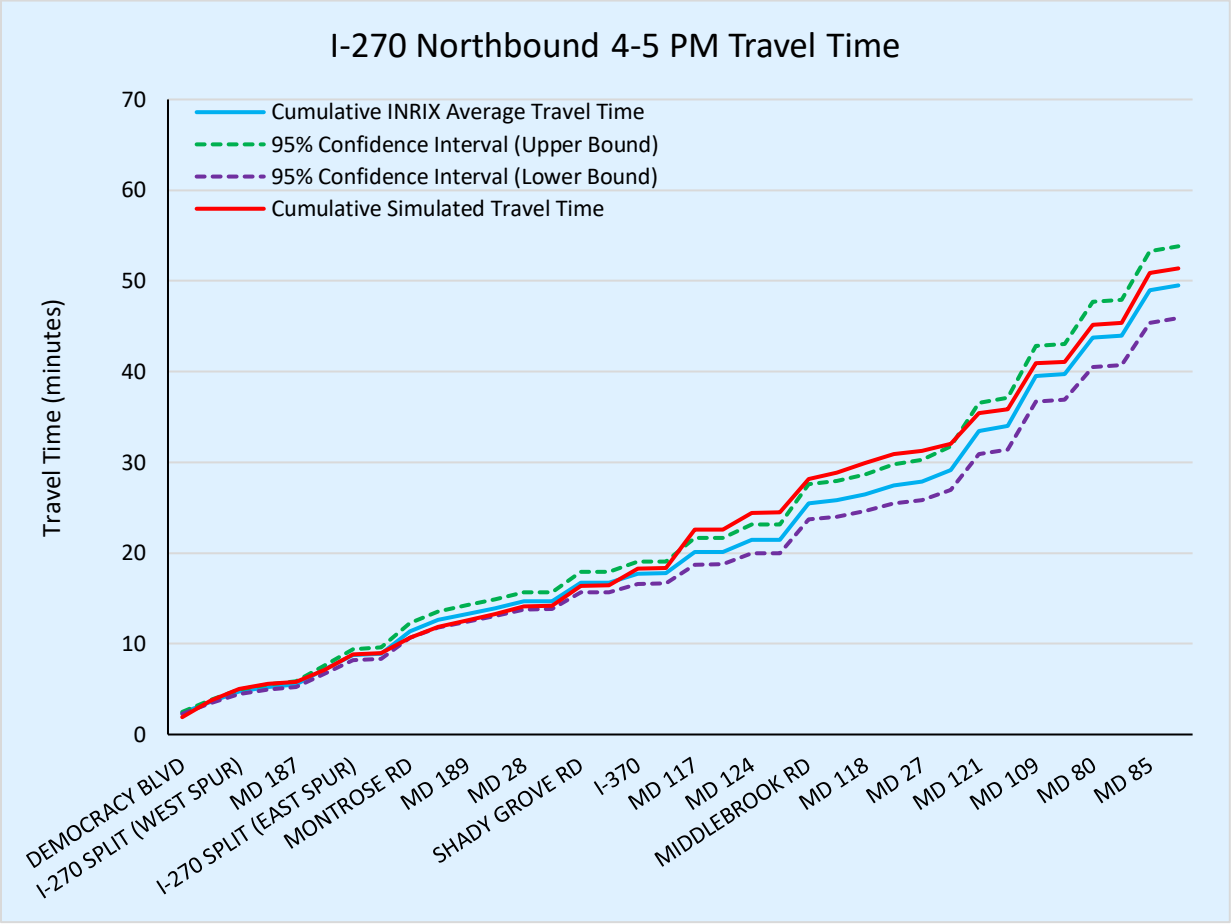


Figure B.16: I-270 Northbound – 5-6 PM VISSIM Model and INRIX Travel Time Comparison

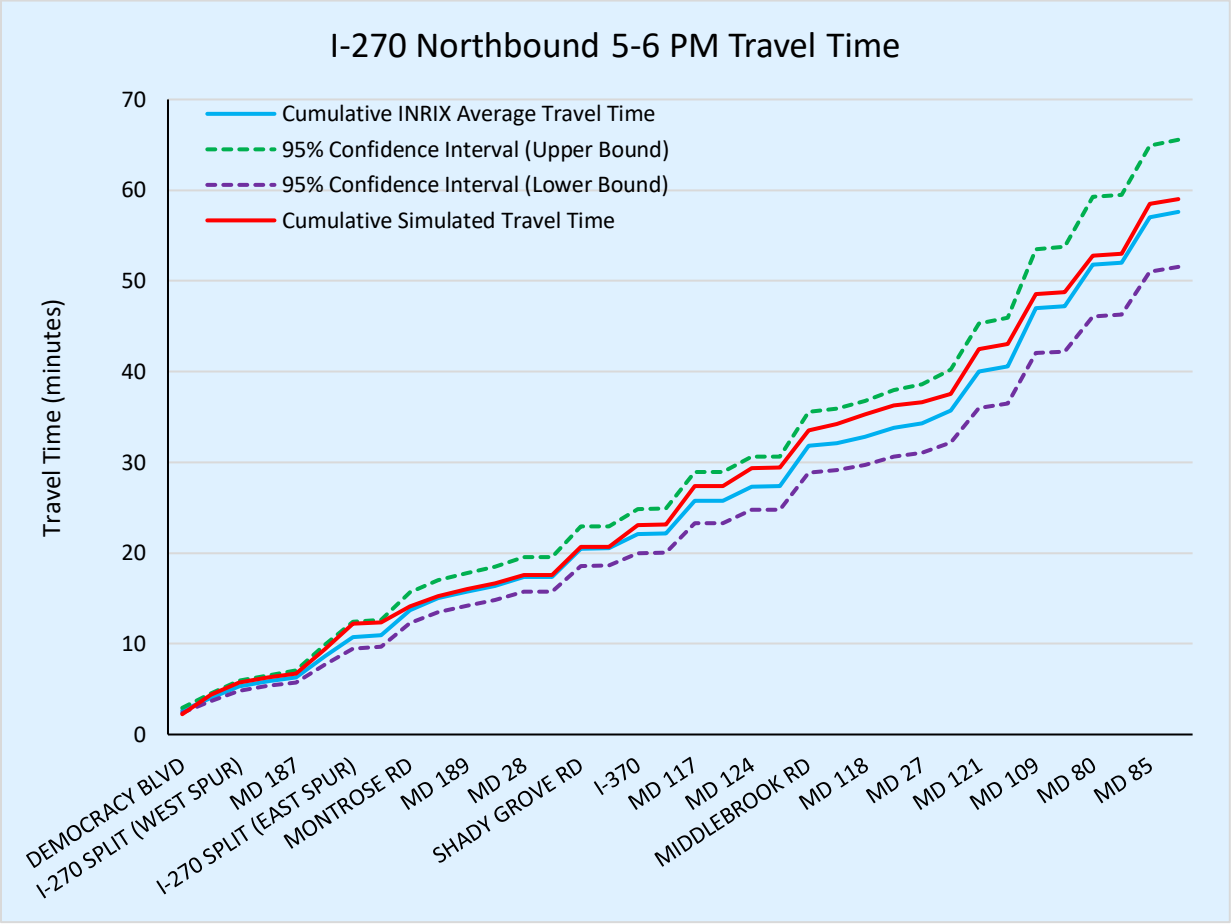


Figure B.17: I-495 Inner Loop – 7-8 AM VISSIM Model and May 2017 Travel Time Comparison

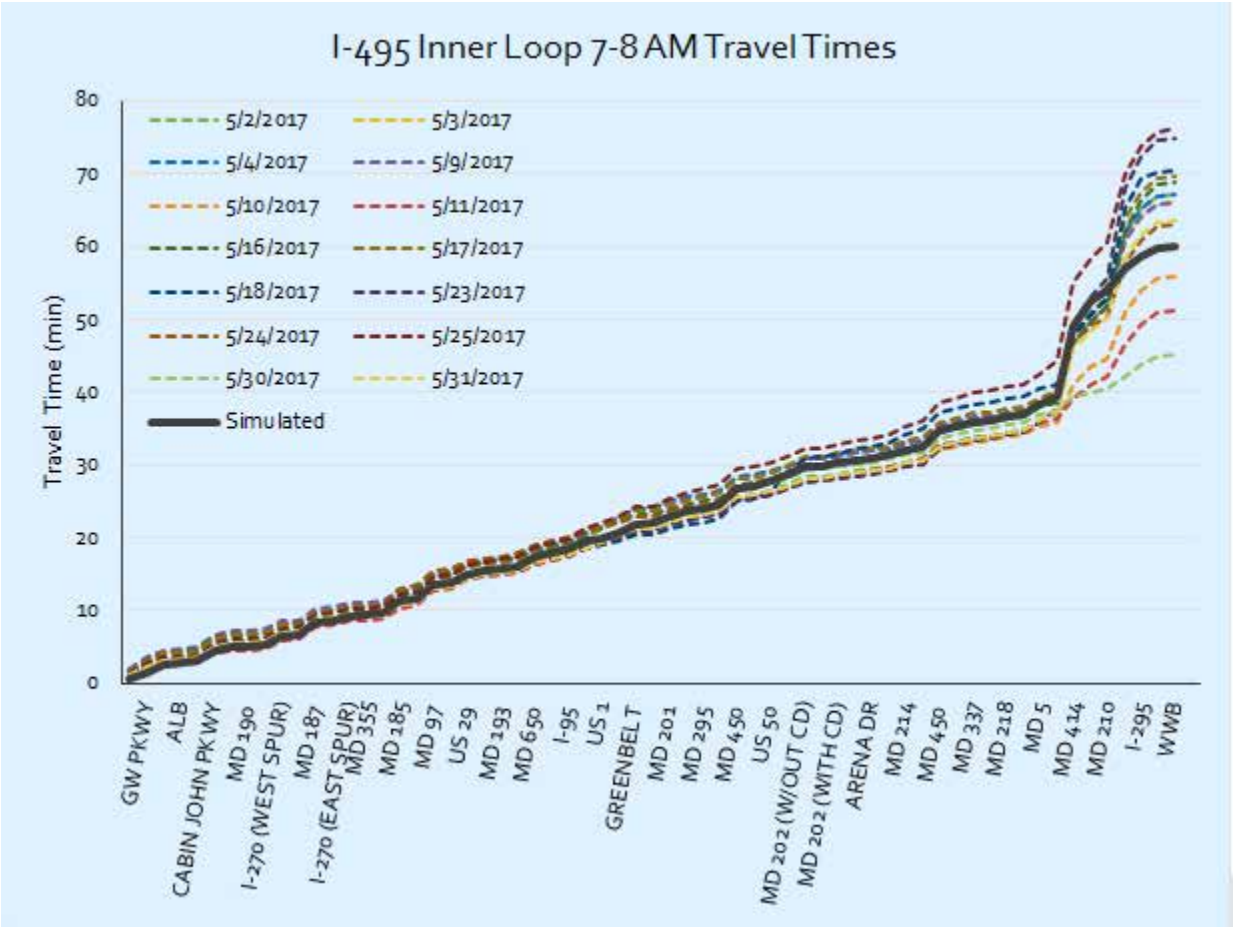


Figure B.18: I-495 Inner Loop – 8-9 AM VISSIM Model and May 2017 Travel Time Comparison

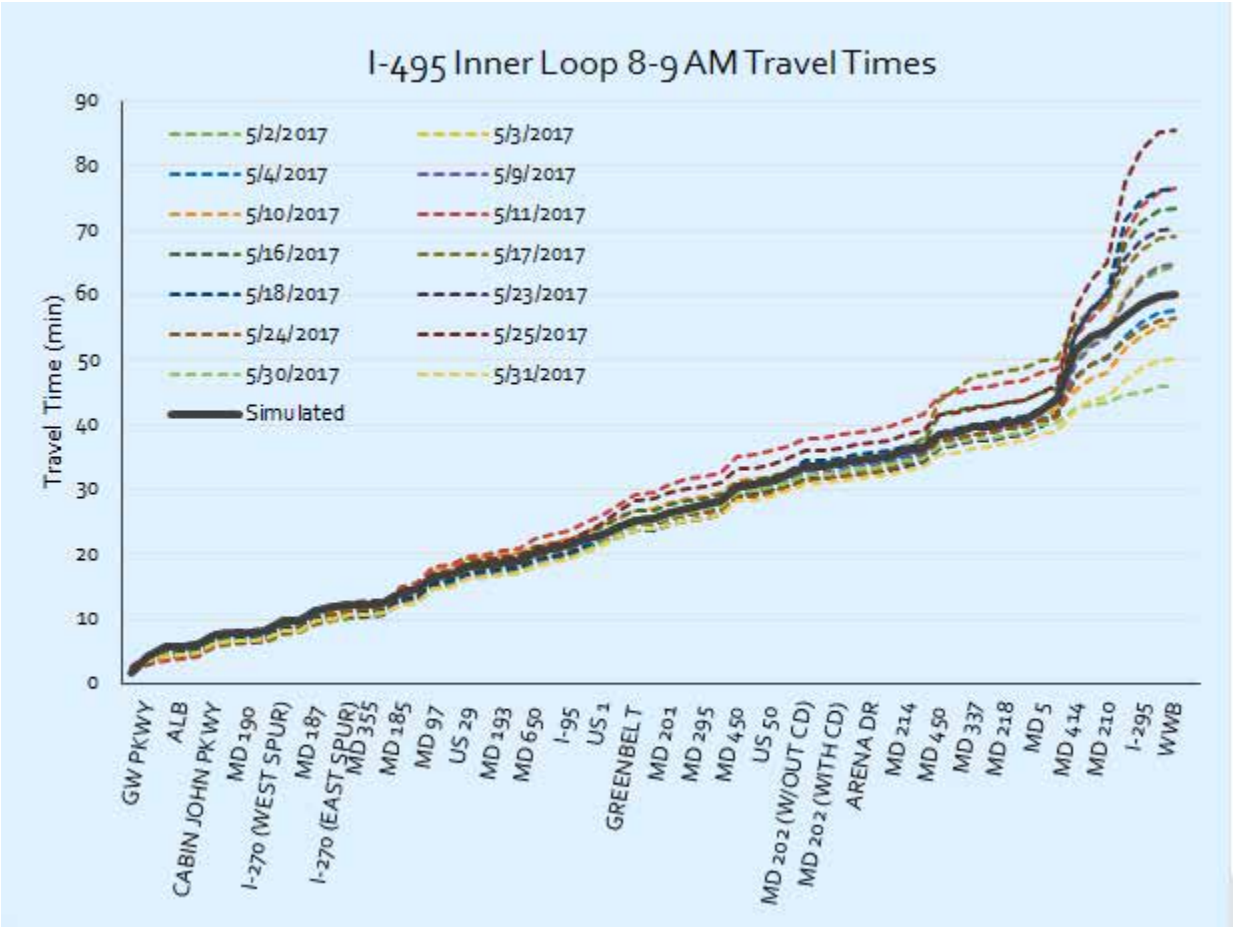


Figure B.19: I-495 Inner Loop – 4-5 PM VISSIM Model and May 2017 Travel Time Comparison

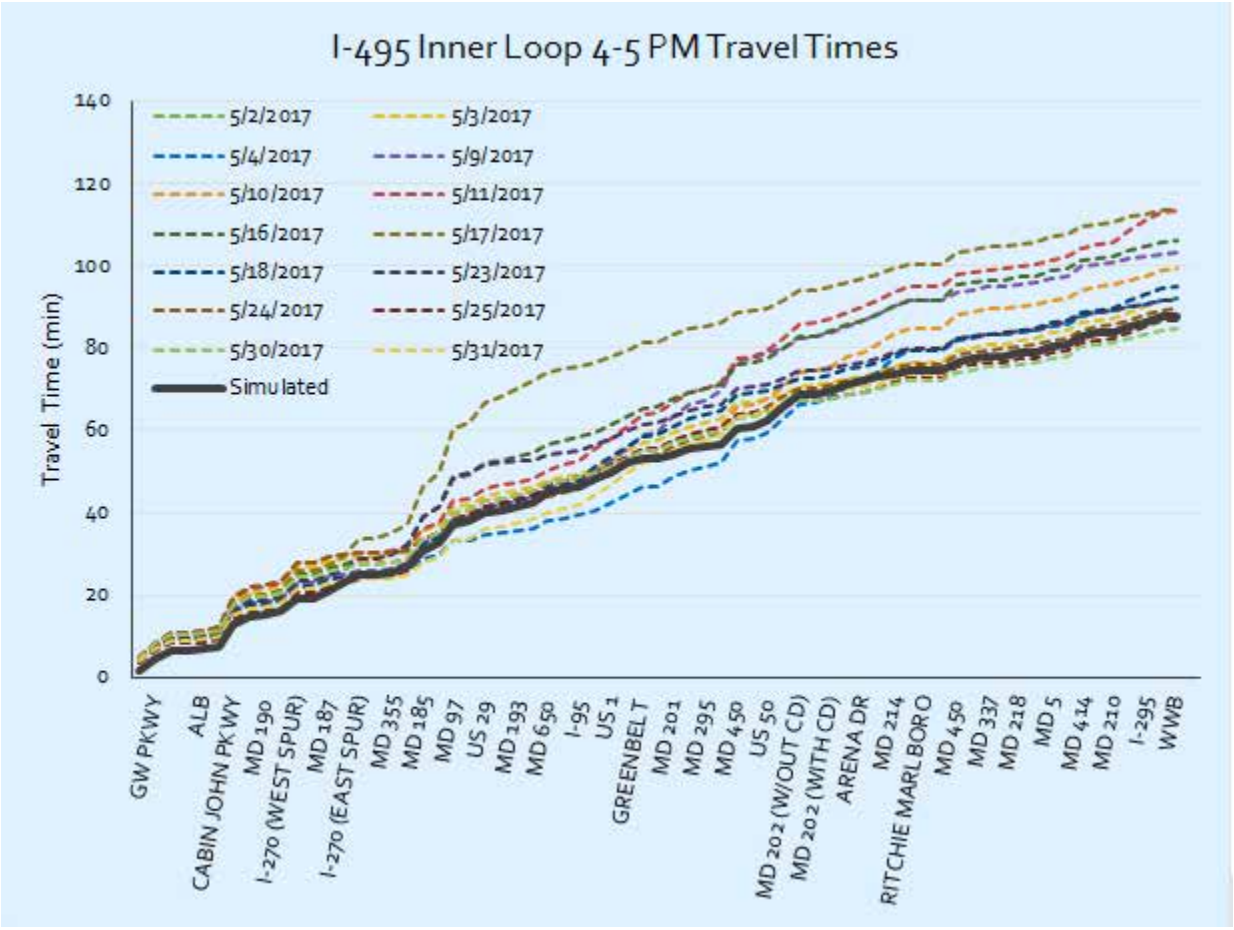


Figure B.20: I-495 Inner Loop – 5-6 PM VISSIM Model and May 2017 Travel Time Comparison

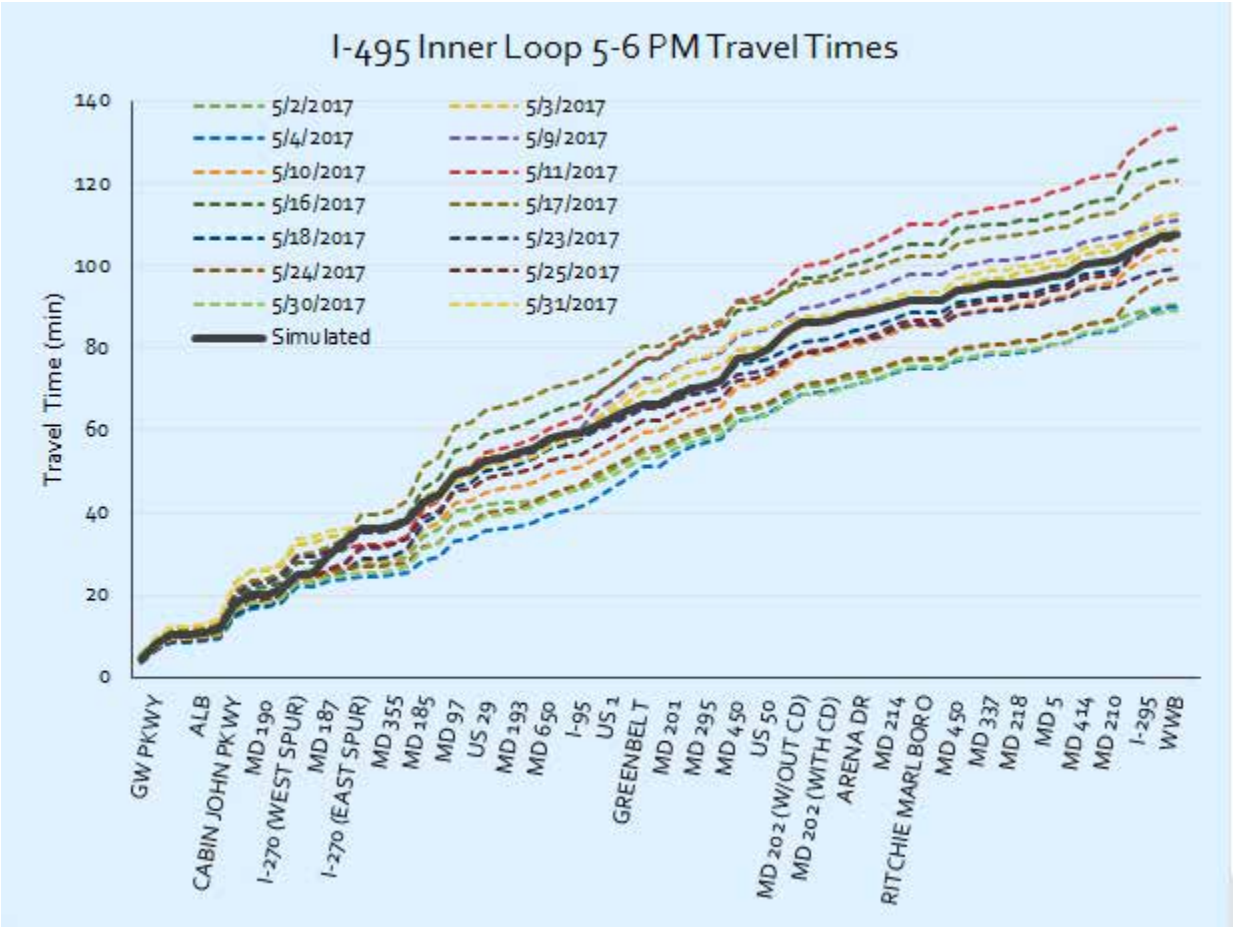


Figure B.21: I-495 Outer Loop – 7-8 AM VISSIM Model and May 2017 Travel Time Comparison

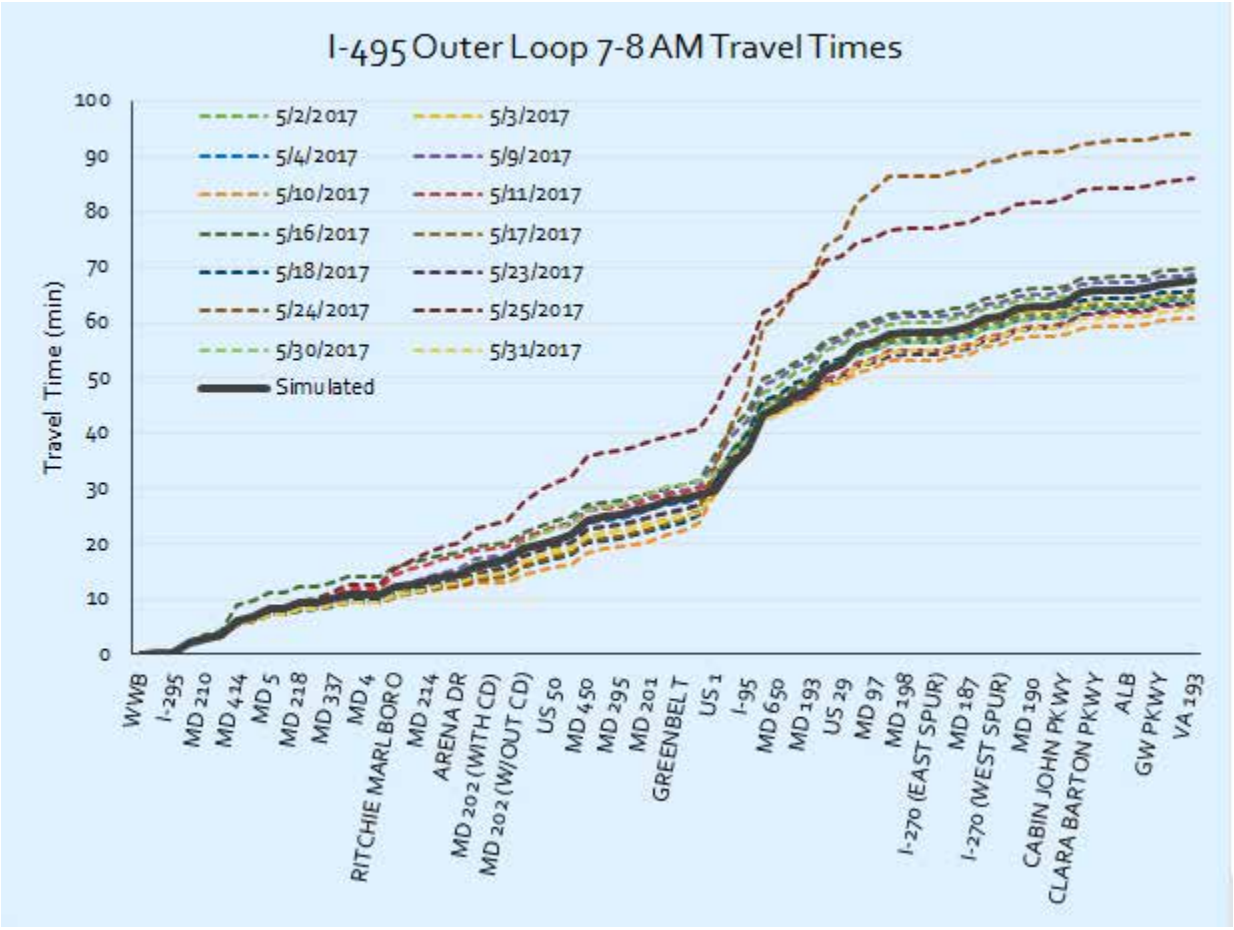


Figure B.22: I-495 Outer Loop – 8-9 AM VISSIM Model and May 2017 Travel Time Comparison

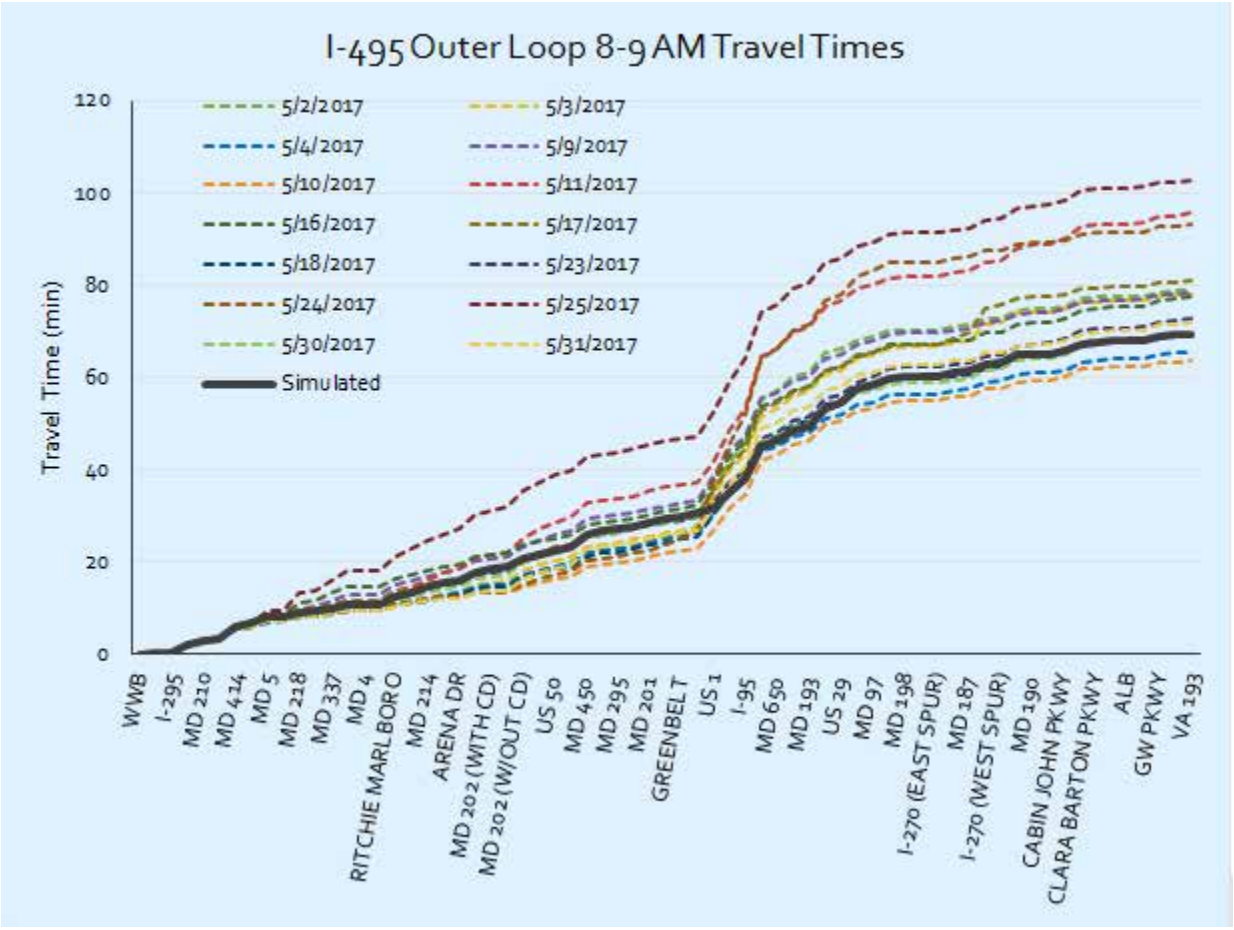


Figure B.23: I-495 Outer Loop – 4-5 PM VISSIM Model and May 2017 Travel Time Comparison

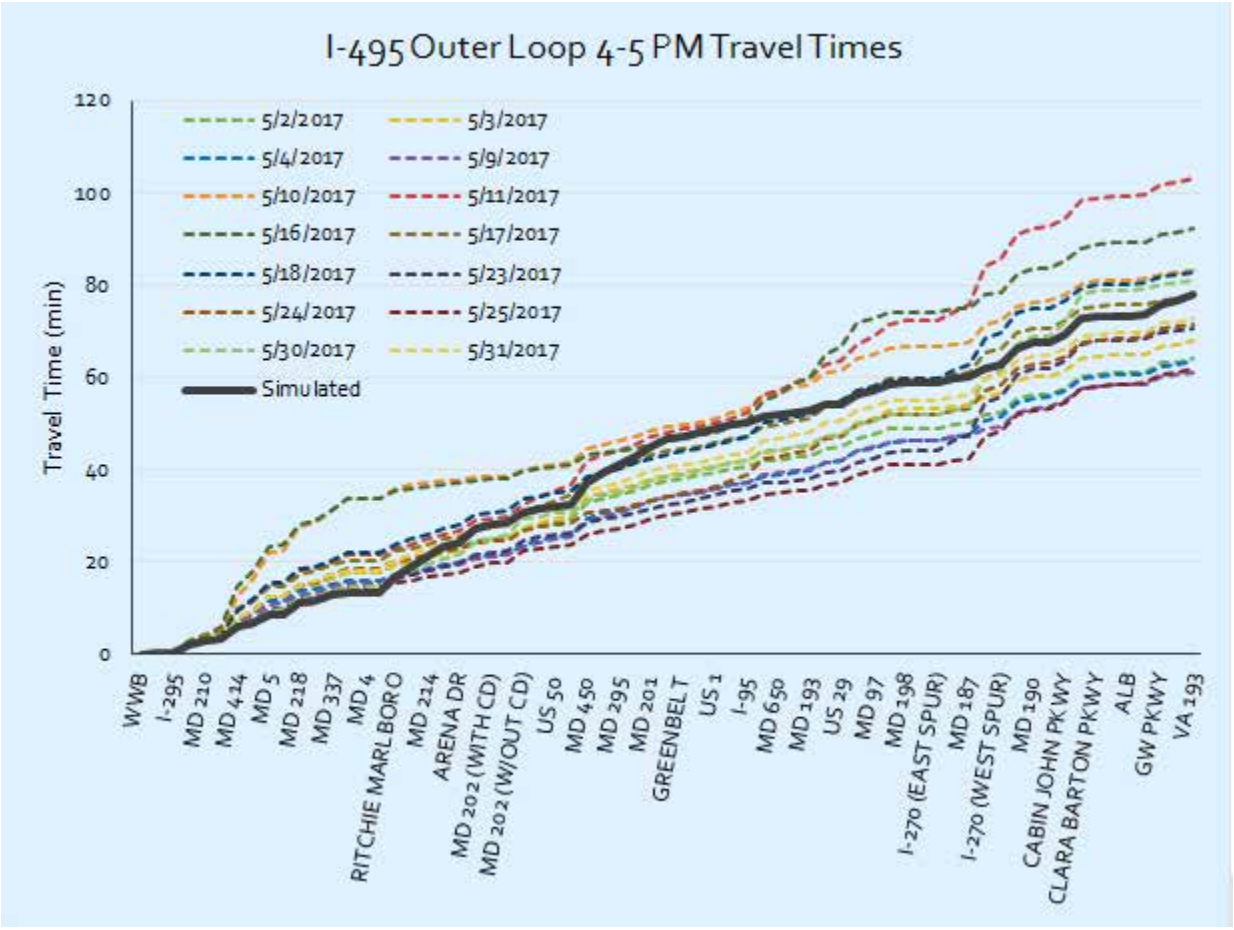


Figure B.24: I-495 Outer Loop – 5-6 PM VISSIM Model and May 2017 Travel Time Comparison

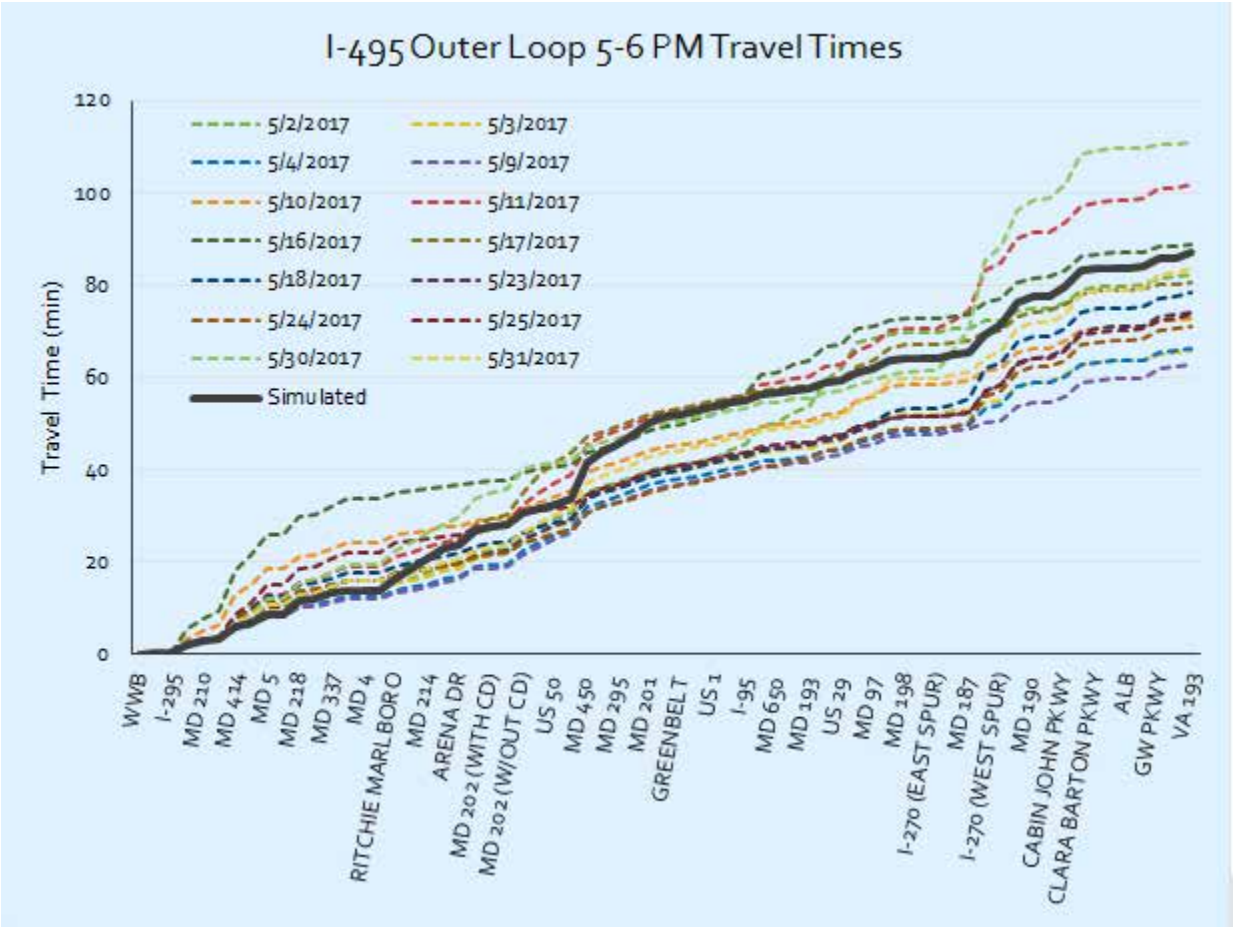


Figure B.25: I-270 Southbound – 7-8 AM VISSIM Model and May 2017 Travel Time Comparison

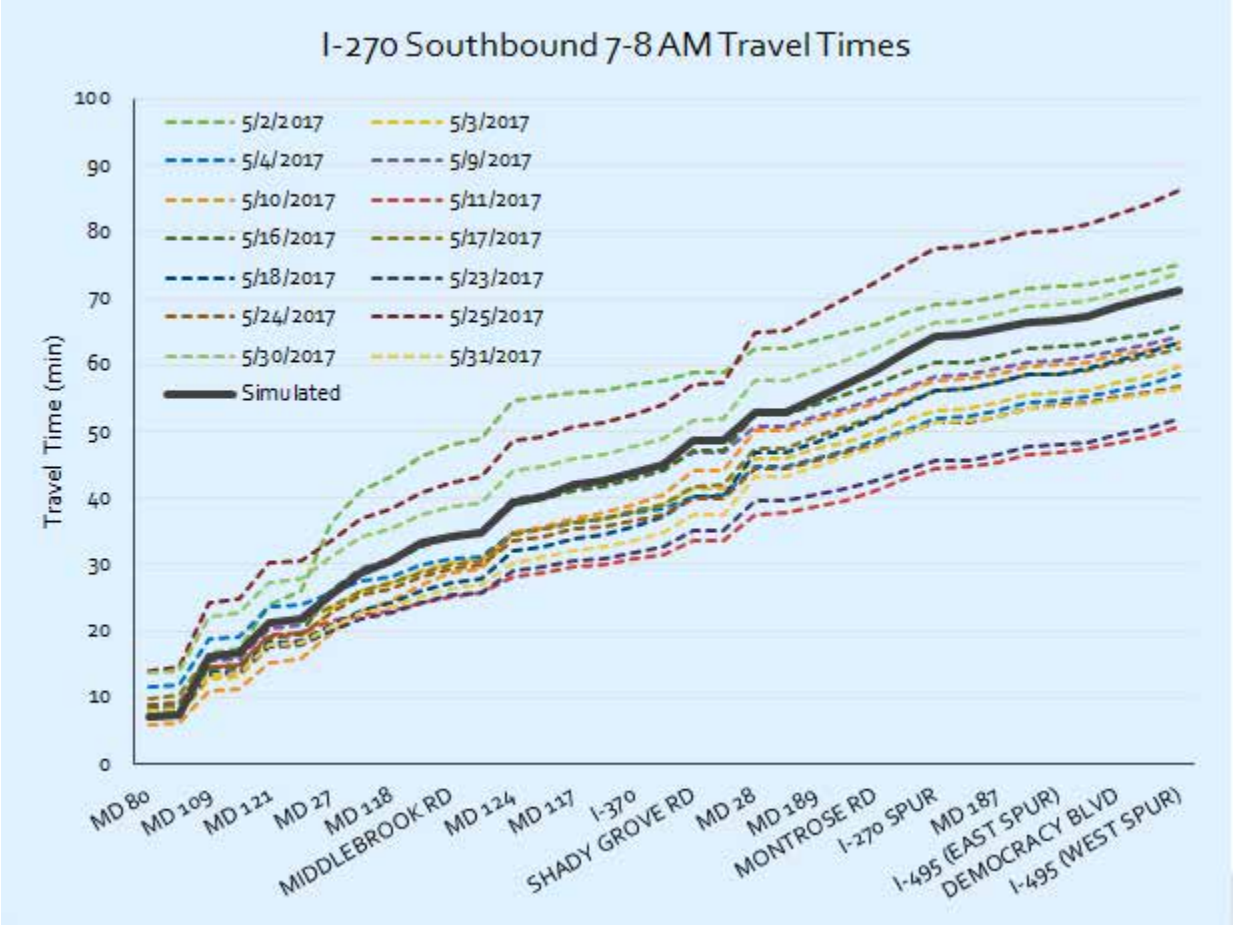


Figure B.26: I-270 Southbound – 8-9 AM VISSIM Model and May 2017 Travel Time Comparison

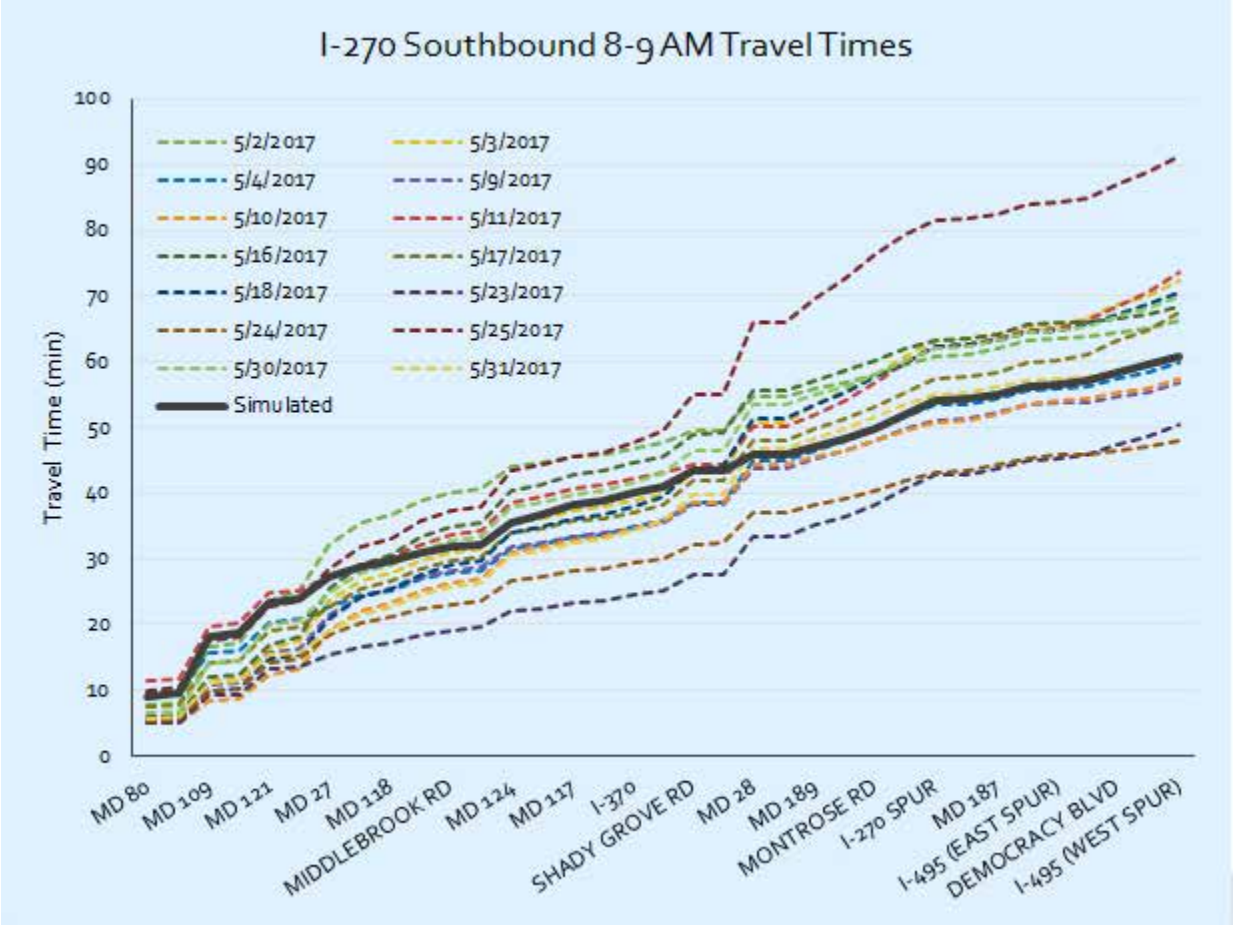


Figure B.27: I-270 Southbound – 4-5 PM VISSIM Model and May 2017 Travel Time Comparison

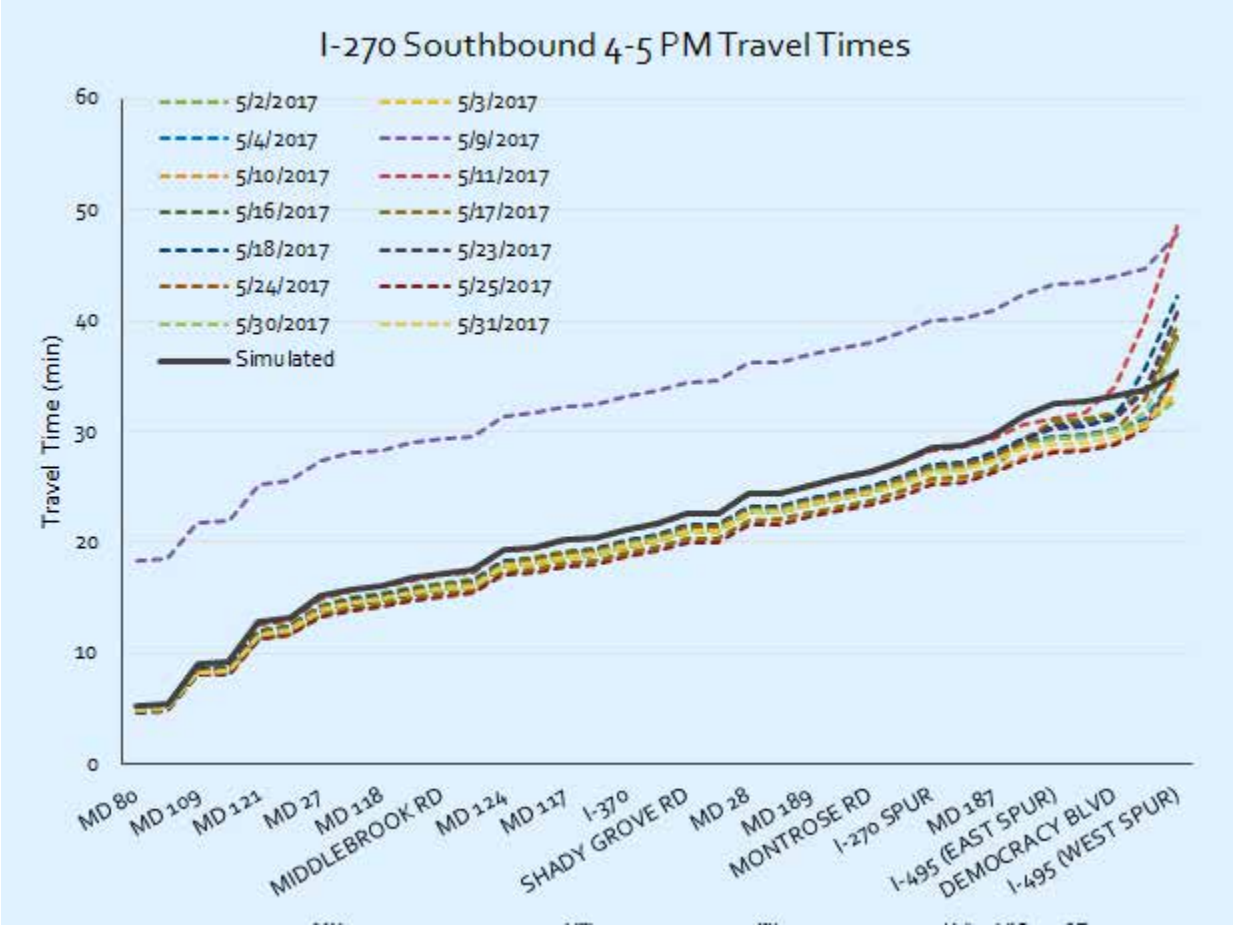


Figure B.28: I-270 Southbound – 5-6 PM VISSIM Model and May 2017 Travel Time Comparison

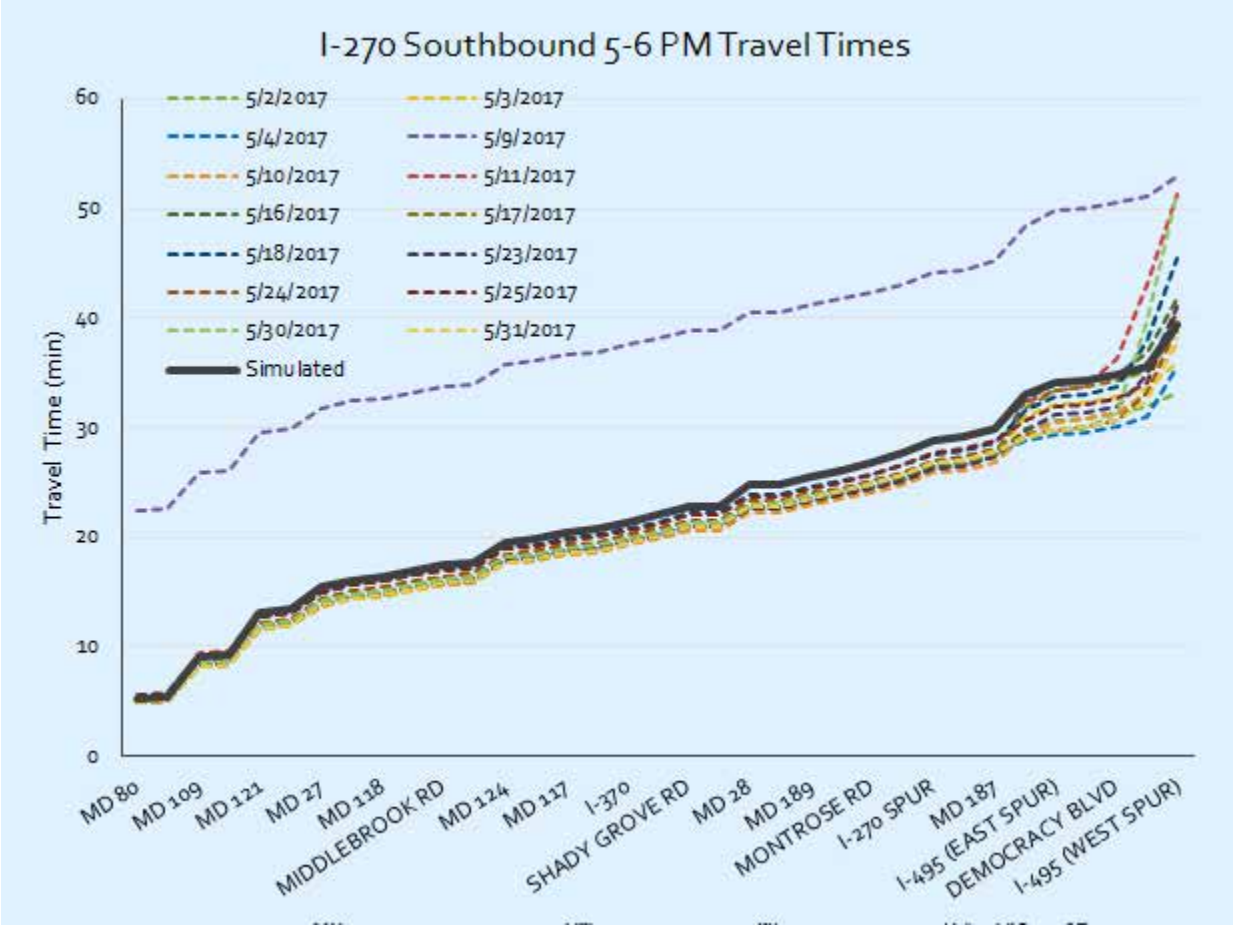


Figure B.29: I-270 Northbound – 7-8 AM VISSIM Model and May 2017 Travel Time Comparison

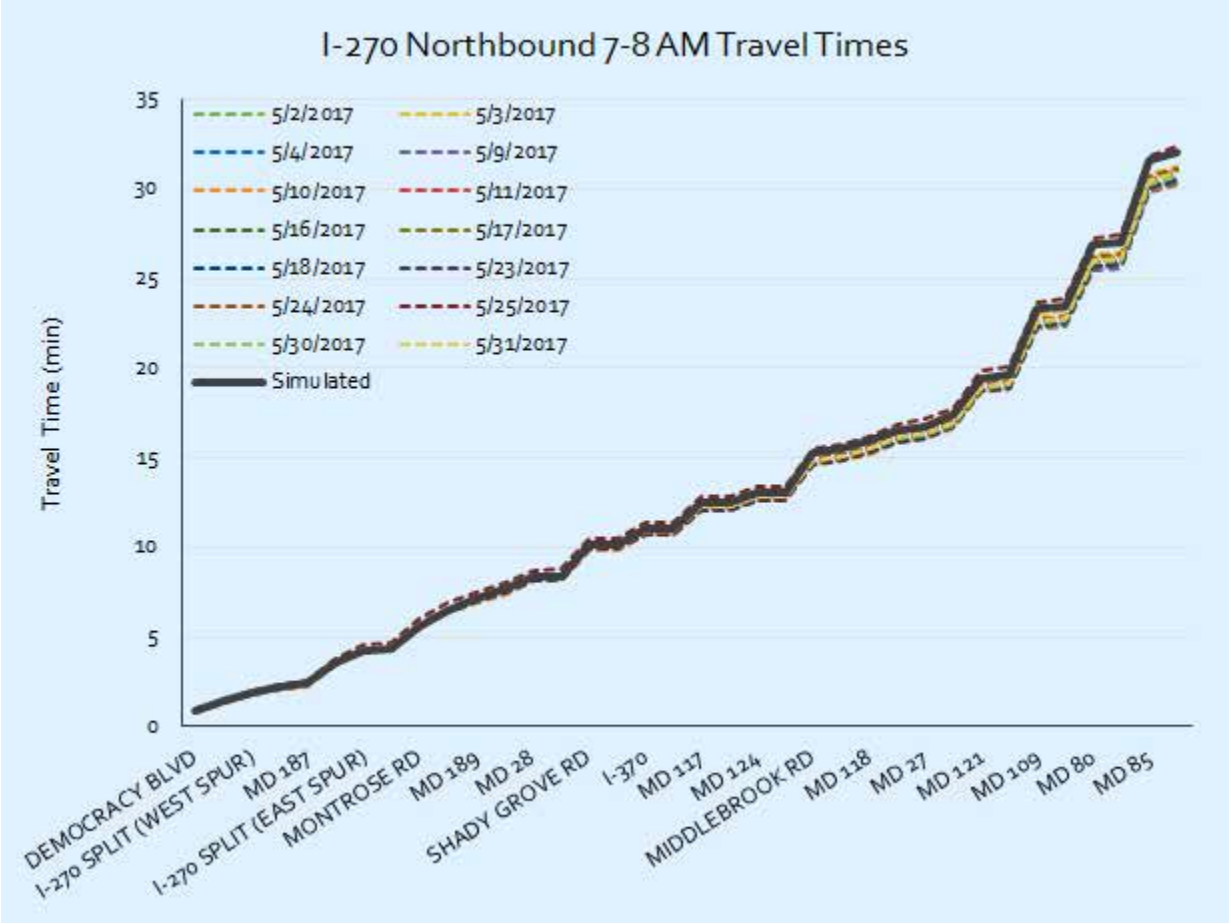


Figure B.30: I-270 Northbound – 8-9 AM VISSIM Model and May 2017 Travel Time Comparison

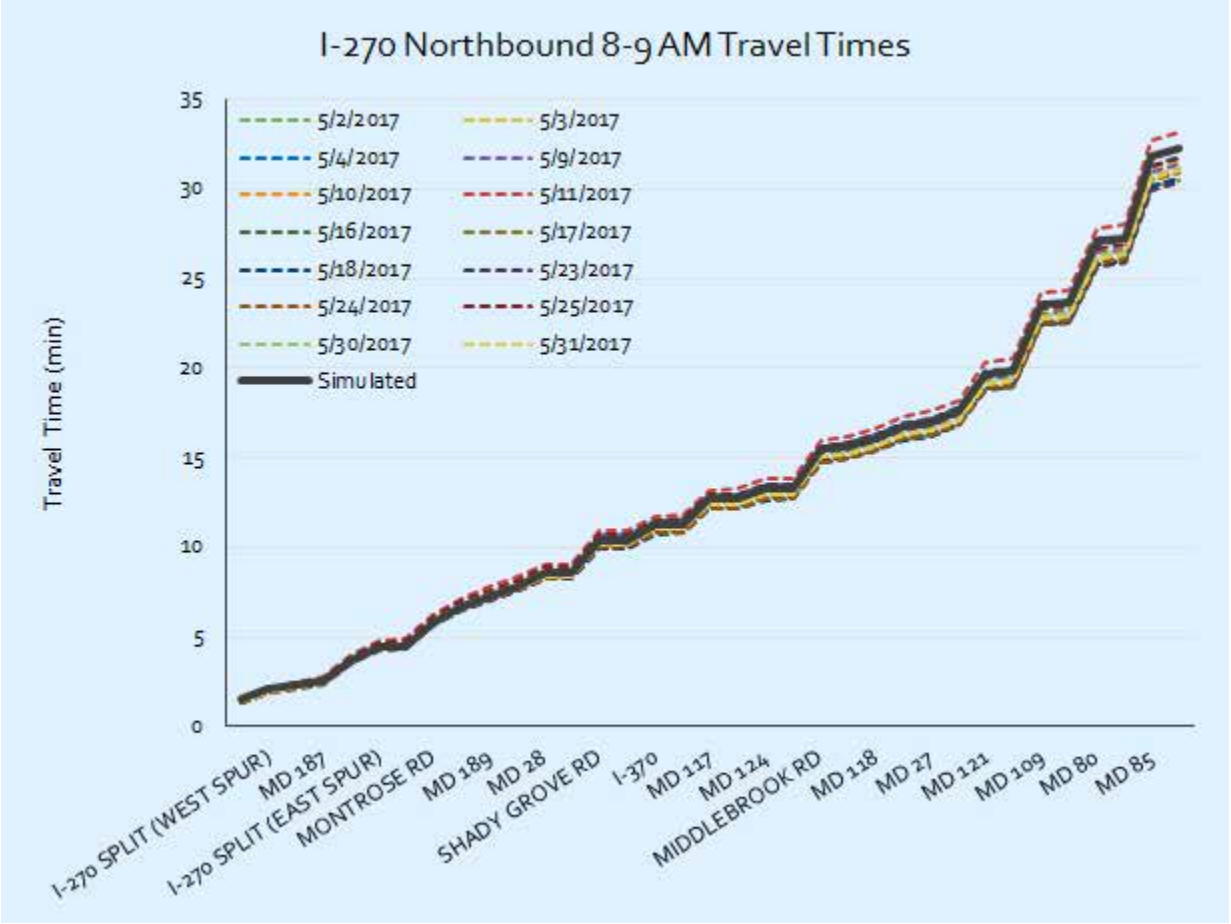


Figure B.31: I-270 Northbound – 4-5 PM Peak Hour VISSIM Model and May 2017 Travel Time Comparison

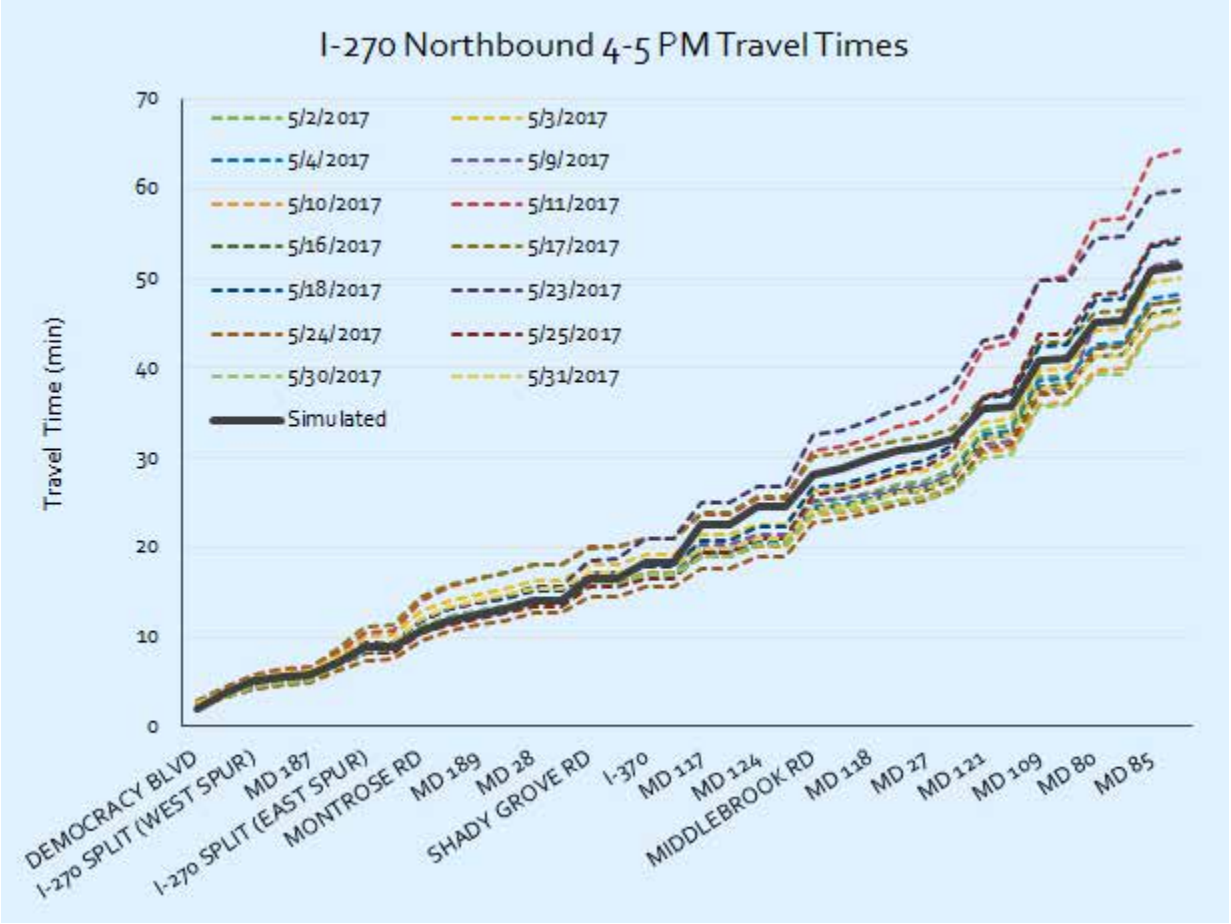
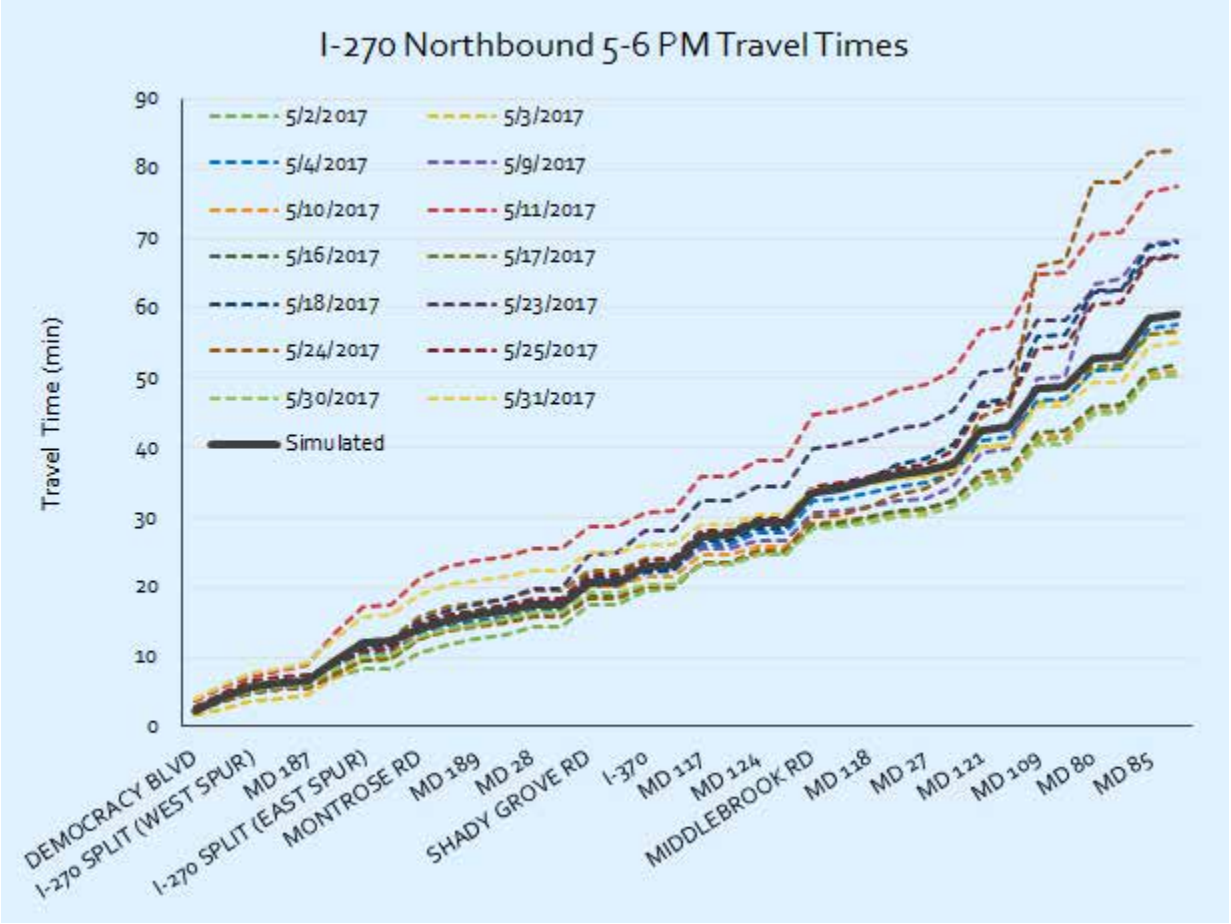


Figure B.32: I-270 Northbound – 5-6 PM VISSIM Model and May 2017 Travel Time Comparison



APPENDIX C

Volume Tables

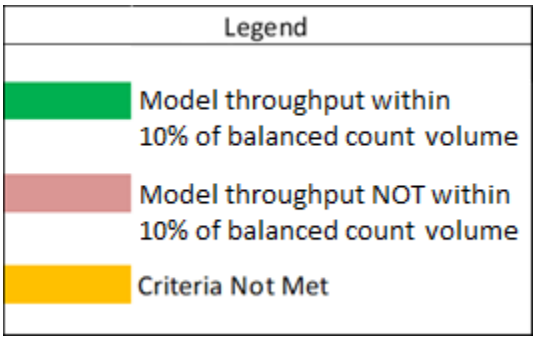


Figure C.1: I-495 Inner Loop 7-8 AM Volumes

Segment	7-8 AM					
	Balanced Count Volume (Vehicles)	Simulated Volume (Vehicles)	Difference (%)	Difference <10%?	GEH	GEH <5?
I-495 Inner Loop				Calibration not met		
BETWEEN GW MEMORIAL PKWY AND CLARA BARTON PKWY	9190	8390	9%	Yes	8.53288	No
BETWEEN CLARA BARTON PKWY AND CABIN JOHN PKWY	8390	7819	7%	Yes	6.34268	No
BETWEEN MD 190 AND I-270	8540	8022	6%	Yes	5.69231	No
BETWEEN I-270 WEST AND MD 187	4455	4509	-1%	Yes	0.8066	Yes
BETWEEN I-270 EAST AND MD 187	4145	4296	-4%	Yes	2.32432	Yes
BETWEEN MD 355 AND MD 185	8120	7780	4%	Yes	3.81325	Yes
BETWEEN MD 185 AND MD 97	7780	7335	6%	Yes	5.11883	No
BETWEEN MD 97 AND US 29	7445	7246	3%	Yes	2.32189	Yes
BETWEEN MD US 29 AND MD 193	7060	6867	3%	Yes	2.31283	Yes
BETWEEN MD 193 AND MD 650	7475	7250	3%	Yes	2.62222	Yes
BETWEEN MD 650 AND I-95	8495	8297	2%	Yes	2.16087	Yes
BETWEEN US 1 AND I-95	7590	6846	10%	Yes	8.75718	No
BETWEEN GREENBELT STATION AND US 1	8720	8215	6%	Yes	5.488	No
BETWEEN GREENBELT STATION AND MD 201	8240	7733	6%	Yes	5.67322	No
BETWEEN MD 201 AND MD 295	7590	7126	6%	Yes	5.40926	No
BETWEEN MD 295 AND MD 450	6830	6407	6%	Yes	5.19949	No
BETWEEN MD 450 AND US 50	7190	6786	6%	Yes	4.83287	Yes
BETWEEN US 50 AND MD 202	7975	7661	4%	Yes	3.55125	Yes
BETWEEN MD 202 AND ARENA DR	7620	7308	4%	Yes	3.61134	Yes
BETWEEN ARENA DR AND MD 214	7665	7382	4%	Yes	3.26269	Yes
BETWEEN MD 214 AND RITCHIE MARLBORO RD	7515	7266	3%	Yes	2.89643	Yes
BETWEEN RITCHIE MARLBORO AND MD 4	7610	7403	3%	Yes	2.3892	Yes
BETWEEN MD 4 AND FORESTVILLE RD	6695	6559	2%	Yes	1.67063	Yes
BETWEEN FORESTVILLE AND MD 218	6080	5965	2%	Yes	1.48187	Yes
BETWEEN MD 218 AND MD 5	6290	6177	2%	Yes	1.43124	Yes
BETWEEN MD 5 AND MD 414	5345	4998	6%	Yes	4.82527	Yes
BETWEEN MD 414 AND MD 210	5465	4916	10%	No	7.62022	No
BETWEEN MD 210 AND I-295	6405	7369	-15%	No	11.6161	No
WOODROW WILSON BRIDGE	9445	9473	0%	Yes	0.2879	Yes

Figure C.2: I-495 Inner Loop 8-9 AM Volumes

Segment	8-9 AM					
	Balanced Count Volume (Vehicles)	Simulated Volume (Vehicles)	Difference (%)	Difference <10%?	GEH	GEH <5?
I-495 Inner Loop				Calibrated		
BETWEEN GW MEMORIAL PKWY AND CLARA BARTON PKWY	9175	8317	9%	Yes	9.1745	No
BETWEEN CLARA BARTON PKWY AND CABIN JOHN PKWY	8430	7716	8%	Yes	7.94659	No
BETWEEN MD 190 AND I-270	8990	8306	8%	Yes	7.35526	No
BETWEEN I-270 WEST AND MD 187	4090	3930	4%	Yes	2.52667	Yes
BETWEEN I-270 EAST AND MD 187	3805	3695	3%	Yes	1.79629	Yes
BETWEEN MD 355 AND MD 185	7435	7271	2%	Yes	1.91254	Yes
BETWEEN MD 185 AND MD 97	7550	7475	1%	Yes	0.8653	Yes
BETWEEN MD 97 AND US 29	7250	7250	0%	Yes	0	Yes
BETWEEN MD US 29 AND MD 193	6965	6972	0%	Yes	0.08385	Yes
BETWEEN MD 193 AND MD 650	7465	7467	0%	Yes	0.02315	Yes
BETWEEN MD 650 AND I-95	7905	7881	0%	Yes	0.27014	Yes
BETWEEN US 1 AND I-95	7215	7455	-3%	Yes	2.80228	Yes
BETWEEN GREENBELT STATION AND US 1	8460	8532	-1%	Yes	0.78113	Yes
BETWEEN GREENBELT STATION AND MD 201	8085	8094	0%	Yes	0.10006	Yes
BETWEEN MD 201 AND MD 295	7860	7876	0%	Yes	0.18038	Yes
BETWEEN MD 295 AND MD 450	7245	7230	0%	Yes	0.17632	Yes
BETWEEN MD 450 AND US 50	7890	7629	3%	Yes	2.96295	Yes
BETWEEN US 50 AND MD 202	8610	8378	3%	Yes	2.51728	Yes
BETWEEN MD 202 AND ARENA DR	8205	7977	3%	Yes	2.53474	Yes
BETWEEN ARENA DR AND MD 214	8045	7800	3%	Yes	2.75255	Yes
BETWEEN MD 214 AND RITCHIE MARLBORO RD	7560	7358	3%	Yes	2.3389	Yes
BETWEEN RITCHIE MARLBORO AND MD 4	7540	7221	4%	Yes	3.7132	Yes
BETWEEN MD 4 AND FORESTVILLE RD	7290	7003	4%	Yes	3.39496	Yes
BETWEEN FORESTVILLE AND MD 218	6635	6373	4%	Yes	3.24871	Yes
BETWEEN MD 218 AND MD 5	6885	6613	4%	Yes	3.31092	Yes
BETWEEN MD 5 AND MD 414	6050	6072	0%	Yes	0.28259	Yes
BETWEEN MD 414 AND MD 210	6035	6079	-1%	Yes	0.56536	Yes
BETWEEN MD 210 AND I-295	6715	7973	-19%	No	14.6796	No
WOODROW WILSON BRIDGE	9280	9637	-4%	Yes	3.67077	Yes

Figure C.3: I-495 Inner Loop 4-5 PM Volumes

Segment	4-5 PM					
	Balanced Count Volume (Vehicles)	Simulated Volume (Vehicles)	Difference (%)	Difference <10%?	GEH	GEH <5?
I-495 Inner Loop				Calibrated		
BETWEEN GW MEMORIAL PKWY AND CLARA BARTON PKWY	7810	7938	-2%	Yes	1.44249	Yes
BETWEEN CLARA BARTON PKWY AND CABIN JOHN PKWY	6845	6969	-2%	Yes	1.49203	Yes
BETWEEN MD 190 AND I-270	8905	8744	2%	Yes	1.71388	Yes
BETWEEN I-270 WEST AND MD 187	3770	3892	-3%	Yes	1.97108	Yes
BETWEEN I-270 EAST AND MD 187	3645	3541	3%	Yes	1.73502	Yes
BETWEEN MD 355 AND MD 185	7440	7024	6%	Yes	4.89175	Yes
BETWEEN MD 185 AND MD 97	8355	8096	3%	Yes	2.85574	Yes
BETWEEN MD 97 AND US 29	8665	8394	3%	Yes	2.93432	Yes
BETWEEN MD US 29 AND MD 193	8385	8027	4%	Yes	3.952	Yes
BETWEEN MD 193 AND MD 650	8505	8231	3%	Yes	2.9953	Yes
BETWEEN MD 650 AND I-95	9115	8909	2%	Yes	2.16998	Yes
BETWEEN US 1 AND I-95	7170	6851	4%	Yes	3.80992	Yes
BETWEEN GREENBELT STATION AND US 1	8115	8272	-2%	Yes	1.73446	Yes
BETWEEN GREENBELT STATION AND MD 201	7990	8163	-2%	Yes	1.92502	Yes
BETWEEN MD 201 AND MD 295	8020	8028	0%	Yes	0.08931	Yes
BETWEEN MD 295 AND MD 450	7850	7641	3%	Yes	2.37477	Yes
BETWEEN MD 450 AND US 50	8240	8118	1%	Yes	1.34899	Yes
BETWEEN US 50 AND MD 202	8095	7971	2%	Yes	1.38351	Yes
BETWEEN MD 202 AND ARENA DR	7490	7741	-3%	Yes	2.87624	Yes
BETWEEN ARENA DR AND MD 214	7265	7617	-5%	Yes	4.08063	Yes
BETWEEN MD 214 AND RITCHIE MARLBORO RD	7195	7498	-4%	Yes	3.53511	Yes
BETWEEN RITCHIE MARLBORO AND MD 4	6885	7008	-2%	Yes	1.47578	Yes
BETWEEN MD 4 AND FORESTVILLE RD	6680	6919	-4%	Yes	2.89841	Yes
BETWEEN FORESTVILLE AND MD 218	6185	6446	-4%	Yes	3.28425	Yes
BETWEEN MD 218 AND MD 5	6830	7104	-4%	Yes	3.28267	Yes
BETWEEN MD 5 AND MD 414	5710	5831	-2%	Yes	1.59286	Yes
BETWEEN MD 414 AND MD 210	5455	5558	-2%	Yes	1.38803	Yes
BETWEEN MD 210 AND I-295	5740	6024	-5%	Yes	3.70302	Yes
WOODROW WILSON BRIDGE	8415	8661	-3%	Yes	2.6623	Yes

Figure C.4: I-495 Inner Loop 5-6 PM Volumes

Segment	5-6 PM					
	Balanced Count Volume (Vehicles)	Simulated Volume (Vehicles)	Difference (%)	Difference <10%?	GEH	GEH <5?
I-495 Inner Loop				Calibrated		
BETWEEN GW MEMORIAL PKWY AND CLARA BARTON PKWY	8085	7612	6%	Yes	5.3391	No
BETWEEN CLARA BARTON PKWY AND CABIN JOHN PKWY	6820	6608	3%	Yes	2.58729	Yes
BETWEEN MD 190 AND I-270	8515	8308	2%	Yes	2.25701	Yes
BETWEEN I-270 WEST AND MD 187	3575	3449	4%	Yes	2.12615	Yes
BETWEEN I-270 EAST AND MD 187	3445	3274	5%	Yes	2.95025	Yes
BETWEEN MD 355 AND MD 185	7055	6945	2%	Yes	1.31475	Yes
BETWEEN MD 185 AND MD 97	7820	7896	-1%	Yes	0.85735	Yes
BETWEEN MD 97 AND US 29	7975	8084	-1%	Yes	1.21642	Yes
BETWEEN MD US 29 AND MD 193	7695	7765	-1%	Yes	0.79617	Yes
BETWEEN MD 193 AND MD 650	7765	8000	-3%	Yes	2.64689	Yes
BETWEEN MD 650 AND I-95	8500	8504	0%	Yes	0.04338	Yes
BETWEEN US 1 AND I-95	6745	6658	1%	Yes	1.06276	Yes
BETWEEN GREENBELT STATION AND US 1	7745	7976	-3%	Yes	2.60547	Yes
BETWEEN GREENBELT STATION AND MD 201	7640	7713	-1%	Yes	0.83318	Yes
BETWEEN MD 201 AND MD 295	7630	7631	0%	Yes	0.01145	Yes
BETWEEN MD 295 AND MD 450	7360	7139	3%	Yes	2.5956	Yes
BETWEEN MD 450 AND US 50	7810	7778	0%	Yes	0.36247	Yes
BETWEEN US 50 AND MD 202	8245	8102	2%	Yes	1.58173	Yes
BETWEEN MD 202 AND ARENA DR	7845	7966	-2%	Yes	1.36088	Yes
BETWEEN ARENA DR AND MD 214	7510	7717	-3%	Yes	2.37235	Yes
BETWEEN MD 214 AND RITCHIE MARLBORO RD	7410	7679	-4%	Yes	3.09697	Yes
BETWEEN RITCHIE MARLBORO AND MD 4	7300	7376	-1%	Yes	0.88721	Yes
BETWEEN MD 4 AND FORESTVILLE RD	6870	7057	-3%	Yes	2.24093	Yes
BETWEEN FORESTVILLE AND MD 218	6405	6646	-4%	Yes	2.98339	Yes
BETWEEN MD 218 AND MD 5	6965	7213	-4%	Yes	2.9455	Yes
BETWEEN MD 5 AND MD 414	5880	6034	-3%	Yes	1.99529	Yes
BETWEEN MD 414 AND MD 210	5635	5758	-2%	Yes	1.62968	Yes
BETWEEN MD 210 AND I-295	5785	6123	-6%	Yes	4.38039	Yes
WOODROW WILSON BRIDGE	8315	8861	-7%	Yes	5.89178	No

Figure C.5: I-495 Outer Loop 7-8 AM Volumes

Segment	7-8 AM					
	Balanced Count Volume (Vehicles)	Simulated Volume (Vehicles)	Difference (%)	Difference <10%?	GEH	GEH <5?
I-495 Outer Loop				Calibrated		
WOODROW WILSON BRIDGE	8625	8105	6%	Yes	5.68552	No
BETWEEN MD 210 AND I-295	5170	4844	6%	Yes	4.60711	Yes
BETWEEN MD 414 AND MD 210	5290	5005	5%	Yes	3.97234	Yes
BETWEEN MD 5 AND MD 414	5405	5063	6%	Yes	4.72726	Yes
BETWEEN MD 218 AND MD 5	6520	6364	2%	Yes	1.94363	Yes
BETWEEN FORESTVILLE AND MD 218	5785	5657	2%	Yes	1.69229	Yes
BETWEEN MD 4 AND FORESTVILLE RD	6840	6705	2%	Yes	1.64044	Yes
BETWEEN RITCHIE MARLBORO AND MD 4	7400	7401	0%	Yes	0.01162	Yes
BETWEEN MD 214 AND RITCHIE MARLBORO RD	8080	8342	-3%	Yes	2.89137	Yes
BETWEEN ARENA DR AND MD 214	8040	8286	-3%	Yes	2.72277	Yes
BETWEEN MD 202 AND ARENA DR	7785	8097	-4%	Yes	3.5012	Yes
BETWEEN US 50 AND MD 202	7855	7744	1%	Yes	1.25687	Yes
BETWEEN MD 450 AND US 50	8180	8364	-2%	Yes	2.02308	Yes
BETWEEN MD 295 AND MD 450	8205	8403	-2%	Yes	2.17281	Yes
BETWEEN MD 201 AND MD 295	8280	8537	-3%	Yes	2.80268	Yes
BETWEEN GREENBELT STATION AND MD 201	7410	7778	-5%	Yes	4.22292	Yes
BETWEEN GREENBELT STATION AND US 1	7465	7835	-5%	Yes	4.2303	Yes
BETWEEN US 1 AND I-95	7010	7524	-7%	Yes	6.02956	No
BETWEEN MD 650 AND I-95	6540	6471	1%	Yes	0.85548	Yes
BETWEEN MD 193 AND MD 650	5735	6108	-7%	Yes	4.84722	Yes
BETWEEN MD US 29 AND MD 193	6020	6450	-7%	Yes	5.44566	No
BETWEEN MD 97 AND US 29	7100	7053	1%	Yes	0.55871	Yes
BETWEEN MD 185 AND MD 97	8225	8202	0%	Yes	0.25378	Yes
BETWEEN MD 355 AND MD 185	7745	7704	1%	Yes	0.4665	Yes
BETWEEN I-270 EAST AND MD 187	4425	4284	3%	Yes	2.13673	Yes
BETWEEN I-270 WEST AND MD 187	4605	4604	0%	Yes	0.01474	Yes
BETWEEN MD 190 AND I-270	10180	9883	3%	Yes	2.96533	Yes
BETWEEN CLARA BARTON PKWY AND CABIN JOHN PKWY	8565	8345	3%	Yes	2.39258	Yes
BETWEEN GW MEMORIAL PKWY AND CLARA BARTON PKWY	9115	8873	3%	Yes	2.55175	Yes

Figure C.6: I-495 Outer Loop 8-9 AM Volumes

Segment	8-9 AM					
	Balanced Count Volume (Vehicles)	Simulated Volume (Vehicles)	Difference (%)	Difference <10%?	GEH	GEH <5?
I-495 Outer Loop				Calibration not met		
WOODROW WILSON BRIDGE	7880	7861	0%	Yes	0.21417	Yes
BETWEEN MD 210 AND I-295	4585	4618	-1%	Yes	0.48648	Yes
BETWEEN MD 414 AND MD 210	4810	4826	0%	Yes	0.23051	Yes
BETWEEN MD 5 AND MD 414	4855	4748	2%	Yes	1.54417	Yes
BETWEEN MD 218 AND MD 5	5760	5685	1%	Yes	0.99144	Yes
BETWEEN FORESTVILLE AND MD 218	5090	5027	1%	Yes	0.88579	Yes
BETWEEN MD 4 AND FORESTVILLE RD	6095	6044	1%	Yes	0.65463	Yes
BETWEEN RITCHIE MARLBORO AND MD 4	6825	6914	-1%	Yes	1.07381	Yes
BETWEEN MD 214 AND RITCHIE MARLBORO RD	7535	7470	1%	Yes	0.75043	Yes
BETWEEN ARENA DR AND MD 214	7605	7573	0%	Yes	0.36733	Yes
BETWEEN MD 202 AND ARENA DR	7355	7520	-2%	Yes	1.91324	Yes
BETWEEN US 50 AND MD 202	7390	7698	-4%	Yes	3.54609	Yes
BETWEEN MD 450 AND US 50	8095	8569	-6%	Yes	5.19283	No
BETWEEN MD 295 AND MD 450	7875	8385	-6%	Yes	5.6562	No
BETWEEN MD 201 AND MD 295	7780	8252	-6%	Yes	5.27185	No
BETWEEN GREENBELT STATION AND MD 201	7050	7490	-6%	Yes	5.16043	No
BETWEEN GREENBELT STATION AND US 1	7105	7553	-6%	Yes	5.23306	No
BETWEEN US 1 AND I-95	6925	7361	-6%	Yes	5.15877	No
BETWEEN MD 650 AND I-95	6200	6722	-8%	Yes	6.49412	No
BETWEEN MD 193 AND MD 650	5340	5956	-12%	No	8.19659	No
BETWEEN MD US 29 AND MD 193	5555	6278	-13%	No	9.39952	No
BETWEEN MD 97 AND US 29	6545	6850	-5%	Yes	3.72686	Yes
BETWEEN MD 185 AND MD 97	8090	8266	-2%	Yes	1.94621	Yes
BETWEEN MD 355 AND MD 185	8235	8311	-1%	Yes	0.83557	Yes
BETWEEN I-270 EAST AND MD 187	4010	3848	4%	Yes	2.58448	Yes
BETWEEN I-270 WEST AND MD 187	4070	4073	0%	Yes	0.04702	Yes
BETWEEN MD 190 AND I-270	9130	9627	-5%	Yes	5.13204	No
BETWEEN CLARA BARTON PKWY AND CABIN JOHN PKWY	7900	8260	-5%	Yes	4.00495	Yes
BETWEEN GW MEMORIAL PKWY AND CLARA BARTON PKWY	8950	9254	-3%	Yes	3.18644	Yes

Figure C.7: I-495 Outer Loop 4-5 PM Volumes

Segment	4-5 PM					
	Balanced Count Volume (Vehicles)	Simulated Volume (Vehicles)	Difference (%)	Difference <10%?	GEH	GEH <5?
I-495 Outer Loop				Calibration not met		
WOODROW WILSON BRIDGE	9190	9151	0%	Yes	0.40726	Yes
BETWEEN MD 210 AND I-295	7575	7543	0%	Yes	0.36806	Yes
BETWEEN MD 414 AND MD 210	7375	7304	1%	Yes	0.82875	Yes
BETWEEN MD 5 AND MD 414	6720	6714	0%	Yes	0.07321	Yes
BETWEEN MD 218 AND MD 5	6580	6703	-2%	Yes	1.50929	Yes
BETWEEN FORESTVILLE AND MD 218	6175	6234	-1%	Yes	0.74903	Yes
BETWEEN MD 4 AND FORESTVILLE RD	7235	7296	-1%	Yes	0.71564	Yes
BETWEEN RITCHIE MARLBORO AND MD 4	7665	7708	-1%	Yes	0.49046	Yes
BETWEEN MD 214 AND RITCHIE MARLBORO RD	7725	7146	7%	Yes	6.71465	No
BETWEEN ARENA DR AND MD 214	7385	6917	6%	Yes	5.5343	No
BETWEEN MD 202 AND ARENA DR	7480	7066	6%	Yes	4.85449	Yes
BETWEEN US 50 AND MD 202	7680	7205	6%	Yes	5.50597	No
BETWEEN MD 450 AND US 50	7570	7188	5%	Yes	4.44697	Yes
BETWEEN MD 295 AND MD 450	7020	6520	7%	Yes	6.07681	No
BETWEEN MD 201 AND MD 295	8100	6933	14%	No	13.4606	No
BETWEEN GREENBELT STATION AND MD 201	8340	7313	12%	No	11.6088	No
BETWEEN GREENBELT STATION AND US 1	8655	7637	12%	No	11.2791	No
BETWEEN US 1 AND I-95	9280	8364	10%	Yes	9.75241	No
BETWEEN MD 650 AND I-95	7920	6943	12%	No	11.3333	No
BETWEEN MD 193 AND MD 650	7440	6698	10%	Yes	8.82521	No
BETWEEN MD US 29 AND MD 193	7115	6511	8%	Yes	7.31758	No
BETWEEN MD 97 AND US 29	7730	7164	7%	Yes	6.55882	No
BETWEEN MD 185 AND MD 97	7770	7371	5%	Yes	4.58575	Yes
BETWEEN MD 355 AND MD 185	7710	7521	2%	Yes	2.16577	Yes
BETWEEN I-270 EAST AND MD 187	3970	3909	2%	Yes	0.97187	Yes
BETWEEN I-270 WEST AND MD 187	4185	4121	2%	Yes	0.99311	Yes
BETWEEN MD 190 AND I-270	7780	7251	7%	Yes	6.10206	No
BETWEEN CLARA BARTON PKWY AND CABIN JOHN PKWY	7295	6777	7%	Yes	6.17542	No
BETWEEN GW MEMORIAL PKWY AND CLARA BARTON PKWY	8535	8107	5%	Yes	4.69198	Yes

Figure C.8: I-495 Outer Loop 5-6 PM Volumes

Segment	5-6 PM					
	Balanced Count Volume (Vehicles)	Simulated Volume (Vehicles)	Difference (%)	Difference <10%?	GEH	GEH <5?
I-495 Outer Loop				Calibrated		
WOODROW WILSON BRIDGE	9340	9161	2%	Yes	1.8611	Yes
BETWEEN MD 210 AND I-295	7585	7450	2%	Yes	1.55703	Yes
BETWEEN MD 414 AND MD 210	7350	7201	2%	Yes	1.74685	Yes
BETWEEN MD 5 AND MD 414	6695	6600	1%	Yes	1.16518	Yes
BETWEEN MD 218 AND MD 5	6455	6558	-2%	Yes	1.27692	Yes
BETWEEN FORESTVILLE AND MD 218	6050	6210	-3%	Yes	2.04357	Yes
BETWEEN MD 4 AND FORESTVILLE RD	7010	7331	-5%	Yes	3.7908	Yes
BETWEEN RITCHIE MARLBORO AND MD 4	7325	7681	-5%	Yes	4.10991	Yes
BETWEEN MD 214 AND RITCHIE MARLBORO RD	7325	7491	-2%	Yes	1.92867	Yes
BETWEEN ARENA DR AND MD 214	6765	7060	-4%	Yes	3.54817	Yes
BETWEEN MD 202 AND ARENA DR	6795	7096	-4%	Yes	3.61173	Yes
BETWEEN US 50 AND MD 202	6845	7106	-4%	Yes	3.12502	Yes
BETWEEN MD 450 AND US 50	6760	6720	1%	Yes	0.48723	Yes
BETWEEN MD 295 AND MD 450	6205	6143	1%	Yes	0.78906	Yes
BETWEEN MD 201 AND MD 295	7070	6756	4%	Yes	3.77656	Yes
BETWEEN GREENBELT STATION AND MD 201	7450	7164	4%	Yes	3.34577	Yes
BETWEEN GREENBELT STATION AND US 1	7985	7661	4%	Yes	3.66318	Yes
BETWEEN US 1 AND I-95	8835	8499	4%	Yes	3.60915	Yes
BETWEEN MD 650 AND I-95	8165	7713	6%	Yes	5.07289	No
BETWEEN MD 193 AND MD 650	7765	7357	5%	Yes	4.69214	Yes
BETWEEN MD US 29 AND MD 193	7245	6879	5%	Yes	4.35529	Yes
BETWEEN MD 97 AND US 29	7980	7627	4%	Yes	3.99604	Yes
BETWEEN MD 185 AND MD 97	7960	7658	4%	Yes	3.41751	Yes
BETWEEN MD 355 AND MD 185	7960	7590	5%	Yes	4.19616	Yes
BETWEEN I-270 EAST AND MD 187	4015	3808	5%	Yes	3.30978	Yes
BETWEEN I-270 WEST AND MD 187	4165	3898	6%	Yes	4.20512	Yes
BETWEEN MD 190 AND I-270	7625	6900	10%	Yes	8.50736	No
BETWEEN CLARA BARTON PKWY AND CABIN JOHN PKWY	7150	6469	10%	Yes	8.25258	No
BETWEEN GW MEMORIAL PKWY AND CLARA BARTON PKWY	8315	7742	7%	Yes	6.39495	No

Figure C.9: I-270 Southbound 7-8 AM Volumes

Segment	7-8 AM					
	Balanced Count Volume (Vehicles)	Simulated Volume (Vehicles)	Difference (%)	Difference <10%?	GEH	GEH <5?
I-270 SB				Calibration not met		
BETWEEN MD 85 AND MD 80	3290	3320	-1%	Yes	0.52184	Yes
BETWEEN MD 80 AND MD 109	3730	3549	5%	Yes	3.00025	Yes
BETWEEN MD 109 AND MD 121	4220	3969	6%	Yes	3.92259	Yes
BETWEEN MD 121 AND MD 27	5000	4747	5%	Yes	3.6241	Yes
BETWEEN MD 27 AND MD 118	4995	5144	-3%	Yes	2.09268	Yes
BETWEEN MD 118 AND MIDDLEBROOK RD	5455	5742	-5%	Yes	3.83571	Yes
BETWEEN MIDDLEBROOK ROAD AND MD 124	7180	7525	-5%	Yes	4.02348	Yes
BETWEEN MD 124 AND MD 117	7565	8025	-6%	Yes	5.21014	No
BETWEEN MD 117 AND I-370	9300	9867	-6%	Yes	5.7919	No
BETWEEN I-370 AND SHADY GROVE RD	9715	9787	-1%	Yes	0.72913	Yes
BETWEEN SHADY GROVE RD AND MD 28	9225	9354	-1%	Yes	1.33842	Yes
BETWEEN MD 28 AND MD 189	9990	9752	2%	Yes	2.3955	Yes
BETWEEN MD 189 AND MONTROSE RD	10135	9713	4%	Yes	4.23613	Yes
BETWEEN MONTROSE RD AND I-270 SPLIT	10825	10203	6%	Yes	6.06606	No
BETWEEN I-270 SPLIT AND MD 187	5160	4796	7%	Yes	5.1591	No
BETWEEN MD 187 AND I-495	4485	4022	10%	No	7.09917	No
BETWEEN I-270 SPLIT AND DEMOCRACY BLVD	5665	5368	5%	Yes	3.99875	Yes
BETWEEN DEMOCRACY BLVD AND I-495	5575	5386	3%	Yes	2.55301	Yes

Figure C.10: I-270 Southbound 8-9 AM Volumes

Segment	8-9 AM					
	Balanced Count Volume (Vehicles)	Simulated Volume (Vehicles)	Difference (%)	Difference <10%?	GEH	GEH <5?
I-270 SB				Calibration not met		
BETWEEN MD 85 AND MD 80	3085	3096	0%	Yes	0.19787	Yes
BETWEEN MD 80 AND MD 109	3375	3526	-4%	Yes	2.57061	Yes
BETWEEN MD 109 AND MD 121	3790	3958	-4%	Yes	2.69917	Yes
BETWEEN MD 121 AND MD 27	4460	4659	-4%	Yes	2.9471	Yes
BETWEEN MD 27 AND MD 118	4555	4833	-6%	Yes	4.05764	Yes
BETWEEN MD 118 AND MIDDLEBROOK RD	5135	5606	-9%	Yes	6.42708	No
BETWEEN MIDDLEBROOK ROAD AND MD 124	6740	7274	-8%	Yes	6.37933	No
BETWEEN MD 124 AND MD 117	7255	7695	-6%	Yes	5.08917	No
BETWEEN MD 117 AND I-370	8965	9395	-5%	Yes	4.48794	Yes
BETWEEN I-370 AND SHADY GROVE RD	8905	8862	0%	Yes	0.45622	Yes
BETWEEN SHADY GROVE RD AND MD 28	8310	8239	1%	Yes	0.78053	Yes
BETWEEN MD 28 AND MD 189	9065	8695	4%	Yes	3.92641	Yes
BETWEEN MD 189 AND MONTROSE RD	9295	9072	2%	Yes	2.32702	Yes
BETWEEN MONTROSE RD AND I-270 SPLIT	10005	9818	2%	Yes	1.87833	Yes
BETWEEN I-270 SPLIT AND MD 187	4735	4719	0%	Yes	0.23272	Yes
BETWEEN MD 187 AND I-495	3975	3747	6%	Yes	3.66931	Yes
BETWEEN I-270 SPLIT AND DEMOCRACY BLVD	5270	5344	-1%	Yes	1.0158	Yes
BETWEEN DEMOCRACY BLVD AND I-495	5060	5436	-7%	Yes	5.19028	No

Figure C.11: I-270 Southbound 4-5 PM Volumes

Segment	4-5 PM					
	Balanced Count Volume (Vehicles)	Simulated Volume (Vehicles)	Difference (%)	Difference <10%?	GEH	GEH <5?
I-270 SB				Calibrated		
BETWEEN MD 85 AND MD 80	2360	2352	0%	Yes	0.16482	Yes
BETWEEN MD 80 AND MD 109	2215	2143	3%	Yes	1.54242	Yes
BETWEEN MD 109 AND MD 121	2315	2217	4%	Yes	2.05871	Yes
BETWEEN MD 121 AND MD 27	2700	2613	3%	Yes	1.68797	Yes
BETWEEN MD 27 AND MD 118	3120	3038	3%	Yes	1.47778	Yes
BETWEEN MD 118 AND MIDDLEBROOK RD	3700	3631	2%	Yes	1.13968	Yes
BETWEEN MIDDLEBROOK ROAD AND MD 124	4595	4492	2%	Yes	1.52807	Yes
BETWEEN MD 124 AND MD 117	4930	4903	1%	Yes	0.38507	Yes
BETWEEN MD 117 AND I-370	6565	6512	1%	Yes	0.65545	Yes
BETWEEN I-370 AND SHADY GROVE RD	5865	5806	1%	Yes	0.77235	Yes
BETWEEN SHADY GROVE RD AND MD 28	6565	6798	-4%	Yes	2.85049	Yes
BETWEEN MD 28 AND MD 189	7330	7513	-2%	Yes	2.12425	Yes
BETWEEN MD 189 AND MONTROSE RD	7110	7257	-2%	Yes	1.7344	Yes
BETWEEN MONTROSE RD AND I-270 SPLIT	7310	7215	1%	Yes	1.11476	Yes
BETWEEN I-270 SPLIT AND MD 187	3450	3587	-4%	Yes	2.30963	Yes
BETWEEN MD 187 AND I-495	3665	3671	0%	Yes	0.09907	Yes
BETWEEN I-270 SPLIT AND DEMOCRACY BLVD	3860	3565	8%	Yes	4.8416	Yes
BETWEEN DEMOCRACY BLVD AND I-495	3595	3427	5%	Yes	2.83527	Yes

Figure C.12: I-270 Southbound 5-6 PM Volumes

Segment	5-6 PM					
	Balanced Count Volume (Vehicles)	Simulated Volume (Vehicles)	Difference (%)	Difference <10%?	GEH	GEH <5?
I-270 SB				Calibrated		
BETWEEN MD 85 AND MD 80	2730	2725	0%	Yes	0.09574	Yes
BETWEEN MD 80 AND MD 109	2535	2500	1%	Yes	0.69756	Yes
BETWEEN MD 109 AND MD 121	2650	2599	2%	Yes	0.99551	Yes
BETWEEN MD 121 AND MD 27	3130	3066	2%	Yes	1.14984	Yes
BETWEEN MD 27 AND MD 118	3300	3252	1%	Yes	0.83863	Yes
BETWEEN MD 118 AND MIDDLEBROOK RD	3905	3852	1%	Yes	0.85103	Yes
BETWEEN MIDDLEBROOK ROAD AND MD 124	5020	4954	1%	Yes	0.9346	Yes
BETWEEN MD 124 AND MD 117	5350	5352	0%	Yes	0.02734	Yes
BETWEEN MD 117 AND I-370	7050	7048	0%	Yes	0.02382	Yes
BETWEEN I-370 AND SHADY GROVE RD	6320	6307	0%	Yes	0.16361	Yes
BETWEEN SHADY GROVE RD AND MD 28	7305	7557	-3%	Yes	2.92332	Yes
BETWEEN MD 28 AND MD 189	8120	8357	-3%	Yes	2.6111	Yes
BETWEEN MD 189 AND MONTROSE RD	7720	7933	-3%	Yes	2.40766	Yes
BETWEEN MONTROSE RD AND I-270 SPLIT	7535	7487	1%	Yes	0.55385	Yes
BETWEEN I-270 SPLIT AND MD 187	3475	3567	-3%	Yes	1.55044	Yes
BETWEEN MD 187 AND I-495	3625	3533	3%	Yes	1.53783	Yes
BETWEEN I-270 SPLIT AND DEMOCRACY BLVD	4060	3888	4%	Yes	2.72844	Yes
BETWEEN DEMOCRACY BLVD AND I-495	3460	3283	5%	Yes	3.04833	Yes

Figure C.13: I-270 Northbound 7-8 AM Volumes

Segment	7-8 AM					
	Balanced Count Volume (Vehicles)	Simulated Volume (Vehicles)	Difference (%)	Difference <10%?	GEH	GEH <5?
I-270 NB				Calibration not met		
BETWEEN DEMOCRACY BLVD AND I-495	4085	3486	15%	No	9.73566	No
BETWEEN I-270 SPLIT AND DEMOCRACY BLVD	3510	2983	15%	No	9.24917	No
BETWEEN MD 187 AND I-495	3340	3389	-1%	Yes	0.84476	Yes
BETWEEN I-270 SPLIT AND MD 187	2600	2530	3%	Yes	1.38215	Yes
BETWEEN MONTROSE RD AND I-270 SPLIT	6110	5588	9%	Yes	6.82542	No
BETWEEN MD 189 AND MONTROSE RD	5625	5069	10%	Yes	7.60361	No
BETWEEN MD 28 AND MD 189	5610	5027	10%	No	7.99418	No
BETWEEN SHADY GROVE RD AND MD 28	4775	4192	12%	No	8.70683	No
BETWEEN I-370 AND SHADY GROVE RD	3890	3535	9%	Yes	5.82633	No
BETWEEN MD 117 AND I-370	4580	4160	9%	Yes	6.35343	No
BETWEEN MD 124 AND MD 117	3680	3843	-4%	Yes	2.65771	Yes
BETWEEN MIDDLEBROOK ROAD AND MD 124	3665	3598	2%	Yes	1.11181	Yes
BETWEEN MD 118 AND MIDDLEBROOK RD	2975	2927	2%	Yes	0.8836	Yes
BETWEEN MD 27 AND MD 118	2665	2639	1%	Yes	0.50488	Yes
BETWEEN MD 121 AND MD 27	2390	2343	2%	Yes	0.96615	Yes
BETWEEN MD 109 AND MD 121	2215	2157	3%	Yes	1.24052	Yes
BETWEEN MD 80 AND MD 109	2155	2068	4%	Yes	1.89332	Yes
BETWEEN MD 85 AND MD 80	2540	2384	6%	Yes	3.14399	Yes

Figure C.14: I-270 Northbound 8-9 AM Volumes

Segment	8-9 AM					
	Balanced Count Volume (Vehicles)	Simulated Volume (Vehicles)	Difference (%)	Difference <10%?	GEH	GEH <5?
I-270 NB				Calibration not met		
BETWEEN DEMOCRACY BLVD AND I-495	4900	4399	10%	No	7.34742	No
BETWEEN I-270 SPLIT AND DEMOCRACY BLVD	4360	3804	13%	No	8.70238	No
BETWEEN MD 187 AND I-495	4440	4640	-5%	Yes	2.96826	Yes
BETWEEN I-270 SPLIT AND MD 187	3935	3973	-1%	Yes	0.60432	Yes
BETWEEN MONTROSE RD AND I-270 SPLIT	8295	7874	5%	Yes	4.68226	Yes
BETWEEN MD 189 AND MONTROSE RD	7895	7309	7%	Yes	6.721	No
BETWEEN MD 28 AND MD 189	7825	7171	8%	Yes	7.55275	No
BETWEEN SHADY GROVE RD AND MD 28	6460	5815	10%	Yes	8.23311	No
BETWEEN I-370 AND SHADY GROVE RD	5110	4761	7%	Yes	4.96775	Yes
BETWEEN MD 117 AND I-370	5895	5189	12%	No	9.48356	No
BETWEEN MD 124 AND MD 117	4485	4675	-4%	Yes	2.80751	Yes
BETWEEN MIDDLEBROOK ROAD AND MD 124	4315	4199	3%	Yes	1.7779	Yes
BETWEEN MD 118 AND MIDDLEBROOK RD	3450	3355	3%	Yes	1.62864	Yes
BETWEEN MD 27 AND MD 118	2855	2772	3%	Yes	1.56478	Yes
BETWEEN MD 121 AND MD 27	2505	2434	3%	Yes	1.42874	Yes
BETWEEN MD 109 AND MD 121	2365	2312	2%	Yes	1.09599	Yes
BETWEEN MD 80 AND MD 109	2320	2267	2%	Yes	1.10669	Yes
BETWEEN MD 85 AND MD 80	2665	2609	2%	Yes	1.09052	Yes

Figure C.15: I-270 Northbound 4-5 PM Volumes

Segment	4-5 PM					
	Balanced Count Volume (Vehicles)	Simulated Volume (Vehicles)	Difference (%)	Difference <10%?	GEH	GEH <5?
I-270 NB				Calibration not met		
BETWEEN DEMOCRACY BLVD AND I-495	5135	4802	6%	Yes	4.72424	Yes
BETWEEN I-270 SPLIT AND DEMOCRACY BLVD	6295	5305	16%	No	12.9993	No
BETWEEN MD 187 AND I-495	4300	4227	2%	Yes	1.11799	Yes
BETWEEN I-270 SPLIT AND MD 187	5130	4901	4%	Yes	3.23354	Yes
BETWEEN MONTROSE RD AND I-270 SPLIT	11425	10770	6%	Yes	6.21769	No
BETWEEN MD 189 AND MONTROSE RD	11740	11161	5%	Yes	5.41086	No
BETWEEN MD 28 AND MD 189	11980	11418	5%	Yes	5.19591	No
BETWEEN SHADY GROVE RD AND MD 28	10985	10760	2%	Yes	2.15783	Yes
BETWEEN I-370 AND SHADY GROVE RD	10995	10469	5%	Yes	5.07745	No
BETWEEN MD 117 AND I-370	10715	10308	4%	Yes	3.96974	Yes
BETWEEN MD 124 AND MD 117	9170	8796	4%	Yes	3.94603	Yes
BETWEEN MIDDLEBROOK ROAD AND MD 124	8250	8031	3%	Yes	2.42727	Yes
BETWEEN MD 118 AND MIDDLEBROOK RD	6945	6736	3%	Yes	2.52698	Yes
BETWEEN MD 27 AND MD 118	6365	6257	2%	Yes	1.35949	Yes
BETWEEN MD 121 AND MD 27	5200	4947	5%	Yes	3.55195	Yes
BETWEEN MD 109 AND MD 121	4630	4263	8%	Yes	5.50373	No
BETWEEN MD 80 AND MD 109	4555	4192	8%	Yes	5.48899	No
BETWEEN MD 85 AND MD 80	4625	4230	9%	Yes	5.93633	No

Figure C.16: I-270 Northbound 5-6 PM Volumes

Segment	5-6 PM					
	Balanced Count Volume (Vehicles)	Simulated Volume (Vehicles)	Difference (%)	Difference <10%?	GEH	GEH <5?
I-270 NB				Calibration not met		
BETWEEN DEMOCRACY BLVD AND I-495	4940	4690	5%	Yes	3.60281	Yes
BETWEEN I-270 SPLIT AND DEMOCRACY BLVD	6290	5199	17%	No	14.3946	No
BETWEEN MD 187 AND I-495	4350	4107	6%	Yes	3.73691	Yes
BETWEEN I-270 SPLIT AND MD 187	5150	4911	5%	Yes	3.36971	Yes
BETWEEN MONTROSE RD AND I-270 SPLIT	11440	10862	5%	Yes	5.47357	No
BETWEEN MD 189 AND MONTROSE RD	11655	11151	4%	Yes	4.71977	Yes
BETWEEN MD 28 AND MD 189	11615	11158	4%	Yes	4.28273	Yes
BETWEEN SHADY GROVE RD AND MD 28	10465	10461	0%	Yes	0.0391	Yes
BETWEEN I-370 AND SHADY GROVE RD	10445	10112	3%	Yes	3.28458	Yes
BETWEEN MD 117 AND I-370	10610	10028	5%	Yes	5.72933	No
BETWEEN MD 124 AND MD 117	9240	8648	6%	Yes	6.25973	No
BETWEEN MIDDLEBROOK ROAD AND MD 124	8340	7888	5%	Yes	5.01789	No
BETWEEN MD 118 AND MIDDLEBROOK RD	7025	6719	4%	Yes	3.6913	Yes
BETWEEN MD 27 AND MD 118	6475	6205	4%	Yes	3.39093	Yes
BETWEEN MD 121 AND MD 27	5280	4898	7%	Yes	5.35485	No
BETWEEN MD 109 AND MD 121	4645	4320	7%	Yes	4.85426	Yes
BETWEEN MD 80 AND MD 109	4540	4258	6%	Yes	4.25179	Yes
BETWEEN MD 85 AND MD 80	4445	4177	6%	Yes	4.08174	Yes

APPENDIX D

Volume Charts

Figure D.1: I-495 Inner Loop – 7-8 AM VISSIM Model and Balanced Count Volume Comparison

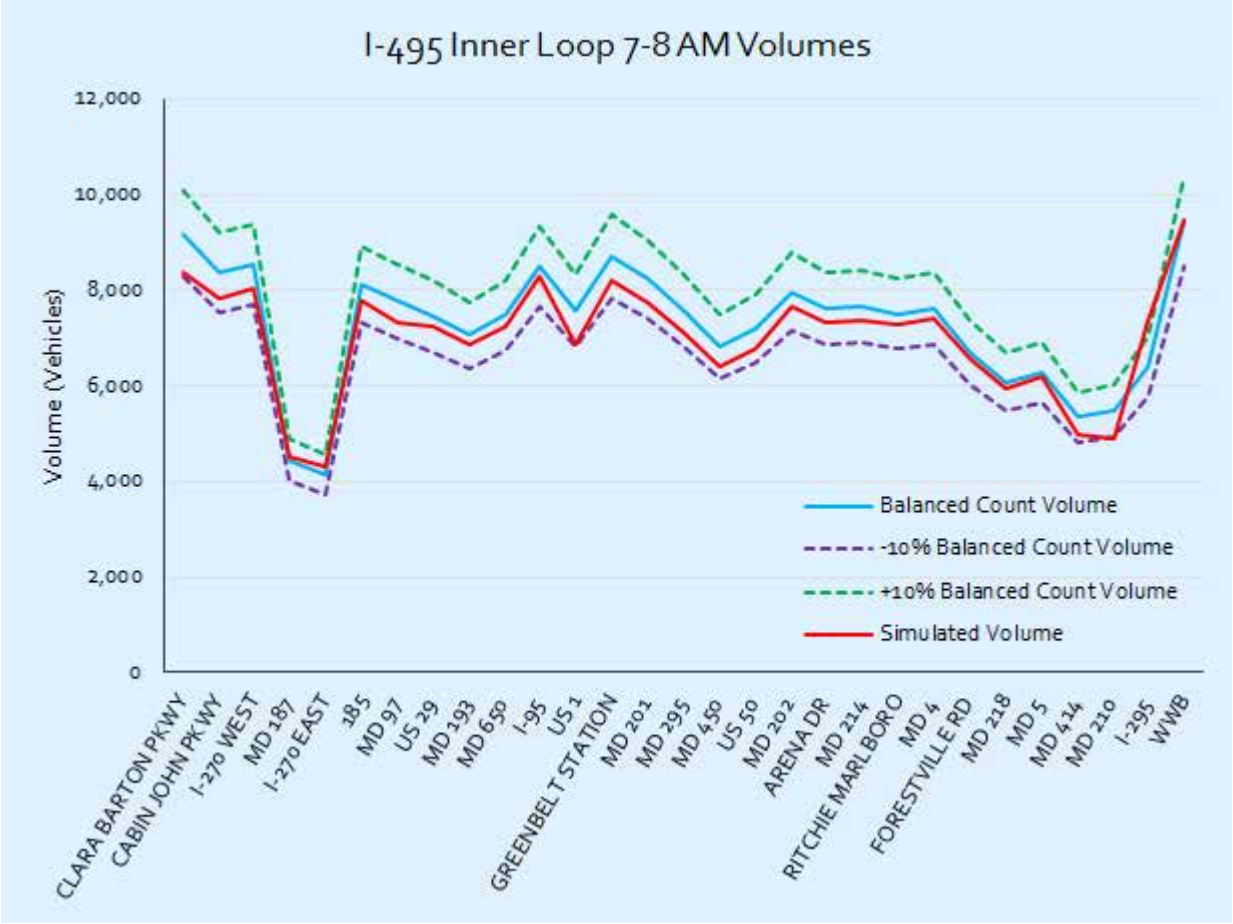


Figure D.2: I-495 Inner Loop – 8-9 AM VISSIM Model and Balanced Count Volume Comparison

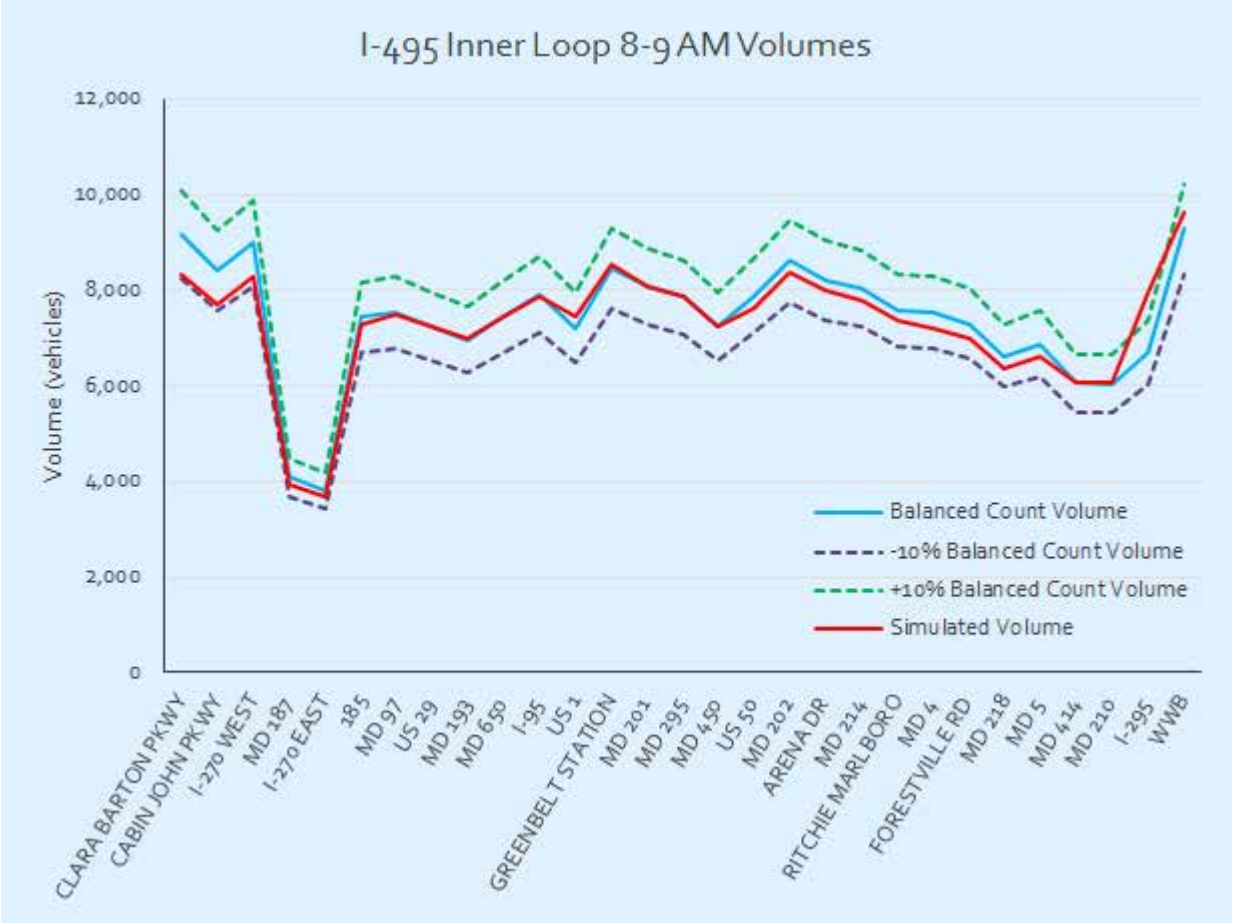


Figure D.3: I-495 Inner Loop – 4-5 PM VISSIM Model and Balanced Count Volume Comparison

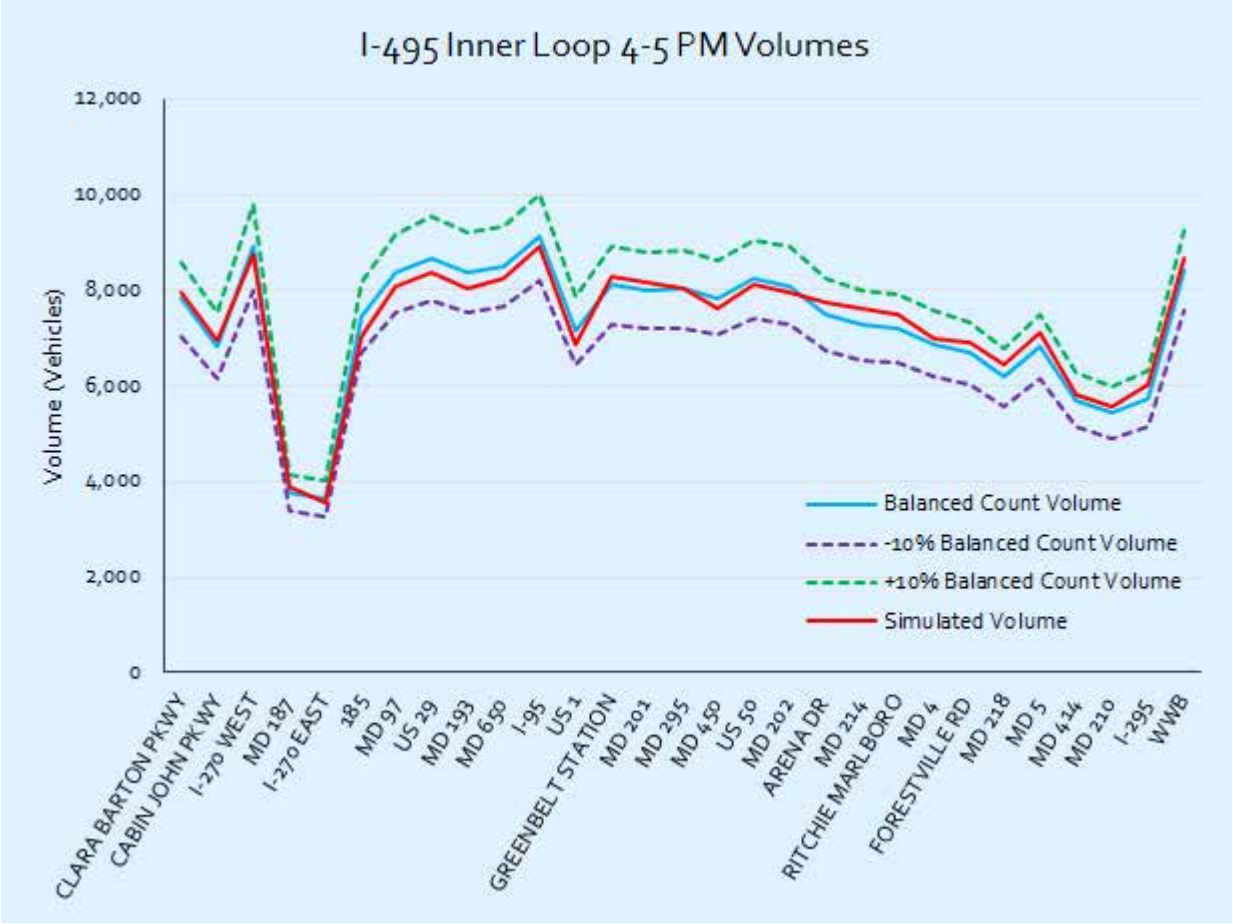


Figure D.4: I-495 Inner Loop – 5-6 PM VISSIM Model and Balanced Count Volume Comparison

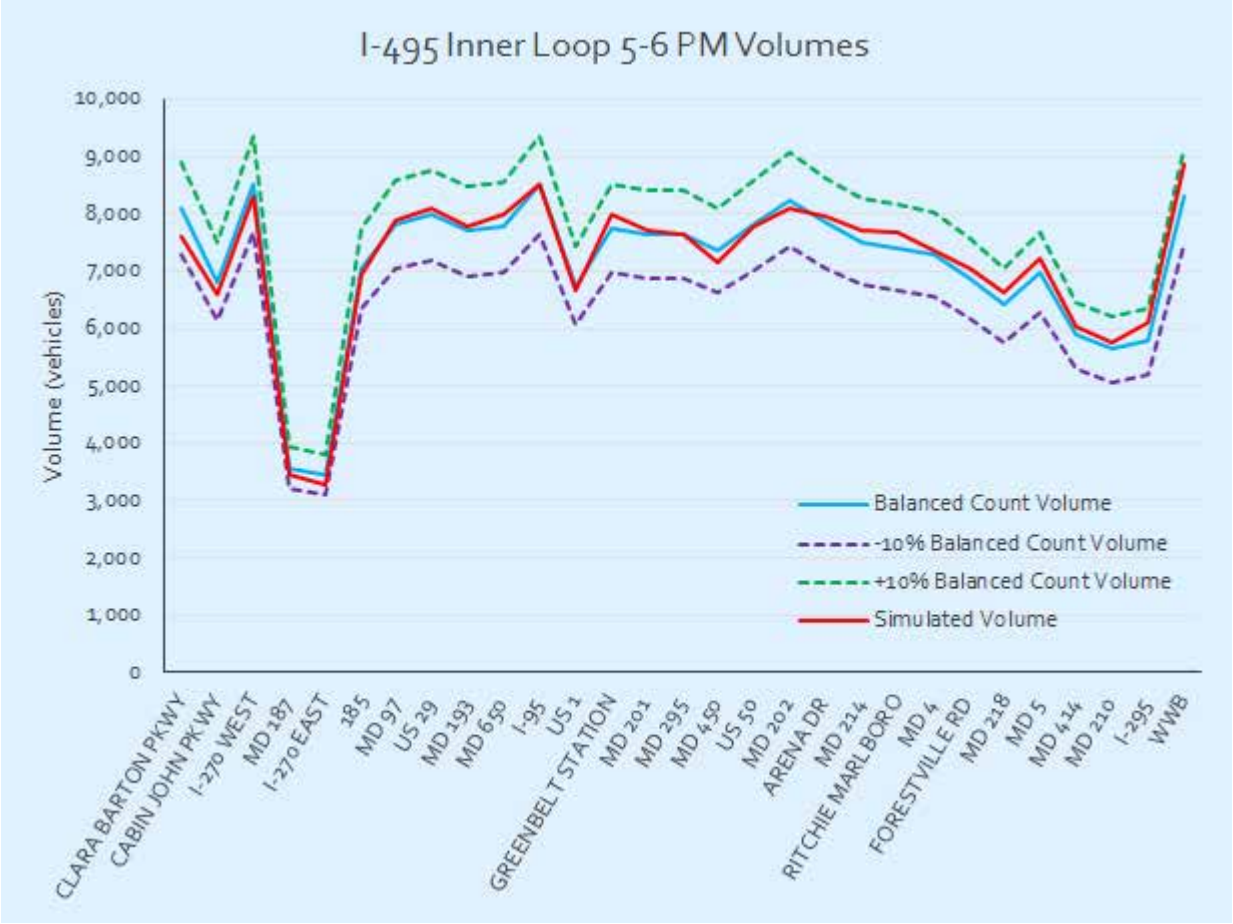


Figure D.5: I-495 Outer Loop – 7-8 AM VISSIM Model and Balanced Count Volume Comparison

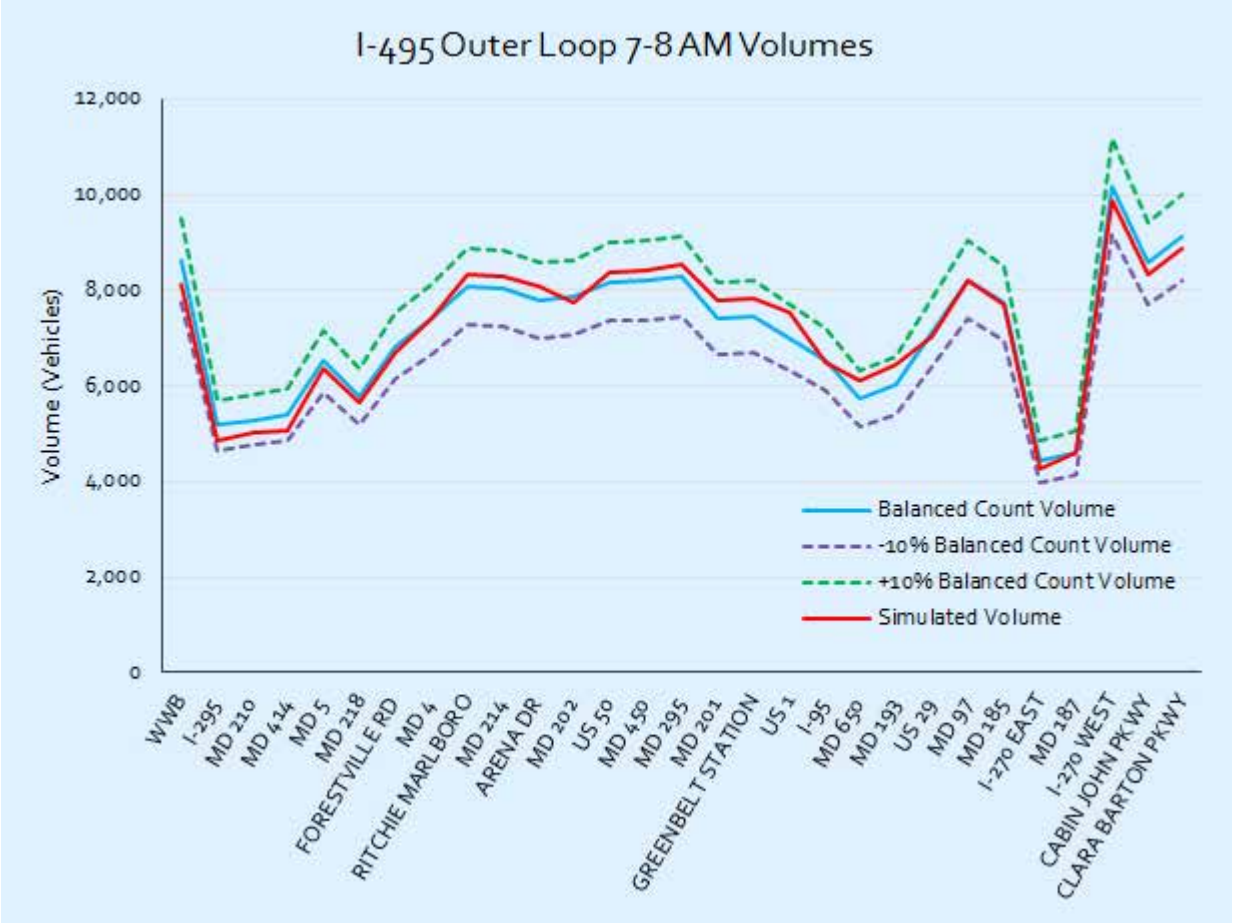


Figure D.6: I-495 Outer Loop – 8-9 AM VISSIM Model and Balanced Count Volume Comparison

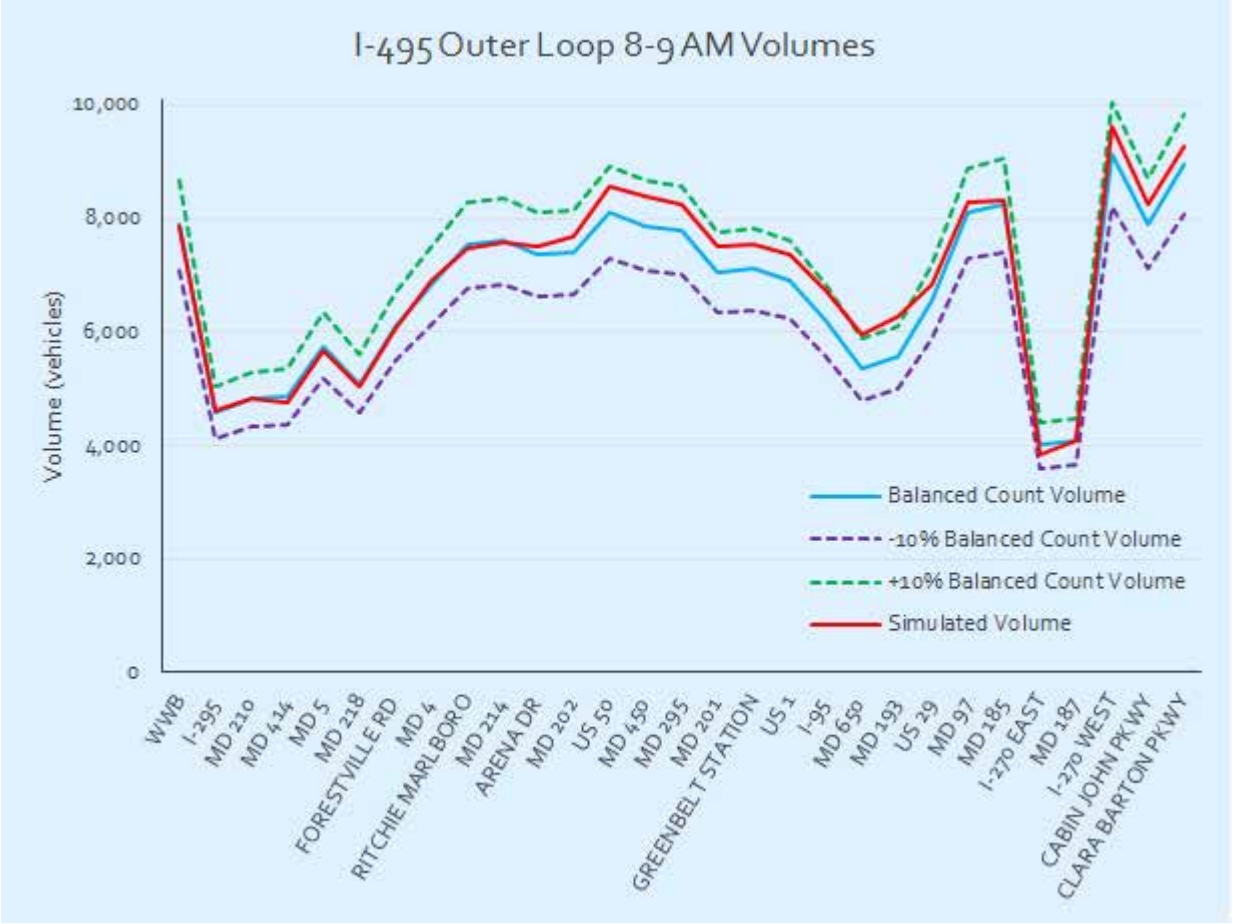


Figure D.7: I-495 Outer Loop – 4-5 PM VISSIM Model and Balanced Count Volume Comparison

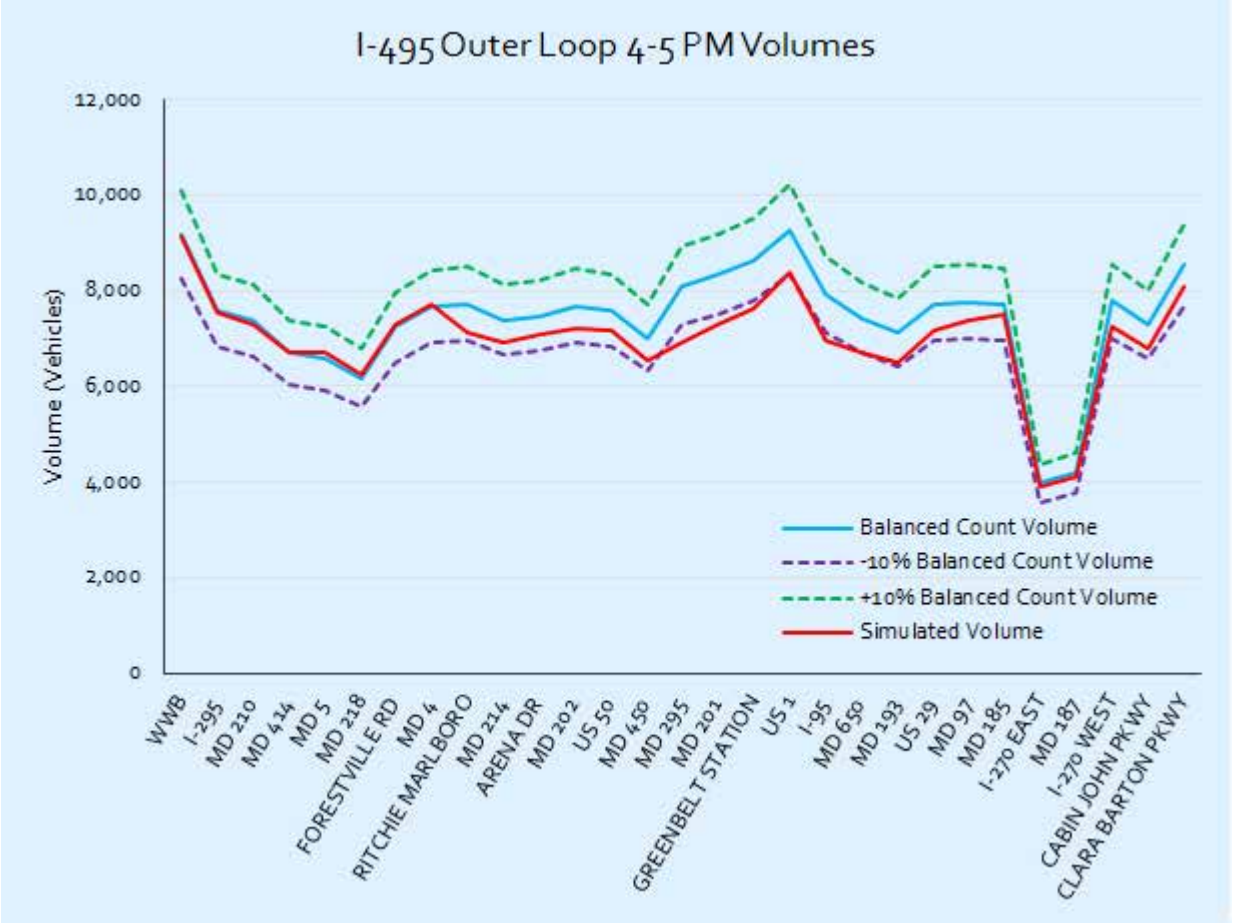


Figure D.8: I-495 Outer Loop – 5-6 PM VISSIM Model and Balanced Count Volume Comparison

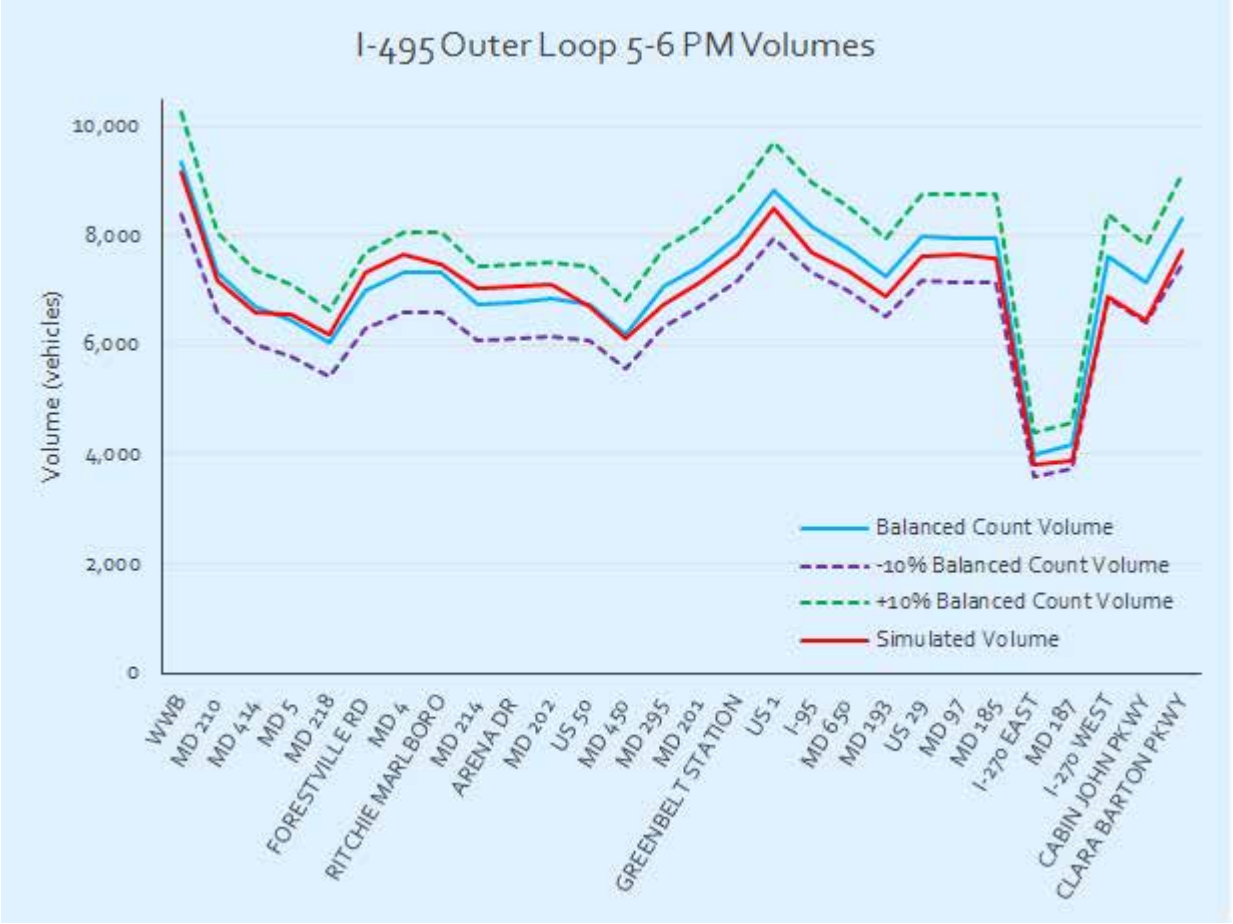


Figure D.9: I-270 Southbound – 7-8 AM VISSIM Model and Balanced Count Volume Comparison

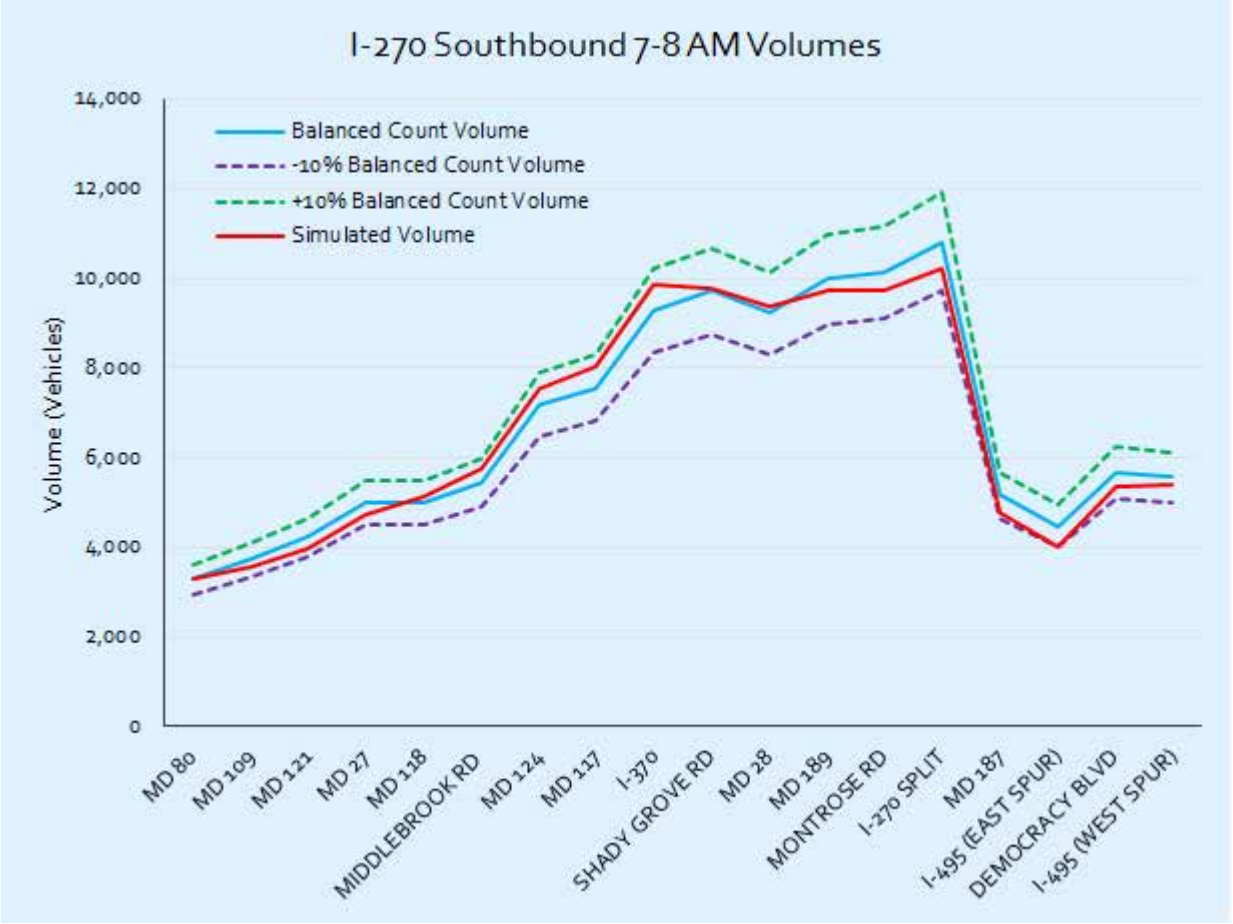


Figure D.10: I-270 Southbound – 8-9 AM VISSIM Model and Balanced Count Volume Comparison

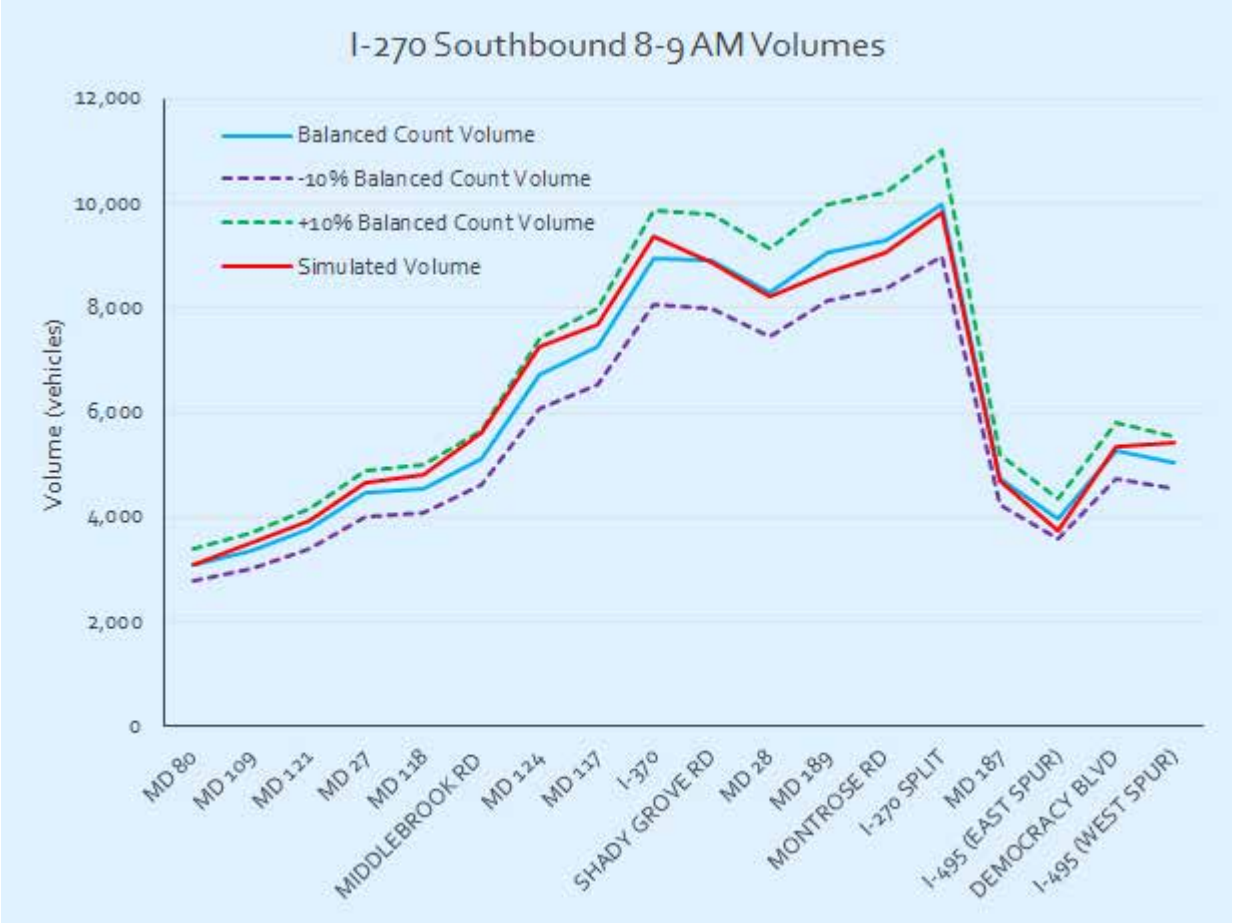


Figure D.11: I-270 Southbound – 4-5 PM VISSIM Model and Balanced Count Volume Comparison

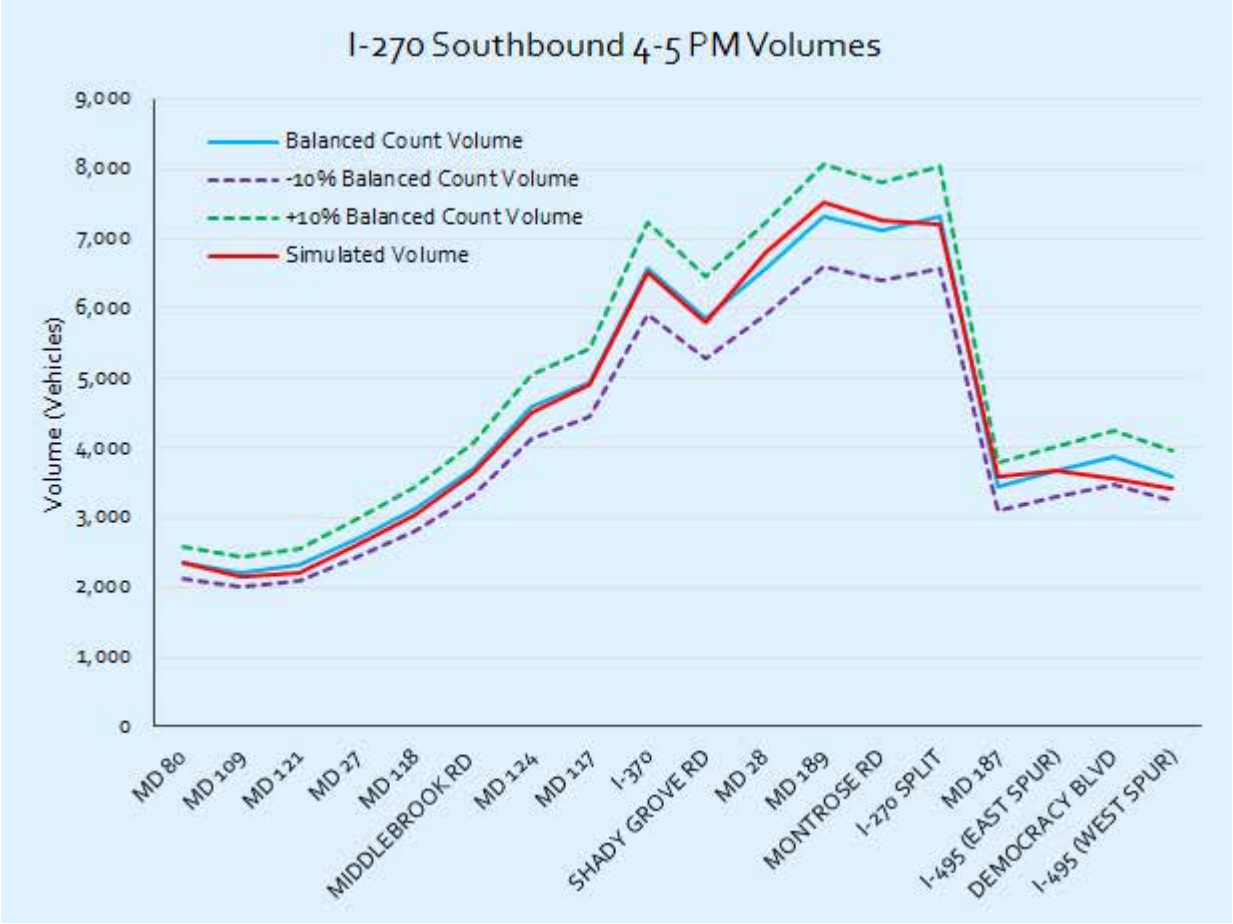


Figure D.12: I-270 Southbound – 5-6 PM VISSIM Model and Balanced Count Volume Comparison

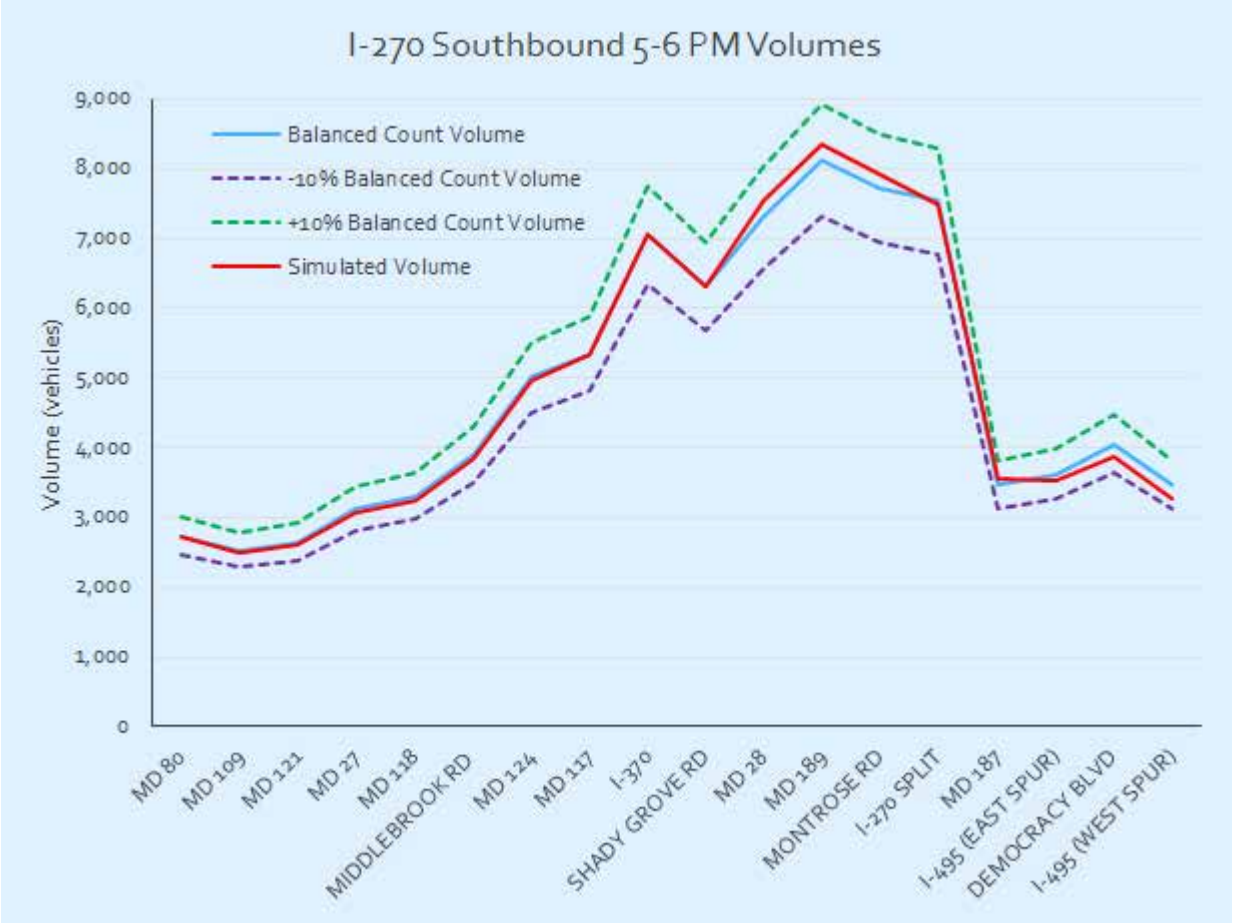


Figure D.13: I-270 Northbound – 7-8 AM VISSIM Model and Balanced Count Volume Comparison

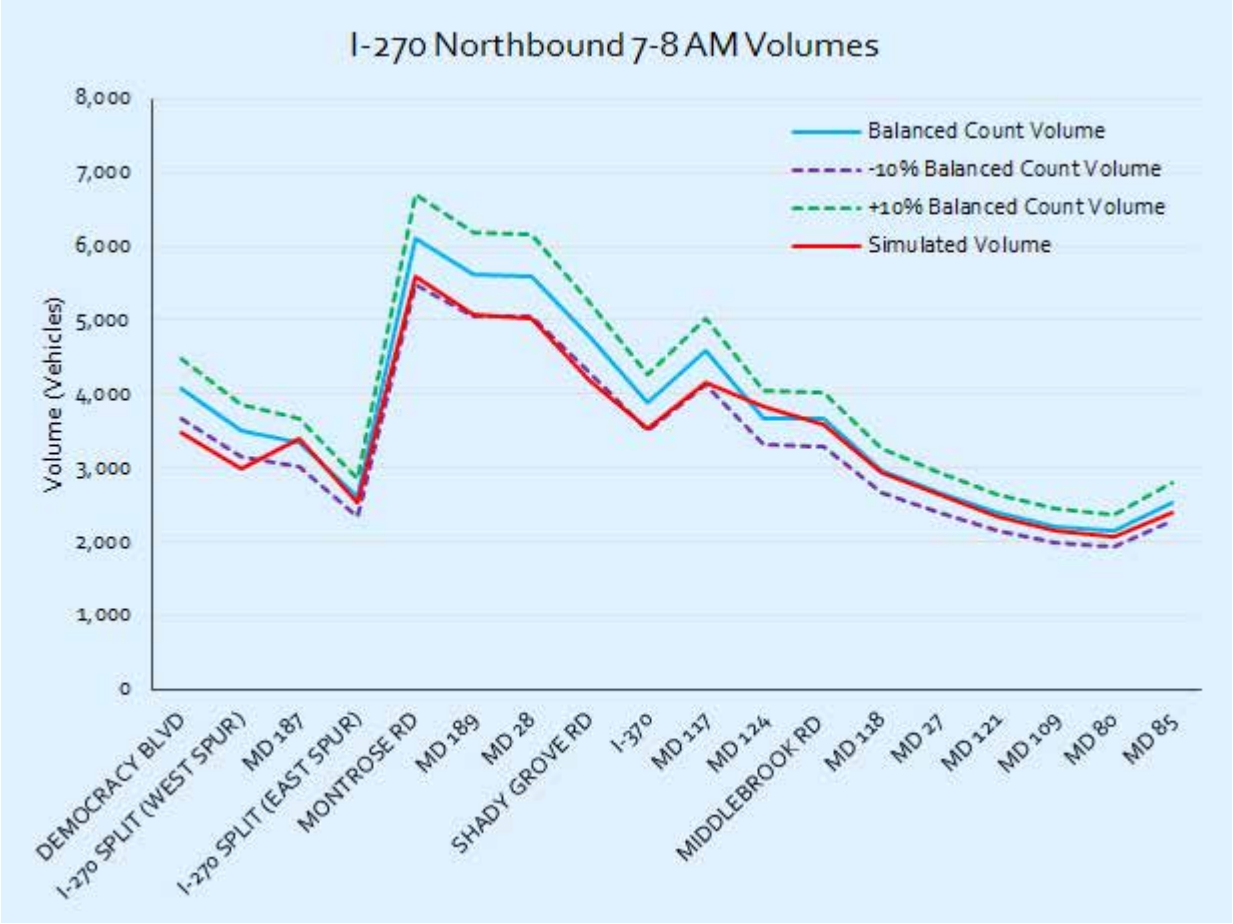


Figure D.14: I-270 Northbound – 8-9 AM VISSIM Model and Balanced Count Volume Comparison

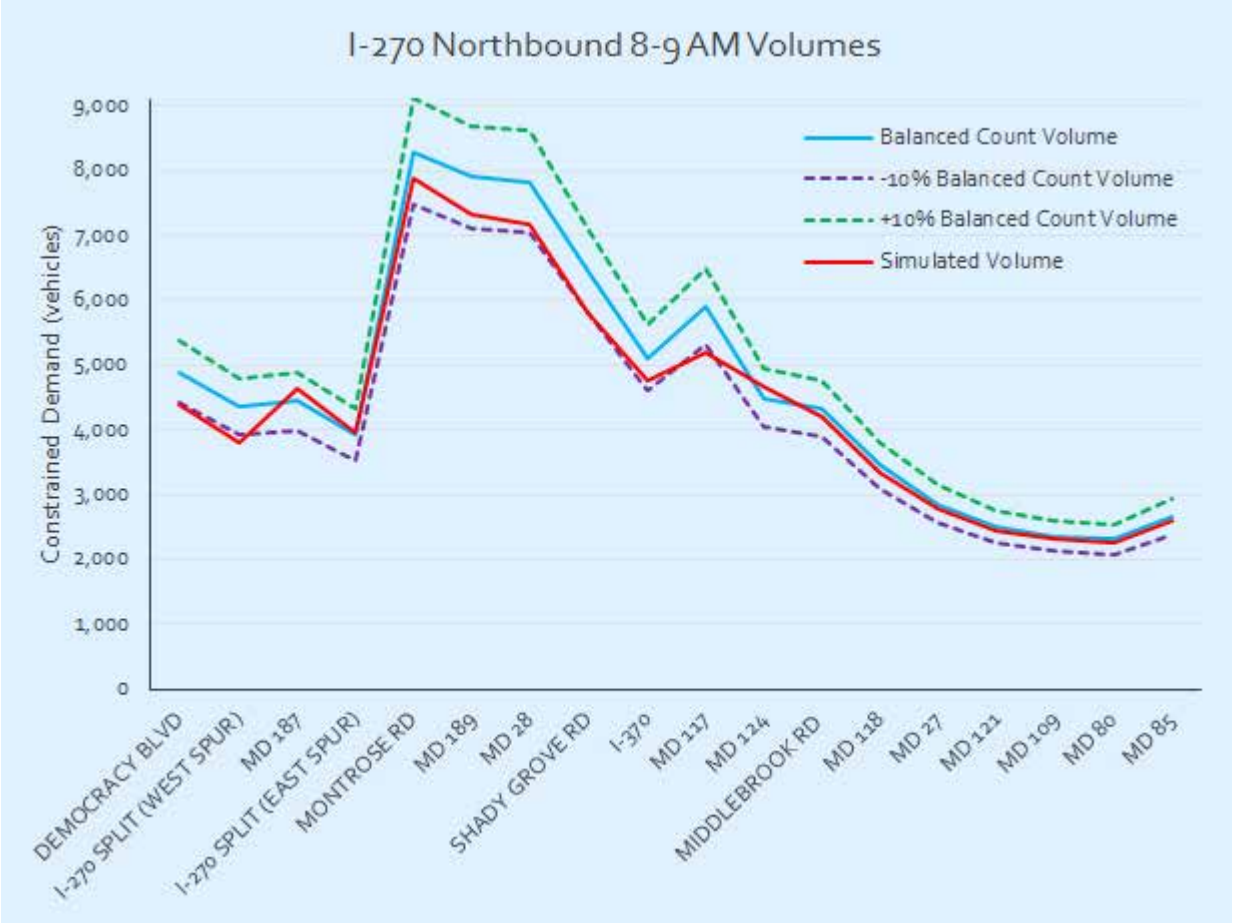


Figure D.15: I-270 Northbound – 4-5 PM VISSIM Model and Balanced Count Volume Comparison

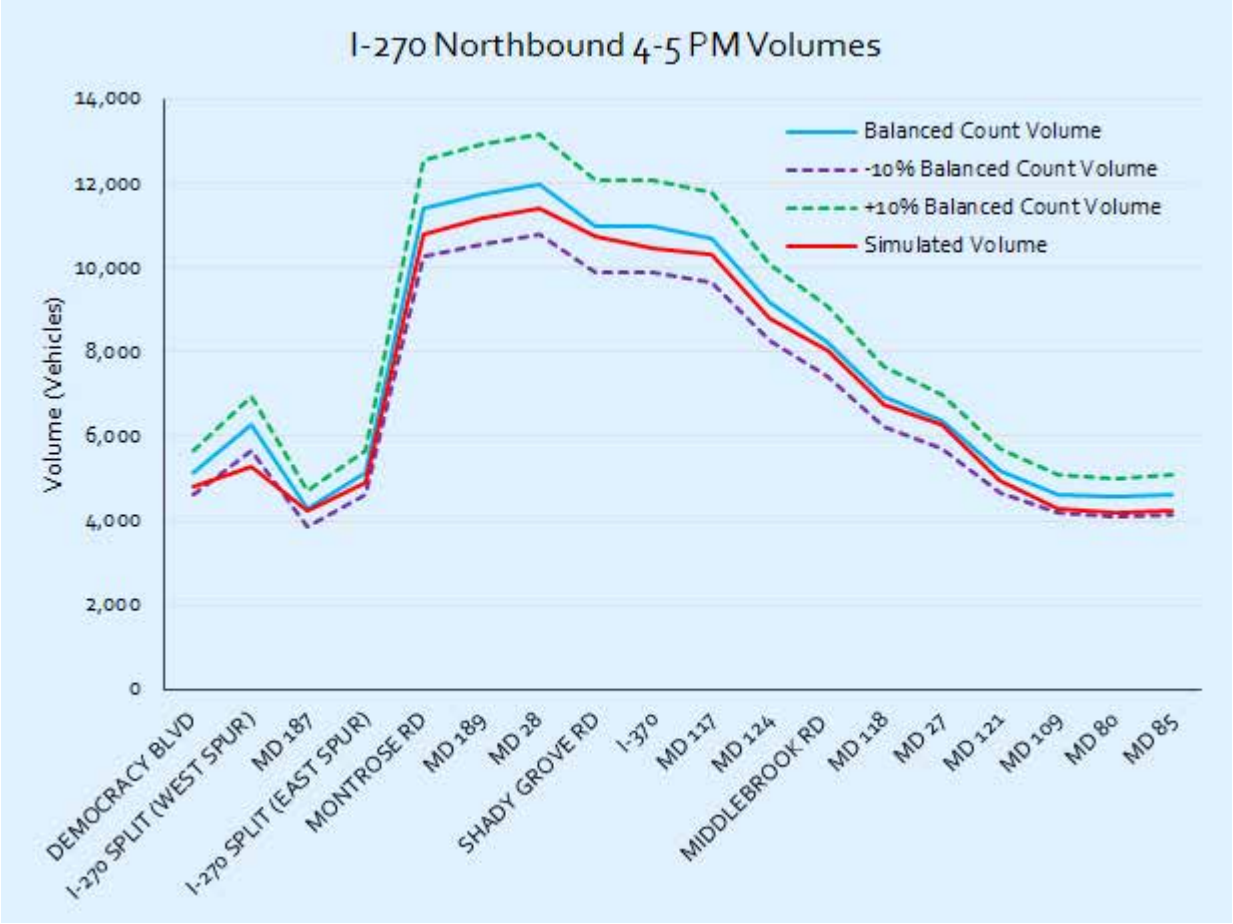
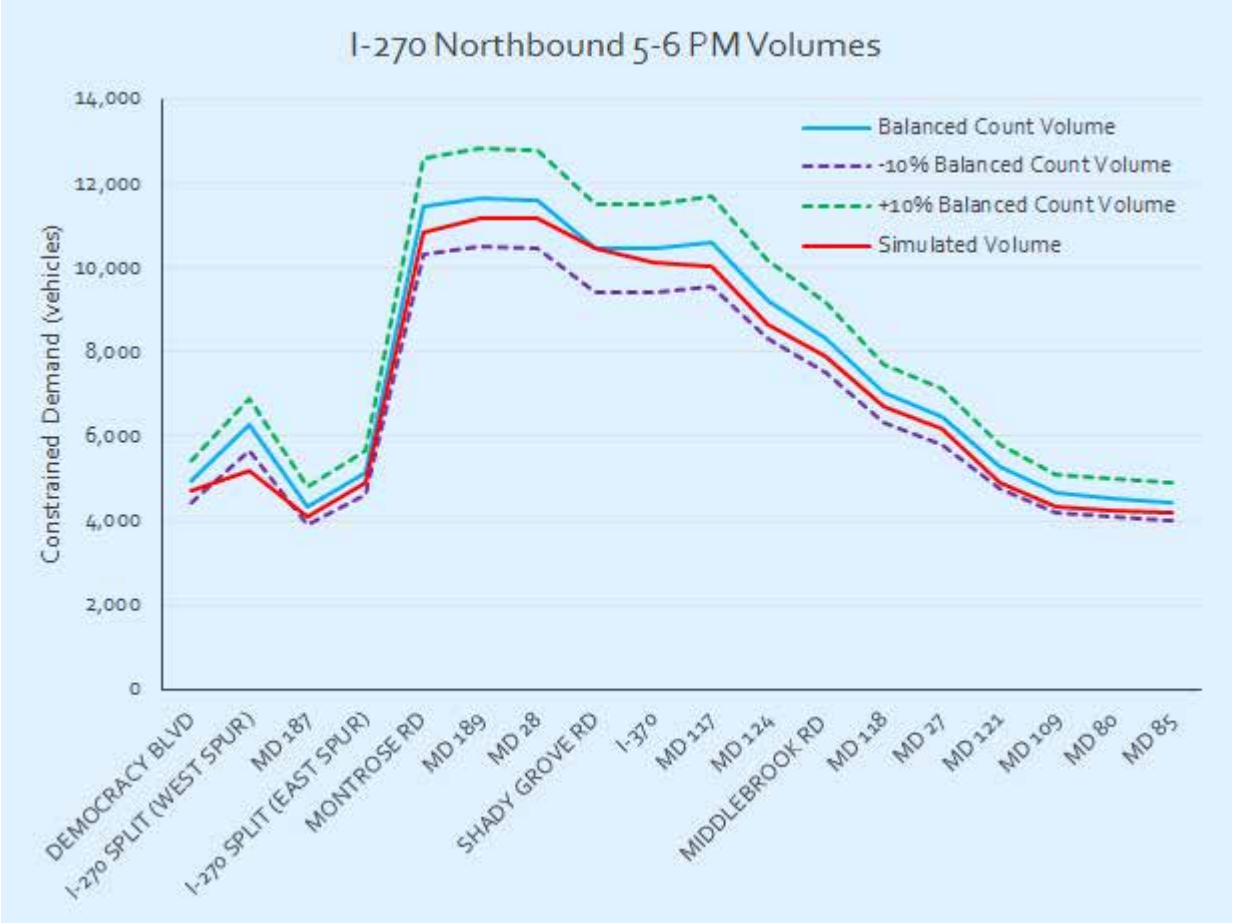


Figure D.16: I-270 Northbound – 5-6 PM VISSIM Model and Balanced Count Volume Comparison



Appendix H
VISSIM Analysis Results

Volumes, Speeds, and Densities by Lane

I-495 Inner Loop - 2017 Existing - 6-7 AM

VISSIM Lookup Data				Volume								Speed								Density											
				Volume Per Lane						Across All Lanes	Overall Volume	Speed Per Lane						Across All Lanes	Overall Speed	Density Per Lane						Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)						Total Volume	Average Volume (veh/hr)	Speed (mph)						Average Speed	Average Speed (mph)	Combined Density (pcphpl)						Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Btw VA 267 & VA 193	2192	6	410	1799	1454	1155	1096	1088	7002	7002	59	58	58	59	59	59	59	59	7	31	25	20	19	19	20	C	20	C	20	C
diverge		1499	6	338	1812	1466	1192	1101	1088	6997	6997	59	57	57	58	58	58	58	58	6	32	26	21	19	19	20	C	21	C	21	C
basic	VA 193 interchange	2095	5	2190	1454	1084	963	947		6638	6638	56	57	58	58	58		58	58	40	26	19	17	16		23	C	23	C	23	C
weave	Btw VA 193 & GWMP	1500	6	1132	1637	1618	1140	960	941	7429	7437	56	55	57	59	59	59	58	58	20	30	29	20	17	16	22	C	22	C	22	C
		1537	6	1188	1475	1580	1244	1002	953	7444		58	55	57	58	59	59	58		21	27	28	22	17	16	22	C	22	C		
merge	GWMP interchange	645	5	1417	1574	1522	1001	739		6253	6253	55	57	58	57	56		57	57	26	28	27	18	13		22	C	19	B	19	B
basic		687	4	1401	1618	1717	1479			6216	6215	54	56	56	55			55	55	26	29	31	27			29	D	29	D	28	D
		494	4	1463	1632	1637	1480			6213		54	56	56	56			55		28	30	30	27			28	D	28	D		
weave	Btw GWMP & Clara Barton Pkwy	1975	5	871	1862	1840	1735	1644		7952	7952	35	33	35	40	44		38	38	25	58	53	44	38		44	F	44	F	44	F
basic	Clara Barton Pkwy interchange	500	4	1667	1737	1874	1981			7259	7276	43	44	46	48			45	50	40	40	41	42			41	E	41	E	37	F
		706	4	1727	1757	1864	1941			7289		53	52	53	54			53		34	34	36	37			35	E	35	E		
merge	Btw Clara Barton Pkwy & MD 190	1511	5	115	1729	1811	1867	1926		7447	7446	56	55	55	56	56		55	56	2	32	34	34	35		27	C	23	C	22	C
		777	5	18	1827	1843	1859	1896		7443		55	56	57	58	58		57		0	33	33	33	33		26	C	22	C		
basic		3461	4	2094	1823	1749	1759			7423	7425	55	56	57	58			57	57	39	33	31	31			33	D	33	D	33	D
		1064	4	2044	1805	1791	1790			7431		55	56	57	58			57		38	32	32	31			33	D	33	D		
diverge		400	5	520	1529	1765	1796	1805		7415	7415	55	53	54	55	56		55	55	10	30	33	33	32		28	D	24	C	24	C
basic	MD 190 interchange	1947	4	1398	1683	1776	1813			6670	6670	56	56	57	57			57	57	25	30	32	32			30	D	30	D	30	D
merge		1495	5	383	1238	1612	1758	1820		6813	6813	62	57	57	57	57		58	58	6	22	29	31	32		24	C	19	B	19	B
basic		621	5	506	1184	1560	1735	1807		6793	6793	62	57	57	57	57		58	58	8	21	28	31	32		24	C	24	C	24	C
merge	Btw MD 190 & I-270 West Spur	1123	6	63	922	1217	1540	1724	1809	7275	7275	60	61	57	57	57	57	58	58	1	15	22	27	31	32	21	C	13	B	13	B
basic		398	5	834	1245	1604	1680	1768		7131	7227	61	57	57	57	57		58	57	14	22	29	30	31		25	C	25	C	26	D
		1764	5	701	1042	2142	2253	1110		7248		61	57	54	54	58		57		12	18	40	42	20		26	D	26	D		
weave		732	6	785	1240	2075	1968	1184	14	7267	7281	61	57	56	56	58	62	58	58	13	22	38	36	21	0	22	C	22	C	22	C
		1509	6	975	1472	1851	1535	1404	52	7289		60	57	56	56	57	61	58		17	26	34	28	25	1	22	C	22	C		
basic	Btw I-270 West Spur & MD 187	7671	3	1374	1416	1503				4293	4293	58	56	56				57	57	24	26	27				26	D	26	D	26	D
		1173	3	1484	1417	1392				4293		57	56	56				57		26	25	25				26	D	26	D		
diverge		305	4	202	1425	1323	1345			4294	4294	45	43	45	51			46	46	5	34	30	27			24	C	23	C	23	C
basic	MD 187 interchange	2021	3	1208	1268	1342				3819	3819	57	56	56				56	56	22	23	24				23	C	23	C	23	C
merge	Btw MD 187 & I-270 East Spur	440	4	70	1290	1318	1305			3985	3985	44	58	57	57			54	54	2	23	23	23			18	B	16	B	16	B
basic		659	3	851	1648	1490				3989	3989	58	57	56				57	57	15	30	27				24	C	24	C	24	C
diverge		1113	3	583	1787	1624				3995	3995	49	53	53				52	52	12	34	31				26	C	26	C	26	C
basic	I-270 East Spur interchange	1519	2	1769	1719					3488	3488	51	51					51	51	36	34					35	E	35	E	35	E
weave		1951	4	1584	1503	1310	1073			5471	5471	56	57	61	63			59	59	29	27	22	17			24	C	24	C	24	C
weave		513	6	36	1519	1448	1373	1138	601	6114	6114	52	58	58	62	63	63	59	59	1	27	25	23	18	10	17	B	17	B	17	B
basic		1013	5	1500	1431	1389	1166	656		6142	6149	57	57	61	63	64		60	60	27	25	23	19	10		21	C	21	C	21	C
		1002	5	1424	1384	1378	1215	754		6155		57	57	61	63	64		60		25	24	23	20	12		21	C	21	C		
merge	Btw I-270 East Spur & MD 185	521	5	1392	1363	1578	1697	117		6147	6147	58	58	61	63	60		60	60	24	24	26	27	2		21	C	19	B	19	B
basic		1603	4	1697	1439	1465	1535			6137	6140	56	57	60	61			58	58	31	26	25	26			27	D	27	D	27	D
		252	4	1821	1426	1407	1502			6156		55	57	60	62			59		34	25	24	25			27	D	27	D		
diverge		526	5	633	1273	1332	1404	1519		6161	6151	58	57	58	60	62		59	58	11	23	23	24	25		21	C	19	B	19	B
		658	5	913	1093	1218	1387	1532		6143		59	53	55	60	62		58		16	21	22	24	25		21	C	20	C		

I-495 Inner Loop - 2017 Existing - 7-8 AM

VISSIM Lookup Data				Volume								Speed								Density											
				Volume Per Lane						Across All Lanes	Overall Volume	Speed Per Lane						Across All Lanes	Overall Speed	Density Per Lane						Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)						Total Volume	Average Volume (veh/hr)	Speed (mph)						Average Speed	Average Speed (mph)	Combined Density (pcphpl)						Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Btw VA 267 & VA 193	2192	6	527	1866	1574	1249	1173	1159	7547	7547	59	58	58	59	59	59	59	59	9	33	28	22	20	20	22	C	22	C	22	C
diverge		1499	6	489	1865	1567	1286	1182	1157	7546	7546	58	57	56	58	58	59	58	58	8	33	28	23	21	20	22	C	23	C	23	C
basic	VA 193 interchange	2095	5	2059	1529	1219	1124	1093		7024	7024	55	55	56	56	56		55	55	38	28	22	21	20		26	D	26	D	26	D
weave	Btw VA 193 & GWMP	1500	6	911	1751	1819	1352	1148	1095	8076	8002	48	38	41	39	35	33	39	32	20	49	47	37	36	37	38	E	38	E	50	F
		1537	6	793	1593	1750	1524	1177	1094	7930		52	22	26	24	17	15	26		16	73	69	66	73	74	62	F	62	F		
merge	GWMP interchange	645	5	1516	1727	1784	1072	944		7042	7042	17	21	23	11	10		17	17	89	83	79	98	94		89	F	90	F	90	F
basic		687	4	1468	1695	1894	1879			6936	6921	16	20	26	29			23	23	95	85	74	66			80	F	80	F	81	F
		494	4	1423	1628	1853	1997			6901		14	18	25	32			22		101	90	75	64			82	F	82	F		
weave	Btw GWMP & Clara Barton Pkwy	1975	5	924	1687	1784	1929	2051		8375	8375	22	20	23	29	35		26	26	43	88	80	67	61		68	F	68	F	68	F
basic	Clara Barton Pkwy interchange	500	4	1715	1835	1996	2125			7671	7690	40	43	46	46			44	49	43	43	44	47			44	E	44	E	41	E
		706	4	1796	1855	1970	2083			7703		51	52	53	52			52		36	36	38	41			38	E	38	E		
merge	Btw Clara Barton Pkwy & MD 190	1511	5	131	1780	1902	1971	2044		7827	7827	55	53	54	55	55		55	55	2	34	36	36	38		29	D	24	C	24	C
		777	5	24	1890	1940	1960	2012		7827		54	56	56	57	58		56		0	35	35	35	35		28	D	23	C		
basic		3461	4	2179	1906	1847	1868			7800	7804	54	56	57	57			56	56	41	35	33	33			35	E	35	E	35	E
		1064	4	2124	1885	1900	1907			7816		54	56	57	57			56		40	34	34	34			35	E	35	E		
diverge		400	5	587	1553	1831	1905	1920		7797	7797	55	54	55	56	57		55	55	11	29	34	34	34		29	D	25	C	25	C
basic	MD 190 interchange	1947	4	1428	1742	1874	1923			6966	6966	56	56	57	57			57	57	26	31	33	34			31	D	31	D	31	D
merge		1495	5	535	1279	1663	1849	1921		7246	7246	62	57	56	57	57		58	58	9	23	30	33	34		26	C	21	C	21	C
basic		621	5	668	1233	1596	1819	1905		7222	7222	62	57	56	57	57		58	58	11	22	29	32	34		26	D	26	D	26	D
merge	Btw MD 190 & I-270 West Spur	1123	6	113	1281	1342	1588	1801	1900	8026	8026	59	60	57	56	57	57	58	58	2	22	24	29	32	34	24	C	16	B	16	B
basic		398	5	1136	1394	1725	1758	1848		7861	7966	60	57	56	57	57		58	57	19	25	31	31	33		28	D	28	D	29	D
		1764	5	911	1178	2271	2369	1261		7990		61	57	53	53	57		56		15	21	43	45	22		29	D	29	D		
weave		732	6	1003	1281	2177	2131	1384	21	7997	8002	61	57	55	55	57	60	58	58	17	23	40	39	24	0	24	C	24	C	24	C
		1509	6	1163	1500	1856	1758	1657	71	8005		60	57	56	56	57	61	58		20	27	34	32	30	1	24	C	24	C		
basic	Btw I-270 West Spur & MD 187	7671	3	1471	1499	1539				4509	4508	58	56	56				56	56	26	27	28				27	D	27	D	27	D
		1173	3	1569	1509	1426				4504		57	56	56				56		28	27	26				27	D	27	D		
diverge		305	4	249	1475	1384	1394			4501	4501	41	36	38	45			40	40	6	42	37	32			29	D	28	D	28	D
basic	MD 187 interchange	2021	3	1231	1323	1362				3917	3917	56	55	55				56	56	22	24	25				24	C	24	C	24	C
merge	Btw MD 187 & I-270 East Spur	440	4	147	1380	1423	1326			4276	4276	47	57	57	57			54	54	3	25	25	24			19	B	18	B	18	B
basic		659	3	934	1749	1596				4279	4279	56	56	56				56	56	17	32	29				26	D	26	D	26	D
diverge		1113	3	625	1888	1775				4287	4287	42	49	50				47	47	16	39	36				30	D	30	D	30	D
basic	I-270 East Spur interchange	1519	2	1892	1876					3767	3767	50	50					50	50	39	38					38	E	38	E	38	E
weave		1951	4	1751	1687	1743	1524			6705	6705	56	56	61	62			59	59	32	30	29	25			29	D	29	D	29	D
weave		513	6	67	1722	1663	1760	1579	1020	7810	7810	50	54	53	57	57	55	54	54	1	33	32	32	29	20	25	C	25	C	25	C
basic		1013	5	1735	1671	1728	1550	1130		7813	7796	47	45	46	44	44		45	42	40	40	43	42	33		40	E	40	E	44	E
		1002	5	1700	1675	1692	1455	1257		7779		41	41	39	33	35		38		45	45	51	58	46		49	F	49	F		
merge	Btw I-270 East Spur & MD 185	521	5	1707	1726	1997	1742	550		7721	7721	34	34	35	27	22		30	30	59	58	64	83	42		61	F	63	F	63	F
basic		1603	4	2030	1825	1881	1938			7674	7675	42	44	48	50			46	47	50	43	41	40			43	E	43	E	42	E
		252	4	2120	1779	1847	1933			7679		51	53	56	58			55		42	34	33	34			36	E	36	E		
diverge		526	5	868	1410	1639	1821	1938		7676	7662	56	55	55	57	59		56	54	16	26	30	33	34		28	D	24	C	26	C
		658	5	1214	1243	1507	1771	1916		7651		55	45	49	54	57		52		23	29	31	34	35		30	D	28	D		

I-495 Inner Loop - 2017 Existing - 8-9 AM

VISSIM Lookup Data				Volume								Speed								Density											
				Volume Per Lane						Across All Lanes	Overall Volume	Speed Per Lane						Across All Lanes	Overall Speed	Density Per Lane						Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)						Total Volume	Average Volume (veh/hr)	Speed (mph)						Average Speed	Average Speed (mph)	Combined Density (pcphpl)						Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Btw VA 267 & VA 193	2192	6	397	1719	1342	1068	1008	1010	6544	6544	59	58	58	59	59	59	59	59	7	30	23	18	17	17	19	C	19	C	19	C
diverge		1499	6	338	1660	1348	1112	1038	1037	6533	6533	55	49	49	50	50	51	51	51	6	39	33	27	25	24	26	C	26	C	26	C
basic	VA 193 interchange	2095	5	1551	1271	1163	1075	1048		6107	6107	30	30	31	29	29		30	30	71	65	57	58	58		62	F	62	F	62	F
weave	Btw VA 193 & GWMP	1500	6	1267	1049	1326	1428	1198	1077	7345	7324	18	8	11	13	10	9	11	11	82	140	125	114	125	132	120	F	120	F	121	F
		1537	6	788	1204	1549	1556	1138	1068	7304		19	8	13	13	8	7	11		48	147	123	120	144	149	122	F	122	F		
merge	GWMP interchange	645	5	1444	1684	1774	1030	962		6893	6893	12	15	17	7	7		12	12	125	112	108	143	141		126	F	131	F	131	F
basic		687	4	1403	1658	1865	1921			6847	6847	12	17	22	25			19	20	116	100	86	77			95	F	95	F	94	F
		494	4	1370	1591	1852	2033			6846		12	16	23	30			20		114	100	82	69			91	F	91	F		
weave	Btw GWMP & Clara Barton Pkwy	1975	5	911	1642	1758	1924	2061		8297	8297	21	19	22	28	33		25	25	44	91	82	70	63		70	F	70	F	70	F
basic	Clara Barton Pkwy interchange	500	4	1665	1798	1982	2104			7549	7566	40	43	46	46			44	48	42	43	44	46			44	E	44	E	40	E
		706	4	1737	1817	1960	2063			7578		51	51	53	53			52		35	36	38	40			37	E	37	E		
merge	Btw Clara Barton Pkwy & MD 190	1511	5	138	1733	1857	1958	2025		7711	7712	55	53	54	55	55		54	55	3	33	35	36	37		29	D	24	C	23	C
		777	5	25	1852	1902	1944	1989		7713		54	56	56	57	58		56		0	34	34	34	35		28	D	23	C		
basic		3461	4	2169	1871	1818	1838			7696	7697	53	55	57	57			56	56	41	34	32	33			35	E	35	E	35	E
		1064	4	2102	1845	1875	1878			7700		54	56	57	57			56		40	34	33	33			35	E	35	E		
diverge		400	5	636	1477	1789	1881	1897		7680	7680	55	54	55	56	57		55	55	12	28	33	34	34		28	D	24	C	24	C
basic	MD 190 interchange	1947	4	1354	1670	1845	1906			6775	6775	56	56	56	57			56	56	25	30	33	34			31	D	31	D	31	D
merge		1495	5	622	1224	1587	1805	1908		7146	7146	62	57	56	57	57		58	58	10	22	29	32	34		25	C	20	C	20	C
basic		621	5	755	1189	1524	1766	1887		7122	7122	62	57	56	57	57		58	58	12	21	28	32	34		25	C	25	C	25	C
merge	Btw MD 190 & I-270 West Spur	1123	6	164	1573	1400	1530	1757	1881	8304	8304	58	59	57	56	57	57	57	57	3	27	25	28	31	33	25	C	18	B	18	B
basic		398	5	1316	1501	1760	1722	1837		8137	8250	60	57	56	57	57		57	56	22	27	32	31	33		29	D	29	D	30	D
		1764	5	940	1156	2307	2384	1488		8276		61	57	52	52	56		56		16	21	45	46	27		31	D	31	D		
weave		732	6	985	1080	2142	2283	1760	43	8294	8306	61	57	54	53	56	59	57	56	16	19	41	44	32	1	25	C	25	C	26	C
		1509	6	1111	1266	1562	2117	2095	162	8312		60	57	56	47	49	59	55		19	22	28	46	43	3	27	C	27	C		
basic	Btw I-270 West Spur & MD 187	7671	3	1300	1299	1315				3914	3917	58	56	56				57	57	23	23	24				23	C	23	C	23	C
		1173	3	1382	1326	1225				3932		57	56	56				56		25	24	22				24	C	24	C		
diverge		305	4	254	1311	1216	1148			3928	3928	44	43	45	51			46	46	6	31	27	23			22	C	22	C	22	C
basic	MD 187 interchange	2021	3	1033	1151	1159				3343	3343	58	57	56				57	57	18	21	21				20	C	20	C	20	C
merge	Btw MD 187 & I-270 East Spur	440	4	121	1201	1233	1123			3678	3678	50	58	58	57			56	56	3	21	22	20			16	B	15	B	15	B
basic		659	3	768	1571	1341				3681	3681	58	57	57				57	57	13	28	24				22	C	22	C	22	C
diverge		1113	3	504	1694	1496				3694	3694	54	54	54				54	54	10	32	28				23	C	23	C	23	C
basic	I-270 East Spur interchange	1519	2	1657	1590					3247	3247	51	51					51	51	33	31					32	D	32	D	32	D
weave		1951	4	1519	1461	1557	1338			5875	5875	55	55	59	60			58	58	28	27	27	23			26	C	26	C	26	C
weave		513	6	73	1529	1446	1598	1410	1084	7140	7140	48	51	51	54	54	52	52	52	2	31	30	31	28	23	24	C	24	C	24	C
basic		1013	5	1542	1479	1628	1438	1122		7209	7241	49	47	49	46	45		47	44	33	33	36	34	28		33	D	33	D	36	E
		1002	5	1524	1495	1640	1401	1213		7273		43	43	41	35	37		40		37	37	43	47	38		40	E	40	E		
merge	Btw I-270 East Spur & MD 185	521	5	1526	1546	1991	1852	395		7311	7311	38	39	41	33	23		35	35	43	43	51	63	27		46	F	47	F	47	F
basic		1603	4	1858	1702	1865	1909			7334	7339	46	48	52	53			50	51	41	36	37	37			38	E	38	E	37	E
		252	4	1981	1683	1813	1889			7366		54	56	58	60			57		38	31	32	32			33	D	33	D		
diverge		526	5	693	1401	1585	1795	1894		7367	7355	58	57	57	59	60		58	58	12	25	28	31	32		26	C	22	C	22	C
		658	5	970	1260	1471	1752	1891		7345		59	52	54	59	61		57		17	25	28	30	32		26	C	23	C		

I-495 Inner Loop - 2017 Existing - 9-10 AM

VISSIM Lookup Data				Volume								Speed								Density									
				Volume Per Lane						Across All Lanes	Overall Volume	Speed Per Lane						Across All Lanes	Overall Speed	Density Per Lane						Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)						Total Volume	Average Volume (veh/hr)	Speed (mph)						Average Speed	Average Speed (mph)	Combined Density (pcphpl)						Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Btw VA 267 & VA 193	2192	6	384	1591	1260	1020	987	980	6221	6221	58	51	51	51	51	52	52	52	7	36	30	24	24	23	24	C	24	C	24	C
diverge		1499	6	328	1482	1236	1074	1039	1037	6196	6196	49	42	42	43	44	44	44	44	9	58	51	45	43	42	41	E	40	E	40	E
basic	VA 193 interchange	2095	5	1272	1154	1211	1142	1082		5861	5861	19	19	21	20	19		19	19	110	106	97	100	103		103	F	103	F	103	F
weave	Btw VA 193 & GWMP	1500	6	1263	935	1245	1415	1174	1060	7090	7097	16	7	10	12	9	8	10	10	90	150	133	119	133	139	127	F	127	F	127	F
		1537	6	833	1069	1466	1587	1101	1047	7104		15	7	12	13	8	7	10		60	154	127	119	147	150	126	F	126	F		
merge	GWMP interchange	645	5	1412	1632	1777	1012	946		6780	6780	12	14	16	7	7		11	11	126	115	109	145	142		127	F	132	F	132	F
basic		687	4	1384	1615	1836	1902			6736	6732	12	16	21	25			18	19	117	103	88	78			97	F	97	F	96	F
		494	4	1354	1555	1814	2003			6726		12	16	22	28			19		116	102	85	72			94	F	94	F		
weave	Btw GWMP & Clara Barton Pkwy	1975	5	949	1610	1704	1872	2037		8171	8171	21	18	20	26	32		23	23	46	93	86	72	64		72	F	72	F	72	F
basic	Clara Barton Pkwy interchange	500	4	1623	1738	1927	2074			7362	7379	40	43	46	47			44	49	41	42	43	45			43	E	43	E	39	E
		706	4	1701	1766	1899	2024			7390		51	51	52	52			52		34	35	37	39			36	E	36	E		
merge	Btw Clara Barton Pkwy & MD 190	1511	5	118	1691	1806	1894	1992		7501	7501	56	54	54	55	55		55	55	2	32	34	35	37		28	D	23	C	23	C
		777	5	19	1796	1851	1883	1953		7502		55	56	56	57	58		56		0	33	33	33	34		27	C	22	C		
basic		3461	4	2079	1827	1769	1811			7485	7489	54	56	57	57			56	56	39	33	31	32			34	D	34	D	34	D
		1064	4	2028	1806	1817	1854			7505		54	56	57	57			56		38	33	32	33			34	D	34	D		
diverge		400	5	574	1459	1766	1827	1864		7490	7490	55	54	55	56	57		55	55	11	27	33	33	33		27	C	24	C	24	C
basic	MD 190 interchange	1947	4	1345	1660	1798	1880			6683	6683	56	56	57	57			56	56	25	30	32	33			30	D	30	D	30	D
merge		1495	5	557	1202	1579	1774	1887		6999	6999	62	57	56	57	57		58	58	9	22	29	32	34		25	C	20	C	20	C
basic		621	5	698	1152	1518	1739	1873		6980	6980	61	57	56	57	57		58	58	12	21	27	31	33		25	C	25	C	25	C
merge	Btw MD 190 & I-270 West Spur	1123	6	163	1517	1344	1516	1729	1868	8136	8136	58	59	56	56	57	57	57	57	3	26	24	27	31	33	24	C	18	B	18	B
basic		398	5	1260	1459	1731	1705	1819		7975	8082	60	57	56	57	57		57	56	22	26	31	31	32		28	D	28	D	30	D
		1764	5	902	1125	2270	2364	1446		8106		61	57	52	52	56		56		15	20	44	46	26		30	D	30	D		
weave		732	6	949	1050	2129	2249	1703	37	8118	8129	61	57	55	54	57	59	57	56	16	19	40	42	30	1	25	C	25	C	25	C
		1509	6	1057	1247	1582	2072	2042	134	8135		61	57	56	51	53	60	56		18	22	29	42	39	2	25	C	25	C		
basic	Btw I-270 West Spur & MD 187	7671	3	1272	1278	1300				3851	3851	58	56	56				57	57	22	23	24				23	C	23	C	23	C
		1173	3	1353	1301	1200				3854		58	57	56				57		24	23	22				23	C	23	C		
diverge		305	4	177	1313	1215	1156			3860	3860	47	47	49	53			49	49	4	29	25	22			20	C	19	B	19	B
basic	MD 187 interchange	2021	3	1105	1174	1161				3440	3440	58	57	56				57	57	19	21	21				20	C	20	C	20	C
merge	Btw MD 187 & I-270 East Spur	440	4	103	1222	1244	1134			3703	3703	49	58	58	57			55	55	2	21	22	20			16	B	15	B	15	B
basic		659	3	770	1584	1351				3705	3705	58	57	57				57	57	14	28	24				22	C	22	C	22	C
diverge		1113	3	484	1717	1508				3709	3709	53	54	55				54	54	9	32	28				23	C	23	C	23	C
basic	I-270 East Spur interchange	1519	2	1694	1612					3306	3306	51	51					51	51	34	32					33	D	33	D	33	D
weave		1951	4	1542	1487	1577	1393			5998	5998	57	57	62	62			59	59	28	26	26	23			26	C	26	C	26	C
weave		513	6	56	1525	1468	1619	1450	856	6974	6974	52	58	58	62	63	62	59	59	1	27	26	26	23	14	20	C	20	C	20	C
basic		1013	5	1510	1470	1649	1471	909		7009	7015	57	57	61	63	63		60	60	27	26	27	24	15		24	C	24	C	24	C
		1002	5	1440	1409	1642	1512	1018		7021		57	57	61	63	63		60		26	25	27	24	16		24	C	24	C		
merge	Btw I-270 East Spur & MD 185	521	5	1415	1397	1945	2072	182		7011	7011	59	58	61	62	59		60	60	25	24	32	34	3		24	C	23	C	23	C
basic		1603	4	1771	1587	1775	1866			6999	7001	54	56	59	59			57	57	33	29	31	32			31	D	31	D	31	D
		252	4	1929	1581	1703	1798			7011		54	56	60	62			58		36	28	29	30			31	D	31	D		
diverge		526	5	662	1362	1473	1695	1819		7010	6998	58	57	58	60	62		59	57	12	24	26	28	30		24	C	21	C	22	C
		658	5	955	1191	1337	1671	1834		6989		59	50	52	57	61		56		16	24	26	30	31		25	C	22	C		

I-495 Outer Loop - 2017 Existing - 6-7 AM

VISSIM Lookup Data				Volume									Speed								Density											
				Volume Per Lane							Across All Lanes	Overall Volume	Speed Per Lane							Across All Lanes	Overall Speed	Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)							Total Volume	Average Volume (veh/hr)	Speed (mph)							Average Speed	Average Speed (mph)	Combined Density (pcphpl)							Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Btw VA 267 & VA 193	613	4	1485	1629	1748	1752				6613	6592	44	44	44	43				44	45	34	37	40	41				38	E	38	E	38	E
		54	4	1373	1542	1714	1726				6354		52	52	52	51				52		27	30	34	34				31	D	31	D		
merge		1414	5	13	1422	1603	1767	1793			6599	6599	53	53	53	53	53			53	53	0	27	31	34	34				25	C	19	B	19	B
basic	VA 193 interchange & GWMP interchange	1053	4	1378	1593	1753	1791				6514	6514	52	52	53	53				52	52	27	31	34	35				32	D	32	D	32	D
merge		735	5	487	1018	1469	1703	1768			6445	6445	50	53	53	53	53			52	52	10	20	28	33	34				25	C	19	B	19	B
basic		5223	4	909	1447	1763	1819				5938	5938	54	53	53	52				53	53	17	28	34	35				29	D	29	D	29	D
weave	Btw GWMP & Clara Barton Pkwy	1560	5	772	2115	1557	1841	1902			8188	8188	53	52	53	53	53			53	53	15	41	30	35	37				32	D	32	D	32	D
basic	Clara Barton Pkwy interchange	1713	4	2603	1542	1812	1896				7853	7853	46	52	53	53				51	51	58	30	35	36				40	E	40	E	40	E
diverge		922	5	156	2666	1530	1773	1885			8011	8011	54	48	52	53	53			52	52	3	56	30	34	36				32	D	30	D	30	D
basic	Btw Clara Barton Pkwy & MD 190	521	4	2260	2005	1776	1855				7895	8003	51	52	53	53				52	50	45	39	34	36				39	E	39	E	41	E
		3149	4	2179	2168	1794	1879				8021		47	48	51	51				49		47	46	36	37				42	E	42	E		
merge		1788	5	122	2200	2276	1822	1615			8034	8034	49	40	44	49	52			47	47	3	56	52	38	32				36	E	37	E	37	E
basic	MD 190 interchange	2663	4	1638	2008	2018	1636				7301	7301	53	52	52	53				53	53	31	39	39	31				35	E	35	E	35	E
diverge		1585	5	694	2015	1964	1926	1923			8522	8522	54	52	52	52	52			52	52	13	40	38	37	37				33	D	30	D	30	D
diverge		1032	6	906	831	2087	2003	1834	1913		9574	9574	54	54	53	53	53	53		53	53	17	16	40	38	35	36		30	D	24	C	24	C
basic	Btw MD 190 & I-270 West Spur	446	5	2131	1946	1672	1784	1884			9418	9563	51	52	53	53	53			53	50	42	38	32	34	36			36	E	36	E	39	E
		2659	5	2187	1990	1669	1808	1928			9582		46	49	51	52	52			50		48	42	33	35	38			39	E	39	E		
		935	5	2041	1939	1675	1882	2041			9578		46	48	51	51	51			50		45	41	33	37	40			39	E	39	E		
weave		551	6	1269	1349	1506	2569	2621	252		9565	9565	53	53	53	51	49	49		51	51	24	26	29	51	54	5		32	D	32	D	32	D
basic	Btw I-270 West Spur & MD 187	7657	3	1262	1314	1251					3827	3826	53	53	53					53	53	24	25	24					25	C	25	C	25	C
		1085	3	1287	1309	1223					3819		53	53	53					53		25	25	23					24	C	24	C		
merge		406	4	157	1206	1268	1194				3826	3826	51	53	53	53				53	53	3	23	24	23				18	B	17	B	17	B
basic	MD 187 interchange	2022	3	963	1167	1190					3320	3320	53	53	53					53	53	18	22	23					21	C	21	C	21	C
diverge		325	4	207	1067	1190	1192				3656	3656	52	53	53	53				53	53	4	21	23	23				18	B	16	B	16	B
basic	Btw MD 187 & I-270 East Spur	1192	3	1271	1197	1187					3656	3660	53	53	53					53	53	24	23	23					23	C	23	C	23	C
		913	3	1280	1191	1191					3663		53	53	53					53		25	23	23					23	C	23	C		
		494	3	1180	1233	1250					3663		53	53	53					53		22	24	24					23	C	23	C		
merge		910	4	986	1323	1310	31				3651	3651	49	49	49	48				49	49	20	27	27	1				19	B	18	B	18	B
basic	I-270 East Spur interchange	288	3	874	1320	1214					3408	3408	53	53	53					53	53	17	25	23					22	C	22	C	22	C
diverge		1593	4	1082	2052	1381	1228				5743	5743	54	53	53	53				53	53	20	40	26	23				27	C	29	D	29	D
diverge		402	5	653	1268	2120	1381	1221			6643	6643	53	53	53	53	53			53	53	13	24	41	26	23			25	C	26	C	26	C
basic	Btw I-270 East Spur & MD 185	1045	4	1896	2156	1383	1217				6653	6646	53	53	53	53				53	53	37	42	26	23				32	D	32	D	32	D
		2087	4	1815	2322	1348	1166				6651		52	51	53	53				53		35	46	26	22				32	D	32	D		
		1257	4	1950	1756	1814	1128				6649		51	52	53	54				52		39	34	35	21				32	D	32	D		
		526	4	1381	1889	1852	1489				6610		53	53	53	53				53		27	36	35	28				32	D	32	D		

I-495 Outer Loop - 2017 Existing - 7-8 AM

VISSIM Lookup Data				Volume								Speed								Density											
				Volume Per Lane						Across All Lanes	Overall Volume	Speed Per Lane							Across All Lanes	Overall Speed	Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)						Total Volume	Average Volume (veh/hr)	Speed (mph)							Average Speed	Average Speed (mph)	Combined Density (pcphpl)							Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Btw VA 267 & VA 193	613	4	1702	1808	1902	1920			7331	7308	43	43	43	43				43	43	41	43	45	46				44	E	44	E	43	E
		54	4	1588	1733	1845	1878			7043		48	49	49	49				49		34	36	38	39				37	E	37	E		
merge		1414	5	35	1646	1796	1897	1940		7315	7315	52	52	52	53	53			52	52	1	32	35	36	37			28	D	23	C	23	C
basic	VA 193 interchange & GWMP interchange	1053	4	1527	1742	1876	1931			7076	7076	51	51	52	52				52	52	31	34	37	37				35	E	35	E	35	E
merge		735	5	465	1194	1628	1815	1899		7001	7001	46	52	52	53	53			51	51	10	23	32	35	37			27	C	22	C	22	C
basic		5223	4	1158	1594	1869	1948			6569	6569	53	53	52	52				53	53	22	31	36	38				32	D	32	D	32	D
weave	Btw GWMP & Clara Barton Pkwy	1560	5	967	2218	1700	1938	2034		8858	8858	52	51	52	53	53			52	52	19	44	33	37	39			34	D	34	D	34	D
basic	Clara Barton Pkwy interchange	1713	4	2619	1604	1911	2027			8161	8161	46	52	53	53				51	51	58	31	37	39				41	E	41	E	41	E
diverge	Btw Clara Barton Pkwy & MD 190	922	5	155	2662	1578	1900	2016		8311	8311	54	48	52	53	53			52	52	3	56	31	36	38			33	D	30	D	30	D
basic		521	4	2258	2036	1910	1990			8194	8305	50	51	52	52				51	48	46	41	37	39				41	E	41	E	44	E
		3149	4	2171	2176	1932	2044			8323		45	46	49	50				47		49	48	40	42				45	F	45	F		
merge		1788	5	399	2001	2060	1913	1974		8346	8346	36	26	28	35	44			34	34	11	78	76	55	46			53	F	55	F	55	F
basic	MD 190 interchange	2663	4	1558	1950	2025	1750			7283	7283	42	44	46	49				45	45	38	45	45	36				41	E	41	E	41	E
diverge		1585	5	666	1960	1951	1973	1988		8539	8539	54	52	52	52	52			52	52	12	39	39	38	39			33	D	30	D	30	D
diverge	Btw MD 190 & I-270 West Spur	1032	6	1150	794	2030	2005	1906	1986	9871	9871	53	53	53	53	53	53		53	53	22	15	39	39	36	38		31	D	25	C	25	C
basic		446	5	2194	1965	1740	1860	1955		9714	9871	50	52	53	53	53			52	44	44	39	34	36	38			38	E	38	E	48	F
		2659	5	2200	1991	1767	1906	2019		9884		41	44	47	50	50			46		54	46	38	39	41			44	E	44	E		
		935	5	2002	1998	1907	1955	2047		9908		24	27	32	38	43			33		87	74	60	52	49			64	F	64	F		
weave		551	6	1531	1653	1802	2227	2275	442	9931	9931	30	32	33	33	31	31		31	31	53	53	56	70	75	15		54	F	54	F	54	F
basic	Btw I-270 West Spur & MD 187	7657	3	1507	1574	1518				4599	4599	52	52	52					52	52	29	30	29					30	D	30	D	30	D
		1085	3	1549	1580	1473				4602		52	53	53					52		30	31	28					30	D	30	D		
merge		406	4	255	1432	1516	1410			4614	4614	51	53	53	53				52	52	5	28	29	27				22	C	21	C	21	C
basic	MD 187 interchange	2022	3	1059	1341	1408				3808	3808	54	53	53					53	53	20	26	27					24	C	24	C	24	C
diverge	Btw MD 187 & I-270 East Spur	325	4	292	1194	1374	1417			4277	4277	50	52	53	53				52	52	6	23	26	27				21	C	19	B	19	B
basic		1192	3	1480	1379	1418				4277	4280	53	53	53					53	53	28	26	27					27	D	27	D	27	D
		913	3	1480	1371	1431				4282		53	53	53					53		29	26	27					27	D	27	D		
		494	3	1338	1428	1517				4283		53	53	53					53		26	27	29					27	D	27	D		
merge		910	4	1018	1560	1630	67			4275	4275	50	49	49	48				49	49	21	32	34	1				22	C	23	C	23	C
basic	I-270 East Spur interchange	288	3	841	1517	1483				3841	3841	53	53	53					53	53	16	29	28					25	C	25	C	25	C
diverge		1593	4	1418	2237	1594	1504			6753	6753	53	53	53	53				53	53	27	43	30	29				32	D	34	D	34	D
diverge	Btw I-270 East Spur & MD 185	402	5	658	1590	2319	1599	1497		7664	7664	53	53	52	53	53			53	53	13	31	45	30	29			29	D	29	D	29	D
basic		1045	4	2221	2365	1605	1489			7680	7677	52	52	53	53				53	51	43	46	31	28				37	E	37	E	38	E
		2087	4	2137	2531	1616	1395			7678		50	48	52	53				51		43	53	32	27				39	E	39	E		
		1257	4	2312	2094	2060	1219			7685		48	51	52	53				51		49	42	40	23				39	E	39	E		
		526	4	1836	2215	2040	1562			7653		51	52	53	53				52		36	43	39	30				37	E	37	E		

I-495 Outer Loop - 2017 Existing - 8-9 AM

VISSIM Lookup Data				Volume									Speed								Density											
				Volume Per Lane						Across All Lanes	Overall Volume		Speed Per Lane						Across All Lanes	Overall Speed	Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)						Total Volume	Average Volume (veh/hr)		Speed (mph)						Average Speed	Average Speed (mph)	Combined Density (pcphpl)							Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Btw VA 267 & VA 193	613	4	1962	2014	2065	2050			8090	8065		40	40	41	41			40	41	50	51	51	51				51	F	51	F	51	F
		54	4	1864	1953	1993	1968			7778			40	41	42	42			41		48	49	49	48				48	F	48	F		
merge		1414	5	59	1924	2027	2042	2031		8084	8084		51	50	51	52	52		51	51	1	40	41	40	40			32	D	27	C	27	C
basic	VA 193 interchange & GWMP interchange	1053	4	1742	1943	2008	2016			7710	7710		48	49	51	51			50	50	37	40	40	40				39	E	39	E	39	E
merge		735	5	620	1356	1829	1886	1940		7632	7632		26	44	49	51	52		45	45	25	31	38	37	38			34	D	31	D	31	D
basic		5223	4	1329	1702	1930	1972			6934	6934		53	53	52	52			53	53	25	33	37	38				34	D	34	D	34	D
weave	Btw GWMP & Clara Barton Pkwy	1560	5	1177	2302	1773	1970	2018		9240	9240		51	50	52	53	53		52	52	23	47	35	38	39			36	E	36	E	36	E
basic	Clara Barton Pkwy interchange	1713	4	2600	1607	1911	1999			8117	8117		44	51	53	53			50	50	60	32	37	38				42	E	42	E	42	E
diverge	Btw Clara Barton Pkwy & MD 190	922	5	118	2666	1604	1865	1985		8237	8237		53	47	50	53	53		51	51	2	58	32	36	38			33	D	31	D	31	D
basic		521	4	2265	2036	1861	1953			8116	8223		50	51	52	52			52	49	46	40	36	38				40	E	40	E	43	E
		3149	4	2175	2180	1886	2000			8240			46	47	50	50			48		49	48	39	40				44	E	44	E		
merge		1788	5	356	2042	2119	1879	1834		8230	8230		41	30	32	40	46		38	38	9	71	68	49	41			48	F	49	F	49	F
basic	MD 190 interchange	2663	4	1385	1880	1967	1645			6877	6877		50	51	51	52			51	51	28	38	39	32				34	D	34	D	34	D
diverge		1585	5	594	1839	1823	1899	1948		8102	8102		54	52	52	52	52		53	53	11	36	36	37	38			31	D	28	D	28	D
diverge	Btw MD 190 & I-270 West Spur	1032	6	1298	730	1931	1866	1847	1949	9620	9620		48	49	51	53	53	53	51	51	29	16	38	36	35	37		32	D	28	D	28	D
basic		446	5	2183	1898	1658	1805	1917		9460	9603		49	51	53	53	53		52	45	45	37	32	35	37			37	E	37	E	45	F
		2659	5	2186	1938	1689	1840	1972		9624			40	44	48	50	51		47		55	45	36	38	39			43	E	43	E		
		935	5	1989	1966	1838	1870	1947		9609			27	32	38	44	47		38		74	62	49	44	42			54	F	54	F		
weave		551	6	1341	1452	1670	2366	2412	315	9556	9556		42	44	43	43	40	37	42	42	32	34	39	57	61	9		39	E	39	E	39	E
basic	Btw I-270 West Spur & MD 187	7657	3	1276	1367	1431				4074	4072		53	53	52				53	53	25	26	28					26	D	26	D	26	D
		1085	3	1298	1353	1410				4061			53	53	53				53		25	26	27					26	D	26	D		
merge		406	4	216	1182	1290	1376			4064	4064		51	53	53	53			53	53	4	23	25	26				19	B	17	B	17	B
basic	MD 187 interchange	2022	3	800	1173	1373				3346	3346		54	53	53				54	54	15	22	26					21	C	21	C	21	C
diverge	Btw MD 187 & I-270 East Spur	325	4	320	941	1207	1379			3846	3846		51	53	53	53			53	53	6	18	23	26				18	B	16	B	16	B
basic		1192	3	1257	1212	1377				3845	3846		53	54	53				53	53	24	23	26					24	C	24	C	24	C
		913	3	1260	1201	1387				3848			53	53	53				53		24	23	26					24	C	24	C		
		494	3	1066	1291	1490				3846			54	53	53				53		20	25	29					25	C	25	C		
merge		910	4	605	1388	1769	75			3836	3836		52	49	48	48			49	49	12	29	37	2				20	C	22	C	22	C
basic	I-270 East Spur interchange	288	3	349	1316	1725				3389	3389		54	53	53				53	53	7	25	33					22	C	22	C	22	C
diverge		1593	4	1857	2309	1399	1769			7335	7335		53	52	53	53			53	53	36	45	27	34				35	E	36	E	36	E
diverge	Btw I-270 East Spur & MD 185	402	5	684	1923	2455	1414	1786		8261	8261		51	51	50	53	53		52	52	14	38	50	27	34			33	D	34	D	34	D
basic		1045	4	2486	2513	1488	1792			8279	8278		46	46	52	53			49	44	55	55	29	34				44	E	44	E	50	F
		2087	4	2384	2443	1724	1724			8276			40	39	45	51			44		60	64	39	34				49	F	49	F		
		1257	4	2268	2240	2332	1450			8289			32	36	42	49			40		73	63	56	30				55	F	55	F		
		526	4	2011	2354	2200	1693			8258			37	42	46	50			43		56	58	49	34				49	F	49	F		

I-495 Outer Loop - 2017 Existing - 9-10 AM

VISSIM Lookup Data				Volume									Speed									Density											
				Volume Per Lane							Across All Lanes	Overall Volume	Speed Per Lane							Across All Lanes	Overall Speed	Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)							Total Volume	Average Volume (veh/hr)	Speed (mph)							Average Speed	Average Speed (mph)	Combined Density (pcphpl)							Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Btw VA 267 & VA 193	613	4	1799	1869	1915	1874				7456	7433	42	42	43	42				42	43	43	45	46	45				45	F	45	F	44	E
		54	4	1703	1814	1854	1790				7161		46	47	49	49				48		38	39	39	37				38	E	38	E		
merge		1414	5	52	1761	1886	1893	1837			7430	7430	52	51	52	53	53			52	52	1	35	37	36	35			29	D	24	C	24	C
basic	VA 193 interchange & GWMP interchange	1053	4	1606	1798	1865	1817				7086	7086	50	51	52	52				51	51	33	36	36	35				35	E	35	E	35	E
merge		735	5	527	1260	1687	1766	1766			7006	7006	40	50	52	52	53			49	49	13	26	33	34	34			28	D	24	C	24	C
basic		5223	4	1215	1618	1807	1794				6434	6434	53	53	53	52				53	53	23	31	35	35				31	D	31	D	31	D
weave	Btw GWMP & Clara Barton Pkwy	1560	5	1064	2256	1718	1828	1812			8678	8678	52	50	52	53	53			52	52	21	45	33	35	35			34	D	34	D	34	D
basic	Clara Barton Pkwy interchange	1713	4	2595	1577	1772	1791				7735	7735	45	52	53	53				51	51	58	31	34	34				39	E	39	E	39	E
diverge		922	5	97	2672	1561	1720	1773			7823	7823	54	48	52	53	53			52	52	2	56	30	33	34			31	D	29	D	29	D
basic	Btw Clara Barton Pkwy & MD 190	521	4	2241	2001	1725	1747				7714	7814	51	52	53	53				52	50	45	39	33	34				38	E	38	E	40	E
		3149	4	2169	2157	1746	1759				7830		47	48	51	52				50		47	46	35	34				40	E	40	E		
merge		1788	5	184	2213	2245	1716	1469			7827	7827	49	41	45	50	52			47	47	4	55	51	35	29			35	E	36	E	36	E
basic	MD 190 interchange	2663	4	1390	1824	1851	1480				6545	6545	53	52	52	53				53	53	27	35	36	28				31	D	31	D	31	D
diverge		1585	5	622	1866	1784	1764	1739			7774	7774	54	52	52	53	52			53	53	12	36	35	34	34			30	D	28	D	28	D
diverge		1032	6	1128	763	1964	1807	1685	1728		9077	9077	53	54	53	53	54	53		53	53	21	14	38	35	32	33		29	D	25	C	25	C
basic	Btw MD 190 & I-270 West Spur	446	5	2147	1887	1554	1645	1699			8932	9064	51	52	53	53	53			52	50	43	37	30	31	33			35	E	35	E	37	E
		2659	5	2195	1943	1562	1656	1725			9081		45	48	51	52	52			50		50	41	31	32	33			38	E	38	E		
		935	5	2135	1984	1596	1646	1717			9078		43	47	51	52	52			49		50	43	32	32	33			38	E	38	E		
weave		551	6	1365	1448	1554	2262	2267	164		9060	9060	53	53	53	52	52	51		53	53	26	28	30	44	44	3		29	D	29	D	29	D
basic	Btw I-270 West Spur & MD 187	7657	3	1319	1435	1447					4201	4200	53	53	53					53	53	25	28	28					27	D	27	D	27	D
		1085	3	1348	1429	1417					4194		53	53	53					53		26	27	27					27	D	27	D		
merge		406	4	206	1246	1371	1382				4205	4205	51	53	53	53				53	53	4	24	26	26				20	C	18	B	18	B
basic	MD 187 interchange	2022	3	918	1247	1379					3545	3545	54	53	53					53	53	17	24	26					22	C	22	C	22	C
diverge		325	4	283	1046	1281	1384				3995	3995	52	53	53	53				53	53	6	20	24	26				19	B	17	B	17	B
basic	Btw MD 187 & I-270 East Spur	1192	3	1329	1283	1379					3990	3994	53	53	53					53	53	25	24	26					25	C	25	C	25	C
		913	3	1326	1283	1388					3997		53	53	53					53		25	24	26					25	C	25	C		
		494	3	1174	1352	1472					3998		53	53	53					53		22	26	28					26	D	26	D		
merge		910	4	797	1489	1637	66				3989	3989	50	49	49	48				49	49	16	31	34	1				21	C	22	C	22	C
basic	I-270 East Spur interchange	288	3	599	1461	1528					3588	3588	54	53	53					53	53	11	28	29					23	C	23	C	23	C
diverge		1593	4	1662	2291	1542	1552				7047	7047	53	53	53	53				53	53	32	44	29	30				34	D	35	E	35	E
diverge		402	5	649	1797	2395	1545	1549			7935	7935	52	52	52	53	53			53	53	13	35	47	29	30			31	D	32	D	32	D
basic	Btw I-270 East Spur & MD 185	1045	4	2397	2443	1563	1543				7945	7919	51	51	53	53				52	50	48	49	30	29				39	E	39	E	41	E
		2087	4	2316	2557	1618	1439				7931		47	46	50	53				49		50	57	33	28				42	E	42	E		
		1257	4	2343	2197	2181	1183				7905		44	47	50	53				49		54	47	44	23				42	E	42	E		
		526	4	1910	2311	2096	1536				7852		50	51	52	53				52		39	46	40	29				39	E	39	E		

I-270 Southbound - 2017 Existing - 6-7 AM

VISSIM Lookup Data				Volume										Speed										Density											
				Volume Per Lane								Across All Lanes	Overall Volume	Speed Per Lane								Across All Lanes	Overall Speed	Density Per Lane								Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)								Total Volume	Average Volume (veh/hr)	Speed (mph)								Average Speed	Average Speed (mph)	Combined Density (pcphpl)								Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Through MD 117 interchange	658	4	1914	1971	2035	2139					8059	8118	22	23	27	31					26	27	87	87	76	69					80	F	80	F	77	F
		3062	4	1958	1952	2049	2172					8131		22	26	30	32					27		91	78	68	69					76	F	76	F		
merge	Btw MD 117 & I-370	1569	5	1703	1978	1985	2012	2090				9768	9768	30	24	25	25	27				26	26	58	83	81	83	77				77	F	74	F	74	F
basic		1151	5	1884	2083	2077	2044	1692				9780	9780	37	26	24	26	32				29	29	52	81	87	80	53				71	F	71	F	71	F
diverge		431	5	1890	2172	2185	2129	1246				9623	9623	45	30	30	34	46				37	37	43	75	73	63	27				56	F	56	F	56	F
basic	I-370 interchange	1058	6	609	1301	2163	2248	2240	1208			9768	9768	52	50	29	31	35	48			41	41	12	26	77	74	66	25			47	F	38	E	38	E
		1258	4	2263	2175	2359	1145					7942	7940	30	35	41	51					39	40	77	63	58	23					55	F	55	F	54	F
		193	4	2393	2092	2335	1108					7927		40	43	46	53					46		61	49	52	21					46	F	46	F		
diverge		1263	5	751	1983	1891	2218	1082				7925	7925	50	44	43	45	53				47	47	15	47	46	51	21				36	E	36	E	36	E
basic		3427	4	1427	1739	2006	978					6151	6151	36	38	41	51					41	41	57	58	57	19					48	F	48	F	48	F
merge	Shady Grove Rd interchange	1046	5	777	1569	1857	1991	968				7162	7162	24	22	30	34	50				32	32	48	91	71	64	20				59	F	70	F	70	F
basic		420	4	1983	2022	2101	1031					7137	7133	32	35	36	49					38	42	64	60	60	21					51	F	51	F	46	F
		497	4	2013	2001	2051	1066					7130		42	43	43	50					45		50	48	49	21					42	E	42	E		
diverge		1518	4	2024	1987	2015	1082					7107	7107	43	44	44	52					46	46	48	47	47	21					41	E	47	F	47	F
basic		3645	4	1441	1801	1914	1080					6236	6236	30	34	35	53					38	38	52	57	57	20					47	F	47	F	47	F
merge	Btw Shady Grove Rd & MD 28	473	5	496	1463	1860	1928	1090				6837	6837	21	16	21	24	53				27	27	25	99	94	83	21				64	F	73	F	73	F
basic		1022	4	1864	1934	1959	1051					6808	6799	27	28	29	48					33	34	71	73	70	22					59	F	59	F	57	F
		1591	4	1918	1924	1956	995					6793		28	29	33	51					35		71	70	62	19					56	F	56	F		
merge	MD 28 interchange	655	5	335	1833	2052	2031	989				7241	7241	31	21	24	30	53				32	32	11	89	88	71	19				55	F	63	F	63	F
basic		921	4	2060	2052	2128	995					7234	7234	30	33	37	52					38	38	70	63	59	19					53	F	53	F	53	F
diverge		1515	4	2151	1988	2102	994					7235	7235	40	41	44	53					44	44	56	49	49	19					43	F	52	F	52	F
basic	MD 189 interchange	3237	4	1478	1840	2008	988					6314	6258	42	43	43	53					45	42	41	47	50	19					39	E	39	E	43	E
		1874	4	1532	1809	1956	988					6285		40	41	42	53					44		46	50	52	19					42	E	42	E		
		3407	4	1532	1766	1903	989					6190		33	35	36	53					39		56	57	58	19					47	F	47	F		
merge	Montrose Rd interchange	598	5	474	1571	1977	1935	990				6946	6946	27	26	31	33	53				34	34	25	76	72	66	19				51	F	58	F	58	F
basic	Btw Montrose Rd & Spur Split	882	4	1942	2026	1984	995					6947	6898	33	33	32	53					38	35	65	68	68	19					55	F	55	F	60	F
		303	4	1963	1991	1982	1000					6936		32	31	31	53					36		68	71	72	19					57	F	57	F		
		3022	4	1990	1965	1947	977					6890		30	28	27	51					34		72	78	79	19					62	F	62	F		
weave		3707	6	1891	1745	1786	1813	1689	752			9676	9656	31	23	19	20	27	44			27	28	63	78	97	92	66	17			69	F	69	F	68	F
		722	6	1959	1867	1864	1459	1736	667			9552		23	20	22	31	43	53			32		87	94	88	48	41	13			62	F	62	F		
diverge		400	7	1989	1911	1818	1360	1821	566	121		9585	9585	22	20	20	35	44	53	54		36	36	90	96	94	40	42	11	2		53	F	18	B	18	B
weave		371	6	2002	1927	1772	1312	1815	530			9358	9358	23	21	18	35	45	53			32	32	90	95	100	39	41	10			63	F	63	F	63	F
basic	Spur Split through MD 187 interchange	967	4	529	1301	1403	465					3698	3698	54	52	54	57					54	54	10	25	27	8					18	C	18	C	18	C
diverge		1138	4	730	1290	1245	430					3695	3695	62	61	61	64					62	62	12	22	21	7					15	B	18	B	18	B
basic		2602	3	1141	1233	431						2806	2806	63	63	64						63	63	19	20	7						15	B	15	B	15	B
merge		443	4	29	1172	1255	432					2888	2888	50	63	63	64					60	60	1	19	20	7					12	B	13	B	13	B
basic		947	3	1188	1269	433						2889	2889	63	63	64						63	63	19	21	7						16	B	16	B	16	B
merge	Btw MD 187 & I-495	1023	4	108	1141	1365	434					3048	3048	54	63	63	63					61	61	2	18	22	7					12	B	14	B	14	B
basic		473	3	1266	1463	304						3033	3058	62	62	64						63	63	21	24	5						16	B	16	B	17	B
		3140	3	1137	1726	199						3062		63	62	64						63		18	28	3						17	B	17	B		
diverge		1491	3	1101	972	986						3059	3059	63	63	63						63	63	18	16	16						16	B	16	B	16	B
basic		1568	2	1067	911							1978	1978	63	64							63	63	17	15							16	B	16	B	16	B
basic	Spur Split to Democracy Blvd	3000	3	1961	1842	1913						5716	5716	22	20	20						21	21	90	94	96						93	F	93	F	93	F
weave		963	4	899	2026	2166	784					5875	5875	29	25	27	46					32	32	32	82	80	17					53	F	53	F	53	F
basic	Democracy Blvd	2461	3	2297	2344	874						5516	5516	43	44	53						47	47	54	54	16						42	E	42	E	42	E
merge	Democracy Blvd to I-495	522	5	2	137	2291	2430	874				5734	5734	52	51	44	44	53				49	49	0	3	53	57	16				26	C	19	B	19	B
merge		937	4	34	2354	2450	871					5708	5708	46	44	44	53					47	47	1	55	56	16					32	D	37	E	37	E
basic		2520	3	2418	2453	869						5740	5740	48	49	53						50	50	51	51	16						39	E	39	E	39	E
basic	CD - I-370 interchange	1623	2	1473	259							1731	1731	43	49							46	46	35	5							20	C	20	C	20	C
weave	CD - Btw I-370 & Shady Grove Rd	795	4	1319	1234	1263	610					4427	4427	41	42	41	41					41	41	32	30	31	15					27	C	27	C	27	C
diverge		1609	3	741	1540	1071						3352	3352	41	41	42						42	42	18	38	26						27	C	27	C	27	C
basic	CD - Shady Grove Rd interchange	702	2	1332	1262							2594	2594	41	42							42	42	33	30							32	D	32	D	32	D
merge		477	3	159	1486	1457						3103	3103	41	41	41						41	41	4	37	36						25	C	25	C	25	C
basic		800	2	1585	1525							3110	3110	41	41							41	41	39	38							39	E	39	E	39	E
merge	CD - Btw Shady Grove Rd & MD 28	707	3	49	1616	1628						3292	3292	42	41	41						42	42	1	40	40						27	C	27	C	27	C
basic		1081	2	1523	1761							3284	3284	40	39							40	40	38	46							42	E	42	E	42	E
merge		609	3	1851	1933	320						4104	4104	36	34	35						35	35	52	57	9						40	E	40	E	40	E
diverge		1505	2	2071	2030							4101	4101	39	40							39	39	54	52							53	F	53	F	53	F
diverge		2914	2	1821	1638							3459	3459	41	41							41	41	45	40							43	F	43	F	43	F
basic		170	2	1714	1248							2962	2962	40	41							40	40	44	31							37	E	37	E	37	E
diverge		291	3	333	1395	1279						3007	3007	41	39	40						40	40	8	37	34						26	C	26	C	26	C
basic	CD - MD 28 interchange	926	2	1267	1265							2532	2532	35	36							36	36	42	39							40	E	40	E	40	E
merge		231	3	39	1252	1270						2561	2561	31	33	34						33	33	2	48	44						31	D	31	D	31	D
basic		1111	2	1220	1353							2572	2572	21	26							24	24	70	60							65	F	65	F	65	F
merge	CD - Btw MD 28 & MD 189	577	3	589	1124	1704						3417	3417	7	11	19						12	12	107	118	93						106	F	106	F	106	F
basic		1055	2	1552	1869							3421	3421	14	20							17	17	111	97							104	F	104	F	104	F
merge		610	3	1792	1512	999						4304	4304	16	15	18						16	16	112	104	55						90	F	90	F	90	F
basic		837	2	2236	2052							4288	4288	37	37							37	37	61	57							59	F	59	F	59	F
diverge		350	3	422	1855	2035						4312	4312	42	41	41						41	41	10	46	51						36	E	36	E	36	E
basic	CD - MD 189 interchange	816	2	1764	1978							3742	3743	41	41							41	35	44	49							47	F	47	F	55	F
		1802	2	1819	1924							3743		33	33							33		57	60							59	F	59	F		
merge	CD - Btw MD 189 & Montrose Rd	465	3	246	1867	2088						4202	4202	27	25	28						27	27	9	76	77						54	F	54	F	54	F
diverge		2186	2	2173	2045							4217	4217	31	33							32	32	71	63							67	F	67	F	67	F
basic		775	2	2011	1337							3348	3348	36	37							37	37	57	37							47	F	47	F	47	F
diverge		235	3	168	1833	1370						3371	3371	37	36	37						37	37	5	51	38						31	D	31	D	31	D
basic	CD - Montrose Rd interchange	1196	2	1750	1369							3119	3119	36	37							37	37	49	38							43	E	43	E	43	E
weave		422	3	967	1331	1465						3763	3763	36	37	36						36	36	28	37	41						35	D	35	D	35	D
basic		1029	2	1327	1482							2809	2809	38	36							37	37	36	41							38	E	38	E	38	E
merge		415	3	102	1383	1505						2990	2990	42	38	36						39	39	2	37	42						27	C	27	C	27	C
basic		1429	2	1350	1574							2924	2924	37	35							36	36	37	46							42	E	42	E	42	E

I-270 Southbound - 2017 Existing - 7-8 AM

VISSIM Lookup Data				Volume										Speed										Density													
				Volume Per Lane								Across All Lanes	Overall Volume	Speed Per Lane								Across All Lanes	Overall Speed	Density Per Lane								Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)								Total Volume	Average Volume (veh/hr)	Speed (mph)								Average Speed	Average Speed (mph)	Combined Density (pcphpl)								Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Through MD 117 interchange	658	4	1872	1921	1999	2174					7965	8008	20	21	26	33					25	29	96	94	80	67					84	F	84	F	75	F
		3062	4	1944	1857	1996	2220					8018		21	25	33	38					29		96	77	62	61					74	F	74	F		
merge	Btw MD 117 & I-370	1569	5	1763	1977	1898	2124	2053				9816	9816	28	27	33	36	40				33	33	65	77	60	61	54				64	F	68	F	68	F
basic		1151	5	2140	1910	2128	2091	1621				9890	9890	29	31	32	34	40				33	33	76	65	70	64	41				63	F	63	F	63	F
		431	5	2313	2059	2189	2000	1193				9754	9754	39	35	36	41	49				40	40	61	63	64	51	25				53	F	53	F	53	F
diverge		1058	6	986	1515	2000	2172	2067	1159			9899	9899	51	51	33	35	40	50			43	43	20	30	66	66	54	23			43	F	39	E	39	E
basic	I-370 interchange	1258	4	2197	1922	2135	1136					7391	7389	29	33	41	51					39	39	79	61	54	22					54	F	54	F	53	F
		193	4	2382	1787	2091	1114					7374		38	40	44	52					43		67	48	51	21					47	F	47	F		
diverge		1263	5	1070	1779	1495	1925	1106				7375	7375	44	36	35	37	51				41	41	26	59	54	61	22				44	F	47	F	47	F
basic		3427	4	1019	1373	1721	985					5099	5099	11	16	23	42					23	23	111	98	85	24					80	F	80	F	80	F
merge	Shady Grove Rd interchange	1046	5	1030	1084	1414	1971	938				6435	6435	9	8	16	27	45				21	21	116	144	94	76	21				90	F	118	F	118	F
basic		420	4	1835	1655	2013	941					6443	6447	27	30	36	48					35	39	71	58	58	20					52	F	52	F	46	F
		497	4	1917	1688	1918	927					6451		38	40	43	51					43		53	45	47	18					41	E	41	E		
diverge		1518	4	1971	1695	1887	916					6468	6468	40	41	43	52					44	44	53	46	48	18					41	E	49	F	49	F
basic	Btw Shady Grove Rd & MD 28	3645	4	1054	1497	1727	917					5194	5194	30	33	35	53					38	38	53	59	61	17					47	F	47	F	47	F
merge		473	5	363	1237	1588	1740	904				5832	5832	23	19	23	26	52				29	29	22	84	85	80	17				58	F	64	F	64	F
basic		1022	4	1512	1678	1798	879					5867	5865	27	27	29	44					32	32	66	72	71	20					57	F	57	F	58	F
		1591	4	1571	1665	1746	883					5865		23	25	30	49					32		78	76	65	18					59	F	59	F		
merge	MD 28 interchange	655	5	579	1486	1875	1842	877				6659	6659	21	16	21	28	52				28	28	31	102	93	69	17				62	F	75	F	75	F
basic		921	4	1891	1905	1984	881					6660	6660	26	29	35	52					35	35	76	67	59	17					55	F	55	F	55	F
diverge		1515	4	1999	1823	1956	883					6661	6661	30	32	35	53					38	38	68	58	57	17					50	F	61	F	61	F
basic	MD 189 interchange	3237	4	1413	1598	1674	889					5575	5535	18	20	21	53					28	26	81	82	83	17					66	F	66	F	74	F
		1874	4	1483	1549	1601	896					5529		15	16	17	53					25		101	98	96	17					78	F	78	F		
		3407	4	1398	1551	1654	897					5500		13	16	18	53					25		108	99	93	17					79	F	79	F		
merge	Montrose Rd interchange	598	5	896	1115	1756	1866	897				6530	6530	11	9	17	20	53				22	22	83	134	107	97	17				88	F	108	F	108	F
basic	Btw Montrose Rd & Spur Split	882	4	1836	1902	1914	903					6555	6553	20	21	20	53					29	28	92	94	96	17					75	F	75	F	78	F
		303	4	1886	1901	1897	906					6590		20	20	20	53					28		95	96	97	17					76	F	76	F		
		3022	4	1901	1861	1881	906					6548		20	19	19	51					27		98	101	100	18					79	F	79	F		
weave		3707	6	2038	1821	1849	1848	1853	790			10200	10193	37	25	20	20	27	44			29	31	55	73	95	92	70	18			67	F	67	F	63	F
		722	6	2028	1798	2105	1642	1882	704			10159		40	37	38	43	49	53			43		52	49	57	39	39	13			42	E	42	E		
diverge		400	7	2023	1862	2043	1628	1937	575	140		10209	10209	35	34	36	44	49	53	54		43	43	60	57	59	37	40	11	3		38	E	18	B	18	B
weave		371	6	2000	1855	1984	1640	1944	525			9948	9948	33	31	32	43	47	53			40	40	63	62	65	39	42	10			47	F	47	F	47	F
basic	Spur Split through MD 187 interchange	967	4	904	1700	1710	475					4791	4791	54	52	54	58					54	54	17	33	32	8					23	C	23	C	23	C
diverge		1138	4	1049	1663	1623	459					4794	4794	60	59	60	63					61	61	18	29	28	7					20	C	25	C	25	C
basic		2602	3	1463	1588	462						3513	3513	62	62	64						63	63	24	26	7						19	C	19	C	19	C
merge		443	4	67	1509	1644	461					3681	3681	48	61	62	64					59	59	1	25	27	7					15	B	18	B	18	B
basic		947	3	1540	1671	466						3677	3677	62	62	64						62	62	25	27	7						20	C	20	C	20	C
merge	Btw MD 187 & I-495	1023	4	218	1480	1851	471					4019	4011	52	61	62	64					60	60	4	25	30	7					17	B	20	C	20	C
basic		473	3	1782	1867	342						3991		60	60	63						61	62	30	32	5						22	C	22	C	22	C
		3140	3	1695	2118	201						4014		61	60	63						62		28	36	3						22	C	22	C		
diverge		1491	3	1658	1372	973						4003	4003	63	63	63						63	63	27	22	16						22	C	22	C	22	C
basic	Spur Split to Democracy Blvd	1568	2	1605	1324							2929	2929	63	63							63	63	26	21							24	C	24	C	24	C
basic		3000	3	1829	1645	1733						5208	5208	23	20	22						22	22	81	83	82						82	F	82	F	82	F
weave		963	4	921	1760	1966	721					5367	5367	24	18	21	45					27	27	40	99	93	16					62	F	62	F	62	F
basic	Democracy Blvd	2461	3	2049	2097	800						4945	4945	26	26	53						35	35	81	81	15						59	F	59	F	59	F
merge	Democracy Blvd to I-495	522	5	11	388	2059	2118	799				5375	5375	42	45	25	24	53				38	38	0	9	84	88	15				39	E	31	D	31	D
merge		937	4	157	2142	2245	798					5342	5342	32	27	28	53					35	35	5	81	81	15					46	F	56	F	56	F
basic		2520	3	2263	2287	804						5355	5355	35	35	53						41	41	67	67	15						50	F	50	F	50	F
basic	CD - I-370 interchange	1623	2	1439	834							2273	2273	17	26							22	22	85	34							59	F	59	F	59	F
weave	CD - Btw I-370 & Shady Grove Rd	795	4	1514	1262	1021	871					4668	4668	30	20	14	10					18	18	51	65	74	93					71	F	71	F	71	F
diverge		1609	3	1186	1438	686						3310	3310	39	41	42						41	41	31	36	16						28	D	28	D	28	D
basic	CD - Shady Grove Rd interchange	702	2	1048	879							1927	1927	42	43							42	42	25	21							23	C	23	C	23	C
merge		477	3	127	1217	1039						2384	2384	41	42	42						42	42	3	30	25						19	B	19	B	19	B
basic		800	2	1278	1111							2388	2388	41	42							42	42	31	27							29	D	29	D	29	D
merge	CD - Btw Shady Grove Rd & MD 28	707	3	86	1368	1284						2738	2738	42	41	42						42	42	2	33	31						22	C	22	C	22	C
basic		1081	2	1281	1455							2736	2736	41	40							40	40	32	37							35	E	35	E	35	E
merge		609	3	1725	1791	535						4052	4052	33	28	26						29	29	53	66	23						47	F	47	F	47	F
diverge		1505	2	2067	1983							4050	4050	39	40							39	39	54	51							53	F	53	F	53	F
diverge		2914	2	1708	1771							3480	3480	40	40							40	40	44	46							45	F	45	F	45	F
basic		170	2	1562	1075							2637	2637	39	39							39	39	42	30							36	E	36	E	36	E
diverge		291	3	356	1204	1115						2676	2676	41	38	38						39	39	9	35	32						25	C	25	C	25	C
basic	CD - MD 28 interchange	926	2	1046	1122							2167	2167	33	35							34	34	39	36							38	E	38	E	38	E
merge		231	3	75	1049	1145						2270	2270	25	29	31						28	28	4	53	47						35	E	35	E	35	E
basic		1111	2	1004	1259							2263	2263	13	19							16	16	93	76							85	F	85	F	85	F
merge	CD - Btw MD 28 & MD 189	577	3	593	928	1553						3074	3074	5	7	15						9	9	140	139	106						128	F	128	F	128	F
basic		1055	2	1396	1695							3091	3091	12	17							14	14	121	105							113	F	113	F	113	F
merge		610	3	1696	1511	943						4149	4149	15	15	19						16	16	116	101	51						89	F	89	F	89	F
basic		837	2	2153	1968							4121	4121	32	32							32	32	69	63							66	F	66	F	66	F
diverge		350	3	613	1631	1895						4139	4139	41	31	31						34	34	15	57	64						45	F	45	F	45	F
basic	CD - MD 189 interchange	816	2	1531	1786							3317	3293	25	27							26	20	67	71							69	F	69	F	86	F
		1802	2	1519	1763							3282		16	20							18		99	89							94	F	94	F		
merge	CD - Btw MD 189 & Montrose Rd	465	3	706	1426	2061						4193	4193	12	13	23						16	16	61	116	90						89	F	89	F	89	F
diverge		2186	2	2100	2103							4203	4203	29	31							30	30	75	69							72	F	72	F	72	F
basic		775	2	1874	1213							3087	3087	36	37							37	37	53	33							43	E	43	E	43	E
diverge		235	3	144	1715	1248						3107	3107	37	36	37						37	37	4	48	34						29	D	29	D	29	D
basic	CD - Montrose Rd interchange	1196	2	1640	1251							2891	2891	36	37							37	37	46	34							40	E	40	E	40	E
weave		422	3	919	1441	1460						3820	3820	35	35	35						35	35	27	42	42						37	E	37	E	37	E
basic		1029	2	1482	1545							3027	3027	34	34							34	34	45	47							46	F	46	F	46	F
merge		415	3	382	1603	1730						3715	3715	32	30	31						31	31	13	56	57						42	F	42	F	42	F
basic		1429	2	1747	1851							3598	3598	32	28							30	30	57	68							62	F	62	F	62	F

I-270 Southbound - 2017 Existing - 8-9 AM

VISSIM Lookup Data				Volume											Speed										Density											
				Volume Per Lane								Across All Lanes	Overall Volume		Speed Per Lane								Across All Lanes	Overall Speed		Density Per Lane								Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)								Total Volume	Average Volume (veh/hr)		Speed (mph)								Average Speed	Average Speed (mph)		Combined Density (pcphpl)								Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Through MD 117 interchange	658	4	1757	1832	1937	2111					7637	7691		17	19	24	31					23	28		106	100	82	69					89	F	89	F	76	F
		3062	4	1876	1774	1883	2170					7703			19	23	33	40					29			101	78	57	56					73	F	73	F		
merge	Btw MD 117 & I-370	1569	5	1716	1937	1712	2050	1932				9347	9347		25	27	35	41	45				35	35		72	75	51	51	44				59	F	66	F	66	F
basic		1151	5	2074	1686	2068	2050	1488				9367	9367		23	29	36	39	45				35	35		91	61	60	54	33				60	F	60	F	60	F
diverge		431	5	2346	1775	2132	1849	1119				9221	9221		34	34	38	43	50				40	40		71	56	58	45	23				50	F	50	F	50	F
basic	I-370 interchange	1058	6	1275	1530	1571	2045	1845	1094			9360	9360		50	50	35	39	44	51			45	45		26	31	51	57	44	21			38	E	36	E	36	E
		1258	4	1970	1595	1847	1074					6487	6487		33	36	44	52					41	41		68	50	44	21					46	F	46	F	45	F
		193	4	2211	1382	1828	1065					6486			35	36	44	52					42			69	43	44	20					44	E	44	E		
diverge		1263	5	841	1631	1169	1791	1064				6496	6496		30	31	33	42	52				37	37		45	66	46	45	21				45	F	52	F	52	F
basic		3427	4	808	1169	1481	822					4279	4279		20	31	38	50					35	35		49	44	43	17					38	E	38	E	38	E
merge	Shady Grove Rd interchange	1046	5	935	1205	1104	1580	796				5619	5619		8	9	20	35	50				25	25		113	133	58	46	16				73	F	102	F	102	F
basic		420	4	1733	1370	1722	809					5633	5632		25	31	40	52					37	40		72	45	44	16					44	E	44	E	41	E
		497	4	1729	1404	1697	802					5632			32	40	46	52					43			61	37	38	15					38	E	38	E		
diverge		1518	4	1735	1379	1718	793					5626	5626		31	41	47	53					43	43		65	36	37	15					38	E	46	F	46	F
basic	Btw Shady Grove Rd & MD 28	3645	4	552	1194	1580	782					4108	4108		52	52	52	53					52	52		11	24	31	15					20	C	20	C	20	C
merge		473	5	190	972	1324	1553	726				4766	4766		48	47	48	49	53				49	49		4	22	29	33	14				20	C	18	B	18	B
basic		1022	4	1065	1418	1657	635					4775	4786		45	46	47	52					48	46		25	33	37	12					27	D	27	D	29	D
		1591	4	1272	1450	1388	683					4794			41	42	45	53					45			36	38	33	13					30	D	30	D		
merge	MD 28 interchange	655	5	351	1642	1839	1191	688				5711	5711		36	38	41	44	53				42	42		13	50	49	30	13				31	D	37	E	37	E
basic		921	4	1935	1739	1361	690					5724	5724		42	44	47	53					46	46		48	41	31	13					33	D	33	D	33	D
diverge		1515	4	2062	1528	1468	695					5752	5752		43	43	46	53					46	46		50	37	33	13					33	D	40	E	40	E
basic	MD 189 interchange	3237	4	1095	1395	1435	710					4633	4742		33	36	37	53					40	35		38	42	42	13					34	D	34	D	41	E
		1874	4	1190	1399	1429	722					4740			26	29	30	53					35			50	51	50	14					41	E	41	E		
		3407	4	1215	1429	1468	734					4845			21	25	27	53					32			61	59	56	14					48	F	48	F		
merge	Montrose Rd interchange	598	5	632	1344	1694	1619	745				6034	6034		15	16	24	26	53				27	27		44	86	74	65	14				57	F	68	F	68	F
basic	Btw Montrose Rd & Spur Split	882	4	1800	1830	1705	756					6091	6164		28	28	27	53					34	33		66	67	66	14					53	F	53	F	57	F
		303	4	1825	1825	1711	762					6123			27	26	25	53					33			69	71	70	14					56	F	56	F		
		3022	4	1856	1827	1748	759					6190			27	25	25	52					32			72	74	73	15					58	F	58	F		
weave		3707	6	1829	1771	1969	1925	1699	667			9860	9862		40	30	26	26	30	47			33	35		46	60	79	77	57	14			56	F	56	F	53	F
		722	6	1888	1784	2122	1635	1808	635			9872			39	37	37	42	48	53			43			50	49	59	40	38	12			41	E	41	E		
diverge		400	7	1901	1837	2062	1639	1845	511	133		9928	9928		35	34	36	43	48	53	54		43	43		56	55	59	39	39	10	2		37	E	17	B	17	B
weave		371	6	1879	1842	2017	1653	1839	465			9694	9694		32	32	33	43	47	53			40	40		59	59	62	40	40	9			45	F	45	F	45	F
basic	Spur Split through MD 187 interchange	967	4	1048	1673	1576	415					4712	4712		53	52	54	58					54	54		20	33	30	7					22	C	22	C	22	C
diverge		1138	4	1233	1566	1514	406					4719	4719		60	59	60	64					60	60		21	27	26	6					20	C	25	C	25	C
basic		2602	3	1279	1473	412						3165	3165		62	63	64						63	63		21	24	6						17	B	17	B	17	B
merge		443	4	66	1350	1522	415					3352	3352		48	61	62	64					59	59		1	23	25	7					14	B	16	B	16	B
basic		947	3	1375	1557	420						3352	3352		62	62	64						62	62		23	26	7						18	C	18	C	18	C
merge	Btw MD 187 & I-495	1023	4	220	1353	1737	428					3738	3748		51	61	62	64					59	59		4	23	29	7					16	B	19	B	19	B
basic		473	3	1593	1804	321						3718			60	60	63						61	62		27	30	5						21	C	21	C	21	C
		3140	3	1506	2038	209						3752			62	61	63						62			25	34	3						21	C	21	C		
diverge		1491	3	1473	1240	1046						3759	3759		63	63	63						63	63		24	20	17						20	C	20	C	20	C
basic		1568	2	1428	1189							2617	2617		63	63							63	63		23	19							21	C	21	C	21	C
basic	Spur Split to Democracy Blvd	3000	3	1776	1622	1722						5120	5120		25	23	24						24	24		73	72	71						72	F	72	F	72	F
weave		963	4	982	1764	1879	717					5343	5343		27	21	23	47					30	30		37	87	83	15					56	F	56	F	56	F
basic	Democracy Blvd	2461	3	1985	1986	793						4765	4765		26	26	54						35	35		79	79	15						57	F	57	F	57	F
merge	Democracy Blvd to I-495	522	5	15	502	2049	2052	793				5410	5410		43	44	26	24	53				38	38		0	12	81	87	15				39	E	31	D	31	D
merge		937	4	182	2168	2249	792					5391	5391		33	30	30	53	53				37	37		6	74	77	15	15				43	F	52	F	52	F
basic		2520	3	2319	2330	799						5448	5448		42	42	53						46	46		57	56	15						43	E	43	E	43	E
basic	CD - I-370 interchange	1623	2	1230	1059							2289	2289		12	19							15	15		111	67							89	F	89	F	89	F
weave	CD - Btw I-370 & Shady Grove Rd	795	4	1511	1229	899	884					4524	4524		28	17	11	9					16	16		55	73	84	102					78	F	78	F	78	F
diverge		1609	3	1331	1375	589						3295	3295		40	41	43						41	41		34	34	14						27	C	27	C	27	C
basic	CD - Shady Grove Rd interchange	702	2	860	766							1626	1626		42	43							42	42		21	18							19	C	19	C	19	C
merge		477	3	133	1097	906						2137	2137		42	42	43						42	42		3	27	22						17	B	17	B	17	B
basic		800	2	1145	998							2143	2143		41	42							42	42		28	24							26	D	26	D	26	D
merge	CD - Btw Shady Grove Rd & MD 28	707	3	94	1274	1195						2564	2564		42	41	41						41	41		2	31	29						21	C	21	C	21	C
basic		1081	2	1208	1350							2558	2558		35	31							33	33		36	45							41	E	41	E	41	E
merge		609	3	1741	1455	884						4080	4080		28	16	16						20	20		66	107	72						82	F	82	F	82	F
diverge		1505	2	2142	1944							4086	4086		37	37							37	37		59	53							56	F	56	F	56	F
diverge		2914	2	1718	1748							3467	3467		39	38							39	39		46	47							47	F	47	F	47	F
basic		170	2	1568	971							2540	2540		38	38							38	38		44	29							36	E	36	E	36	E
diverge		291	3	466	1098	1014						2578	2578		41	36	36						38	38		12	37	33						27	C	27	C	27	C
basic	CD - MD 28 interchange	926	2	903	1023							1926	1926		26	29							27	27		50	45							47	F	47	F	47	F
merge		231	3	122	899	1092						2112	2112		14	17	22						18	18		14	74	61						50	F	50	F	50	F
basic		1111	2	894	1251							2145	2145		8	15							12	12		110	89							100	F	100	F	100	F
merge	CD - Btw MD 28 & MD 189	577	3	586	785	1513						2884	2884		4	5	13						7	7		167	159	121						149	F	149	F	149	F
basic		1055	2	1295	1611							2905	2905		10	14							12	12		132	117							125	F	125	F	125	F
merge		610	3	1635	1469	966						4070	4070		14	14	17						15	15		121	106	57						95	F	95	F	95	F
basic		837	2	2124	1941							4065	4065		30	31							30	30		72	65							69	F	69	F	69	F
diverge		350	3	718	1538	1838						4094	4094		40	25	27						31	31		18	64	71						51	F	51	F	51	F
basic	CD - MD 189 interchange	816	2	1486	1665							3151	3155		17	19							18	15		92	92							92	F	92	F	108	F
		1802	2	1432	1726							3157			12	16							14			125	107							116	F	116	F		
merge	CD - Btw MD 189 & Montrose Rd	465	3	867	1269	2091						4226	4226		10	10	23						14	14		92	129	91						104	F	104	F	104	F
diverge		2186	2	2157	2085							4242	4242		30	33							31	31		73	65							69	F	69	F	69	F
basic		775	2	1975	1127							3102	3102		36	37							37	37		56	31							43	E	43	E	43	E
diverge		235	3	139	1824	1160						3123	3123		37	36	37						37	37		4	51	32						29	D	29	D	29	D
basic	CD - Montrose Rd interchange	1196	2	1747	1166							2913	2913		36	37							37	37		49	32							40	E	40	E	40	E
weave		422	3	1108	1367	1343						3818	3818		34	35	36						35	35		34	40	38						37	E	37	E	37	E
basic		1029	2	1349	1416							2765	2765		38	36							37	37		37	40							38	E	38	E	38	E
merge		415	3	495	1584	1621						3700	3700		37	34	34						35	35		14	47	49						37	E	37	E	37	E
basic		1429	2	1690	1813							3503	3503		34	31							33	33		51	59							55	F	55	F	55	F

I-270 Southbound - 2017 Existing - 9-10 AM

VISSIM Lookup Data				Volume										Speed										Density									
				Volume Per Lane								Across All Lanes	Overall Volume	Speed Per Lane								Across All Lanes	Overall Speed	Density Per Lane								Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)								Total Volume	Average Volume (veh/hr)	Speed (mph)								Average Speed	Average Speed (mph)	Combined Density (pcphpl)								Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Through MD 117 interchange	658	4	2005	1942	1730	1617					7294	7381	39	39	42	45					41	43	56	54	44	37					48	F	48	F	46	F
		3062	4	2243	1893	1572	1692					7400		38	41	46	47					43		61	48	36	37					45	F	45	F		
merge	Btw MD 117 & I-370	1569	5	1553	2198	1840	1788	1568				8948	8948	46	46	49	51	52				49	49	35	49	38	36	31				38	E	41	E	41	E
basic		1151	5	2121	1774	2121	1822	1170				9007	9007	41	47	49	50	52				48	48	54	39	44	37	23				39	E	39	E	39	E
		431	5	2226	1913	2163	1641	940				8883	8883	45	48	49	51	53				49	49	50	41	45	33	18				37	E	37	E	37	E
diverge		1058	6	874	1522	1868	2143	1656	953			9016	9016	52	52	48	50	51	53			51	51	17	29	40	44	33	18			30	D	29	D	29	D
basic	I-370 interchange	1258	4	2265	1735	1669	949					6618	6617	46	49	52	53					50	50	50	36	33	18					34	D	34	D	34	D
		193	4	2431	1566	1673	940					6611		47	51	53	53					51		53	31	32	18					34	D	34	D		
diverge		1263	5	665	1945	1407	1660	934				6612	6612	53	52	53	53	53				53	53	13	38	27	32	18				26	C	26	C	26	C
basic		3427	4	984	1312	1472	779					4547	4547	50	53	53	53					52	52	20	25	28	15					22	C	22	C	22	C
merge	Shady Grove Rd interchange	1046	5	873	1664	1455	1464	775				6230	6230	19	23	38	44	53				35	35	54	83	41	35	15				45	F	59	F	59	F
basic		420	4	1968	1732	1716	823					6239	6241	37	42	44	52					44	47	55	43	40	16					38	E	38	E	35	E
		497	4	1937	1739	1734	832					6242		46	49	50	53					50		43	36	35	16					33	D	33	D		
diverge		1518	4	1927	1745	1735	834					6242	6242	47	51	51	53					51	51	42	35	35	16					32	D	37	E	37	E
basic	Btw Shady Grove Rd & MD 28	3645	4	988	1608	1702	826					5124	5124	54	53	53	53					53	53	19	31	33	16					25	C	25	C	25	C
merge		473	5	213	1293	1654	1842	794				5796	5796	52	54	53	53	54				53	53	4	25	32	35	15				22	C	20	C	20	C
basic		1022	4	1228	1739	1995	832					5794	5784	53	52	51	53					52	52	24	34	40	16					28	D	28	D	28	D
		1591	4	1447	1683	1622	1025					5777		53	53	53	53					53		28	32	31	19					28	D	28	D		
merge	MD 28 interchange	655	5	201	1772	2010	1418	1050				6451	6451	52	52	52	54	53				53	53	4	35	39	27	20				25	C	26	C	26	C
basic		921	4	1989	1860	1543	1053					6445	6445	49	51	52	53					51	51	41	37	30	20					32	D	32	D	32	D
diverge		1515	4	2100	1663	1628	1056					6447	6447	49	50	52	53					51	51	44	34	32	20					32	D	36	E	36	E
basic	MD 189 interchange	3237	4	1248	1586	1645	1054					5533	5529	53	53	53	53					53	53	24	30	32	20					27	D	27	D	27	D
		1874	4	1286	1570	1632	1049					5537		53	53	53	53					53		25	30	31	20					27	D	27	D		
		3407	4	1304	1561	1616	1039					5520		53	53	53	53					53		25	30	31	20					26	D	26	D		
merge	Montrose Rd interchange	598	5	323	1762	1913	1616	1031				6646	6646	52	52	53	53	53				53	53	6	34	37	31	19				26	C	26	C	26	C
basic	Btw Montrose Rd & Spur Split	882	4	1942	1961	1728	1034					6664	6661	51	52	53	53					52	53	39	39	33	20					33	D	33	D	32	D
		303	4	1920	1951	1774	1035					6680		52	53	53	53					53		37	38	34	20					32	D	32	D		
		3022	4	1901	1957	1801	1000					6659		53	53	53	53					53		37	38	35	19					32	D	32	D		
weave		3707	6	1240	1544	2313	2207	1482	848			9634	9622	53	52	50	50	53	53			52	52	24	30	47	45	29	16			32	D	32	D	32	D
		722	6	1462	1880	2424	1489	1472	835			9562		53	51	49	51	53	53			52		28	37	51	30	28	16			32	D	32	D		
diverge		400	7	1593	1900	2302	1462	1505	606	232		9600	9600	53	52	51	53	53	53	54		53	53	31	37	46	28	29	11	4		27	C	15	B	15	B
weave		371	6	1613	1885	2264	1442	1497	518			9219	9219	53	53	51	53	53	54			53	53	31	36	45	28	29	10			30	D	30	D	30	D
basic	Spur Split through MD 187 interchange	967	4	920	1557	1388	486					4350	4350	56	56	57	58					57	57	17	28	25	8					20	C	20	C	20	C
diverge		1138	4	1014	1468	1379	489					4350	4350	63	62	62	64					63	63	16	24	22	8					18	B	21	C	21	C
basic		2602	3	1214	1359	490						3063	3063	63	63	64						63	63	20	22	8						16	B	16	B	16	B
merge		443	4	50	1270	1391	488					3199	3199	49	62	63	63					60	60	1	21	22	8					13	B	15	B	15	B
basic		947	3	1289	1418	490						3197	3197	63	63	63						63	63	21	23	8						17	B	17	B	17	B
merge	Btw MD 187 & I-495	1023	4	195	1268	1597	496					3556	3553	52	62	62	63					60	60	4	21	26	8					15	B	17	B	17	B
basic		473	3	1552	1638	343						3533		61	62	63						62	63	26	27	5						19	C	19	C	19	C
		3140	3	1472	1893	192						3556		63	62	64						63		24	31	3						19	C	19	C		
diverge		1491	3	1449	1306	800						3555	3555	63	63	63						63	63	23	21	13						19	B	19	B	19	B
basic		1568	2	1413	1267							2680	2680	63	63							63	63	23	20							22	C	22	C	22	C
basic	Spur Split to Democracy Blvd	3000	3	1741	1538	1650						4929	4929	52	53	53						53	53	34	29	32						32	D	32	D	32	D
weave		963	4	876	1853	1722	672					5124	5124	53	52	52	53					53	53	17	36	34	13					25	C	25	C	25	C
basic	Democracy Blvd	2461	3	1844	1705	752						4301	4301	53	53	54						53	53	36	33	14						27	D	27	D	27	D
merge	Democracy Blvd to I-495	522	5	13	231	1902	1943	750				4838	4838	51	52	52	52	53				52	52	0	5	37	38	14				19	B	14	B	14	B
merge		937	4	36	2008	2025	751					4820	4820	51	50	50	53					51	51	1	41	42	14					24	C	28	D	28	D
basic		2520	3	2083	2020	752						4855	4855	52	52	53						52	52	41	40	14						31	D	31	D	31	D
basic	CD - I-370 interchange	1623	2	1550	522							2072	2072	33	42							38	38	51	13							32	D	32	D	32	D
weave	CD - Btw I-370 & Shady Grove Rd	795	4	1492	1401	1079	965					4938	4938	37	33	29	28					32	32	42	45	41	42					43	F	43	F	43	F
diverge		1609	3	1255	1465	582						3302	3302	40	41	43						41	41	32	36	14						27	C	27	C	27	C
basic	CD - Shady Grove Rd interchange	702	2	866	776							1642	1642	42	43							42	42	21	18							20	C	20	C	20	C
merge		477	3	135	1110	923						2167	2167	41	42	43						42	42	3	27	22						17	B	17	B	17	B
basic		800	2	1165	1006							2171	2171	41	42							42	42	29	24							26	D	26	D	26	D
merge	CD - Btw Shady Grove Rd & MD 28	707	3	98	1296	1205						2599	2599	42	41	42						42	42	2	32	29						21	C	21	C	21	C
basic		1081	2	1168	1422							2591	2591	41	39							40	40	29	37							33	D	33	D	33	D
merge		609	3	1542	1715	462						3720	3720	36	30	27						31	31	44	63	24						44	F	44	F	44	F
diverge		1505	2	1917	1819							3736	3736	39	40							39	39	50	46							48	F	48	F	48	F
diverge		2914	2	1596	1467							3064	3064	41	41							41	41	39	36							38	E	38	E	38	E
basic		170	2	1485	874							2359	2359	41	42							42	42	36	21							29	D	29	D	29	D
diverge		291	3	501	995	900						2396	2396	42	42	42						42	42	12	24	22						19	B	19	B	19	B
basic	CD - MD 28 interchange	926	2	796	880							1677	1677	42	42							42	42	19	21							20	C	20	C	20	C
merge		231	3	122	903	896						1921	1921	35	42	42						40	40	4	22	22						16	B	16	B	16	B
basic		1111	2	942	980							1922	1922	35	36							36	36	28	28							28	D	28	D	28	D
merge	CD - Btw MD 28 & MD 189	577	3	728	1006	1548						3282	3282	6	8	16						10	10	132	126	100						119	F	119	F	119	F
basic		1055	2	1469	1835							3305	3305	13	18							15	15	119	101							110	F	110	F	110	F
merge		610	3	1693	1526	979						4198	4198	15	15	20						17	17	118	102	50						90	F	90	F	90	F
basic		837	2	2186	1998							4184	4184	34	34							34	34	66	60							63	F	63	F	63	F
diverge		350	3	629	1667	1915						4211	4211	41	30	31						34	34	16	56	64						45	F	45	F	45	F
basic	CD - MD 189 interchange	816	2	1592	1784							3376	3381	21	23							22	18	78	80							79	F	79	F	97	F
		1802	2	1598	1785							3383		15	18							17		110	100							105	F	105	F		
merge	CD - Btw MD 189 & Montrose Rd	465	3	648	1466	2089						4203	4203	13	12	23						16	16	53	120	93						88	F	88	F	88	F
diverge		2186	2	2180	2042							4222	4222	29	32							30	30	77	65							71	F	71	F	71	F
basic		775	2	2038	1000							3038	3038	36	37							37	37	58	27							42	E	42	E	42	E
diverge		235	3	195	1838	1028						3060	3060	37	36	37						37	37	5	51	28						28	D	28	D	28	D
basic	CD - Montrose Rd interchange	1196	2	1750	1023							2773	2773	36	37							37	37	49	28							38	E	38	E	38	E
weave		422	3	1246	1218	1142						3607	3607	32	34	36						34	34	40	36	32						36	E	36	E	36	E
basic		1029	2	1111	1205							2316	2316	39	37							38	38	29	33							31	D	31	D	31	D
merge		415	3	359	1382	1352						3093	3093	41	39	37						39	39	9	36	37						27	C	27	C	27	C
basic		1429	2	1421	1536							2956	2956	39	37							38	38	37	43							40	E	40	E	40	E

I-270 Northbound - 2017 Existing - 6-7 AM

VISSIM Lookup Data				Volume								Speed									Density									
				Volume Per Lane						Across All Lanes	Overall Volume	Speed Per Lane							Across All Lanes	Overall Speed	Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)						Total Volume	Average Volume (veh/hr)	Speed (mph)							Average Speed	Average Speed (mph)	Combined Density (pcphpl)							Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Btw MD 124 & MD 117	7479	4	915	725	389	260			2289	2289	63	64	65	65				64	64	15	12	6	4				9	A	9	A	9	A
diverge		1357	5	411	962	726	361	239		2699	2699	64	63	64	65	65			64	64	7	15	12	6	4			9	A	11	B	11	B
basic	Btw MD 117 & I-370	843	5	299	1111	732	331	228		2701	2701	63	63	63	65	65			64	64	5	18	12	5	4			9	A	9	A	9	A
merge		531	6	6	395	1230	575	264	217	2687	2687	55	57	62	63	65	65		61	61	0	7	20	9	4	3		7	A	9	A	9	A
basic	I-370 interchange	3616	4	638	551	279	219			1687	1685	63	64	65	65				64	64	10	9	4	3				7	A	7	A	7	A
		633	4	540	530	390	218			1678		63	64	65	65				64		9	8	6	3				7	A	7	A		
		1171	4	545	528	376	235			1683		63	64	65	65				64		9	8	6	4				7	A	7	A		
merge		337	5	32	535	502	336	279		1684	1684	52	63	64	65	65			62	62	1	9	8	5	4			5	A	6	A	6	A
basic	Shady Grove Rd interchange	3947	4	495	495	334	277			1601	1601	64	64	65	65				64	64	8	8	5	4				6	A	6	A	6	A
weave	Btw Shady Grove Rd & MD 28	1523	5	143	748	475	324	275		1965	1962	64	63	63	65	65			64	64	2	12	8	5	4			6	A	6	A	6	A
		1475	5	184	540	638	327	272		1961		64	64	64	65	65			64		3	9	10	5	4			6	A	6	A		
		1482	5	159	491	654	383	273		1960		64	64	64	65	65			64		3	8	10	6	4			6	A	6	A		
basic	MD 28 interchange	3696	4	465	603	419	311			1798	1797	63	64	65	65				64	64	7	10	7	5				7	A	7	A	7	A
		464	4	466	607	389	333			1795		63	64	65	65				64		7	10	6	5				7	A	7	A		
diverge		1405	4	958	621	383	326			2289	2289	63	63	65	65				64	64	15	10	6	5				9	A	10	B	10	B
merge		640	5	66	827	700	376	322		2291	2291	59	63	63	65	65			63	63	1	13	11	6	5			7	A	9	A	9	A
basic	Btw MD 28 & MD 189	531	4	426	888	379	325			2018	2016	64	63	65	65				64	64	7	14	6	5				8	A	8	A	8	A
		1407	4	400	886	402	326			2015		64	63	65	65				64		6	14	6	5				8	A	8	A		
diverge		1536	4	702	793	580	331			2406	2406	63	63	64	65				64	64	11	13	9	5				10	B	11	B	11	B
basic	Btw MD 189 & Montrose Rd	74	4	681	787	579	329			2375	2399	63	63	65	65				64	63	11	13	9	5				9	A	9	A	10	A
		1921	4	448	1004	524	425			2401		63	63	65	64				64		7	16	8	7				10	A	10	A		
		3344	4	345	958	649	446			2398		60	63	64	64				63		6	16	10	7				10	A	10	A		
diverge	Montrose Rd interchange	1487	4	908	905	383	344			2540	2540	57	62	65	65				62	62	16	15	6	5				11	B	12	B	12	B
basic		425	4	988	845	363	339			2535	2537	63	63	66	65				64	64	16	13	6	5				10	A	10	A	10	A
		2955	4	997	852	361	327			2537		63	64	66	64				64		16	14	6	5				10	A	10	A		
weave	Btw Montrose Rd & Spur Split	1533	6	1268	666	958	910	366	310	4477	4475	63	64	63	63	66	64		64	64	21	11	15	15	6	5		12	B	12	B	12	B
		1210	6	1045	902	1056	863	310	300	4476		63	63	63	63	66	64		64	64	17	14	17	14	5	5		12	B	12	B		
		1521	6	565	1266	1379	677	289	297	4474		64	63	63	64	66	64		64		9	20	22	11	4	5		12	B	12	B		
weave		447	5	477	1211	1452	723	272		4134	4134	64	63	63	63	66			64	64	8	19	24	12	4			13	B	13	B	13	B
basic		1229	2	781	825					1606	1606	64	64						64	64	12	13						13	B	13	B	13	B
merge	Btw Spur Split & MD 187	736	3	0	810	794				1603	1600	61	64	64					63	62	0	13	13					9	A	9	A	9	A
		519	3	0	805	791				1596		58	63	64					62		0	13	13					9	A	9	A		
weave		624	5	0	32	787	783	307		1909	1909	0	59	63	64	64			50	50	0	1	13	12	5			6	A	6	A	6	A
basic	MD 187 interchange	511	3	712	754	312				1778	1783	64	64	64					64	64	11	12	5					9	A	9	A	9	A
		1863	3	702	744	338				1784		64	64	64					64		11	12	5					9	A	9	A		
diverge		520	4	234	680	699	488			2101	2101	63	63	64	64				64	64	4	11	11	8				8	A	9	A	9	A
basic		797	3	900	709	481				2090	2090	63	64	64					64	64	14	11	8					11	B	11	B	11	B
diverge	Btw MD 187 & I-495	674	4	289	979	718	479			2464	2464	64	63	64	64				64	64	5	16	11	8				10	B	11	B	11	B
basic		824	3	1264	721	474				2458	2470	63	64	64					64	64	20	11	7					13	B	13	B	13	B
		3315	3	1266	751	457				2473		63	64	64					64		20	12	7					13	B	13	B		
		1125	3	1102	1011	358				2470		63	63	64					63		18	16	6					13	B	13	B		
merge		429	4	63	1212	1188	10			2474	2474	49	62	63	69				61	61	1	20	19	0				10	B	13	B	13	B
basic		386	3	1143	1114	6				2263	2263	64	63	66					64	64	18	18	0					12	B	12	B	12	B
basic		500	2	1134	1132					2266	2266	59	59						59	59	20	20						20	C	20	C	20	C
basic		1862	3	1077	1204	277				2557	2557	63	63	66					64	64	17	19	4					14	B	14	B	14	B
merge	Btw Spur Split & Democracy Blvd	717	4	1024	1227	296	10			2557	2557	63	63	66	57				62	62	16	20	5	0				10	B	8	A	8	A
basic		1170	3	969	1149	373				2491	2491	63	63	66					64	64	16	18	6					13	B	13	B	13	B
merge		820	4	16	975	1160	349			2500	2500	48	63	63	66				60	60	0	16	19	5				10	B	12	B	12	B
basic	Democracy Blvd interchange	457	3	941	1123	325				2389	2389	63	63	66					64	64	15	18	5					13	B	13	B	13	B
merge		887	4	27	942	1144	310			2423	2423	55	63	63	66				62	62	0	15	18	5				10	B	11	B	11	B
basic		790	3	952	1145	287				2384	2384	63	64	66					64	64	15	18	4					13	B	13	B	13	B
diverge	Btw Democracy Blvd & I-495	894	4	491	1059	1201	232			2982	2982	59	63	64	66				63	63	8	17	19	4				12	B	15	B	15	B
basic		3447	3	1507	1353	123				2984	2984	59	60	64					61	61	26	23	2					17	B	17	B	17	B
merge	D - Btw Middlebrook Rd & MD 1	468	2	58	407					465	465	42	42						42	42	1	10						6	A	6	A	6	A
merge	CD - MD 124 interchange	497	2	34	159					193	193	41	42						41	41	1	4						2	A	2	A	2	A
diverge	CD - Btw MD 124 & MD 117	2235	2	67	379					446	446	47	44						45	45	1	9						5	A	5	A	5	A
weave	CD - Btw MD 117 & I-370	600	3	188	51	393				633	633	42	46	44					44	44	5	1	9					5	A	5	A	5	A
basic		4137	2	188	27					215	215	43	43						43	43	4	1						3	A	3	A	3	A
weave		1981	3	154	757	322				1233	1233	43	42	44					43	43	4	18	7					10	B	10	B	10	B
basic	CD - I-370 interchange	1052	2	307	154					461	461	43	44						43	43	7	4						5	A	5	A	5	A
merge		704	3	28	292	143				463	463	41	43	44					42	42	1	7	3					4	A	4	A	4	A
basic		981	2	197	138					335	335	43	46						44	44	5	3						4	A	4	A	4	A
diverge		483	3	251	497	145				894	894	46	44	54					48	48	6	11	3					7	A	7	A	7	A
basic	CD - Btw I-370 & Shady Grove Rd	951	2	740	148					888	888	44	54						49	49	17	3						10	A	10	A	10	A
diverge		580	3	734	160	87				981	981	45	55	50					50	50	16	3	2					7	A	7	A	7	A
merge		243	4	39	681	168	87			975	975	39	46	56	50				48	48	1	15	3	2				5	A	6	A	6	A
basic	CD - Shady Grove Rd interchange	903	3	552	251	85				888	888	45	56	51					51	51	12	5	2					6	A	6	A	6	A
weave		406	4	32	449	249	158			887	887	42	43	58	62				52	52	1	10	4	3				5	A	5	A	5	A
diverge	CD - Btw Shady Grove Rd & MD 28	190	3	253	507	430				1190	1190	43	43	43					43	43	6	12	10					9	A	9	A	9	A
basic		4624	2	751	454					1206	1206	43	43						43	43	18	11						14	B	14	B	14	B
diverge		2601	3	321	513	538				1372	1372	43	43	43					43	43	8	12	13					11	B	11	B	11	B
weave		177	4	1	324	478	572			1376	1376	36	43	43	44				42	42	0	8	11	13				8	A	8	A	8	A
merge		274	3	29	296	529				854	854	42	43	43					43	43	1	7	12					7	A	7	A	7	A
basic	CD - MD 28 interchange	924	2	257	526					783	783	43	43						43	43	6	12						9	A	9	A	9	A
weave		258	3	402	481	491				1374	1374	41	42	43					42	42	10	12	12					11	A	11	A	11	A
basic		862	2	824	489					1313	1313	42	43						43	43	20	11						16	B	16	B	16	B
diverge	CD - Btw MD 28 & MD 189	379	3	56	842	494				1392	1392	43	42	43					43	43	1	20	12					11	B	11	B	11	B
basic		525	2	895	503					1398	1398	42	43						43	43	22	12						17	B	17	B	17	B
weave		710	3	778	584	328				1690	1690	42	43	43					43	43	19	14	8					13	B	13	B	13	B
basic		1166	2	482	813					1295	1295	43	42						42	42	11	20						16	B	16	B	16	B
merge		286	3	59	560	675				1294	1294	42	42	42					42	42	1	13	16					10	B	10	B	10	B
basic	CD - MD 189 interchange	810	2	467	655					1122	1122	43	42						42	42	11	16						13	B	13	B	13	B
		649	2	456	665					1121		43	42						42		11	16						13	B	13	B		
diverge	CD - Btw MD 189 & Montrose Rd	220	3	169	546	682				1397	1397	42	42	42					42	42	4	13	16					11	B	11	B	11	B
basic		1046	2	718	684					1402	1402	42	42						42	42	17	16						17	B	17	B	17	B
		2216	2	743	659					1402		42	42						42		18	16						17	B	17	B		
merge		463	3	647	715	39				1402	1402	42	42	43					43	43	15	17	1					11	B	11	B	11	B
basic		950	2	616	638					1254	1254	42	42						42	42	15	15						15	B	15	B	15	B
merge		402	3	71	586	602				1258	1258	38	42	42					41	41	2	14	15					10	B	10	B	10	B
basic	CD - Montrose Rd interchange	1126	2	398	600					998	998	43	42						43	43	9	14						12	B	12	B	12	B
weave		342	3	134	420	613				1167	1167	42	43	42					43	43	3	10	15					9	A	9	A	9	A
basic		1121	2	499	626					1125	1125	43	42						43	43	12	15						13	B	13	B	13	B
diverge	CD - Btw Montrose Rd & Spur Split	262	3	527	741	656				1925	1925	42	42	42					42	42	13	18	16					15	B	15	B	15	B
basic		1304	2	1263	662					1925	1925	45	46						45	45	29	15						22	C	22	C	22	C

I-270 Northbound - 2017 Existing - 7-8 AM

VISSIM Lookup Data				Volume									Speed								Density									
				Volume Per Lane							Across All Lanes	Overall Volume	Speed Per Lane							Across All Lanes	Overall Speed	Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)							Total Volume	Average Volume (veh/hr)	Speed (mph)							Average Speed	Average Speed (mph)	Combined Density (pcphpl)							Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Btw MD 124 & MD 117	7479	4	1072	989	542	328				2930	2930	63	63	65	66				64	64	17	16	8	5				12	B	12	B	12	B
diverge	Btw MD 117 & I-370	1357	5	941	1150	1012	503	290			3897	3897	61	63	63	65	65			63	63	16	19	16	8	4			13	B	17	B	17	B
basic		843	5	739	1414	1049	444	253			3898	3898	61	61	63	64	65			63	63	12	23	17	7	4			13	B	13	B	13	B
merge		531	6	20	845	1717	777	299	224		3882	3882	50	54	60	63	65	65		60	60	0	16	29	13	5	3		11	B	15	B	15	B
basic	I-370 interchange	3616	4	1002	804	338	225				2369	2369	63	64	65	65				64	64	16	13	5	3				9	A	9	A	9	A
		633	4	785	772	582	226				2364		63	64	65	65				64		13	12	9	3				9	A	9	A		
		1171	4	789	770	549	264				2372		63	63	65	65				64		13	12	9	4				9	A	9	A		
merge		337	5	86	777	700	454	356			2372	2372	48	62	63	65	65			61	61	2	13	11	7	6			8	A	9	A	9	A
basic	Shady Grove Rd interchange	3947	4	695	673	451	350				2169	2169	63	64	65	65				64	64	11	11	7	5				9	A	9	A	9	A
weave	Btw Shady Grove Rd & MD 28	1523	5	290	1098	619	425	347			2779	2785	64	63	63	65	65			64	64	5	18	10	7	5			9	A	9	A	9	A
		1475	5	325	833	853	428	347			2785		64	63	64	65	65			64		5	13	14	7	5			9	A	9	A		
		1482	5	274	773	877	518	347			2790		64	63	64	65	65			64		4	12	14	8	5			9	A	9	A		
basic	MD 28 interchange	3696	4	747	796	586	402				2532	2533	63	64	64	65				64	64	12	13	9	6				10	A	10	A	10	A
		464	4	753	797	562	428				2541		63	63	64	64				64		12	13	9	7				10	A	10	A		
diverge		1405	4	1479	845	526	403				3253	3253	62	62	64	64				63	63	24	14	8	6				13	B	15	B	15	B
merge		640	5	204	1313	910	455	377			3258	3258	56	62	63	64	65			62	62	4	22	15	7	6			11	B	13	B	13	B
basic	Btw MD 28 & MD 189	531	4	549	1057	454	380				2441	2441	64	63	65	65				64	64	9	17	7	6				10	A	10	A	10	A
		1407	4	520	1045	493	383				2441		64	63	64	65				64		8	17	8	6				10	A	10	A		
diverge		1536	4	860	924	744	387				2915	2915	63	63	64	65				64	64	14	15	12	6				12	B	13	B	13	B
basic	Btw MD 189 & Montrose Rd	74	4	839	917	739	387				2882	2919	63	63	64	65				64	63	13	15	12	6				11	B	11	B	12	B
		1921	4	570	1162	660	528				2920		63	63	64	64				64		9	19	10	8				12	B	12	B		
		3344	4	444	1109	811	556				2920		60	63	64	64				63		8	18	13	9				12	B	12	B		
diverge	Montrose Rd interchange	1487	4	1073	1059	524	443				3098	3098	57	62	65	64				62	62	19	17	8	7				13	B	15	B	15	B
basic		425	4	1161	991	504	434				3090	3093	63	63	65	64				64	64	19	16	8	7				12	B	12	B	12	B
		2955	4	1170	1002	494	427				3093		63	63	65	64				64		19	16	8	7				12	B	12	B		
weave	Btw Montrose Rd & Spur Split	1533	6	1663	804	1123	1075	498	411		5574	5581	62	64	63	63	65	64		64	64	27	13	18	17	8	6		15	B	15	B	15	B
		1210	6	1434	1082	1218	1025	427	396		5582		62	63	63	63	66	64		64		23	17	20	16	7	6		15	B	15	B		
		1521	6	823	1576	1589	803	405	390		5586		63	63	63	64	66	64		64		13	26	26	13	6	6		15	B	15	B		
weave		447	5	662	1540	1695	862	386			5145	5145	63	63	63	63	65			64	64	11	25	27	14	6			17	B	17	B	17	B
basic	Btw Spur Split & MD 187	1229	2	1019	1106						2125	2125	63	63						63	63	16	18						17	B	17	B	17	B
merge		736	3	0	1055	1071					2126	2122	60	63	63					62	62	0	17	17					11	B	11	B	11	B
		519	3	2	1047	1069					2117		57	63	63					61		0	17	17					11	B	11	B		
weave		624	5	0	95	998	1031	401			2525	2525	0	57	63	63	64			49	49	0	2	16	17	6			8	A	8	A	8	A
basic	MD 187 interchange	511	3	823	938	407					2169	2178	64	64	64					64	64	13	15	6					12	B	12	B	12	B
		1863	3	806	921	454					2180		63	64	64					64		13	15	7					12	B	12	B		
diverge		520	4	412	727	871	728				2738	2738	63	63	64	64				63	63	7	12	14	12				11	B	11	B	11	B
basic		797	3	1112	891	721					2723	2723	63	64	64					64	64	18	14	11					14	B	14	B	14	B
diverge	Btw MD 187 & I-495	674	4	490	1238	905	720				3353	3353	63	63	63	64				63	63	8	20	14	11				13	B	14	B	14	B
basic		824	3	1713	923	711					3348	3376	63	64	64					63	63	28	15	11					18	C	18	C	18	C
		3315	3	1703	978	697					3379		62	63	64					63		28	16	11					18	C	18	C		
		1125	3	1421	1376	590					3387		62	63	63					63		23	22	10					18	C	18	C		
merge		429	4	186	1575	1605	24				3390	3390	48	61	63	68				60	60	4	26	26	0				14	B	19	B	19	B
basic		386	3	1428	1381	12					2821	2821	63	63	65					64	64	23	22	0					15	B	15	B	15	B
basic		500	2	1429	1397						2826	2826	59	58						59	59	25	24						25	C	25	C	25	C
basic	Btw Spur Split & Democracy Blvd	1862	3	1230	1431	402					3063	3063	63	63	65					64	64	20	23	6					16	B	16	B	16	B
merge		717	4	1161	1459	430	19				3069	3069	63	63	65	57				62	62	19	23	7	0				12	B	10	B	10	B
basic		1170	3	1076	1359	532					2968	2968	63	63	66					64	64	17	22	8					16	B	16	B	16	B
merge		820	4	49	1072	1384	478				2983	2983	48	62	63	66				60	60	1	18	22	7				12	B	14	B	14	B
basic	Democracy Blvd interchange	457	3	990	1297	435					2722	2722	63	63	66					64	64	16	21	7					14	B	14	B	14	B
merge		887	4	58	978	1320	404				2760	2760	51	63	63	66				61	61	1	16	21	6				11	B	13	B	13	B
basic		790	3	974	1299	370					2644	2644	63	63	66					64	64	16	21	6					14	B	14	B	14	B
diverge	Btw Democracy Blvd & I-495	894	4	688	1122	1373	297				3480	3480	59	63	63	65				63	63	12	18	22	5				14	B	17	B	17	B
basic		3447	3	1752	1577	152					3481	3481	58	60	63					60	60	31	27	2					20	C	20	C	20	C
merge	D - Btw Middlebrook Rd & MD 12	468	2	82	610						692	692	42	41						42	42	2	15						8	A	8	A	8	A
merge	CD - MD 124 interchange	497	2	58	271						329	329	41	42						41	41	1	7						4	A	4	A	4	A
diverge	CD - Btw MD 124 & MD 117	2235	2	125	784						909	909	49	43						46	46	3	18						10	B	10	B	10	B
weave	CD - Btw MD 117 & I-370	600	3	273	100	841					1214	1214	42	48	43					44	44	7	2	20					9	A	9	A	9	A
basic		4137	2	245	1						246	246	43	43						43	43	6	0						3	A	3	A	3	A
weave		1981	3	213	1079	506					1798	1798	43	42	43					43	43	5	26	12					14	B	14	B	14	B
basic	CD - I-370 interchange	1052	2	433	129						561	561	42	45						43	43	10	3						7	A	7	A	7	A
merge		704	3	71	408	86					565	565	41	42	44					42	42	2	10	2					5	A	5	A	5	A
basic		981	2	171	66						237	237	42	45						44	44	4	2						3	A	3	A	3	A
diverge	CD - Btw I-370 & Shady Grove Rd	483	3	407	676	70					1153	1153	46	45	46					46	46	9	15	2					9	A	9	A	9	A
basic		951	2	1066	78						1144	1144	44	47						45	45	25	2						13	B	13	B	13	B
diverge		580	3	1046	106	214					1365	1365	45	48	50					48	48	24	2	4					10	B	10	B	10	B
merge		243	4	96	926	125	212				1359	1359	36	46	54	50				46	46	3	20	2	4				7	A	9	A	9	A
basic	CD - Shady Grove Rd interchange	903	3	673	271	206					1150	1150	47	55	52					51	51	15	5	4					8	A	8	A	8	A
weave		406	4	79	441	357	272				1149	1149	42	44	59	63				52	52	2	10	6	4				6	A	6	A	6	A
diverge	CD - Btw Shady Grove Rd & MD 28	190	3	334	757	299					1389	1389	43	43	43					43	43	8	18	7					11	B	11	B	11	B
basic		4624	2	1068	338						1406	1406	42	43						43	43	26	8						17	B	17	B	17	B
diverge		2601	3	389	524	765					1678	1678	43	44	43					43	43	9	12	18					13	B	13	B	13	B
weave		177	4	1	397	460	819				1678	1678	35	43	43	44				41	41	0	9	11	19				10	B	10	B	10	B
merge		274	3	79	332	524					935	935	42	43	43					43	43	2	8	12					7	A	7	A	7	A
basic	CD - MD 28 interchange	924	2	213	505						718	718	43	43						43	43	5	12						8	A	8	A	8	A
weave		258	3	640	579	435					1655	1655	37	40	43					40	40	18	15	10					14	B	14	B	14	B
basic		862	2	1109	433						1542	1542	42	43						43	43	27	10						18	C	18	C	18	C
diverge	CD - Btw MD 28 & MD 189	379	3	135	1147	447					1729	1729	43	42	43					43	43	3	28	10					14	B	14	B	14	B
basic		525	2	1273	467						1740	1740	41	43						42	42	31	11						21	C	21	C	21	C
weave		710	3	1089	674	823					2586	2586	41	43	42					42	42	27	16	20					21	B	21	B	21	B
basic		1166	2	715	1395						2110	2110	42	41						41	41	17	35						26	D	26	D	26	D
merge		286	3	197	917	1000					2115	2115	40	42	41					41	41	5	22	25					17	B	17	B	17	B
basic	CD - MD 189 interchange	810	2	625	939						1565	1564	42	42						42	42	15	23						19	C	19	C	19	C
		649	2	604	959						1563		42	42						42		14	23						19	C	19	C		
diverge	CD - Btw MD 189 & Montrose Rd	220	3	344	787	993					2124	2124	41	41	42					41	41	9	19	24					17	B	17	B	17	B
basic		1046	2	1136	997						2133	2137	42	42						42	42	28	24						26	D	26	D	26	D
		2216	2	1196	943						2138		41	42						42		29	23						26	D	26	D		
merge		463	3	1063	1029	52					2144	2144	42	42	43					42	42	26	25	1					17	B	17	B	17	B
basic		950	2	1033	932						1965	1965	42	42						42	42	25	22						24	C	24	C	24	C
merge		402	3	187	991	796					1975	1975	35	41	42					39	39	6	25	19					16	B	16	B	16	B
basic	CD - Montrose Rd interchange	1126	2	574	763						1337	1337	43	42						42	42	14	18						16	B	16	B	16	B
weave		342	3	262	584	762					1607	1607	41	42	42					42	42	7	14	18					13	B	13	B	13	B
basic		1121	2	604	758						1362	1362	43	42						43	43	14	18						16	B	16	B	16	B
diverge	CD - Btw Montrose Rd & Spur Split	262	3	722	924	809					2456	2456	42	42	42					42	42	18	22	19					20	C	20	C	20	C
basic		1304	2	1648	811						2459	2459	44	46						45	45	38	18						28	D	28	D	28	D

I-270 Northbound - 2017 Existing - 8-9 AM

VISSIM Lookup Data				Volume									Speed								Density											
				Volume Per Lane							Across All Lanes	Overall Volume	Speed Per Lane							Across All Lanes	Overall Speed	Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)							Total Volume	Average Volume (veh/hr)	Speed (mph)							Average Speed	Average Speed (mph)	Combined Density (pcphpl)							Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Btw MD 124 & MD 117	7479	4	1059	1100	726	504				3389	3389	63	63	64	65				64	64	17	18	12	8				14	B	14	B	14	B
diverge	Btw MD 117 & I-370	1357	5	1232	1164	1142	691	439			4669	4669	62	62	63	64	65			63	63	20	19	18	11	7			15	B	19	B	19	B
basic		843	5	984	1512	1198	600	383			4677	4677	60	61	62	64	64			62	62	17	25	20	10	6			15	B	15	B	15	B
merge		531	6	37	1034	1901	921	422	343		4657	4657	48	51	60	63	64	65		59	59	1	21	32	15	7	5		13	B	18	B	18	B
basic	I-370 interchange	3616	4	1236	1007	480	345				3068	3067	63	63	64	65				64	64	20	16	8	5				12	B	12	B	12	B
		633	4	921	945	842	351				3059		63	64	64	65				64		15	15	13	5				12	B	12	B		
		1171	4	924	940	799	407				3071		63	63	64	65				64		15	15	13	6				12	B	12	B		
merge		337	5	127	904	836	661	549			3076	3076	46	61	63	64	64			60	60	3	15	13	10	9			10	B	10	B	10	B
basic	Shady Grove Rd interchange	3947	4	800	780	657	543				2781	2781	63	64	64	64				64	64	13	12	10	9				11	B	11	B	11	B
weave	Btw Shady Grove Rd & MD 28	1523	5	461	1364	700	617	530			3673	3675	63	63	63	64	64			63	64	7	22	11	10	8			12	B	12	B	12	B
		1475	5	465	1002	1045	629	533			3674		64	63	63	64	64			64		7	16	17	10	8			12	B	12	B		
		1482	5	363	913	1075	780	546			3677		64	63	63	64	64			64		6	15	17	12	9			12	B	12	B		
basic	MD 28 interchange	3696	4	825	944	907	651				3327	3328	63	63	64	64				64	63	13	15	14	10				13	B	13	B	13	B
		464	4	809	923	883	716				3330		62	62	62	62				62		13	15	14	12				14	B	14	B		
diverge		1405	4	1907	1086	809	610				4413	4413	59	58	62	63				61	61	33	19	13	10				19	B	22	C	22	C
merge		640	5	296	1717	1249	635	525			4423	4423	50	60	62	64	64			60	60	6	29	20	10	8			15	B	19	B	19	B
basic	Btw MD 28 & MD 189	531	4	891	1331	630	528				3381	3382	63	63	64	64				64	64	14	21	10	8				13	B	13	B	13	B
		1407	4	837	1318	693	536				3383		63	63	64	64				64		13	21	11	8				14	B	14	B		
diverge		1536	4	1300	1186	1057	543				4086	4086	62	63	64	64				63	63	21	19	17	9				16	B	19	B	19	B
basic	Btw MD 189 & Montrose Rd	74	4	1262	1184	1052	544				4042	4095	63	63	64	64				64	63	20	19	17	9				16	B	16	B	17	B
		1921	4	925	1484	945	741				4095		63	63	64	64				64		15	24	15	12				16	B	16	B		
		3344	4	731	1420	1159	786				4097		61	62	63	63				62		12	23	19	12				17	B	17	B		
diverge	Montrose Rd interchange	1487	4	1478	1355	870	672				4375	4375	58	62	64	64				62	62	26	22	14	11				18	B	21	C	21	C
basic		425	4	1570	1296	848	660				4372	4379	63	63	64	64				64	64	25	21	13	10				17	B	17	B	17	B
		2955	4	1584	1311	841	644				4379		63	63	64	64				64		26	21	13	10				17	B	17	B		
weave	Btw Montrose Rd & Spur Split	1533	6	2199	1251	1508	1421	859	614		7852	7861	59	63	63	63	64	64		63	63	38	20	24	23	14	10		21	C	21	C	21	C
		1210	6	1976	1565	1664	1347	726	583		7862		61	62	63	63	65	64		63		33	26	27	22	11	9		21	C	21	C		
		1521	6	1292	2212	2110	1029	665	562		7870		63	61	61	63	65	64		63		21	37	35	16	10	9		21	C	21	C		
weave		447	5	1124	2261	2175	1059	643			7262	7262	63	62	62	63	64			63	63	18	37	36	17	10			24	C	24	C	24	C
basic		1229	2	1617	1779						3395	3395	62	63						62	62	26	29						28	D	28	D	28	D
merge	Btw Spur Split & MD 187	736	3	2	1663	1734					3398	3393	55	61	62					59	60	0	28	29					19	B	19	B	19	B
		519	3	10	1635	1739					3385		58	61	62					60		0	27	29					19	B	19	B		
weave		624	5	0	209	1529	1656	571			3965	3965	59	56	62	63	64			61	61	0	4	25	27	9			13	B	13	B	13	B
basic	MD 187 interchange	511	3	1295	1421	582					3298	3309	63	63	64					63	63	21	23	9					18	C	18	C	18	C
		1863	3	1267	1373	672					3312		63	63	64					63		20	22	11					18	C	18	C		
diverge		520	4	560	1032	1287	1192				4071	4071	63	63	63	63				63	63	9	17	21	19				16	B	15	B	15	B
basic		797	3	1539	1327	1184					4050	4050	63	63	63					63	63	25	21	19					22	C	22	C	22	C
diverge	Btw MD 187 & I-495	674	4	425	1642	1354	1183				4605	4605	63	62	62	63				63	63	7	27	22	19				19	B	19	B	19	B
basic		824	3	2058	1366	1171					4595	4628	62	63	64					63	62	34	22	19					25	C	25	C	25	C
		3315	3	2060	1421	1152					4633		61	63	63					63		34	23	18					25	C	25	C		
		1125	3	1803	1830	1004					4636		60	61	61					61		31	30	17					26	D	26	D		
merge		429	4	287	2043	2262	52				4644	4644	47	58	61	65				58	58	6	36	38	1				20	C	27	C	27	C
basic		386	3	1927	1908	25					3860	3860	62	63	63					63	63	31	31	0					21	C	21	C	21	C
basic		500	2	1906	1960						3866	3866	58	58						58	58	33	34						34	D	34	D	34	D
basic	Btw Democracy Blvd & I-495	1862	3	1520	1740	666					3926	3926	63	63	64					63	63	25	28	10					21	C	21	C	21	C
merge		717	4	1427	1775	701	30				3932	3932	63	63	64	57				62	62	23	29	11	1				16	B	13	B	13	B
basic		1170	3	1264	1618	902					3784	3784	63	63	64					63	63	20	26	14					20	C	20	C	20	C
merge		820	4	80	1237	1652	835				3804	3804	48	61	63	64				59	59	2	20	27	13				16	B	16	B	16	B
basic	Democracy Blvd interchange	457	3	1118	1517	783					3418	3418	63	63	64					63	63	18	24	12					18	C	18	C	18	C
merge		887	4	84	1093	1548	741				3466	3466	51	63	63	64				60	60	2	18	25	12				14	B	15	B	15	B
basic		790	3	1082	1519	700					3301	3301	63	63	63					63	63	18	25	11					18	C	18	C	18	C
diverge	Btw Democracy Blvd & I-495	894	4	890	1287	1631	583				4391	4391	58	60	62	62				60	60	16	22	27	10				19	B	21	C	21	C
basic		3447	3	2119	2005	272					4396	4396	50	53	62					55	55	43	39	4					29	D	29	D	29	D
merge	D - Btw Middlebrook Rd & MD 12	468	2	92	738						830	830	41	41						41	41	2	18						10	B	10	B	10	B
merge	CD - MD 124 interchange	497	2	75	377						452	452	41	42						41	41	2	9						6	A	6	A	6	A
diverge	CD - Btw MD 124 & MD 117	2235	2	195	1086						1281	1281	49	43						46	46	4	26						15	B	15	B	15	B
weave	CD - Btw MD 117 & I-370	600	3	486	132	1154					1772	1772	41	48	43					44	44	12	3	27					14	B	14	B	14	B
basic		4137	2	486	5						492	492	42	43						42	42	12	0						6	A	6	A	6	A
weave		1981	3	368	1145	612					2125	2125	42	42	43					42	42	9	28	14					17	B	17	B	17	B
basic	CD - I-370 interchange	1052	2	591	293						884	884	42	44						43	43	14	7						10	A	10	A	10	A
merge		704	3	97	565	225					887	887	40	42	44					42	42	2	14	5					7	A	7	A	7	A
basic		981	2	258	201						458	458	43	44						44	44	6	5						5	A	5	A	5	A
diverge	CD - Btw I-370 & Shady Grove Rd	483	3	495	945	226					1667	1667	46	44	46					46	46	11	22	5					13	B	13	B	13	B
basic		951	2	1416	241						1658	1658	43	47						45	45	34	5						19	C	19	C	19	C
diverge		580	3	1393	275	304					1973	1973	43	47	50					47	47	33	6	6					15	B	15	B	15	B
merge		243	4	163	1240	259	303				1964	1964	31	43	52	51				44	44	5	29	5	6				11	B	13	B	13	B
basic	CD - Shady Grove Rd interchange	903	3	906	438	291					1635	1635	46	54	53					51	51	20	8	6					11	B	11	B	11	B
weave		406	4	115	609	518	393				1636	1636	42	44	59	63				52	52	3	14	9	6				8	A	8	A	8	A
diverge	CD - Btw Shady Grove Rd & MD 28	190	3	498	1203	412					2113	2113	43	43	43					43	43	12	28	10					17	B	17	B	17	B
basic		4624	2	1647	496						2143	2143	41	43						42	42	40	12						26	D	26	D	26	D
diverge		2601	3	563	843	1102					2508	2508	43	43	43					43	43	13	20	26					20	C	20	C	20	C
weave		177	4	2	560	744	1211				2517	2517	33	43	43	43				40	40	0	13	18	28				15	B	15	B	15	B
merge		274	3	104	471	813					1389	1389	42	43	43					42	42	3	11	19					11	B	11	B	11	B
basic	CD - MD 28 interchange	924	2	312	802						1114	1114	43	43						43	43	7	19						13	B	13	B	13	B
weave		258	3	885	808	765					2457	2457	28	33	40					34	34	32	25	19					25	C	25	C	25	C
basic		862	2	1564	766						2331	2331	41	43						42	42	39	18						29	D	29	D	29	D
diverge	CD - Btw MD 28 & MD 189	379	3	254	1629	807					2690	2690	42	40	41					41	41	6	41	20					22	C	22	C	22	C
basic		525	2	1855	849						2704	2704	39	42						41	41	48	20						34	D	34	D	34	D
weave		710	3	1640	1067	1079					3786	3786	40	42	41					41	41	42	26	26					31	C	31	C	31	C
basic		1166	2	1211	1874						3085	3085	40	38						39	39	31	50						40	E	40	E	40	E
merge		286	3	300	1296	1493					3089	3089	33	36	38					36	36	9	36	40					29	D	29	D	29	D
basic	CD - MD 189 interchange	810	2	970	1392						2362	2363	42	41						42	42	23	34						29	D	29	D	29	D
		649	2	933	1431						2364		42	42						42		22	35						29	D	29	D		
diverge	CD - Btw MD 189 & Montrose Rd	220	3	491	1167	1497					3156	3156	40	41	41					41	41	12	29	37					26	C	26	C	26	C
basic		1046	2	1663	1513						3176	3186	41	41						41	41	41	37						39	E	39	E	39	E
		2216	2	1725	1466						3191		40	41						41		43	36						40	E	40	E		
merge		463	3	1571	1534	98					3202	3202	41	42	43					42	42	39	37	2					26	C	26	C	26	C
basic		950	2	1470	1458						2928	2928	41	41						41	41	37	36						36	E	36	E	36	E
merge		402	3	334	1387	1226					2948	2948	25	38	40					34	34	14	37	31					27	C	27	C	27	C
basic	CD - Montrose Rd interchange	1126	2	845	1146						1991	1991	42	42						42	42	20	28						24	C	24	C	24	C
weave		342	3	371	824	1162					2356	2356	39	42	42					41	41	10	20	28					19	B	19	B	19	B
basic		1121	2	816	1167						1983	1983	43	42						42	42	19	28						24	C	24	C	24	C
diverge	CD - Btw Montrose Rd & Spur Split	262	3	957	1197	1275					3429	3429	41	41	42					41	41	24	30	31					28	D	28	D	28	D
basic		1304	2	2139	1292						3431	3431	42	45						43	43	52	29						41	E	41	E	41	E

I-270 Northbound - 2017 Existing - 9-10 AM

VISSIM Lookup Data				Volume									Speed								Density											
				Volume Per Lane							Across All Lanes	Overall Volume	Speed Per Lane							Across All Lanes	Overall Speed	Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)							Total Volume	Average Volume (veh/hr)	Speed (mph)							Average Speed	Average Speed (mph)	Combined Density (pcphpl)							Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Btw MD 124 & MD 117	7479	4	1242	1329	873	602				4045	4045	63	63	64	65				64	64	20	21	14	9				16	B	16	B	16	B
diverge	Btw MD 117 & I-370	1357	5	915	1328	1359	839	525			4965	4965	63	62	63	64	65			63	63	15	22	22	13	8			16	B	20	C	20	C
basic		843	5	795	1591	1425	720	430			4961	4961	58	60	62	63	64			61	61	14	27	23	12	7			17	B	17	B	17	B
merge		531	6	62	1202	1782	1059	469	360		4933	4933	46	47	59	62	64	65		57	57	1	26	30	17	7	6		15	B	19	B	19	B
basic	I-370 interchange	3616	4	1097	942	507	365				2910	2906	63	63	64	65				64	64	18	15	8	6				12	B	12	B	12	B
		633	4	868	903	752	368				2892		63	63	64	65				64		14	14	12	6				12	B	12	B		
		1171	4	871	906	719	404				2899		63	63	64	65				64		14	15	11	6				12	B	12	B		
merge		337	5	101	854	823	623	497			2898	2898	46	62	63	64	64			60	60	2	14	13	10	8			9	A	10	B	10	B
basic	Shady Grove Rd interchange	3947	4	772	781	618	494				2665	2665	63	64	64	64				64	64	12	12	10	8				11	B	11	B	11	B
weave	Btw Shady Grove Rd & MD 28	1523	5	407	1296	710	580	485			3479	3477	63	63	63	64	64			64	64	7	21	11	9	8			11	B	11	B	11	B
		1475	5	396	964	1046	589	483			3477		65	63	63	64	64			64		6	15	17	9	8			11	B	11	B		
		1482	5	294	881	1086	725	490			3476		64	63	63	64	65			64		5	14	17	11	8			11	B	11	B		
basic	MD 28 interchange	3696	4	819	972	840	575				3206	3206	63	63	64	64				64	64	13	16	13	9				13	B	13	B	13	B
		464	4	803	972	806	623				3204		63	63	63	63				63		13	16	13	10				13	B	13	B		
diverge		1405	4	1802	1068	757	566				4193	4193	60	61	63	64				62	62	30	18	12	9				17	B	20	C	20	C
merge		640	5	239	1603	1190	647	514			4193	4193	53	61	62	64	64			61	61	5	27	19	10	8			14	B	17	B	17	B
basic	Btw MD 28 & MD 189	531	4	857	1322	644	519				3343	3343	63	63	64	64				64	64	14	21	10	8				13	B	13	B	13	B
		1407	4	803	1315	699	527				3343		63	63	64	64				64		13	21	11	8				13	B	13	B		
diverge		1536	4	1249	1181	1038	532				3999	3999	62	63	64	64				63	63	20	19	17	8				16	B	19	B	19	B
basic	Btw MD 189 & Montrose Rd	74	4	1208	1183	1027	535				3953	3995	63	63	64	64				64	63	20	19	16	8				16	B	16	B	16	B
		1921	4	886	1462	940	710				3998		63	63	64	64				64		14	24	15	11				16	B	16	B		
		3344	4	709	1397	1140	748				3994		61	62	63	64				62		12	23	18	12				16	B	16	B		
diverge	Montrose Rd interchange	1487	4	1443	1337	840	617				4236	4236	58	62	64	64				62	62	25	22	13	10				18	B	20	C	20	C
basic		425	4	1532	1270	813	607				4221	4220	63	63	64	64				64	64	25	20	13	9				17	B	17	B	17	B
		2955	4	1543	1282	809	587				4220		63	63	64	64				64		25	21	13	9				17	B	17	B		
weave	Btw Montrose Rd & Spur Split	1533	6	2058	1208	1480	1379	816	555		7497	7495	61	63	63	63	64	64		63	63	34	19	24	22	13	9		20	C	20	C	20	C
		1210	6	1835	1513	1621	1305	702	520		7496		61	62	63	63	65	64		63		30	25	26	21	11	8		20	C	20	C		
		1521	6	1174	2127	2035	1002	656	498		7492		63	61	62	64	65	64		63		19	35	34	16	10	8		20	C	20	C		
weave		447	5	985	2139	2106	1067	639			6936	6936	63	62	62	63	64			63	63	16	35	34	17	10			22	C	22	C	22	C
basic		1229	2	1472	1593						3065	3065	63	63						63	63	24	26						25	C	25	C	25	C
merge	Btw Spur Split & MD 187	736	3	1	1518	1544					3063	3057	61	62	62					62	61	0	25	25					17	B	17	B	17	B
		519	3	4	1500	1545					3049		57	62	62					60		0	25	25					17	B	17	B		
weave		624	5	0	158	1420	1479	498			3554	3554	43	56	63	63	64			58	58	0	3	23	24	8			12	B	12	B	12	B
basic	MD 187 interchange	511	3	1232	1293	511					3036	3044	63	63	64					63	63	20	21	8					16	B	16	B	16	B
		1863	3	1210	1256	580					3046		63	63	64					63		20	20	9					16	B	16	B		
diverge		520	4	384	1031	1181	968				3564	3564	63	63	63	64				63	63	6	17	19	15				14	B	14	B	14	B
basic		797	3	1379	1204	961					3544	3544	63	63	64					63	63	22	19	15					19	C	19	C	19	C
diverge	Btw MD 187 & I-495	674	4	341	1468	1219	956				3985	3985	63	63	63	64				63	63	5	24	20	15				16	B	16	B	16	B
basic		824	3	1803	1227	944					3973	3986	63	63	64					63	63	29	20	15					21	C	21	C	22	C
		3315	3	1803	1270	917					3991		62	63	64					63		30	20	15					21	C	21	C		
		1125	3	1613	1611	755					3980		61	62	62					62		27	26	12					22	C	22	C		
merge		429	4	211	1801	1937	30				3980	3980	47	60	62	66				59	59	5	31	32	0				17	B	22	C	22	C
basic		386	3	1696	1668	15					3379	3379	63	63	63					63	63	27	27	0					18	C	18	C	18	C
basic		500	2	1694	1688						3382	3382	58	58						58	58	29	29						29	D	29	D	29	D
basic		1862	3	1519	1742	659					3920	3920	63	63	64					63	63	25	28	10					21	C	21	C	21	C
merge	Btw Spur Split & Democracy Blvd	717	4	1426	1759	696	44				3925	3925	63	63	64	57				62	62	23	28	11	1				16	B	13	B	13	B
basic		1170	3	1260	1608	849					3717	3717	63	63	64					63	63	20	26	13					20	C	20	C	20	C
merge		820	4	73	1245	1650	766				3734	3734	48	62	63	64				59	59	2	21	27	12				15	B	16	B	16	B
basic	Democracy Blvd interchange	457	3	1153	1527	700					3379	3379	63	63	65					63	63	19	25	11					18	C	18	C	18	C
merge		887	4	89	1124	1555	656				3424	3424	50	63	63	65				60	60	2	18	25	10				14	B	15	B	15	B
basic		790	3	1106	1524	614					3244	3244	63	63	64					63	63	18	25	10					17	B	17	B	17	B
diverge	Btw Democracy Blvd & I-495	894	4	845	1293	1638	501				4277	4277	59	61	62	62				61	61	15	22	27	8				18	B	21	C	21	C
basic		3447	3	2079	1952	242					4274	4274	53	55	62					57	57	40	36	4					26	D	26	D	26	D
merge	- Btw Middlebrook Rd & MD 1	468	2	96	684						780	780	41	41						41	41	2	17						10	B	10	B	10	B
merge	CD - MD 124 interchange	497	2	64	330						394	394	41	42						41	41	2	8						5	A	5	A	5	A
diverge	CD - Btw MD 124 & MD 117	2235	2	235	835						1070	1070	45	43						44	44	5	20						12	B	12	B	12	B
weave	CD - Btw MD 117 & I-370	600	3	503	201	867					1571	1571	41	45	43					43	43	12	5	20					12	B	12	B	12	B
basic		4137	2	505	129						634	634	42	43						43	43	12	3						8	A	8	A	8	A
weave		1981	3	429	1405	867					2701	2701	42	42	43					42	42	10	34	21					22	B	22	B	22	B
basic	CD - I-370 interchange	1052	2	645	421						1065	1065	42	43						43	43	16	10						13	B	13	B	13	B
merge		704	3	97	620	353					1070	1070	40	42	43					42	42	2	15	8					9	A	9	A	9	A
basic		981	2	334	332						666	666	43	44						44	44	8	8						8	A	8	A	8	A
diverge	CD - Btw I-370 & Shady Grove Rd	483	3	517	1019	382					1917	1917	45	44	47					45	45	12	24	8					15	B	15	B	15	B
basic		951	2	1497	406						1903	1903	42	48						45	45	36	9						22	C	22	C	22	C
diverge		580	3	1481	433	241					2156	2156	42	48	49					46	46	36	9	5					17	B	17	B	17	B
merge		243	4	140	1357	407	239				2143	2143	33	42	51	49				44	44	4	33	8	5				13	B	15	B	15	B
basic	CD - Shady Grove Rd interchange	903	3	1067	559	236					1862	1862	44	53	51					49	49	25	11	5					13	B	13	B	13	B
weave		406	4	123	821	564	352				1860	1860	42	43	56	62				51	51	3	19	10	6				10	B	10	B	10	B
diverge	CD - Btw Shady Grove Rd & MD 28	190	3	531	1120	735					2387	2387	43	43	42					43	43	13	26	18					19	B	19	B	19	B
basic		4624	2	1601	803						2404	2404	41	42						42	42	39	19						29	D	29	D	29	D
diverge		2601	3	695	963	1010					2669	2669	43	43	42					43	43	17	23	24					21	C	21	C	21	C
weave		177	4	4	699	868	1105				2675	2675	35	43	43	43				41	41	0	17	21	26				16	B	16	B	16	B
merge		274	3	116	606	910					1632	1632	42	43	43					42	42	3	14	22					13	B	13	B	13	B
basic	CD - MD 28 interchange	924	2	450	891						1341	1341	43	43						43	43	11	21						16	B	16	B	16	B
weave		258	3	845	857	872					2575	2575	32	37	42					37	37	27	24	21					24	C	24	C	24	C
basic		862	2	1539	861						2400	2400	41	43						42	42	38	20						29	D	29	D	29	D
diverge	CD - Btw MD 28 & MD 189	379	3	245	1603	894					2742	2742	42	40	41					41	41	6	40	22					23	C	23	C	23	C
basic		525	2	1824	931						2755	2755	39	42						41	41	47	22						35	E	35	E	35	E
weave		710	3	1640	1083	916					3638	3638	40	42	42					41	41	42	26	22					30	C	30	C	30	C
basic		1166	2	1187	1787						2974	2974	41	39						40	40	30	47						38	E	38	E	38	E
merge		286	3	260	1279	1438					2977	2977	35	39	39					38	38	8	34	38					26	C	26	C	26	C
basic	CD - MD 189 interchange	810	2	1001	1341						2342	2341	42	42						42	42	24	33						29	D	29	D	28	D
		649	2	967	1372						2339		42	42						42		23	33						28	D	28	D		
diverge	CD - Btw MD 189 & Montrose Rd	220	3	436	1171	1434					3042	3042	41	41	41					41	41	11	29	35					25	C	25	C	25	C
basic		1046	2	1605	1449						3054	3052	41	42						41	41	40	35						38	E	38	E	38	E
		2216	2	1647	1404						3052		41	42						41		41	34						38	E	38	E		
merge		463	3	1491	1464	91					3046	3046	41	42	42					42	42	37	36	2					25	C	25	C	25	C
basic		950	2	1392	1397						2788	2788	41	41						41	41	35	34						34	D	34	D	34	D
merge		402	3	279	1321	1206					2806	2806	27	39	41					35	35	11	35	30					25	C	25	C	25	C
basic	CD - Montrose Rd interchange	1126	2	849	1148						1997	1997	42	42						42	42	20	28						24	C	24	C	24	C
weave		342	3	308	833	1144					2285	2285	39	42	42					41	41	8	20	28					19	B	19	B	19	B
basic		1121	2	805	1132						1937	1937	43	42						42	42	19	27						23	C	23	C	23	C
diverge	CD - Btw Montrose Rd & Spur Split	262	3	876	1150	1235					3261	3261	41	41	42					41	41	22	29	30					27	C	27	C	27	C
basic		1304	2	2013	1246						3259	3259	43	45						44	44	48	28						38	E	38	E	38	E

Arterial Segments - 2017 Existing - 6-7 AM

VISSIM Lookup Data				Volume									Speed									Density									
				Volume Per Lane							Across All Lanes	Overall Volume	Speed Per Lane							Across All Lanes	Overall Speed	Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)							Total Volume	Average Volume (veh/hr)	Speed (mph)							Average Speed	Average Speed (mph)	Combined Density (pcphpl)							Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
diverge	MD 117 Eastbound at I-270	495	3	884	420	354					1657	1657	31	32	33					32	32	29	13	11					18	B	18	B	18	B
diverge	I-370 Eastbound at I-270	623	4	0	734	223	94				1051	1051	0	50	49	52				38	38	0	15	5	2				5	A	5	A	5	A
diverge		625	3	101	46	17					164	164	53	53	53					53	53	2	1	0					1	A	1	A	1	A
weave		667	5	267	996	591	65	15			1934	1934	52	52	52	54	54			53	53	5	19	11	1	0			8	A	8	A	8	A
diverge	I-370 Westbound at I-270	461	4	572	208	108	1736				2624	2624	53	53	53	51				53	53	11	4	2	35				13	B	6	A	6	A
diverge		1411	3	17	49	1801					1868	1868	54	53	51					53	53	0	1	36					12	B	12	B	12	B
merge		577	3	416	93	36					546	546	46	51	54					50	50	9	2	1					4	A	4	A	4	A
diverge	Shady Grove Rd Eastbound at I-270	248	4	112	249	159	125				646	646	37	37	38	38				37	37	3	7	4	3				4	A	5	A	5	A
diverge		494	4	75	166	220	213				674	674	37	37	37	36				37	37	2	5	6	6				5	A	4	A	4	A
merge		271	4	76	334	220	204				834	834	35	37	37	37				37	37	2	9	6	6				6	A	6	A	6	A
diverge	Shady Grove Rd Westbound at I-270	490	4	369	216	127	102				814	814	17	21	21	20				20	20	22	10	6	5				11	B	13	B	13	B
weave		615	4	489	153	206	217				1064	1064	33	36	35	34				35	35	15	4	6	7				8	A	8	A	8	A
diverge	MD 28 Eastbound at I-270	1745	3	879	311	73					1263	1263	21	26	28					25	25	45	12	3					20	C	20	C	20	C
diverge		487	3	42	388	318					748	748	29	27	27					27	27	1	15	12					9	A	9	A	9	A
diverge	MD 28 Westbound at I-270	320	3	79	47	0					125	125	19	19	0					13	13	4	3	0					2	A	2	A	2	A
		101	3	79	47	0					126	126	25	24	0					16	16	3	2	0					2	A	2	A		
		43	3	78	215	1					295	295	27	21	19					22	22	3	10	0					4	A	4	A		
weave		489	3	140	551	126					816	816	27	25	25					26	26	5	22	5					11	A	11	A	11	A
merge		235	3	453	255	89					797	797	25	26	27					26	26	18	10	3					11	B	11	B	11	B
diverge	MD 189 Eastbound at I-270	249	3	149	105	171					425	425	27	27	27					27	27	6	4	6					5	A	5	A	5	A
merge		72	3	232	109	170					511	511	27	28	27					28	28	9	4	6					6	A	6	A	6	A
		334	3	231	119	170					520	520	27	28	27					28	28	9	4	6					6	A	6	A		
diverge	MD 189 Westbound at I-270	361	3	96	90	162					348	348	27	28	27					27	27	4	3	6					4	A	4	A	4	A
merge		519	3	49	370	42					461	461	28	27	29					28	28	2	14	1					6	A	6	A	6	A
diverge	Montrose Rd Eastboundat I-270	816	3	108	40	1					150	150	38	38	38					38	38	3	1	0					1	A	1	A	1	A
weave		314	3	261	701	25					987	987	36	37	37					36	36	7	19	1					9	A	9	A	9	A
merge		1393	3	522	583	291					1397	1397	37	37	39					38	38	14	16	8					13	B	13	B	13	B
diverge	Montrose Rd Westbound at I-270	315	3	228	690	48					966	966	36	35	30					34	34	6	20	2					9	A	9	A	9	A
weave		405	3	542	303	61					906	906	32	35	34					34	34	17	9	2					9	A	9	A	9	A
merge		191	3	87	309	94					491	491	32	36	36					35	35	3	9	3					5	A	5	A	5	A
diverge	MD 187 Northbound at I-270 East Spur	292	6	108	62	24	12	25	7		238	238	8	7	8	7	10	5		8	8	13	8	4	2	3	2		5	A	8	A	8	A
merge		263	5	77	267	72	59	51			526	526	33	36	38	38	38			37	37	2	7	2	2	1			3	A	4	A	4	A
diverge	MD 187 Southbound at I-270 East Spur	302	4	144	204	158	227				734	734	37	38	38	38				38	38	4	5	4	6				5	A	5	A	5	A
diverge		165	5	202	147	152	170	57			728	728	35	37	37	37	37			37	37	6	4	4	5	2			4	A	5	A	5	A
diverge		161	6	207	145	149	118	83	32		734	734	28	35	35	35	36	35		34	34	8	4	4	3	2	1		4	A	5	A	5	A
diverge	Democracy Blvd Eastbound at I-270 West Spur	2296	3	210	49	14					273	273	42	41	41					41	41	5	1	0					2	A	2	A	2	A
diverge		605	3	98	100	91					290	290	30	28	28					29	29	3	4	3					4	A	4	A	4	A
diverge	Democracy Blvd Westbound at I-270 West Spur	857	4	80	37	21	38				175	175	43	44	43	43				43	43	2	1	0	1				1	A	1	A	1	A
merge		2127	4	123	83	59	44				309	309	41	43	43	43				43	43	3	2	1	1				2	A	2	A	2	A
diverge	VA 193 Eastbound at I-270 East Spur	482	3	147	467	295					909	909	28	18	13					20	20	5	26	22					18	B	18	B	18	B
merge		299	3	250	422	47					719	719	26	32	34					31	31	10	13	1					8	A	8	A	8	A
diverge	VA 193 Westbound at I-270 East Spur	951	3	121	47	12					180	180	31	13	6					17	17	4	4	2					3	A	3	A	3	A
merge		452	2	293	193						486	486	30	33						31	31	10	6						8	A	8	A	8	A
merge	G.W. Memorial Pkwy Eastbound at I-495	981	2	1359	1391						2750	2750	45	37						41	41	31	38						34	D	34	D	34	D
diverge	G.W. Memorial Pkwy Westbound at I-495	2359	2	1703	539						2242	2242	45	47						46	46	38	12						25	C	25	C	25	C
weave	Clara Barton Pkwy Eastbound at I-495	6436	2	129	216						346	346	48	48						48	48	3	5						4	A	4	A	4	A
diverge	Clara Barton Pkwy Westbound at I-495	3047	2	179	5						185	185	48	48						48	48	4	0						2	A	2	A	2	A
merge		3254	2	245	157						402	402	48	47						48	48	5	3						4	A	4	A	4	A
diverge	MD 190 Eastbound at I-495	550	2	566	411						977	977	42	42						42	42	14	10						12	B	12	B	12	B
weave		554	4	103	653	282	153				1190	1190	40	42	43	40				41	41	3	16	7	4				7	A	7	A	7	A
merge		582	3	512	682	368					1562	1562	42	42	44					43	43	12	16	9					12	B	12	B	12	B
diverge	MD 190 Westbound at I-495	450	3	207	342	162					711	711	41	41	41					41	41	5	8	4					6	A	6	A	6	A
weave		316	3	227	293	107					627	627	39	41	42					40	40	6	7	3					5	A	5	A	5	A
diverge	MD 187 Northbound at I-495	790	3	137	91	145					373	373	28	27	13					23	23	5	3	11					7	A	7	A	7	A
merge		1654	3	146	112	56					314	314	36	38	38					37	37	4	3	2					3	A	3	A	3	A
diverge	MD 187 Southbound at I-495	1642	3	548	373	415					1336	1336	31	29	29					30	30	18	13	14					15	B	15	B	15	B
merge		796	3	557	525	383					1465	1465	35	36	36					36	36	16	15	11					14	B	14	B	14	B
weave	MD 355 Northbound at I-495	1654	3	49	44	206					300	300	36	36	34					35	35	1	1	6					3	A	3	A	3	A
weave		370	4	223	667	40	15				945	945	43	43	43	42				43	43	5	16	1	0				6	A	6	A	6	A
diverge	MD 355 Southbound at I-495	204	4	776	449	492	333				2050	2050	42	43	40	38				41	41	19	11	13	9				13	B	11	B	11	B
merge		781	4	908	724	552	470				2653	2653	23	23	22	22				23	23	39	33	25	22				30	D	32	D	32	D

Arterial Segments - 2017 Existing - 7-8 AM

VISSIM Lookup Data				Volume									Speed								Density							
				Volume Per Lane							Across All Lanes	Overall Volume	Speed Per Lane							Across All Lanes	Overall Speed	Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)							Total Volume	Average Volume (veh/hr)	Speed (mph)							Average Speed	Average Speed (mph)	Combined Density (pcphpl)							Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
diverge	MD 117 Eastbound at I-270	495	3	944	544	540					2027	2027	25	26	28					26	26	44	27	23					32	D	32	D	32	D
diverge	I-370 Eastbound	623	4	0	1071	557	478				2105	2105	0	48	45	50				36	36	0	22	13	10				11	B	11	B	11	B
diverge		625	3	281	502	373					1155	1155	51	52	52					52	52	6	10	7					8	A	8	A	8	A
weave		667	5	348	1260	905	490	382			3385	3385	51	52	52	53	53			52	52	7	25	18	9	7			13	B	13	B	13	B
diverge	I-370 Westbound at I-270	461	4	957	559	560	1203				3278	3278	48	44	16	12				30	30	20	13	43	111				47	F	25	C	25	C
diverge		1411	3	300	485	1209					1994	1994	46	10	11					22	22	7	56	115					60	F	60	F	60	F
merge		577	3	678	422	177					1277	1277	46	52	54					51	51	15	8	3					9	A	9	A	9	A
diverge	Shady Grove Rd Eastbound at I-270	248	4	227	442	190	187				1046	1046	36	35	36	36				36	36	6	13	5	5				7	A	8	A	8	A
diverge		494	4	211	223	311	335				1080	1080	35	36	36	35				35	35	6	6	9	10				8	A	7	A	7	A
merge		271	4	82	393	310	311				1095	1095	35	37	37	37				36	36	2	11	9	9				8	A	7	A	7	A
diverge	Shady Grove Rd Westbound at I-270	490	4	362	297	271	260				1191	1191	19	21	20	20				20	20	20	15	14	13				15	B	16	B	16	B
weave		615	4	440	325	401	418				1584	1584	34	33	33	33				33	33	13	10	12	13				12	B	12	B	12	B
diverge	MD 28 Eastbound at I-270	1745	3	699	445	391					1535	1535	7	13	27					15	15	127	42	15					61	F	61	F	61	F
diverge		487	3	87	423	580					1089	1089	28	27	26					27	27	3	16	23					14	B	14	B	14	B
diverge	MD 28 Westbound at I-270	320	3	245	182	5					431	431	14	15	8					12	12	17	13	1					10	B	10	B	9	A
		101	3	228	166	21					414	414	24	24	21					23	23	10	7	1					6	A	6	A		
		43	3	225	387	25					637	637	26	22	26					25	25	9	18	1					9	A	9	A		
weave		489	3	267	819	267					1353	1353	27	25	25					26	26	10	33	11					18	B	18	B	18	B
merge		235	3	641	420	175					1236	1236	25	25	27					26	26	26	17	7					16	B	16	B	16	B
diverge	MD 189 Eastbound at I-270	249	3	343	264	518					1125	1125	27	27	27					27	27	13	10	20					14	B	14	B	14	B
merge		72	3	447	220	295					962	962	27	28	27					27	27	17	8	11					12	B	12	B	12	B
		334	3	444	241	295					980	980	27	28	27					27	27	17	9	11					12	B	12	B		
diverge	MD 189 Westbound at I-270	361	3	238	339	412					989	989	27	27	26					26	26	9	13	16					13	B	13	B	13	B
merge		519	3	93	645	260					998	998	27	26	27					27	27	4	25	10					13	B	13	B	13	B
diverge	Montrose Rd Eastboundat I-270	816	3	472	358	106					936	936	37	38	38					38	38	13	10	3					8	A	8	A	8	A
weave		314	3	379	654	95					1128	1128	34	36	36					35	35	11	19	3					11	A	11	A	11	A
merge		1393	3	547	517	307					1371	1371	37	37	38					38	38	15	14	8					12	B	12	B	12	B
diverge	Montrose Rd Westbound at I-270	315	3	593	935	20					1549	1549	34	34	31					33	33	17	28	1					15	B	15	B	15	B
weave		405	3	793	399	33					1224	1224	28	33	34					32	32	28	12	1					14	B	14	B	14	B
merge		191	3	72	306	92					470	470	32	37	38					36	36	2	8	3					4	A	4	A	4	A
diverge	MD 187 Northbound at I-270 East Spur	292	6	230	170	155	134	106	37		831	831	9	7	7	6	8	4		7	7	27	26	24	22	13	10		20	C	26	C	26	C
merge		263	5	122	442	195	185	184			1128	1128	33	36	37	37	37			36	36	4	13	5	5	5			6	A	7	A	7	A
diverge	MD 187 Southbound at I-270 East Spur	302	4	486	614	529	641				2271	2271	34	35	35	35				35	35	15	18	15	18				17	B	16	B	16	B
diverge		165	5	703	437	485	526	100			2251	2251	26	29	30	31	35			30	30	28	15	16	17	3			16	B	20	C	20	C
diverge		161	6	747	418	461	448	144	46		2264	2264	17	12	13	13	35	32		20	20	46	37	37	36	4	1		27	C	40	E	40	E
diverge	Democracy Blvd Eastbound at I-270 West Spur	2296	3	465	185	141					791	791	41	41	40					41	41	12	5	4					7	A	7	A	7	A
diverge		605	3	239	232	241					712	712	25	23	23					24	24	10	10	11					10	B	10	B	10	B
diverge	Democracy Blvd Westbound at I-270 West Spur	857	4	199	83	50	103				434	434	43	43	43	43				43	43	5	2	1	2				3	A	3	A	3	A
merge		2127	4	109	106	87	78				380	380	41	43	43	43				42	42	3	3	2	2				2	A	2	A	2	A
diverge	VA 193 Eastbound at I-270 East Spur	482	3	231	614	417					1261	1261	19	12	10					13	13	13	53	44					37	E	37	E	37	E
merge		299	3	355	677	111					1143	1143	26	32	34					30	30	14	22	3					13	B	13	B	13	B
diverge	VA 193 Westbound at I-270 East Spur	951	3	324	231	179					734	734	27	10	9					15	15	12	23	20					19	B	19	B	19	B
merge		452	2	364	413						776	776	30	32						31	31	12	13						13	B	13	B	13	B
merge	G.W. Memorial Pkwy Eastbound at I-495	981	2	961	1210						2171	2171	45	37						41	41	22	33						28	D	28	D	28	D
diverge	G.W. Memorial Pkwy Westbound at I-495	2359	2	1055	921						1976	1976	7	10						8	8	146	97						122	F	122	F	122	F
weave	Clara Barton Pkwy Eastbound at I-495	6436	2	507	547						1055	1055	48	47						48	48	11	12						11	B	11	B	11	B
diverge	Clara Barton Pkwy Westbound at I-495	3047	2	327	16						343	343	48	48						48	48	7	0						4	A	4	A	4	A
merge		3254	2	274	186						460	460	48	48						48	48	6	4						5	A	5	A	5	A
diverge	MD 190 Eastbound at I-495	550	2	965	779						1743	1743	40	40						40	40	24	20						22	C	22	C	22	C
weave		554	4	158	1033	543	303				2038	2038	40	42	43	37				40	40	4	25	13	8				13	B	13	B	13	B
merge		582	3	642	1026	677					2345	2345	42	42	43					42	42	15	25	16					19	B	19	B	19	B
diverge	MD 190 Westbound at I-495	450	3	367	606	292					1265	1265	40	40	41					40	40	9	15	7					11	B	11	B	11	B
weave		316	3	372	431	234					1037	1037	36	40	41					39	39	10	11	6					9	A	9	A	9	A
diverge	MD 187 Northbound at I-495	790	3	348	361	379					1088	1088	14	15	12					14	14	25	25	32					27	C	27	C	27	C
merge		1654	3	384	358	150					891	891	36	37	38					37	37	11	10	4					8	A	8	A	8	A
diverge	MD 187 Southbound at I-495	1642	3	928	655	721					2304	2304	25	24	24					25	25	37	28	30					32	D	32	D	32	D
merge		796	3	842	823	580					2244	2244	35	36	36					36	36	25	23	17					21	C	21	C	21	C
weave	MD 355 Northbound at I-495	1654	3	242	297	649					1188	1188	35	35	33					34	34	7	9	20					12	A	12	A	12	A
weave		370	4	234	755	263	201				1453	1453	42	42	43	43				43	43	6	18	6	5				9	A	9	A	9	A
diverge	MD 355 Southbound at I-495	204	4	764	535	597	577				2473	2473	42	42	37	36				39	39	18	13	17	17				16	B	15	B	15	B
merge		781	4	896	730	571	465				2662	2662	23	23	22	22				23	23	39	33	26	21				30	D	33	D	33	D

Arterial Segments - 2017 Existing - 8-9 AM

VISSIM Lookup Data				Volume									Speed								Density									
				Volume Per Lane							Across All Lanes	Overall Volume	Speed Per Lane							Across All Lanes	Overall Speed	Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)							Total Volume	Average Volume (veh/hr)	Speed (mph)							Average Speed	Average Speed (mph)	Combined Density (pcphpl)							Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
diverge	MD 117 Eastbound at I-270	495	3	919	509	564					1992	1992	24	23	26					24	24	44	28	26					33	D	33	D	33	D
diverge	I-370 Eastbound	623	4	0	990	520	446				1956	1956	0	49	47	51				37	37	0	20	11	9				10	B	10	B	10	B
diverge		625	3	348	461	315					1124	1124	51	51	53					52	52	7	9	6					7	A	7	A	7	A
weave		667	5	376	1358	1048	465	319			3566	3566	51	51	52	53	53			52	52	7	27	20	9	6			14	B	14	B	14	B
diverge	I-370 Westbound at I-270	461	4	996	690	720	664				3069	3069	43	37	9	4				23	23	24	19	93	178				79	F	45	F	45	F
diverge		1411	3	468	660	710					1839	1839	35	6	4					15	15	16	126	174					105	F	105	F	105	F
merge		577	3	957	598	131					1687	1687	45	52	54					50	50	22	12	2					12	B	12	B	12	B
diverge	Shady Grove Rd Eastbound at I-270	248	4	278	568	260	252				1358	1358	35	31	35	35				34	34	8	18	8	7				10	B	11	B	11	B
diverge		494	4	287	295	393	425				1400	1400	33	35	35	35				35	35	9	9	11	13				10	B	10	B	10	B
merge		271	4	83	445	398	398				1325	1325	34	37	37	37				36	36	2	12	11	11				9	A	9	A	9	A
diverge	Shady Grove Rd Westbound at I-270	490	4	432	333	292	303				1359	1359	18	20	19	20				19	19	25	17	15	16				18	B	19	B	19	B
weave		615	4	499	440	514	570				2023	2023	34	30	29	29				30	30	15	15	18	20				17	B	17	B	17	B
diverge	MD 28 Eastbound at I-270	1745	3	467	377	514					1357	1357	3	7	26					12	12	167	55	20					81	F	81	F	81	F
diverge		487	3	97	378	690					1166	1166	28	27	26					27	27	4	14	27					15	B	15	B	15	B
diverge	MD 28 Westbound at I-270	320	3	302	407	51					759	759	13	15	8					12	12	23	28	7					19	B	19	B	17	B
		101	3	290	356	105					751	751	24	24	22					24	24	12	15	5					11	B	11	B		
		43	3	287	621	116					1024	1024	26	23	27					25	25	11	28	4					14	B	14	B		
weave		489	3	417	1123	548					2087	2087	26	25	24					25	25	16	47	23					29	C	29	C	29	C
merge		235	3	956	685	315					1956	1956	25	25	26					25	25	39	28	12					26	C	26	C	26	C
diverge	MD 189 Eastbound at I-270	249	3	383	301	675					1359	1359	27	27	26					27	27	15	11	26					17	B	17	B	17	B
merge		72	3	689	250	313					1252	1252	27	28	27					27	27	26	9	12					16	B	16	B	16	B
		334	3	671	293	315					1278	1278	27	28	27					27	27	25	11	12					16	B	16	B		
diverge	MD 189 Westbound at I-270	361	3	253	344	452					1049	1049	27	27	26					26	26	10	13	18					13	B	13	B	13	B
merge		519	3	104	713	247					1064	1064	27	26	27					27	27	4	28	9					14	B	14	B	14	B
diverge	Montrose Rd Eastboundat I-270	816	3	602	599	270					1470	1470	37	37	38					37	37	17	16	7					13	B	13	B	13	B
weave		314	3	552	912	324					1788	1788	32	34	36					34	34	18	27	9					18	B	18	B	18	B
merge		1393	3	669	719	565					1954	1954	37	37	38					37	37	18	20	15					18	B	18	B	18	B
diverge	Montrose Rd Westbound at I-270	315	3	895	934	170					1999	1999	30	32	37					33	33	30	30	5					21	C	21	C	21	C
weave		405	3	776	480	196					1452	1452	26	32	37					32	32	30	15	5					17	B	17	B	17	B
merge		191	3	63	366	266					696	696	32	37	38					36	36	2	10	7					6	A	6	A	6	A
diverge	MD 187 Northbound at I-270 East Spur	292	6	312	275	276	259	145	57		1324	1324	6	6	6	6	8	3		6	6	49	48	49	47	19	18		38	E	49	F	49	F
merge		263	5	114	505	307	307	306			1538	1538	32	36	36	37	37			35	35	4	14	9	8	8			9	A	9	A	9	A
diverge	MD 187 Southbound at I-270 East Spur	302	4	492	715	660	785				2652	2652	33	30	30	30				31	31	15	24	23	27				22	C	21	C	21	C
diverge		165	5	722	551	596	628	131			2629	2629	24	18	19	20	32			23	23	30	33	34	33	4			27	C	32	D	32	D
diverge		161	6	769	530	566	551	165	59		2640	2640	16	7	8	8	35	31		17	17	48	74	74	74	5	2		46	F	66	F	66	F
diverge	Democracy Blvd Eastbound at I-270 West Spur	2296	3	675	334	310					1320	1320	39	39	38					39	39	18	9	8					12	B	12	B	12	B
diverge		605	3	421	427	446					1293	1293	21	20	20					20	20	21	22	22					22	C	22	C	22	C
diverge	Democracy Blvd Westbound at I-270 West Spur	857	4	278	267	164	230				940	940	43	43	43	43				43	43	7	6	4	5				6	A	6	A	6	A
merge		2127	4	158	252	232	155				797	797	41	43	43	43				42	42	4	6	6	4				5	A	5	A	5	A
diverge	VA 193 Eastbound at I-270 East Spur	482	3	251	547	427					1225	1225	15	8	7					10	10	19	68	66					51	F	51	F	51	F
merge		299	3	226	420	66					712	712	26	32	34					31	31	9	13	2					8	A	8	A	8	A
diverge	VA 193 Westbound at I-270 East Spur	951	3	366	238	188					792	792	19	11	9					13	13	24	23	21					23	C	23	C	23	C
merge		452	2	368	369						737	737	30	32						31	31	13	12						12	B	12	B	12	B
merge	G.W. Memorial Pkwy Eastbound at I-495	981	2	585	1086						1672	1672	44	37						41	41	13	30						22	C	22	C	22	C
diverge	G.W. Memorial Pkwy Westbound at I-495	2359	2	986	1048						2034	2034	6	10						8	8	159	112						136	F	136	F	136	F
weave	Clara Barton Pkwy Eastbound at I-495	6436	2	426	509						935	935	48	47						48	48	9	11						10	B	10	B	10	B
diverge	Clara Barton Pkwy Westbound at I-495	3047	2	394	25						419	419	48	48						48	48	8	1						4	A	4	A	4	A
merge		3254	2	131	155						286	286	48	47						48	48	3	3						3	A	3	A	3	A
diverge	MD 190 Eastbound at I-495	550	2	1018	795						1812	1812	40	39						40	40	26	21						23	C	23	C	23	C
weave		554	4	116	815	410	398				1739	1739	40	42	43	36				40	40	3	20	10	11				11	A	11	A	11	A
merge		582	3	638	842	502					1982	1982	42	42	43					43	43	15	20	12					16	B	16	B	16	B
diverge	MD 190 Westbound at I-495	450	3	536	795	336					1667	1667	38	39	40					39	39	14	21	9					15	B	15	B	15	B
weave		316	3	530	449	209					1188	1188	35	39	41					38	38	15	12	5					11	A	11	A	11	A
diverge	MD 187 Northbound at I-495	790	3	446	449	401					1296	1296	10	10	7					9	9	46	49	66					54	F	54	F	54	F
merge		1654	3	547	484	183					1214	1214	36	37	38					37	37	15	13	5					11	B	11	B	11	B
diverge	MD 187 Southbound at I-495	1642	3	888	676	736					2300	2300	22	20	19					20	20	42	36	41					40	E	40	E	40	E
merge		796	3	953	845	476					2274	2274	35	36	36					36	36	28	24	13					22	C	22	C	22	C
weave	MD 355 Northbound at I-495	1654	3	305	377	790					1471	1471	35	34	33					34	34	9	11	24					15	B	15	B	15	B
weave		370	4	243	793	316	235				1586	1586	43	42	43	43				43	43	6	19	8	6				9	A	9	A	9	A
diverge	MD 355 Southbound at I-495	204	4	890	675	681	650				2896	2896	42	41	35	35				38	38	21	17	20	19				19	B	18	B	18	B
merge		781	4	961	823	694	555				3033	3033	23	23	23	22				23	23	43	37	31	25				34	D	37	E	37	E

Arterial Segments - 2017 Existing - 9-10 AM

VISSIM Lookup Data				Volume									Speed								Density							
				Volume Per Lane							Across All Lanes	Overall Volume	Speed Per Lane							Across All Lanes	Overall Speed	Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)							Total Volume	Average Volume (veh/hr)	Speed (mph)							Average Speed	Average Speed (mph)	Combined Density (pcphpl)							Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
diverge	MD 117 Eastbound at I-270	495	3	852	427	470					1749	1749	29	28	30					29	29	31	16	16					21	C	21	C	21	C
diverge	I-370 Eastbound	623	4	0	858	451	364				1673	1673	0	50	49	52				38	38	0	17	9	7				8	A	8	A	8	A
diverge		625	3	325	382	242					950	950	52	52	53					52	52	6	7	5					6	A	6	A	6	A
weave		667	5	309	1197	949	384	246			3086	3086	52	52	52	53	53			52	52	6	24	19	7	5			12	B	12	B	12	B
diverge	I-370 Westbound at I-270	461	4	1264	746	762	1659				4431	4431	48	47	28	17				35	35	27	16	29	107				45	F	24	C	24	C
diverge		1411	3	476	574	1788					2838	2838	52	24	19					32	32	9	27	102					46	F	46	F	46	F
merge		577	3	907	665	335					1907	1907	45	52	54					50	50	21	13	6					13	B	13	B	13	B
diverge	Shady Grove Rd Eastbound at I-270	248	4	279	550	242	241				1313	1313	35	33	35	35				35	35	8	17	7	7				10	B	11	B	11	B
diverge		494	4	261	287	382	415				1345	1345	34	35	35	35				35	35	8	8	11	12				10	B	9	A	9	A
merge		271	4	118	498	392	390				1397	1397	33	36	37	36				36	36	4	14	11	11				10	B	9	A	9	A
diverge	Shady Grove Rd Westbound at I-270	490	4	426	286	237	228				1177	1177	18	21	20	20				20	20	24	14	12	12				15	B	17	B	17	B
weave		615	4	508	366	424	467				1765	1765	34	31	31	30				31	31	15	12	14	16				14	B	14	B	14	B
diverge	MD 28 Eastbound at I-270	1745	3	1061	499	585					2145	2145	9	14	26					16	16	125	36	23					61	F	61	F	61	F
diverge		487	3	127	495	811					1434	1434	28	27	26					27	27	5	19	32					19	B	19	B	19	B
diverge	MD 28 Westbound at I-270	320	3	326	616	116					1058	1058	12	14	8					11	11	27	44	16					29	D	29	D	25	C
		101	3	309	539	196					1044	1044	24	24	23					24	24	13	22	9					15	B	15	B		
		43	3	305	807	209					1321	1321	26	23	27					25	25	12	35	8					18	B	18	B		
weave		489	3	484	1106	677					2267	2267	25	24	24					24	24	20	47	29					32	C	32	C	32	C
merge		235	3	967	749	341					2057	2057	25	25	27					25	25	40	30	13					28	D	28	D	28	D
diverge	MD 189 Eastbound at I-270	249	3	287	274	608					1169	1169	27	27	26					27	27	11	10	23					15	B	15	B	15	B
merge		72	3	595	251	315					1162	1162	27	28	27					27	27	23	9	12					15	B	15	B	15	B
		334	3	586	284	315					1185	1185	27	28	27					27	27	22	10	12					15	B	15	B		
diverge	MD 189 Westbound at I-270	361	3	224	316	370					909	909	27	27	26					27	27	9	12	14					12	B	12	B	12	B
merge		519	3	94	657	256					1007	1007	27	26	27					27	27	4	25	10					13	B	13	B	13	B
diverge	Montrose Rd Eastboundat I-270	816	3	542	622	322					1486	1486	37	37	38					37	37	15	17	9					14	B	14	B	14	B
weave		314	3	600	1092	455					2147	2147	31	34	36					34	34	19	33	13					22	B	22	B	22	B
merge		1393	3	652	848	738					2238	2238	37	37	37					37	37	18	23	20					20	C	20	C	20	C
diverge	Montrose Rd Westbound at I-270	315	3	748	882	299					1929	1929	31	34	36					34	34	24	27	8					20	C	20	C	20	C
weave		405	3	716	441	312					1469	1469	28	33	37					33	33	26	13	9					16	B	16	B	16	B
merge		191	3	84	398	353					835	835	31	37	37					35	35	3	11	10					8	A	8	A	8	A
diverge	MD 187 Northbound at I-270 East Spur	292	6	316	263	273	255	127	45		1279	1279	8	7	7	6	8	4		7	7	42	41	41	40	16	12		32	D	41	F	41	F
merge		263	5	101	466	307	315	303			1493	1493	32	35	36	37	37			35	35	3	13	9	9	8			8	A	8	A	8	A
diverge	MD 187 Southbound at I-270 East Spur	302	4	376	609	543	666				2195	2195	35	34	34	34				35	35	11	18	16	20				16	B	15	B	15	B
diverge		165	5	548	467	510	552	105			2182	2182	30	25	26	27	34			28	28	19	19	20	21	3			16	B	19	B	19	B
diverge		161	6	578	463	485	489	144	48		2207	2207	21	9	10	10	35	31		19	19	28	51	52	51	4	2		31	D	43	F	43	F
diverge	Democracy Blvd Eastbound at I-270 West Spur	2296	3	565	268	237					1071	1071	40	39	39					39	39	15	7	6					9	A	9	A	9	A
diverge		605	3	388	371	379					1139	1139	22	20	20					21	21	19	19	19					19	B	19	B	19	B
diverge	Democracy Blvd Westbound at I-270 West Spur	857	4	255	211	128	204				797	797	43	43	43	43				43	43	6	5	3	5				5	A	5	A	5	A
merge		2127	4	243	295	232	135				905	905	41	43	43	43				42	42	6	7	5	3				5	A	6	A	6	A
diverge	VA 193 Eastbound at I-270 East Spur	482	3	225	508	356					1089	1089	21	13	9					14	14	11	41	38					30	D	30	D	30	D
merge		299	3	173	470	61					704	704	26	32	34					31	31	7	15	2					8	A	8	A	8	A
diverge	VA 193 Westbound at I-270 East Spur	951	3	358	186	133					678	678	19	11	9					13	13	23	17	14					18	B	18	B	18	B
merge		452	2	327	301						628	628	30	33						31	31	11	9						10	B	10	B	10	B
merge	G.W. Memorial Pkwy Eastbound at I-495	981	2	502	1051						1553	1553	44	37						40	40	12	29						20	C	20	C	20	C
diverge	G.W. Memorial Pkwy Westbound at I-495	2359	2	861	961						1822	1822	5	8						7	7	167	117						142	F	142	F	142	F
weave	Clara Barton Pkwy Eastbound at I-495	6436	2	173	304						477	477	48	47						48	48	4	7						5	A	5	A	5	A
diverge	Clara Barton Pkwy Westbound at I-495	3047	2	342	18						360	360	48	48						48	48	7	0						4	A	4	A	4	A
merge		3254	2	81	74						155	155	48	48						48	48	2	2						2	A	2	A	2	A
diverge	MD 190 Eastbound at I-495	550	2	884	707						1591	1591	41	40						41	41	22	18						20	C	20	C	20	C
weave		554	4	111	762	381	355				1608	1608	40	42	43	37				40	40	3	18	9	10				10	A	10	A	10	A
merge		582	3	607	792	467					1866	1866	42	42	43					43	43	15	19	11					15	B	15	B	15	B
diverge	MD 190 Westbound at I-495	450	3	546	757	357					1659	1659	39	39	40					40	40	14	20	9					14	B	14	B	14	B
weave		316	3	431	417	253					1101	1101	36	40	41					39	39	12	11	6					10	B	10	B	10	B
diverge	MD 187 Northbound at I-495	790	3	386	391	390					1167	1167	11	11	10					11	11	41	44	52					46	F	46	F	46	F
merge		1654	3	484	457	222					1163	1163	36	37	38					37	37	14	13	6					11	B	11	B	11	B
diverge	MD 187 Southbound at I-495	1642	3	725	505	565					1795	1795	29	27	27					28	28	26	19	21					22	C	22	C	22	C
merge		796	3	645	641	419					1704	1704	36	37	37					36	36	18	18	12					16	B	16	B	16	B
weave	MD 355 Northbound at I-495	1654	3	255	303	666					1224	1224	35	35	33					34	34	7	9	20					12	B	12	B	12	B
weave		370	4	228	748	280	219				1475	1475	43	43	43	43				43	43	5	18	7	5				9	A	9	A	9	A
diverge	MD 355 Southbound at I-495	204	4	853	588	620	489				2550	2550	42	42	38	36				40	40	20	14	17	14				16	B	15	B	15	B
merge		781	4	806	743	614	513				2676	2676	23	23	23	23				23	23	35	32	27	23				29	D	32	D	32	D

I-495 Inner Loop - 2017 Existing - 3-4 PM

VISSIM Lookup Data				Volume								Speed								Density									
				Volume Per Lane						Across All Lanes	Overall Volume	Speed Per Lane						Across All Lanes	Overall Speed	Density Per Lane						Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)						Total Volume	Average Volume (veh/hr)	Speed (mph)						Average Speed	Average Speed (mph)	Combined Density (pcphpl)						Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Btw VA 267 & VA 193	435	6	610	1280	1274	943	923	906	5935	5935	59	59	58	59	59	59	59	59	10	22	22	16	16	16	17	B	17	B	17	B
diverge		1499	6	182	1600	1352	1010	895	890	5930	5930	58	57	57	58	59	59	58	58	3	28	24	18	15	15	17	B	19	B	19	B
basic	VA 193 interchange	2095	5	1499	1282	1034	944	929		5689	5689	58	58	58	59	59		58	58	26	22	18	16	16		20	C	20	C	20	C
weave	Btw VA 193 & GWMP	1500	6	1031	1499	1595	1088	924	902	7038	7012	52	55	56	57	58	58	56	51	20	28	29	19	16	16	21	C	21	C	24	C
		1537	6	153	1720	1984	1384	908	837	6987		47	44	47	48	47	44	46		4	41	44	31	22	22	27	C	27	C		
merge	GWMP interchange	645	5	1730	1949	1479	963	657		6778	6778	34	39	39	31	22		33	33	53	52	40	34	35		43	F	36	E	36	E
basic		687	4	1766	1780	1680	1462			6687	6677	32	36	41	41			37	37	58	51	42	37			47	F	47	F	47	F
		494	4	1799	1630	1675	1559			6663		32	34	39	40			36		59	49	43	40			48	F	48	F		
weave	Btw GWMP & Clara Barton Pkwy	1975	5	894	1985	2003	1869	1696		8446	8446	39	30	30	31	31		32	32	24	69	70	62	57		56	F	56	F	56	F
basic	Clara Barton Pkwy interchange	500	4	1959	1884	1928	1797			7568	7564	30	27	29	28			28	28	67	72	69	65			69	F	69	F	70	F
		706	4	1993	1839	1906	1824			7561		30	25	27	27			27		68	76	73	69			71	F	71	F		
merge	Btw Clara Barton Pkwy & MD 190	1511	5	964	1400	1583	1855	1899		7701	7667	17	14	17	22	25		19	19	57	100	97	85	77		83	F	85	F	85	F
		777	5	525	1452	1682	1932	2008		7599		14	14	17	23	26		19		39	108	104	86	79		83	F	83	F		
basic		3461	4	1949	1885	1868	1797			7499	7487	23	23	22	20			22	21	87	84	88	93			88	F	88	F	90	F
		1064	4	2097	1930	1792	1627			7446		25	21	18	15			20		84	92	103	113			98	F	98	F		
diverge		400	5	534	1776	1841	1719	1542		7414	7414	42	22	20	16	13		23	23	13	81	94	107	120		83	F	63	F	63	F
basic	MD 190 interchange	1947	4	1946	1785	1581	1398			6709	6709	21	17	14	11			16	16	93	104	119	131			112	F	112	F	112	F
merge		1495	5	1737	1854	1644	1473	1488		8197	8197	31	22	16	13	12		19	19	57	88	104	116	128		99	F	83	F	83	F
basic		621	5	1814	1661	1491	1477	1723		8165	8165	32	18	13	12	17		18	18	58	92	119	122	101		98	F	98	F	98	F
merge	Btw MD 190 & I-270 West Spur	1123	6	503	1857	1599	1656	1746	1874	9235	9235	41	33	24	16	16	23	26	26	12	57	69	104	110	82	72	F	46	F	46	F
basic		398	5	1835	1610	1794	1821	1985		9045	9170	39	30	19	19	24		26	29	48	54	95	99	84		76	F	76	F	71	F
		1764	5	1955	1508	1660	1840	2235		9199		45	34	19	20	29		29		44	45	89	94	79		70	F	70	F		
weave		732	6	1870	1396	1145	1930	2017	852	9210	9222	52	51	48	43	46	52	49	51	36	28	24	46	45	16	33	D	33	D	31	D
		1509	6	1725	1379	1086	1969	1996	1073	9227		53	55	55	49	49	55	53		33	26	20	42	42	20	30	D	30	D		
basic	Btw I-270 West Spur & MD 187	7671	3	1472	1373	1324				4169	4168	53	54	55				54	54	28	26	24				26	D	26	D	26	D
		1173	3	1437	1370	1360				4167		53	54	55				54		28	26	25				26	D	26	D		
diverge		305	4	194	1401	1268	1301			4164	4164	44	42	45	51			46	46	4	34	29	26			23	C	22	C	22	C
basic	MD 187 interchange	2021	3	1156	1236	1315				3707	3707	53	54	55				54	54	22	23	24				23	C	23	C	23	C
merge	Btw MD 187 & I-270 East Spur	440	4	90	1284	1273	1315			3962	3962	51	53	54	55			53	53	2	24	24	24			19	B	17	B	17	B
basic		659	3	634	1472	1858				3964	3964	53	51	50				51	51	12	29	38				26	D	26	D	26	D
diverge		1113	3	278	1695	1987				3960	3960	49	44	42				45	45	6	40	49				32	D	32	D	32	D
basic	I-270 East Spur interchange	1519	2	1692	1898					3590	3590	41	40					40	40	44	50					47	F	47	F	47	F
weave		1951	4	1602	1448	1618	1747			6414	6414	33	33	36	39			35	35	55	50	50	49			51	F	51	F	51	F
weave		513	6	197	1628	1582	1739	1795	466	7406	7406	28	27	29	32	33	48	33	33	9	69	63	63	60	10	46	F	46	F	46	F
basic		1013	5	1863	1675	1829	1826	211		7405	7388	30	31	32	31	35		32	31	69	61	62	65	7		53	F	53	F	55	F
		1002	5	1865	1751	1822	1784	148		7370		29	30	31	29	35		31		72	67	68	70	5		56	F	56	F		
merge	Btw I-270 East Spur & MD 185	522	5	1860	1763	1823	1749	94		7290	7290	29	30	30	29	27		29	29	74	69	70	71	5		58	F	49	F	49	F
basic		1603	4	1861	1767	1817	1811			7257	7254	28	28	29	30			29	28	75	71	70	68			71	F	71	F	72	F
		252	4	1880	1755	1800	1802			7238		26	25	26	27			26		78	78	76	74			76	F	76	F		
diverge		526	5	581	1436	1658	1760	1784		7220	7194	46	20	23	24	25		28	27	13	81	81	80	77		66	F	58	F	63	F
		658	5	697	1394	1583	1726	1774		7174		55	16	19	22	23		27		13	97	90	84	82		73	F	67	F		

I-495 Inner Loop - 2017 Existing - 4-5 PM

VISSIM Lookup Data				Volume								Speed								Density											
				Volume Per Lane						Across All Lanes	Overall Volume	Speed Per Lane						Across All Lanes	Overall Speed	Density Per Lane						Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)						Total Volume	Average Volume (veh/hr)	Speed (mph)						Average Speed	Average Speed (mph)	Combined Density (pcphpl)						Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Btw VA 267 & VA 193	435	6	633	1256	1272	955	944	934	5994	5994	52	51	50	51	52	52	51	51	14	28	29	22	21	21	23	C	23	C	23	C
diverge		1499	6	207	1502	1304	1023	936	956	5928	5928	44	39	38	39	40	42	40	40	6	45	40	32	29	27	30	D	30	D	30	D
basic	VA 193 interchange	2095	5	1176	1122	1030	1036	1116		5479	5479	18	19	19	20	24		20	20	78	70	64	58	52		64	F	64	F	64	F
weave	Btw VA 193 & GWMP	1500	6	1135	822	1025	1012	1138	1361	6494	6416	12	7	9	9	12	17	11	10	102	138	126	118	100	86	112	F	112	F	120	F
		1537	6	664	830	1021	1210	1397	1218	6339		8	5	7	9	12	10	9		82	162	153	131	114	128	128	F	128	F		
merge	GWMP interchange	645	5	1252	1387	1550	1261	754		6205	6205	9	11	14	10	5		10	10	138	128	110	126	159		132	F	132	F	132	F
basic		687	4	1312	1359	1731	1737			6138	6138	12	14	22	24			18	19	116	97	79	74			92	F	92	F	87	F
		494	4	1375	1323	1688	1751			6137		14	16	24	25			20		101	82	72	71			81	F	81	F		
weave	Btw GWMP & Clara Barton Pkwy	1975	5	1189	1640	1601	1735	1749		7914	7914	28	16	15	17	17		18	18	44	107	111	105	104		94	F	94	F	94	F
basic	Clara Barton Pkwy interchange	500	4	1788	1628	1706	1716			6838	6857	18	15	16	16			16	16	102	114	111	110			109	F	109	F	110	F
		706	4	1871	1580	1685	1735			6870		19	14	15	16			16		100	118	113	110			110	F	110	F		
merge	Btw Clara Barton Pkwy & MD 190	1511	5	1280	1025	1267	1647	1792		7011	7006	13	7	9	14	17		12	13	97	146	137	117	108		121	F	127	F	122	F
		777	5	787	1092	1445	1773	1899		6995		11	8	11	17	19		13		70	138	131	108	101		110	F	113	F		
basic		3461	4	1844	1777	1720	1596			6937	6933	19	18	16	14			17	17	98	100	107	116			105	F	105	F	107	F
		1064	4	2023	1827	1641	1427			6917		23	18	14	11			16		92	103	117	131			111	F	111	F		
diverge		400	5	511	1717	1728	1580	1356		6892	6892	41	20	17	13	10		20	20	13	88	104	120	135		92	F	68	F	68	F
basic	MD 190 interchange	1947	4	1879	1672	1455	1259			6265	6265	19	15	11	9			14	14	99	113	129	141			121	F	121	F	121	F
merge		1495	5	1661	1718	1483	1335	1365		7562	7562	28	18	13	11	10		16	16	61	95	114	125	135		106	F	90	F	90	F
basic		621	5	1743	1540	1314	1326	1606		7529	7529	28	16	10	10	15		16	16	62	101	130	132	108		107	F	107	F	107	F
merge	Btw MD 190 & I-270 West Spur	1123	6	646	1767	1525	1488	1589	1761	8777	8777	38	28	20	13	14	20	22	22	17	65	79	116	120	90	81	F	54	F	54	F
basic		398	5	1757	1592	1691	1673	1876		8589	8691	36	27	17	16	21		23	26	50	60	103	109	91		83	F	83	F	76	F
		1764	5	1892	1435	1571	1712	2105		8714		44	31	17	17	25		27		44	46	95	103	87		75	F	75	F		
weave		732	6	1824	1336	1086	1779	1866	837	8727	8727	52	49	40	27	28	49	41	43	36	28	28	70	70	17	41	E	41	E	42	E
		1509	6	1692	1354	911	1824	1913	1033	8727		53	54	50	25	27	54	44		32	26	19	78	77	19	42	E	42	E		
basic	Btw I-270 West Spur & MD 187	7671	3	1418	1280	1184				3882	3881	53	54	55				54	52	27	24	22				24	C	24	C	26	D
		1173	3	1360	1265	1246				3872		40	40	40				40		37	35	34				35	E	35	E		
diverge		305	4	196	1307	1175	1171			3850	3850	38	25	24	25			28	28	5	57	56	56			44	F	40	E	40	E
basic	MD 187 interchange	2021	3	1166	1111	1089				3366	3366	17	16	15				16	16	80	87	91				86	F	86	F	86	F
merge	Btw MD 187 & I-270 East Spur	440	4	217	1245	1089	995			3546	3546	19	13	10	9			13	13	13	104	119	123			90	F	79	F	79	F
basic		659	3	1158	1189	1180				3527	3527	17	11	9				12	12	73	121	136				110	F	110	F	110	F
diverge		1113	3	542	1451	1520				3513	3513	22	15	13				16	16	27	105	122				85	F	85	F	85	F
basic	I-270 East Spur interchange	1519	2	1621	1616					3237	3237	16	15					16	16	102	113					107	F	107	F	107	F
weave		1951	4	1408	1425	1548	1646			6028	6028	12	12	14	15			13	13	125	117	111	110			116	F	116	F	116	F
weave		513	6	294	1270	1492	1645	1618	689	7008	7008	17	10	12	14	14	44	19	19	18	134	124	118	114	16	87	F	87	F	87	F
basic		1013	5	1585	1624	1702	1592	530		7033	7031	14	16	17	14	29		18	18	114	105	105	112	18		91	F	91	F	93	F
		1002	5	1644	1717	1681	1573	413		7028		15	16	15	13	28		17		115	110	112	121	15		95	F	95	F		
merge	Btw I-270 East Spur & MD 185	522	5	1676	1741	1744	1539	277		6976	6976	15	16	16	13	18		16	16	113	109	112	117	15		94	F	82	F	82	F
basic		1603	4	1727	1730	1753	1791			7001	7000	17	17	18	19			18	17	105	103	100	98			102	F	102	F	102	F
		252	4	1791	1703	1725	1777			6996		18	17	17	18			17		103	104	102	100			102	F	102	F		
diverge		526	5	567	1382	1591	1693	1762		6995	6979	43	13	15	17	18		21	22	13	110	108	104	101		87	F	77	F	81	F
		658	5	661	1356	1528	1661	1760		6965		54	11	13	16	18		23		12	126	115	106	101		92	F	85	F		

I-495 Inner Loop - 2017 Existing - 5-6 PM

VISSIM Lookup Data				Volume								Speed								Density											
				Volume Per Lane						Across All Lanes	Overall Volume	Speed Per Lane						Across All Lanes	Overall Speed	Density Per Lane						Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)						Total Volume	Average Volume (veh/hr)	Speed (mph)						Average Speed	Average Speed (mph)	Combined Density (pcphpl)						Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Btw VA 267 & VA 193	435	6	840	600	677	841	1003	1194	5155	5155	12	6	7	9	11	14	10	10	90	140	145	126	116	105	120	F	120	F	120	F
diverge		1499	6	482	567	755	923	1087	1283	5097	5097	8	4	5	7	9	12	7	7	68	165	153	136	125	112	126	F	129	F	129	F
basic	VA 193 interchange	2095	5	606	788	950	1143	1396		4884	4884	4	5	7	9	13		7	7	168	154	143	131	113		142	F	142	F	142	F
weave	Btw VA 193 & GWMP	1500	6	1017	526	797	912	1178	1536	5966	5968	7	3	5	6	9	13	7	7	140	188	171	162	137	116	152	F	152	F	146	F
		1537	6	686	631	883	1100	1350	1319	5969		6	4	5	8	12	11	8		114	179	165	141	117	125	140	F	140	F		
merge	GWMP interchange	645	5	1155	1258	1453	1216	810		5891	5891	8	9	13	10	5		9	9	145	136	114	127	154		135	F	131	F	131	F
basic		687	4	1255	1280	1634	1695			5864	5865	11	13	21	23			17	18	121	100	79	74			94	F	94	F	89	F
		494	4	1349	1247	1584	1687			5867		13	16	22	24			19		105	82	72	71			83	F	83	F		
weave	Btw GWMP & Clara Barton Pkwy	1975	5	1284	1569	1483	1606	1654		7596	7596	26	14	13	15	15		17	17	50	112	116	111	110		100	F	100	F	100	F
basic	Clara Barton Pkwy interchange	500	4	1719	1481	1578	1634			6412	6430	16	12	13	14			14	14	108	124	119	117			117	F	117	F	118	F
		706	4	1794	1443	1563	1643			6443		17	12	13	14			14		106	127	121	117			118	F	118	F		
merge	Btw Clara Barton Pkwy & MD 190	1511	5	1232	933	1158	1549	1714		6585	6589	12	6	8	13	15		11	11	104	155	145	123	114		128	F	134	F	130	F
		777	5	795	992	1329	1657	1824		6596		10	7	10	15	18		12		80	145	139	115	106		117	F	121	F		
basic		3461	4	1774	1707	1621	1500			6602	6609	18	17	15	12			15	15	103	105	113	123			111	F	111	F	112	F
		1064	4	2000	1768	1531	1332			6631		22	17	12	10			15		95	109	125	138			116	F	116	F		
diverge		400	5	562	1669	1657	1462	1263		6612	6612	40	18	15	12	9		19	19	14	93	110	128	142		97	F	72	F	72	F
basic	MD 190 interchange	1947	4	1853	1575	1338	1149			5915	5915	18	13	10	8			12	12	102	120	137	150			127	F	127	F	127	F
merge		1495	5	1605	1654	1390	1235	1257		7140	7140	27	17	12	9	9		15	15	61	99	120	132	143		111	F	93	F	93	F
basic		621	5	1692	1500	1217	1218	1498		7124	7124	28	15	9	9	13		15	15	62	105	138	141	116		113	F	113	F	113	F
merge	Btw MD 190 & I-270 West Spur	1123	6	615	1737	1457	1377	1469	1660	8315	8315	38	27	18	12	12	17	21	21	16	65	81	122	128	99	85	F	54	F	54	F
basic		398	5	1743	1511	1579	1549	1768		8150	8253	35	26	15	13	18		21	24	50	60	109	118	100		88	F	88	F	82	F
		1764	5	1871	1362	1481	1592	1972		8277		43	29	15	14	21		24		44	47	100	113	97		80	F	80	F		
weave		732	6	1808	1285	1014	1644	1709	816	8277	8276	51	46	34	18	19	47	36	38	36	28	31	93	94	17	50	F	50	F	50	F
		1509	6	1693	1291	739	1727	1856	970	8276		53	53	43	17	18	54	40		33	25	18	104	103	18	50	F	50	F		
basic	Btw I-270 West Spur & MD 187	7671	3	1319	1170	1051				3540	3520	35	34	33				34	31	47	44	41				44	E	44	E	54	F
		1173	3	1184	1100	1101				3385		11	10	10				11		113	115	115				114	F	114	F		
diverge		305	4	292	1116	999	961			3367	3367	29	9	8	7			13	13	10	124	132	139			101	F	89	F	89	F
basic	MD 187 interchange	2021	3	1096	956	859				2911	2911	8	6	5				7	7	144	155	163				154	F	154	F	154	F
merge	Btw MD 187 & I-270 East Spur	440	4	331	1122	982	831			3265	3265	15	8	6	5			9	9	24	141	159	169			123	F	108	F	108	F
basic		659	3	1229	1065	966				3259	3259	13	7	6				9	9	93	147	163				134	F	134	F	134	F
diverge		1113	3	615	1297	1341				3252	3252	17	11	10				13	13	37	124	140				100	F	100	F	100	F
basic	I-270 East Spur interchange	1519	2	1506	1508					3013	3013	13	13					13	13	117	124					120	F	120	F	120	F
weave		1951	4	1295	1361	1507	1627			5790	5790	10	11	14	15			12	12	136	127	113	111			122	F	122	F	122	F
weave		513	6	270	1185	1389	1624	1597	806	6871	6871	13	9	11	14	14	43	17	17	21	141	129	121	117	19	91	F	91	F	91	F
basic		1013	5	1539	1535	1667	1562	615		6917	6931	13	15	16	14	27		17	17	119	107	108	115	23		94	F	94	F	96	F
		1002	5	1638	1670	1640	1522	475		6944		14	15	15	13	27		17		117	113	115	124	18		97	F	97	F		
merge	Btw I-270 East Spur & MD 185	522	5	1687	1718	1711	1486	316		6919	6919	15	16	15	13	17		15	15	113	110	115	120	20		95	F	85	F	85	F
basic		1603	4	1739	1720	1734	1756			6948	6951	17	17	17	18			17	17	105	104	103	100			103	F	103	F	103	F
		252	4	1819	1705	1702	1741			6968		19	17	17	17			17		101	105	104	102			103	F	103	F		
diverge		526	5	756	1288	1529	1659	1721		6954	6931	43	12	14	16	17		20	21	18	110	110	106	104		90	F	79	F	85	F
		658	5	882	1257	1444	1625	1704		6912		54	10	12	15	17		21		17	133	120	109	104		97	F	90	F		

I-495 Inner Loop - 2017 Existing - 6-7 PM

VISSIM Lookup Data				Volume								Speed								Density											
				Volume Per Lane						Across All Lanes	Overall Volume	Speed Per Lane						Across All Lanes	Overall Speed	Density Per Lane						Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)						Total Volume	Average Volume (veh/hr)	Speed (mph)						Average Speed	Average Speed (mph)	Combined Density (pcphpl)						Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Btw VA 267 & VA 193	435	6	810	689	701	846	1012	1164	5223	5223	12	7	7	9	11	14	10	10	79	127	134	116	105	97	109	F	109	F	109	F
diverge		1499	6	441	750	834	947	1102	1242	5316	5316	10	6	7	9	11	14	10	10	45	141	132	117	106	97	106	F	106	F	106	F
basic	VA 193 interchange	2095	5	697	862	1010	1208	1419		5195	5195	5	6	8	10	14		8	8	158	143	134	120	106		132	F	132	F	132	F
weave	Btw VA 193 & GWMP	1500	6	1083	609	849	988	1245	1600	6374	6379	8	3	5	6	10	15	8	8	134	181	166	156	133	112	147	F	147	F	139	F
		1537	6	683	774	985	1193	1423	1325	6383		8	5	6	9	13	11	9		89	169	157	134	115	126	132	F	132	F		
merge	GWMP interchange	645	5	1280	1391	1551	1279	799		6301	6301	10	11	15	10	5		10	10	136	127	108	124	155		130	F	129	F	129	F
basic		687	4	1375	1387	1744	1759			6265	6263	13	15	24	26			19	20	113	93	74	70			88	F	88	F	82	F
		494	4	1462	1339	1687	1772			6260		16	19	26	28			22		95	74	66	65			75	F	75	F		
weave	Btw GWMP & Clara Barton Pkwy	1975	5	1327	1685	1617	1722	1758		8110	8110	29	17	16	17	18		19	19	46	103	106	103	101		92	F	92	F	92	F
basic	Clara Barton Pkwy interchange	500	4	1823	1624	1671	1724			6841	6861	18	14	15	16			16	16	102	115	114	111			110	F	110	F	110	F
		706	4	1917	1566	1657	1734			6875		20	13	15	16			16		98	119	115	111			110	F	110	F		
merge	Btw Clara Barton Pkwy & MD 190	1511	5	1293	1044	1248	1634	1818		7037	7043	14	7	9	14	17		12	13	96	145	138	117	107		121	F	126	F	121	F
		777	5	774	1122	1429	1761	1970		7056		12	8	11	17	21		14		66	136	132	107	96		107	F	111	F		
basic		3461	4	1869	1792	1728	1642			7030	7032	20	19	17	15			18	18	96	95	102	110			101	F	101	F	103	F
		1064	4	2101	1876	1641	1422			7041		24	19	14	11			17		88	100	117	131			109	F	109	F		
diverge		400	5	705	1688	1737	1558	1333		7021	7021	41	20	18	13	10		20	20	18	84	101	120	136		92	F	68	F	68	F
basic	MD 190 interchange	1947	4	1900	1660	1397	1193			6149	6149	20	15	11	8			13	13	99	114	132	146			123	F	123	F	123	F
merge		1495	5	1622	1721	1452	1283	1299		7376	7376	28	18	13	10	9		16	16	59	96	116	130	140		108	F	90	F	90	F
basic		621	5	1703	1556	1312	1262	1513		7345	7345	30	16	10	9	13		16	16	59	100	132	138	116		109	F	109	F	109	F
merge	Btw MD 190 & I-270 West Spur	1123	6	466	1758	1469	1471	1504	1667	8336	8336	41	32	21	13	12	17	23	23	12	57	71	115	125	98	80	F	46	F	46	F
basic		398	5	1764	1482	1592	1562	1773		8172	8292	38	27	15	14	18		22	24	48	56	108	117	100		86	F	86	F	81	F
		1764	5	1880	1369	1489	1601	1979		8319		43	30	15	15	21		25		44	47	100	112	96		80	F	80	F		
weave		732	6	1791	1291	1034	1670	1747	808	8340	8363	51	46	34	19	20	47	36	39	36	29	31	91	91	17	49	F	49	F	49	F
		1509	6	1665	1297	763	1784	1907	959	8375		53	53	45	18	20	54	40		32	25	17	100	99	18	48	F	48	F		
basic	Btw I-270 West Spur & MD 187	7671	3	1296	1196	1099				3591	3602	27	27	26				27	26	69	67	65				67	F	67	F	73	F
		1173	3	1247	1186	1243				3677		19	18	19				19		109	110	107				109	F	109	F		
diverge		305	4	336	1174	1051	1129			3690	3690	28	16	15	17			19	19	15	105	109	109			85	F	76	F	76	F
basic	MD 187 interchange	2021	3	1098	1028	1022				3148	3148	19	17	17				18	18	101	109	114				108	F	108	F	108	F
merge	Btw MD 187 & I-270 East Spur	440	4	250	1176	1057	1009			3492	3492	23	19	17	17			19	19	15	103	115	120			88	F	78	F	78	F
basic		659	3	1135	1168	1195				3498	3498	21	14	14				16	16	72	117	126				105	F	105	F	105	F
diverge		1113	3	640	1387	1496				3522	3522	20	15	15				16	16	36	108	116				87	F	87	F	87	F
basic	I-270 East Spur interchange	1519	2	1529	1588					3117	3117	15	15					15	15	107	109					108	F	108	F	108	F
weave		1951	4	1327	1403	1552	1681			5962	5962	10	12	16	17			14	14	132	120	102	98			113	F	113	F	113	F
weave		513	6	210	1203	1401	1713	1674	640	6841	6841	16	9	11	15	15	45	19	19	14	142	127	114	111	15	87	F	87	F	87	F
basic		1013	5	1529	1516	1725	1613	499		6883	6883	13	15	17	15	28		17	17	120	106	104	112	18		92	F	92	F	94	F
		1002	5	1622	1655	1677	1550	378		6883		14	15	15	13	25		17		117	110	112	121	15		95	F	95	F		
merge	Btw I-270 East Spur & MD 185	522	5	1649	1698	1700	1489	256		6792	6792	15	15	15	13	15		15	15	115	112	115	121	17		96	F	84	F	84	F
basic		1603	4	1714	1670	1686	1697			6767	6767	16	16	16	16			16	16	107	108	106	105			107	F	107	F	107	F
		252	4	1808	1631	1645	1683			6767		18	15	16	16			16		101	109	107	106			106	F	106	F		
diverge		526	5	865	1217	1446	1598	1649		6775	6776	41	11	13	15	15		19	20	21	111	113	110	109		93	F	82	F	88	F
		658	5	1007	1228	1361	1547	1632		6776		52	9	11	14	15		20		20	136	125	114	109		101	F	94	F		

I-495 Outer Loop - 2017 Existing - 3-4 PM

VISSIM Lookup Data				Volume									Speed									Density									
				Volume Per Lane							Across All Lanes	Overall Volume	Speed Per Lane							Across All Lanes	Overall Speed	Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)							Total Volume	Average Volume (veh/hr)	Speed (mph)							Average Speed	Average Speed (mph)	Combined Density (pcphpl)							Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Btw VA 267 & VA 193	613	4	1748	1761	1760	1757				7025	7003	20	20	20	20				20	20	89	90	90	90				90	F	90	F	91	F
		54	4	1678	1694	1693	1684				6750		17	17	18	18				17		101	99	98	97				99	F	99	F		
merge		1414	5	286	1611	1676	1732	1702			7007	7007	34	16	16	19	19			21	21	9	100	110	93	89			80	F	73	F	73	F
basic	VA 193 interchange & GWMP interchange	1053	4	1584	1597	1639	1652				6471	6471	18	18	19	19				19	19	88	91	89	88				89	F	89	F	89	F
merge		735	5	850	969	1380	1607	1634			6440	6440	14	7	11	15	16			13	13	63	139	128	105	103			108	F	110	F	110	F
basic		5213	4	1062	1273	1535	1640				5510	5510	20	23	28	29				25	25	64	65	62	63				64	F	64	F	64	F
weave	Btw GWMP & Clara Barton Pkwy	1524	5	1332	1975	1196	1650	1861			8014	8014	47	46	49	49	49			48	48	30	46	27	36	40			36	E	36	E	36	E
basic	Clara Barton Pkwy interchange	1713	4	2075	1222	1725	1954				6976	6976	30	40	51	52				43	43	71	31	34	38				44	E	44	E	44	E
diverge		922	5	52	1661	1549	1767	1986			7015	7015	45	18	23	46	49			36	36	1	96	70	39	41			49	F	56	F	56	F
basic	Btw Clara Barton Pkwy & MD 190	521	4	1546	1704	1720	1947				6917	7012	17	21	44	48				32	32	93	85	40	41				65	F	65	F	63	F
		3149	4	1697	1779	1582	1970				7028		20	23	38	47				32		88	78	42	43				62	F	62	F		
merge		1788	5	596	1337	1453	1763	1916			7066	7066	26	13	14	23	33			22	22	24	107	104	80	60			75	F	79	F	79	F
basic	MD 190 interchange	2663	4	1450	1525	1569	1564				6108	6108	21	23	26	33				26	26	85	81	70	53				72	F	72	F	72	F
diverge		1585	5	375	1616	1552	1477	1613			6633	6633	52	28	28	29	33			34	34	7	66	63	60	55			50	F	45	F	45	F
diverge		1032	6	750	390	1740	1591	1506	1584		7560	7560	54	51	33	33	33	36		40	40	14	8	58	53	50	49		39	E	27	C	27	C
basic	Btw MD 190 & I-270 West Spur	446	5	1003	1770	1649	1503	1557			7482	7650	50	36	36	36	38			39	44	20	53	50	45	44			42	E	42	E	37	E
		2659	5	1349	1705	1677	1420	1501			7653		47	41	41	42	45			43		30	44	44	36	36			38	E	38	E		
		938	5	1841	1541	1402	1439	1496			7720		46	47	47	50	52			48		41	34	31	30	29			33	D	33	D		
weave		554	6	1687	1466	1491	1547	1515	7		7714	7714	47	48	49	52	54	53		51	51	37	31	31	31	29	0		26	C	26	C	26	C
basic	Btw I-270 West Spur & MD 187	7657	3	1421	1540	1508					4469	4468	52	52	52					52	52	28	30	29					29	D	29	D	29	D
		1085	3	1393	1528	1541					4462		52	53	53					53		27	30	30					29	D	29	D		
merge		406	4	205	1287	1472	1505				4469	4469	50	53	53	53				52	52	4	25	28	29				22	C	19	B	19	B
basic	MD 187 interchange	2022	3	973	1341	1503					3816	3816	54	53	53					53	53	18	26	29					24	C	24	C	24	C
diverge		325	4	262	1085	1371	1515				4232	4232	52	53	53	53				53	53	5	21	26	29				20	C	17	B	17	B
basic	Btw MD 187 & I-270 East Spur	1192	3	1344	1375	1509					4228	4230	53	53	53					53	53	26	26	29					27	D	27	D	27	D
		913	3	1339	1372	1520					4231		53	53	53					53		26	26	29					27	D	27	D		
		494	3	1190	1434	1607					4231		53	53	53					53		23	28	31					27	D	27	D		
merge		910	4	758	1542	1822	97				4219	4219	51	49	48	48				49	49	15	32	38	2				22	C	24	C	24	C
basic	I-270 East Spur interchange	288	3	509	1434	1743					3686	3686	54	53	53					53	53	10	27	34					24	C	24	C	24	C
diverge		1593	4	1319	2276	1517	1780				6892	6892	53	53	53	53				53	53	25	44	29	34				33	D	33	D	33	D
diverge		402	5	718	1508	2337	1521	1787			7872	7872	52	52	52	53	53			52	52	14	29	46	29	34			31	D	30	D	30	D
basic	Btw I-270 East Spur & MD 185	1045	4	2183	2375	1529	1795				7882	7863	50	50	53	53				52	44	44	48	29	34				39	E	39	E	48	F
		2087	4	2099	2339	1658	1771				7868		43	41	46	51				45		50	59	37	36				45	F	45	F		
		1257	4	2208	2172	1965	1514				7860		31	35	41	47				38		73	64	49	33				55	F	55	F		
		526	4	2023	2074	1951	1768				7816		29	31	35	40				34		75	73	60	47				64	F	64	F		

I-495 Outer Loop - 2017 Existing - 4-5 PM

VISSIM Lookup Data				Volume									Speed									Density									
				Volume Per Lane							Across All Lanes	Overall Volume	Speed Per Lane							Across All Lanes	Overall Speed	Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)							Total Volume	Average Volume (veh/hr)	Speed (mph)							Average Speed	Average Speed (mph)	Combined Density (pcphpl)							Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Btw VA 267 & VA 193	613	4	1747	1762	1758	1755				7023	7000	20	20	20	20				20	20	89	90	90	90				90	F	90	F	90	F
		54	4	1676	1697	1690	1684				6746		17	17	18	18				17		101	99	98	97				99	F	99	F		
merge		1414	5	287	1603	1685	1727	1703			7004	7004	34	17	16	19	19			21	21	9	99	108	93	89			79	F	72	F	72	F
basic	VA 193 interchange & GWMP interchange	1053	4	1582	1591	1636	1658				6466	6466	18	18	19	19				18	18	88	91	89	88				89	F	89	F	89	F
merge		735	5	794	1022	1376	1605	1642			6439	6439	14	8	11	15	16			13	13	58	136	129	106	103			106	F	107	F	107	F
basic		5213	4	1170	1319	1496	1588				5573	5573	14	17	20	21				18	18	89	86	81	80				84	F	84	F	84	F
weave	Btw GWMP & Clara Barton Pkwy	1524	5	1506	1922	1271	1604	1783			8086	8086	40	37	41	42	42			41	41	44	61	38	44	49			47	F	47	F	47	F
basic	Clara Barton Pkwy interchange	1713	4	2017	1164	1641	1913				6735	6735	28	38	51	52				42	42	76	31	33	37				44	E	44	E	44	E
diverge	Btw Clara Barton Pkwy & MD 190	922	5	32	1591	1504	1674	1952			6753	6753	45	16	21	45	49			35	35	1	101	73	38	40			50	F	58	F	58	F
basic		521	4	1460	1639	1630	1920				6649	6738	15	19	43	48				31	30	100	89	39	40				67	F	67	F	67	F
		3149	4	1580	1681	1520	1972				6753		17	20	37	47				30		97	85	42	43				67	F	67	F		
merge		1788	5	666	1132	1265	1678	2015			6756	6756	22	9	11	19	31			19	19	30	123	119	90	65			85	F	91	F	91	F
basic	MD 190 interchange	2663	4	1215	1287	1509	1730				5742	5742	10	11	15	24				15	15	123	117	99	74				103	F	103	F	103	F
diverge		1585	5	612	1317	1370	1450	1633			6381	6381	47	12	13	14	18			21	21	13	114	110	104	92			87	F	79	F	79	F
diverge	Btw MD 190 & I-270 West Spur	1032	6	705	628	1394	1396	1488	1580		7191	7191	51	42	14	14	16	18		26	26	14	15	102	100	97	92		70	F	44	F	44	F
basic		446	5	1118	1446	1409	1541	1559			7074	7244	39	16	16	18	19			21	22	30	98	95	89	88			80	F	80	F	77	F
		2659	5	1335	1427	1430	1495	1559			7246		27	17	17	20	21			20		54	91	93	80	79			79	F	79	F		
		938	5	1549	1378	1325	1457	1611			7322		24	23	23	26	30			25		79	72	71	68	60			70	F	70	F		
weave		554	6	1414	1335	1406	1547	1636	21		7360	7360	24	25	27	30	34	38		30	30	80	73	69	65	58	1		58	F	58	F	58	F
basic	Btw I-270 West Spur & MD 187	7657	3	1301	1410	1373					4083	4086	39	40	41					40	42	41	42	39					41	E	41	E	39	E
		1085	3	1325	1419	1366					4110		52	53	53					53		26	27	26					26	D	26	D		
merge		406	4	209	1224	1362	1325				4120	4120	51	53	53	53				53	53	4	24	26	25				20	C	18	B	18	B
basic	MD 187 interchange	2022	3	895	1224	1325					3444	3444	54	53	53					53	53	17	23	25					22	C	22	C	22	C
diverge	Btw MD 187 & I-270 East Spur	325	4	291	1025	1259	1331				3906	3906	45	50	52	53				50	50	9	21	24	26				20	C	18	B	18	B
basic		1192	3	1330	1250	1325					3904	3907	53	53	53					53	53	26	24	25					25	C	25	C	25	C
		913	3	1325	1248	1335					3908		53	53	53					53		26	24	25					25	C	25	C		
		494	3	1163	1322	1425					3910		53	53	53					53		22	25	27					25	C	25	C		
merge		910	4	791	1463	1581	67				3902	3902	50	49	49	48				49	49	16	30	33	1				20	C	22	C	22	C
basic	I-270 East Spur interchange	288	3	603	1415	1448					3466	3466	53	53	53					53	53	12	27	28					22	C	22	C	22	C
diverge		1593	4	1355	2271	1485	1474				6585	6585	53	53	53	53				53	53	26	44	28	28				32	D	33	D	33	D
diverge	Btw I-270 East Spur & MD 185	402	5	680	1534	2343	1490	1470			7517	7517	52	53	52	53	53			53	53	13	30	46	28	28			29	D	30	D	30	D
basic		1045	4	2181	2386	1492	1470				7529	7510	51	51	53	53				52	48	43	47	29	28				37	E	37	E	40	E
		2087	4	2128	2440	1575	1377				7521		47	45	49	52				49		46	55	32	27				40	E	40	E		
		1257	4	2338	2203	1835	1125				7501		41	44	48	51				46		58	51	39	23				43	E	43	E		
		526	4	2052	2140	1846	1410				7448		42	44	46	48				45		51	51	42	30				44	E	44	E		

I-495 Outer Loop - 2017 Existing - 5-6 PM

VISSIM Lookup Data				Volume									Speed									Density									
				Volume Per Lane							Across All Lanes	Overall Volume	Speed Per Lane							Across All Lanes	Overall Speed	Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)							Total Volume	Average Volume (veh/hr)	Speed (mph)							Average Speed	Average Speed (mph)	Combined Density (pcphpl)							Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Btw VA 267 & VA 193	613	4	1676	1685	1676	1651				6689	6667	20	20	20	20				20	20	85	85	84	83				84	F	84	F	85	F
		54	4	1607	1625	1612	1579				6423		18	19	19	19				19		89	88	86	85				87	F	87	F		
merge		1414	5	125	1590	1685	1648	1608			6656	6656	37	20	19	21	21			24	24	3	82	88	81	80				67	F	58	F	58	F
basic	VA 193 interchange & GWMP interchange	1053	4	1582	1608	1606	1586				6381	6381	20	19	20	20				20	20	82	84	83	82				83	F	83	F	83	F
merge		735	5	653	1148	1442	1556	1543			6341	6341	17	11	13	17	17			15	15	40	111	111	93	91				89	F	87	F	87	F
basic		5213	4	1074	1272	1444	1544				5335	5335	22	25	28	29				26	26	54	55	54	56				55	F	55	F	55	F
weave	Btw GWMP & Clara Barton Pkwy	1524	5	1434	2049	1090	1459	1693			7725	7725	49	48	52	53	53			51	51	30	44	21	28	32				31	D	31	D	31	D
basic	Clara Barton Pkwy interchange	1713	4	2089	1096	1481	1769				6436	6436	30	39	52	53				43	43	71	29	29	34				41	E	41	E	41	E
diverge	Btw Clara Barton Pkwy & MD 190	922	5	23	1604	1497	1506	1806			6438	6438	45	16	21	46	50			36	36	1	100	74	34	37				49	F	58	F	58	F
basic		521	4	1468	1640	1467	1781				6356	6439	15	19	44	49				32	30	98	88	34	37				64	F	64	F	66	F
		3149	4	1558	1644	1381	1870				6453		16	19	36	47				30		98	88	39	40				66	F	66	F		
merge		1788	5	685	1013	1181	1632	1950			6462	6462	20	8	10	18	32			17	17	36	131	124	92	63				89	F	97	F	97	F
basic	MD 190 interchange	2663	4	1124	1206	1446	1672				5448	5448	9	10	14	23				14	14	130	123	103	74				108	F	108	F	108	F
diverge		1585	5	586	1197	1259	1373	1582			5998	5998	42	10	11	12	16			18	18	14	126	121	113	99				95	F	87	F	87	F
diverge	Btw MD 190 & I-270 West Spur	1032	6	740	631	1258	1289	1409	1522		6848	6848	49	38	11	11	13	15		23	23	16	17	116	115	110	103		80	F	50	F	50	F
basic		446	5	1150	1308	1302	1459	1511			6730	6849	34	12	12	14	15			17	14	34	114	111	104	102			93	F	93	F	101	F
		2659	5	1322	1277	1289	1446	1536			6870		20	11	11	14	15			14		68	118	119	105	101			102	F	102	F		
		938	5	1349	1239	1262	1373	1625			6848		12	12	12	14	19			14		113	107	105	100	88			103	F	103	F		
weave		554	6	1185	1213	1300	1414	1668	38		6819	6819	9	10	11	14	18	26		15	15	136	124	117	105	92	1		96	F	96	F	96	F
basic	Btw I-270 West Spur & MD 187	7657	3	1187	1262	1333					3782	3800	15	16	18					16	20	89	87	82					86	F	86	F	80	F
		1085	3	1284	1307	1336					3927		45	45	46					45		37	38	37					38	E	38	E		
merge		406	4	240	1157	1251	1303				3951	3951	42	45	46	46				45	45	11	33	34	33				28	D	26	C	26	C
basic	MD 187 interchange	2022	3	805	1144	1314					3264	3264	47	48	49					48	48	20	26	29					25	C	25	C	25	C
diverge	Btw MD 187 & I-270 East Spur	325	4	332	953	1193	1332				3810	3810	35	46	51	52				46	46	13	22	24	26				21	C	20	C	20	C
basic		1192	3	1313	1177	1321					3810	3809	53	53	53					53	53	25	22	25					24	C	24	C	24	C
		913	3	1307	1175	1327					3809		53	53	53					53		25	22	25					24	C	24	C		
		494	3	1118	1268	1420					3806		53	53	53					53		21	24	27					24	C	24	C		
merge		910	4	729	1393	1620	54				3796	3796	50	49	49	48				49	49	15	29	34	1				20	C	21	C	21	C
basic	I-270 East Spur interchange	288	3	515	1358	1563					3437	3437	52	52	52					52	52	10	27	31					22	C	22	C	22	C
diverge		1593	4	1323	2168	1461	1606				6558	6558	43	44	50	52				47	47	43	56	30	32				40	E	43	F	43	F
diverge	Btw I-270 East Spur & MD 185	402	5	729	1505	2256	1474	1590			7555	7555	50	46	46	51	52			49	49	15	38	53	30	31			33	D	35	E	35	E
basic		1045	4	2182	2317	1487	1587				7573	7568	47	46	51	53				49	46	50	53	30	31				41	E	41	E	44	E
		2087	4	2110	2378	1581	1502				7571		43	42	47	51				46		52	58	34	30				44	E	44	E		
		1257	4	2292	2176	1872	1231				7571		37	41	46	49				43		65	55	42	26				47	F	47	F		
		526	4	2053	2137	1887	1462				7540		40	42	45	48				44		56	54	44	32				47	F	47	F		

I-495 Outer Loop - 2017 Existing - 6-7 PM

VISSIM Lookup Data				Volume									Speed									Density									
				Volume Per Lane							Across All Lanes	Overall Volume	Speed Per Lane							Across All Lanes	Overall Speed	Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/In)							Total Volume	Average Volume (veh/hr)	Speed (mph)							Average Speed	Average Speed (mph)	Combined Density (pcphpl)							Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Btw VA 267 & VA 193	613	4	1580	1591	1572	1546				6288	6269	20	20	21	20				20	20	79	79	78	77				78	F	78	F	78	F
		54	4	1517	1534	1515	1477				6043		19	20	20	20				20		79	79	77	75				78	F	78	F		
merge		1414	5	90	1516	1604	1551	1513			6275	6275	40	21	20	21	21			25	25	2	74	80	75	74			61	F	52	F	52	F
basic	VA 193 interchange & GWMP interchange	1053	4	1510	1542	1516	1492				6060	6060	20	20	20	20				20	20	76	78	76	75				76	F	76	F	76	F
merge		735	5	413	1259	1473	1442	1440			6027	6027	31	18	18	20	20			22	22	14	71	84	72	72			63	F	56	F	56	F
basic		5213	4	999	1263	1473	1598				5333	5333	52	52	52	51				52	52	20	24	29	31				26	D	26	D	26	D
weave	Btw GWMP & Clara Barton Pkwy	1524	5	1368	2046	1125	1541	1765			7845	7845	51	49	53	54	54			52	52	27	42	22	29	33			31	D	31	D	31	D
basic	Clara Barton Pkwy interchange	1713	4	2122	1137	1592	1845				6696	6696	31	40	52	53				44	44	69	29	31	36				41	E	41	E	41	E
diverge	Btw Clara Barton Pkwy & MD 190	922	5	68	1665	1521	1618	1881			6754	6754	45	18	22	47	51			36	36	2	96	71	35	38			48	F	56	F	56	F
basic		521	4	1542	1684	1581	1848				6656	6750	17	20	45	49				33	31	94	86	36	38				63	F	63	F	64	F
		3149	4	1641	1713	1484	1928				6765		18	21	38	47				31		92	83	40	41				64	F	64	F		
merge		1788	5	673	1139	1270	1686	1990			6758	6758	22	10	11	19	32			19	19	31	122	118	89	64			85	F	90	F	90	F
basic	MD 190 interchange	2663	4	1206	1289	1500	1706				5700	5700	10	11	15	23				15	15	124	118	100	74				104	F	104	F	104	F
diverge		1585	5	301	1284	1340	1441	1613			5978	5978	42	11	12	13	17			19	19	7	120	116	109	97			90	F	81	F	81	F
diverge	Btw MD 190 & I-270 West Spur	1032	6	711	390	1317	1361	1453	1544		6776	6776	49	39	12	12	14	15		23	23	15	10	114	113	108	102		77	F	46	F	46	F
basic		446	5	996	1343	1352	1460	1512			6663	6760	35	12	12	14	15			18	14	29	111	111	105	101			91	F	91	F	103	F
		2659	5	1250	1276	1304	1448	1497			6774		19	11	11	14	15			14		67	119	120	108	105			104	F	104	F		
		938	5	1342	1240	1270	1390	1523			6764		12	12	12	14	16			13		113	109	108	102	97			106	F	106	F		
weave		554	6	1190	1205	1308	1408	1591	48		6750	6750	9	10	11	13	16	25		14	14	135	124	117	107	100	2		98	F	98	F	98	F
basic	Btw I-270 West Spur & MD 187	7657	3	1127	1181	1297					3605	3607	12	12	14					13	14	129	126	118					125	F	125	F	120	F
		1085	3	1169	1197	1253					3619		26	26	27					26		87	87	85					86	F	86	F		
merge		406	4	378	919	1130	1229				3655	3655	23	25	28	29				26	26	68	88	77	74				77	F	78	F	78	F
basic	MD 187 interchange	2022	3	658	1015	1199					2872	2872	34	36	38					36	36	43	45	46					45	F	45	F	45	F
diverge	Btw MD 187 & I-270 East Spur	325	4	276	768	1044	1208				3296	3296	44	43	45	46				45	45	7	26	30	31				23	C	21	C	21	C
basic		1192	3	1036	1047	1207					3291	3292	48	48	49					48	51	24	24	27					25	C	25	C	23	C
		913	3	1030	1048	1216					3294		53	53	53					53		20	20	23					21	C	21	C		
		494	3	870	1122	1302					3294		54	53	53					53		17	22	25					21	C	21	C		
merge		910	4	521	1137	1568	59				3284	3284	50	49	48	48				49	49	11	24	33	1				17	B	19	B	19	B
basic	I-270 East Spur interchange	288	3	261	998	1663					2923	2923	46	48	49					48	48	6	21	35					21	C	21	C	21	C
diverge		1593	4	1447	1808	1182	1779				6217	6217	22	24	37	47				33	33	95	95	34	39				66	F	74	F	74	F
diverge	Btw I-270 East Spur & MD 185	402	5	612	1540	1857	1228	1771			7008	7008	43	25	25	41	50			37	37	15	77	88	31	36			49	F	60	F	60	F
basic		1045	4	2012	1963	1287	1768				7030	7052	28	27	41	49				36	31	83	84	32	37				59	F	59	F	66	F
		2087	4	1901	1983	1446	1710				7040		26	26	35	45				33		82	82	43	39				61	F	61	F		
		1257	4	1860	1852	1837	1528				7076		20	22	29	38				28		98	89	66	41				73	F	73	F		
		526	4	1695	1780	1799	1805				7079		19	21	25	32				24		99	95	78	61				83	F	83	F		

I-270 Southbound - 2017 Existing - 3-4 PM

VISSIM Lookup Data				Volume										Speed										Density									
				Volume Per Lane								Across All Lanes	Overall Volume	Speed Per Lane								Across All Lanes	Overall Speed	Density Per Lane								Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)								Total Volume	Average Volume (veh/hr)	Speed (mph)								Average Speed	Average Speed (mph)	Combined Density (pcphpl)								Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Through MD 117 interchange	658	4	1370	1351	930	717					4368	4396	62	62	63	63					63	63	23	22	15	12					18	C	18	C	18	C
		3062	4	1712	1270	779	642					4402		61	63	64	64					63		28	21	12	10					18	C	18	C		
merge	Btw MD 117 & I-370	1569	5	1064	1917	1228	921	555				5684	5684	61	61	63	64	64				63	63	18	32	20	15	9				19	B	23	C	23	C
basic		1151	5	1695	1269	1304	856	579				5703	5703	61	63	63	64	64				63	63	28	20	21	14	9				19	C	19	C	19	C
		431	5	1745	1242	1351	732	573				5645	5645	60	63	63	64	64				63	63	29	20	22	12	9				18	B	18	B	18	B
diverge		1058	6	569	1252	1210	1351	744	583			5709	5709	64	63	62	63	64	64			63	63	9	20	20	22	12	9			15	B	16	B	16	B
basic	I-370 interchange	1258	4	1422	1103	748	597					3870	3869	63	63	64	64					63	63	23	18	12	10					16	B	16	B	16	B
		193	4	1521	993	751	596					3861		62	63	64	64					64		25	16	12	9					15	B	15	B		
diverge		1263	5	142	1399	966	754	604				3864	3864	65	63	63	64	64				64	64	2	23	15	12	10				12	B	13	B	13	B
basic		3427	4	1052	869	660	504					3085	3085	63	64	64	64					64	64	17	14	10	8					12	B	12	B	12	B
merge	Shady Grove Rd interchange	1046	5	269	1531	1045	616	496				3957	3957	53	57	62	64	65				60	60	5	27	17	10	8				13	B	16	B	16	B
basic		420	4	1566	1148	729	512					3955	3956	54	61	64	64					61	61	29	19	12	8					17	B	17	B	17	B
		497	4	1491	1143	783	540					3956		55	61	63	64					61		28	19	13	9					17	B	17	B		
diverge		1518	4	1424	1115	839	577					3955	3955	55	61	64	64					61	61	26	18	13	9					17	B	19	B	19	B
basic	Btw Shady Grove Rd & MD 28	3645	4	734	987	940	647					3308	3308	54	61	63	64					61	61	14	16	15	10					14	B	14	B	14	B
merge		473	5	232	1065	1060	998	666				4021	4021	59	57	60	63	65				61	61	4	19	18	16	11				14	B	14	B	14	B
basic		1022	4	1091	1174	1139	616					4020	4013	56	59	63	64					60	61	20	20	18	10					17	B	17	B	17	B
		1591	4	1042	1158	1119	690					4009		56	59	63	64					61		19	20	18	11					17	B	17	B		
merge	MD 28 interchange	655	5	144	1237	1325	1034	727				4467	4467	60	57	59	63	64				61	61	2	22	23	17	11				15	B	16	B	16	B
basic		921	4	1369	1219	1106	767					4462	4462	56	58	63	64					60	60	25	21	18	12					19	C	19	C	19	C
diverge		1515	4	1472	980	1167	847					4466	4466	56	58	63	64					60	60	27	17	19	14					19	B	21	C	21	C
basic	MD 189 interchange	3237	4	653	827	1207	938					3625	3620	56	58	63	64					60	60	12	14	20	15					15	B	15	B	15	B
		1874	4	645	748	1222	1009					3624		56	58	62	64					60		12	13	20	16					15	B	15	B		
		3407	4	618	709	1220	1067					3614		55	57	62	63					60		11	13	20	17					15	B	15	B		
merge	Montrose Rd interchange	598	5	379	1361	894	1229	1178				5041	5041	61	60	57	62	64				61	61	6	23	16	20	19				17	B	15	B	15	B
basic	Btw Montrose Rd & Spur Split	882	4	1266	978	1336	1478					5058	5058	59	57	61	62					60	60	22	17	22	24					21	C	21	C	21	C
		303	4	1186	952	1349	1583					5070		60	58	61	61					60		20	17	22	26					21	C	21	C		
		3022	4	1104	1023	1429	1501					5058		60	58	62	62					60		19	18	24	24					21	C	21	C		
weave		3707	6	574	1003	1491	1458	1106	1087			6719	6712	59	59	58	58	62	63			60	60	10	17	26	25	18	18			19	B	19	B	19	B
		722	6	747	1205	1883	907	846	1088			6676		60	60	57	58	62	62			60		13	20	34	16	14	18			19	B	19	B		
diverge		400	7	857	1262	1736	997	978	772	106		6706	6706	60	60	57	59	62	63	63		61	61	14	21	31	17	16	12	2		16	B	10	B	10	B
weave		371	6	901	1266	1651	1045	1072	572			6506	6506	60	60	58	59	62	63			60	60	15	21	29	18	17	9			18	B	18	B	18	B
basic	Spur Split through MD 187 interchange	967	4	486	1328	1110	541					3465	3465	58	58	60	61					59	59	8	23	19	9					15	B	15	B	15	B
diverge		1138	4	447	1367	1082	570					3466	3466	59	58	58	60					59	59	8	24	19	10					15	B	17	B	17	B
basic		2602	3	1091	1039	630						2760	2760	58	59	60						59	59	19	18	11						16	B	16	B	16	B
merge		443	4	117	1208	1138	656					3118	3118	49	57	58	59					56	56	2	21	20	11					14	B	15	B	15	B
basic		947	3	1203	1189	724						3116	3116	58	58	59						59	59	21	21	12						18	C	18	C	18	C
merge	Btw MD 187 & I-495	1023	4	246	1075	1236	978					3536	3536	52	61	61	63					59	59	5	18	20	16					15	B	14	B	14	B
basic		473	3	1507	1336	674						3517	3543	62	62	64						63	63	25	22	11						19	C	19	C	19	C
		3140	3	1491	1601	455						3547		62	62	64						63		24	26	7						19	C	19	C		
diverge		1491	3	1496	1425	629						3551	3551	63	63	64						63	63	24	23	10						19	B	19	B	19	B
basic		1568	2	1462	1441							2903	2903	54	55							55	55	28	27							27	D	27	D	27	D
basic	Spur Split to Democracy Blvd	3000	3	1220	1048	818						3086	3086	58	59	59						59	59	21	18	14						18	C	18	C	18	C
weave		963	4	654	1240	1095	242					3231	3231	58	58	58	63					59	59	11	22	19	4					14	B	14	B	14	B
basic	Democracy Blvd	2461	3	1189	1049	359						2597	2597	58	59	63						60	60	21	18	6						15	B	15	B	15	B
merge	Democracy Blvd to I-495	522	5	24	238	1357	1250	412				3281	3281	50	51	56	58	62				55	55	0	5	25	22	7				12	B	10	B	10	B
merge		937	4	13	1384	1301	568					3265	3265	53	55	57	61					56	56	0	25	23	9					15	B	16	B	16	B
basic		2520	3	1740	1413	133						3285	3285	53	56	60						56	56	33	26	2						20	C	20	C	20	C
basic	CD - I-370 interchange	1623	2	652	133							785	785	55	62							59	59	12	2							7	A	7	A	7	A
weave	CD - Btw I-370 & Shady Grove Rd	795	4	655	615	773	437					2480	2480	53	53	53	52					53	53	12	12	15	9					12	A	12	A	12	A
diverge		1609	3	293	789	534						1616	1616	52	53	54						53	53	6	15	10						10	B	10	B	10	B
basic	CD - Shady Grove Rd interchange	702	2	686	610							1296	1296	53	54							54	54	13	11							12	B	12	B	12	B
merge		477	3	175	1034	752						1961	1961	49	52	53						52	52	4	20	14						13	B	13	B	13	B
basic		800	2	1106	858							1964	1964	53	53							53	53	21	16							19	C	19	C	19	C
merge	CD - Btw Shady Grove Rd & MD 28	707	3	111	1304	1063						2479	2479	51	52	53						52	52	2	25	20						16	B	16	B	16	B
basic		1081	2	1119	1354							2473	2473	53	52							53	53	22	26							24	C	24	C	24	C
merge		609	3	1227	1692	201						3120	3120	53	52	51						52	52	24	33	4						20	C	20	C	20	C
diverge		1505	2	1443	1680							3123	3123	52	52							52	52	28	33							30	D	30	D	30	D
diverge		2914	2	1386	1033							2419	2419	53	54							53	53	27	20							23	C	23	C	23	C
basic		170	2	1321	604							1925	1925	52	54							53	53	26	11							19	C	19	C	19	C
diverge		291	3	352	969	633						1953	1953	46	52	54						51	51	8	19	12						13	B	13	B	13	B
basic	CD - MD 28 interchange	926	2	775	625							1400	1400	53	54							54	54	15	12							13	B	13	B	13	B
merge		231	3	138	875	667						1681	1681	32	50	53						45	45	4	18	13						12	B	12	B	12	B
basic		1111	2	881	803							1684	1684	53	53							53	53	17	15							16	B	16	B	16	B
merge	CD - Btw MD 28 & MD 189	577	3	274	1383	1048						2706	2706	50	52	53						52	52	6	27	20						18	B	18	B	18	B
basic		1055	2	1496	1226							2723	2723	52	53							52	52	29	24							26	D	26	D	26	D
merge		610	3	1845	1442	262						3548	3548	52	53	53						52	52	36	28	5						23	C	23	C	23	C
basic		837	2	1946	1587							3534	3534	50	52							51	51	40	31							35	E	35	E	35	E
diverge		350	3	531	1423	1599						3553	3553	51	50	51						51	51	11	29	32						24	C	24	C	24	C
basic	CD - MD 189 interchange	816	2	1207	1553							2759	2759	53	53							53	53	23	30							26	D	26	D	26	D
		1802	2	1228	1532							2760		53	53							53		23	29							26	D	26	D		
merge	CD - Btw MD 189 & Montrose Rd	465	3	181	1470	1661						3312	3312	49	51	52						51	51	4	29	32						22	C	22	C	22	C
diverge		2186	2	1695	1630							3325	3325	47	50							49	49	37	33							35	E	35	E	35	E
basic		775	2	1442	419							1861	1861	51	53							52	52	28	8							18	C	18	C	18	C
diverge		235	3	196	1234	442						1873	1873	48	51	53						50	50	4	25	9						12	B	12	B	12	B
basic	CD - Montrose Rd interchange	1196	2	1103	440							1543	1543	53	54							54	54	21	8							15	B	15	B	15	B
weave		422	3	772	895	598						2264	2264	33	40	47						40	40	24	23	13						20	C	20	C	20	C
basic		1029	2	659	763							1422	1422	51	52							51	51	13	15							14	B	14	B	14	B
merge		415	3	230	788	793						1810	1810	53	53	53						53	53	4	15	15						12	B	12	B	12	B
basic		1429	2	690	952							1642	1642	53	53							53	53	13	18							16	B	16	B	16	B

I-270 Southbound - 2017 Existing - 4-5 PM

VISSIM Lookup Data				Volume										Speed										Density											
				Volume Per Lane								Across All Lanes	Overall Volume	Speed Per Lane								Across All Lanes	Overall Speed	Density Per Lane								Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)								Total Volume	Average Volume (veh/hr)	Speed (mph)								Average Speed	Average Speed (mph)	Combined Density (pcphpl)								Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Through MD 117 interchange	658	4	1525	1489	1051	801					4866	4895	62	62	63	63					62	63	25	24	17	13					20	C	20	C	20	C
		3062	4	1921	1400	873	708					4902		61	62	64	64					63		32	23	14	11					20	C	20	C		
merge	Btw MD 117 & I-370	1569	5	1378	2083	1342	1042	631				6476	6476	59	60	63	64	64				62	62	24	35	22	17	10				21	C	27	C	27	C
basic		1151	5	2063	1351	1421	989	667				6491	6491	57	62	63	64	64				62	62	37	22	23	16	11				22	C	22	C	22	C
		431	5	2141	1289	1469	854	663				6415	6415	57	62	63	64	64				62	62	38	21	24	14	11				21	C	21	C	21	C
diverge		1058	6	820	1448	1216	1457	866	678			6484	6484	62	62	62	62	64	64			63	63	14	24	20	24	14	11			18	B	19	B	19	B
basic	I-370 interchange	1258	4	1426	1187	872	694					4178	4177	62	63	64	64					63	63	23	19	14	11					17	B	17	B	17	B
		193	4	1538	1067	870	696					4170		62	63	64	64					63		25	17	14	11					17	B	17	B		
diverge		1263	5	161	1396	1037	874	702				4170	4170	65	63	63	64	64				64	64	3	23	17	14	11				13	B	14	B	14	B
basic		3427	4	1064	937	773	574					3348	3348	63	64	64	64					64	64	17	15	12	9					13	B	13	B	13	B
merge	Shady Grove Rd interchange	1046	5	252	1554	1073	711	556				4146	4146	53	57	62	64	64				60	60	5	28	17	11	9				14	B	17	B	17	B
basic		420	4	1586	1167	811	581					4146	4146	54	61	63	64					61	61	30	19	13	9					18	C	18	C	18	C
		497	4	1507	1160	866	612					4146		55	61	63	64					61		28	19	14	10					18	C	18	C		
diverge		1518	4	1442	1119	927	653					4141	4141	55	61	63	64					61	61	27	19	15	10					18	B	20	C	20	C
basic		3645	4	696	988	1007	723					3414	3414	55	61	63	64					61	61	13	16	16	12					14	B	14	B	14	B
merge	Btw Shady Grove Rd & MD 28	473	5	255	1090	1071	1058	739				4214	4214	59	57	60	63	64				61	61	4	19	18	17	12				14	B	14	B	14	B
basic		1022	4	1135	1193	1198	686					4211	4207	57	59	63	64					61	61	20	21	19	11					18	C	18	C	18	C
		1591	4	1092	1196	1166	750					4205		57	60	63	64					61		20	20	19	12					18	C	18	C		
merge	MD 28 interchange	655	5	157	1294	1387	1086	787				4711	4711	60	58	59	63	64				61	61	3	23	24	17	13				16	B	16	B	16	B
basic		921	4	1439	1276	1161	835					4710	4710	56	58	62	64					60	60	26	22	19	13					20	C	20	C	20	C
diverge		1515	4	1533	1031	1226	921					4711	4711	56	58	63	64					60	60	28	18	20	15					20	C	22	C	22	C
basic	MD 189 interchange	3237	4	662	866	1271	1010					3809	3810	57	58	62	64					60	60	12	15	21	16					16	B	16	B	16	B
		1874	4	652	783	1288	1094					3818		56	58	62	63					60		12	14	21	18					16	B	16	B		
		3407	4	619	743	1286	1159					3806		56	58	62	63					60		11	13	21	19					16	B	16	B		
merge	Montrose Rd interchange	598	5	373	1331	910	1287	1279				5180	5180	61	60	58	62	64				61	61	6	23	16	21	20				17	B	15	B	15	B
basic	Btw Montrose Rd & Spur Split	882	4	1232	988	1380	1599					5200	5202	59	58	61	62					60	60	21	17	23	26					22	C	22	C	22	C
		303	4	1161	958	1399	1695					5213		60	58	61	61					60		20	17	23	28					22	C	22	C		
		3022	4	1106	1029	1485	1592					5202		60	58	62	62					60		19	18	24	26					22	C	22	C		
weave		3707	6	701	1136	1589	1536	1131	1120			7212	7203	59	59	58	58	62	63			60	60	12	20	28	27	19	18			20	C	20	C	20	C
		722	6	885	1319	1991	962	883	1116			7156		60	60	57	58	62	62			60		15	23	36	17	14	18			20	C	20	C		
diverge		400	7	1002	1386	1817	1047	1024	770	137		7183	7183	60	60	57	59	62	63	63		61	61	17	24	32	18	17	12	2		17	B	10	B	10	B
weave		371	6	1046	1388	1733	1103	1114	551			6934	6934	60	60	57	59	62	63			60	60	18	24	31	19	18	9			20	C	20	C	20	C
basic	Spur Split through MD 187 interchange	967	4	563	1382	1135	509					3588	3588	58	58	60	61					59	59	10	24	19	8					15	B	15	B	15	B
diverge		1138	4	544	1410	1103	529					3587	3587	59	58	58	59					59	59	9	25	19	9					16	B	18	B	18	B
basic		2602	3	1111	1061	589						2762	2762	58	59	60						59	59	19	18	10						16	B	16	B	16	B
merge		443	4	157	1274	1194	615					3240	3240	49	57	58	59					56	56	3	23	21	10					14	B	16	B	16	B
basic		947	3	1272	1253	715						3239	3239	58	58	59						58	58	22	22	12						19	C	19	C	19	C
merge	Btw MD 187 & I-495	1023	4	256	1127	1286	994					3663	3663	52	60	61	63					59	59	5	19	21	16					15	B	15	B	15	B
basic		473	3	1548	1370	724						3642	3631	59	60	61						60	48	27	24	12						21	C	21	C	30	D
		3140	3	1492	1592	545						3629		41	43	56						46		42	43	11						32	D	32	D		
diverge		1491	3	1432	1421	692						3545	3545	22	23	54						33	33	74	70	13						53	F	53	F	53	F
basic		1568	2	1377	1442							2819	2819	15	17							16	16	96	89							93	F	93	F	93	F
basic	Spur Split to Democracy Blvd	3000	3	1392	1133	862						3387	3387	58	59	59						58	58	24	20	15						20	C	20	C	20	C
weave		963	4	813	1338	1120	294					3566	3566	58	58	58	63					59	59	14	23	19	5					15	B	15	B	15	B
basic	Democracy Blvd	2461	3	1273	1079	421						2772	2772	58	59	63						60	60	22	19	7						16	B	16	B	16	B
merge	Democracy Blvd to I-495	522	5	27	231	1405	1274	482				3419	3419	50	50	55	57	60				55	55	1	5	26	23	8				12	B	10	B	10	B
merge		937	4	19	1378	1301	699					3397	3397	43	45	46	48					46	46	0	35	33	18					22	C	23	C	23	C
basic		2520	3	1688	1449	238						3376	3376	33	35	43						37	37	61	50	7						39	E	39	E	39	E
basic	CD - I-370 interchange	1623	2	681	137							818	818	55	62							59	59	13	2							7	A	7	A	7	A
weave	CD - Btw I-370 & Shady Grove Rd	795	4	645	627	773	404					2449	2449	53	53	53	52					53	53	12	12	15	8					12	A	12	A	12	A
diverge		1609	3	284	813	555						1652	1652	52	53	54						53	53	6	15	10						10	B	10	B	10	B
basic	CD - Shady Grove Rd interchange	702	2	689	632							1321	1321	54	54							54	54	13	12							12	B	12	B	12	B
merge		477	3	177	1037	777						1991	1991	49	52	53						51	51	4	20	15						13	B	13	B	13	B
basic		800	2	1112	883							1994	1994	52	53							53	53	21	17							19	C	19	C	19	C
merge	CD - Btw Shady Grove Rd & MD 28	707	3	149	1359	1158						2666	2666	50	52	53						52	52	3	26	22						17	B	17	B	17	B
basic		1081	2	1195	1465							2659	2659	52	52							52	52	23	29							26	D	26	D	26	D
merge		609	3	1330	1813	236						3379	3379	53	51	51						51	51	26	36	5						22	C	22	C	22	C
diverge		1505	2	1576	1808							3383	3383	52	51							52	52	31	36							33	D	33	D	33	D
diverge		2914	2	1486	1099							2586	2586	53	54							53	53	28	21							25	C	25	C	25	C
basic		170	2	1410	640							2049	2049	52	54							53	53	27	12							20	C	20	C	20	C
diverge		291	3	380	1031	671						2081	2081	46	52	54						51	51	8	20	13						14	B	14	B	14	B
basic	CD - MD 28 interchange	926	2	826	656							1482	1482	53	54							54	54	16	12							14	B	14	B	14	B
merge		231	3	123	900	692						1715	1715	32	51	53						45	45	4	18	13						12	B	12	B	12	B
basic		1111	2	903	813							1716	1716	53	53							53	53	17	16							16	B	16	B	16	B
merge	CD - Btw MD 28 & MD 189	577	3	286	1423	1075						2784	2784	51	52	53						52	52	6	28	21						18	B	18	B	18	B
basic		1055	2	1547	1255							2801	2801	52	53							52	52	30	24							27	D	27	D	27	D
merge		610	3	1918	1491	284						3693	3693	51	52	52						51	51	38	29	6						24	C	24	C	24	C
basic		837	2	2033	1646							3679	3679	50	51							50	50	42	33							37	E	37	E	37	E
diverge		350	3	573	1469	1657						3699	3699	51	49	51						50	50	12	30	33						25	C	25	C	25	C
basic	CD - MD 189 interchange	816	2	1236	1606							2842	2840	53	53							53	53	24	31							27	D	27	D	27	D
		1802	2	1258	1581							2839		53	53							53		24	30							27	D	27	D		
merge	CD - Btw MD 189 & Montrose Rd	465	3	199	1504	1728						3431	3431	48	51	52						50	50	4	30	34						23	C	23	C	23	C
diverge		2186	2	1748	1693							3441	3441	48	50							49	49	37	34							36	E	36	E	36	E
basic		775	2	1510	512							2022	2022	52	53							53	53	30	10							20	C	20	C	20	C
diverge		235	3	203	1293	540						2036	2036	48	51	54						51	51	4	26	10						13	B	13	B	13	B
basic	CD - Montrose Rd interchange	1196	2	1154	537							1691	1691	53	54							54	54	22	10							16	B	16	B	16	B
weave		422	3	768	971	708						2447	2447	35	42	48						42	42	22	24	15						20	B	20	B	20	B
basic		1029	2	765	867							1632	1632	51	52							51	51	15	17							16	B	16	B	16	B
merge		415	3	284	957	930						2171	2171	52	53	53						53	53	6	18	18						14	B	14	B	14	B
basic		1429	2	861	1138							1999	1999	53	53							53	53	17	22							19	C	19	C	19	C

I-270 Southbound - 2017 Existing - 5-6 PM

VISSIM Lookup Data				Volume										Speed										Density									
				Volume Per Lane								Across All Lanes	Overall Volume	Speed Per Lane								Across All Lanes	Overall Speed	Density Per Lane								Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)								Total Volume	Average Volume (veh/hr)	Speed (mph)								Average Speed	Average Speed (mph)	Combined Density (pcphpl)								Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Through MD 117 interchange	658	4	1665	1630	1140	876					5311	5338	61	61	62	63					62	62	28	27	19	14					22	C	22	C	22	C
		3062	4	2072	1532	952	787					5343		60	62	63	64					62		35	25	15	13					22	C	22	C		
merge	Btw MD 117 & I-370	1569	5	1519	2176	1449	1145	719				7008	7008	59	59	62	63	64				61	61	26	37	24	18	11				23	C	29	D	29	D
basic		1151	5	2217	1426	1530	1084	763				7020	7020	55	61	63	64	64				61	61	41	24	25	17	12				24	C	24	C	24	C
		431	5	2292	1364	1592	937	754				6940	6940	55	62	63	64	64				61	61	42	23	26	15	12				23	C	23	C	23	C
diverge		1058	6	963	1477	1270	1574	955	771			7011	7011	62	62	62	62	64	64			62	62	16	24	21	26	15	12			19	B	20	C	20	C
basic	I-370 interchange	1258	4	1506	1278	955	789					4527	4526	62	63	64	64					63	63	25	21	15	13					18	C	18	C	18	C
		193	4	1625	1150	956	786					4517		62	63	64	64					63		27	18	15	13					18	C	18	C		
diverge		1263	5	187	1465	1114	957	791				4514	4514	65	63	63	64	64				64	64	3	24	18	15	13				14	B	15	B	15	B
basic		3427	4	1123	1006	839	650					3619	3619	63	64	64	64					64	64	18	16	13	10					14	B	14	B	14	B
merge	Shady Grove Rd interchange	1046	5	317	1695	1189	777	630				4609	4609	53	56	62	64	64				60	60	6	31	19	12	10				16	B	19	B	19	B
basic		420	4	1733	1303	921	652					4609	4609	53	60	63	64					60	60	33	22	15	10					20	C	20	C	20	C
		497	4	1647	1277	992	692					4609		54	60	63	64					60		31	21	16	11					20	C	20	C		
diverge		1518	4	1588	1210	1056	748					4602	4602	54	60	63	64					60	60	30	20	17	12					20	C	22	C	22	C
basic		3645	4	800	1030	1134	847					3811	3811	54	60	63	64					60	60	15	17	18	14					16	B	16	B	16	B
merge	Btw Shady Grove Rd & MD 28	473	5	328	1262	1174	1168	874				4805	4805	58	57	59	63	64				60	60	6	23	20	19	14				16	B	16	B	16	B
basic		1022	4	1312	1341	1357	797					4807	4802	56	58	62	63					60	60	24	24	22	13					21	C	21	C	20	C
		1591	4	1283	1328	1289	898					4798		57	58	62	64					60		23	23	21	14					20	C	20	C		
merge	MD 28 interchange	655	5	171	1520	1539	1150	940				5319	5319	60	57	58	63	64				60	60	3	27	27	19	15				18	B	19	B	19	B
basic		921	4	1666	1414	1235	1000					5315	5315	55	57	62	63					59	59	31	25	20	16					23	C	23	C	23	C
diverge		1515	4	1773	1128	1303	1114					5318	5318	55	57	62	63					59	59	33	20	21	18					23	C	25	C	25	C
basic	MD 189 interchange	3237	4	736	930	1313	1227					4206	4201	57	57	62	63					60	59	13	16	22	20					18	C	18	C	18	C
		1874	4	744	861	1299	1301					4204		56	57	62	63					59		13	15	21	21					18	C	18	C		
		3407	4	713	831	1292	1359					4195		56	57	62	63					59		13	15	21	22					18	C	18	C		
merge	Montrose Rd interchange	598	5	425	1500	1032	1307	1483				5747	5747	60	59	57	61	63				60	60	7	26	19	22	24				19	B	17	B	17	B
basic	Btw Montrose Rd & Spur Split	882	4	1406	1117	1455	1795					5772	5775	59	56	60	61					59	60	24	20	25	30					25	C	25	C	25	C
		303	4	1332	1088	1482	1888					5790		60	57	60	61					59		23	19	25	32					25	C	25	C		
		3022	4	1283	1174	1562	1756					5775		60	57	61	61					60		22	21	26	29					24	C	24	C		
weave		3707	6	643	1129	1698	1623	1171	1218			7481	7474	59	59	58	58	61	62			60	60	11	19	30	29	20	20			21	C	21	C	21	C
		722	6	923	1459	2026	955	861	1212			7435		60	59	56	58	62	62			59		16	25	37	17	14	20			21	C	21	C		
diverge		400	7	1074	1489	1854	1044	1023	837	146		7468	7468	60	59	57	59	62	63	63		60	60	18	25	33	18	17	13	2		18	B	11	B	11	B
weave		371	6	1123	1487	1778	1091	1115	614			7208	7208	60	59	57	59	62	63			60	60	19	25	32	19	18	10			21	C	21	C	21	C
basic	Spur Split through MD 187 interchange	967	4	579	1339	1093	552					3562	3562	58	58	60	61					59	59	10	23	19	9					15	B	15	B	15	B
diverge		1138	4	590	1366	1047	564					3567	3567	58	58	58	59					58	58	10	24	18	10					16	B	18	B	18	B
basic		2602	3	1019	1002	617						2638	2638	58	59	59						59	59	18	17	11						15	B	15	B	15	B
merge		443	4	155	1209	1123	642					3129	3129	50	57	58	59					56	56	3	22	20	11					14	B	15	B	15	B
basic		947	3	1212	1187	731						3131	3131	58	58	59						58	58	21	21	13						18	C	18	C	18	C
merge	Btw MD 187 & I-495	1023	4	241	1078	1230	981					3529	3529	53	60	61	62					59	59	5	18	20	16					15	B	14	B	14	B
basic		473	3	1398	1316	792						3506	3558	50	50	54						51	36	29	28	16						24	C	24	C	51	F
		3140	3	1318	1473	774						3565		27	29	45						33		74	73	20						56	F	56	F		
diverge		1491	3	1323	1377	898						3598	3598	15	16	43						25	25	109	103	23						78	F	78	F	78	F
basic		1568	2	1329	1438							2767	2767	15	17							16	16	99	90							95	F	95	F	95	F
basic	Spur Split to Democracy Blvd	3000	3	1602	1185	908						3695	3695	57	59	59						58	58	28	21	16						22	C	22	C	22	C
weave		963	4	1110	1365	1110	302					3887	3887	58	58	58	63					59	59	20	24	19	5					17	B	17	B	17	B
basic	Democracy Blvd	2461	3	1251	1057	482						2789	2789	45	45	43						45	45	29	25	12						22	C	22	C	22	C
merge	Democracy Blvd to I-495	522	5	34	376	982	1041	905				3338	3338	31	28	13	15	17				21	21	1	17	95	86	63				52	F	38	E	38	E
merge		937	4	228	859	1017	1150					3254	3254	6	9	11	15					10	10	40	121	112	83					89	F	91	F	91	F
basic		2520	3	1382	1411	424						3217	3217	12	15	19						15	15	118	100	23						80	F	80	F	80	F
basic	CD - I-370 interchange	1623	2	746	150							895	895	55	62							58	58	14	2							8	A	8	A	8	A
weave	CD - Btw I-370 & Shady Grove Rd	795	4	666	667	850	491					2675	2675	53	53	52	51					52	52	13	13	17	10					13	B	13	B	13	B
diverge		1609	3	317	831	542						1690	1690	52	53	54						53	53	6	16	10						11	B	11	B	11	B
basic	CD - Shady Grove Rd interchange	702	2	681	625							1306	1306	54	54							54	54	13	12							12	B	12	B	12	B
merge		477	3	216	1106	801						2123	2123	49	52	53						51	51	5	22	15						14	B	14	B	14	B
basic		800	2	1191	935							2126	2126	52	53							53	53	23	18							20	C	20	C	20	C
merge	CD - Btw Shady Grove Rd & MD 28	707	3	187	1491	1290						2968	2968	50	52	53						52	52	4	29	25						19	B	19	B	19	B
basic		1081	2	1301	1658							2959	2959	51	50							51	51	26	34							30	D	30	D	30	D
merge		609	3	1472	1954	319						3745	3745	49	43	41						44	44	31	47	8						29	D	29	D	29	D
diverge		1505	2	1735	2008							3743	3743	50	49							50	50	35	41							38	E	38	E	38	E
diverge		2914	2	1622	1126							2748	2748	53	54							53	53	31	21							26	C	26	C	26	C
basic		170	2	1537	650							2187	2187	52	54							53	53	30	12							21	C	21	C	21	C
diverge		291	3	422	1115	681						2219	2219	46	52	54						51	51	9	22	13						15	B	15	B	15	B
basic	CD - MD 28 interchange	926	2	885	669							1553	1553	53	54							54	54	17	13							15	B	15	B	15	B
merge		231	3	124	940	711						1775	1775	31	51	53						45	45	4	19	14						12	B	12	B	12	B
basic		1111	2	945	830							1775	1775	53	53							53	53	18	16							17	B	17	B	17	B
merge	CD - Btw MD 28 & MD 189	577	3	348	1511	1161						3020	3020	47	50	51						49	49	8	31	24						21	C	21	C	21	C
basic		1055	2	1632	1404							3036	3036	46	48							47	47	39	32							35	E	35	E	35	E
merge		610	3	2023	1658	454						4135	4135	43	43	42						43	43	52	43	13						36	E	36	E	36	E
basic		837	2	2213	1903							4116	4116	45	47							46	46	50	41							46	F	46	F	46	F
diverge		350	3	695	1552	1892						4139	4139	49	46	47						47	47	15	35	41						30	D	30	D	30	D
basic	CD - MD 189 interchange	816	2	1303	1800							3103	3100	52	52							52	53	25	35							30	D	30	D	30	D
		1802	2	1335	1763							3098		53	53							53		26	34							30	D	30	D		
merge	CD - Btw MD 189 & Montrose Rd	465	3	212	1601	1897						3710	3710	45	49	51						48	48	5	33	38						25	C	25	C	25	C
diverge		2186	2	1898	1830							3728	3728	46	48							47	47	42	38							40	F	40	F	40	F
basic		775	2	1664	470							2134	2134	51	53							52	52	33	9							21	C	21	C	21	C
diverge		235	3	232	1415	500						2148	2148	47	51	53						51	51	5	28	10						14	B	14	B	14	B
basic	CD - Montrose Rd interchange	1196	2	1256	500							1755	1755	53	54							54	54	24	9							17	B	17	B	17	B
weave		422	3	855	896	634						2384	2384	33	40	48						40	40	27	23	13						21	B	21	B	21	B
basic		1029	2	624	775							1400	1400	51	52							51	51	13	15							14	B	14	B	14	B
merge		415	3	321	791	820						1932	1932	53	53	53						53	53	6	15	16						12	B	12	B	12	B
basic		1429	2	710	985							1696	1696	53	53							53	53	14	19							16	B	16	B	16	B

I-270 Southbound - 2017 Existing - 6-7 PM

VISSIM Lookup Data				Volume										Speed										Density									
				Volume Per Lane								Across All Lanes	Overall Volume	Speed Per Lane								Across All Lanes	Overall Speed	Density Per Lane								Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)								Total Volume	Average Volume (veh/hr)	Speed (mph)								Average Speed	Average Speed (mph)	Combined Density (pcphpl)								Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Through MD 117 interchange	658	4	1527	1542	1107	888					5064	5098	61	62	63	63					62	63	25	25	18	14					21	C	21	C	21	C
		3062	4	1907	1447	947	804					5106		61	62	64	64					63		32	24	15	13					21	C	21	C		
merge	Btw MD 117 & I-370	1569	5	1139	2016	1401	1100	724				6379	6379	60	61	63	64	64				62	62	19	34	23	18	12				21	C	25	C	25	C
basic		1151	5	1801	1364	1455	1030	757				6407	6407	60	63	63	64	64				63	63	30	22	23	16	12				21	C	21	C	21	C
		431	5	1851	1350	1502	895	746				6344	6344	60	63	63	64	64				63	63	31	22	24	14	12				21	C	21	C	21	C
diverge		1058	6	665	1268	1315	1495	911	761			6415	6415	63	63	62	62	64	64			63	63	11	20	22	24	15	12			17	B	18	B	18	B
basic	I-370 interchange	1258	4	1535	1233	916	785					4469	4468	62	63	64	64					63	63	25	20	15	13					18	C	18	C	18	C
		193	4	1637	1127	915	785					4463		62	63	64	64					63		27	18	15	13					18	C	18	C		
diverge		1263	5	182	1481	1092	922	791				4468	4468	65	63	63	64	64				64	64	3	24	18	15	13				14	B	15	B	15	B
basic		3427	4	1152	987	820	665					3625	3625	63	64	64	64					64	64	19	16	13	11					14	B	14	B	14	B
merge	Shady Grove Rd interchange	1046	5	284	1642	1178	770	647				4521	4521	53	57	62	64	64				60	60	5	29	19	12	10				15	B	18	B	18	B
basic		420	4	1667	1285	895	670					4518	4517	54	60	63	64					60	60	31	22	14	11					20	C	20	C	19	C
		497	4	1579	1270	964	703					4517		55	61	63	63					60		29	21	16	11					19	C	19	C		
diverge		1518	4	1513	1221	1030	752					4516	4516	55	61	63	64					61	61	28	20	17	12					19	B	22	C	22	C
basic		3645	4	758	1063	1110	839					3770	3770	55	61	63	64					61	61	14	18	18	13					16	B	16	B	16	B
merge	Btw Shady Grove Rd & MD 28	473	5	249	1125	1145	1162	862				4543	4543	59	57	60	63	64				61	61	4	20	19	19	14				15	B	15	B	15	B
basic		1022	4	1177	1269	1303	793					4542	4537	56	59	62	64					60	60	21	22	21	13					19	C	19	C	19	C
		1591	4	1148	1259	1261	867					4534		57	59	63	64					61		21	22	21	14					19	C	19	C		
merge	MD 28 interchange	655	5	161	1366	1449	1169	900				5045	5045	60	57	59	63	64				61	61	3	24	25	19	14				17	B	17	B	17	B
basic		921	4	1519	1335	1240	948					5041	5041	55	58	62	63					60	60	28	23	20	15					22	C	22	C	22	C
diverge		1515	4	1626	1081	1306	1036					5048	5048	55	58	62	63					60	60	30	19	21	17					22	C	23	C	23	C
basic	MD 189 interchange	3237	4	695	902	1329	1129					4055	4057	56	58	62	63					60	60	13	16	22	18					17	B	17	B	17	B
		1874	4	693	835	1333	1200					4060		56	58	62	63					60		13	15	22	19					17	B	17	B		
		3407	4	672	792	1330	1262					4056		56	57	62	63					60		12	14	22	20					17	B	17	B		
merge	Montrose Rd interchange	598	5	398	1413	982	1346	1379				5519	5519	60	60	57	62	64				61	61	7	24	17	22	22				18	B	16	B	16	B
basic	Btw Montrose Rd & Spur Split	882	4	1305	1063	1447	1721					5536	5534	59	57	61	62					60	60	22	19	24	28					23	C	23	C	23	C
		303	4	1234	1023	1465	1826					5547		60	58	61	61					60		21	18	24	30					23	C	23	C		
		3022	4	1171	1108	1542	1711					5532		60	58	61	62					60		20	19	26	28					23	C	23	C		
weave		3707	6	618	1083	1614	1563	1170	1232			7280	7273	59	59	58	58	61	62			60	60	11	19	28	27	19	20			21	C	21	C	21	C
		722	6	839	1311	1997	960	909	1219			7235		60	60	56	58	62	62			60		14	22	36	17	15	20			21	C	21	C		
diverge		400	7	969	1368	1817	1065	1063	857	129		7268	7268	60	60	57	59	62	63	63		61	61	16	23	32	18	17	14	2		18	B	11	B	11	B
weave		371	6	1010	1377	1735	1113	1163	635			7032	7032	60	60	57	59	62	63			60	60	17	23	31	19	19	10			20	C	20	C	20	C
basic	Spur Split through MD 187 interchange	967	4	516	1383	1190	606					3695	3695	58	58	60	61					59	59	9	24	20	10					16	B	16	B	16	B
diverge		1138	4	489	1424	1157	630					3699	3699	58	58	58	59					58	58	9	25	20	11					16	B	18	B	18	B
basic		2602	3	1135	1114	690						2939	2939	58	59	59						59	59	20	19	12						17	B	17	B	17	B
merge		443	4	94	1222	1186	712					3214	3214	50	58	58	59					56	56	2	22	21	12					14	B	15	B	15	B
basic		947	3	1222	1223	766						3211	3211	58	58	59						59	59	21	21	13						19	C	19	C	19	C
merge	Btw MD 187 & I-495	1023	4	204	1057	1240	983					3484	3484	54	61	62	63					60	60	4	18	20	16					14	B	14	B	14	B
basic		473	3	1468	1318	679						3465	3493	62	63	64						63	58	24	21	11						19	C	19	C	21	C
		3140	3	1431	1559	507						3497		55	55	63						58		27	29	8						21	C	21	C		
diverge		1491	3	1432	1390	720						3541	3541	36	37	61						45	45	45	43	12						33	D	33	D	33	D
basic		1568	2	1386	1449							2835	2835	23	27							25	25	61	56							59	F	59	F	59	F
basic	Spur Split to Democracy Blvd	3000	3	1348	1138	901						3386	3386	58	59	59						58	58	24	20	16						20	C	20	C	20	C
weave		963	4	753	1284	1156	361					3553	3553	51	46	47	43					47	47	16	31	27	11					21	C	21	C	21	C
basic	Democracy Blvd	2461	3	816	910	998						2725	2725	7	9	12						9	9	123	111	86						107	F	107	F	107	F
merge		522	5	28	435	496	782	1386				3128	3128	26	23	3	5	11				13	13	1	21	193	171	130				103	F	72	F	72	F
merge	Democracy Blvd to I-495	937	4	379	480	834	1434					3127	3127	5	3	5	11					6	6	77	186	169	126					140	F	144	F	144	F
basic		2520	3	1294	1352	490						3136	3136	10	12	16						13	13	133	116	31						93	F	93	F	93	F
basic	CD - I-370 interchange	1623	2	708	141							849	849	55	62							58	58	13	2							8	A	8	A	8	A
weave	CD - Btw I-370 & Shady Grove Rd	795	4	595	606	819	445					2464	2464	53	53	52	51					52	52	11	12	16	9					12	A	12	A	12	A
diverge		1609	3	287	745	549						1581	1581	52	53	54						53	53	6	14	10						10	B	10	B	10	B
basic		702	2	635	609							1244	1244	54	54							54	54	12	11							12	B	12	B	12	B
merge	CD - Shady Grove Rd interchange	477	3	182	1009	750						1941	1941	49	53	53						52	52	4	19	14						12	B	12	B	12	B
basic		800	2	1090	857							1947	1947	53	53							53	53	21	16							19	C	19	C	19	C
merge	CD - Btw Shady Grove Rd & MD 28	707	3	109	1284	1062						2455	2455	51	53	53						52	52	2	25	20						16	B	16	B	16	B
basic		1081	2	1087	1362							2449	2449	53	52							53	53	21	26							24	C	24	C	24	C
merge		609	3	1210	1751	233						3195	3195	53	51	51						52	52	23	35	5						21	C	21	C	21	C
diverge		1505	2	1446	1758							3204	3204	52	52							52	52	28	34							31	D	31	D	31	D
diverge		2914	2	1402	1047							2449	2449	53	54							53	53	27	20							23	C	23	C	23	C
basic		170	2	1342	574							1916	1916	52	54							53	53	26	11							18	C	18	C	18	C
diverge		291	3	359	983	603						1945	1945	46	53	54						51	51	8	19	11						13	B	13	B	13	B
basic	CD - MD 28 interchange	926	2	786	595							1381	1381	53	54							54	54	15	11							13	B	13	B	13	B
merge		231	3	121	872	635						1628	1628	32	50	53						45	45	4	18	12						11	B	11	B	11	B
basic		1111	2	877	761							1637	1637	53	53							53	53	17	15							16	B	16	B	16	B
merge	CD - Btw MD 28 & MD 189	577	3	291	1403	1031						2725	2725	50	52	53						52	52	6	27	20						18	B	18	B	18	B
basic		1055	2	1518	1222							2740	2740	52	53							52	52	30	24							27	D	27	D	27	D
merge		610	3	1880	1519	315						3714	3714	49	50	49						49	49	39	31	7						26	C	26	C	26	C
basic		837	2	2018	1684							3702	3702	49	51							50	50	42	34							38	E	38	E	38	E
diverge		350	3	590	1441	1693						3723	3723	51	49	51						50	50	12	30	34						25	C	25	C	25	C
basic	CD - MD 189 interchange	816	2	1210	1632							2842	2844	53	53							53	53	23	31							27	D	27	D	27	D
		1802	2	1240	1606							2845		53	53							53		24	31							27	D	27	D		
merge	CD - Btw MD 189 & Montrose Rd	465	3	208	1503	1758						3469	3469	48	51	52						50	50	4	30	34						23	C	23	C	23	C
diverge		2186	2	1744	1738							3481	3481	48	50							49	49	37	36							36	E	36	E	36	E
basic		775	2	1506	475							1981	1981	52	53							53	53	30	9							19	C	19	C	19	C
diverge		235	3	213	1280	503						1996	1996	48	51	53						51	51	5	25	10						13	B	13	B	13	B
basic	CD - Montrose Rd interchange	1196	2	1137	501							1638	1638	53	54							54	54	22	9							16	B	16	B	16	B
weave		422	3	745	946	670						2362	2362	34	40	47						41	41	23	24	14						20	B	20	B	20	B
basic		1029	2	753	818							1570	1570	51	51							51	51	15	16							16	B	16	B	16	B
merge		415	3	241	845	834						1920	1920	53	53	53						53	53	5	16	16						12	B	12	B	12	B
basic		1429	2	734	990							1723	1723	53	53							53	53	14	19							16	B	16	B	16	B

I-270 Northbound - 2017 Existing - 3-4 PM

VISSIM Lookup Data				Volume								Speed									Density									
				Volume Per Lane						Across All Lanes	Overall Volume	Speed Per Lane						Across All Lanes	Overall Speed	Density Per Lane						Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)						Total Volume	Average Volume (veh/hr)	Speed (mph)						Average Speed	Average Speed (mph)	Combined Density (pcphpl)						Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Btw MD 124 & MD 117	7479	4	1512	1565	1677	2099			6853	6853	16	17	20	35			22	22	95	92	85	59			83	F	83	F	83	F
diverge	Btw MD 117 & I-370	1357	5	1465	1533	1579	1659	2016		8251	8251	42	16	17	19	29		25	25	36	95	94	90	71		77	F	75	F	75	F
basic		843	5	1406	1503	1610	1735	1996		8251	8251	25	18	19	22	28		22	22	58	84	85	81	72		76	F	76	F	76	F
merge		531	6	19	1384	1515	1536	1777	1988	8218	8218	26	17	14	18	23	23	20	20	1	82	108	86	78	88	74	F	64	F	64	F
basic	I-370 interchange	3610	4	1604	1620	1660	2025			6909	6926	20	24	31	32			27	29	84	70	55	64			68	F	68	F	63	F
		633	4	1590	1667	1690	1990			6937		29	30	33	39			33		58	60	54	53			56	F	56	F		
		1171	4	1596	1703	1649	2025			6973		33	34	36	40			36		52	53	48	51			51	F	51	F		
merge		337	5	261	1430	1684	1579	2041		6995	6995	27	32	37	38	40		35	35	11	50	50	44	54		42	E	37	E	37	E
basic	Shady Grove Rd interchange	3947	4	1329	1594	1551	2051			6525	6525	48	49	50	48			49	49	29	33	32	43			34	D	34	D	34	D
weave	Btw Shady Grove Rd & MD 28	1523	5	897	2028	1666	1564	2068		8223	8221	54	53	53	53	52		53	53	17	39	32	30	40		31	D	31	D	31	D
		1475	5	822	2109	1673	1546	2070		8220		54	52	53	53	53		53		15	41	32	29	39		32	D	32	D		
		1482	5	622	1880	2211	1437	2070		8220		54	52	52	54	53		53		12	36	43	27	39		31	D	31	D		
basic	MD 28 interchange	3696	4	1829	1944	1526	2076			7375	7374	52	52	53	51			52	52	36	38	29	40			36	E	36	E	36	E
		464	4	1520	1942	1779	2127			7368		53	53	53	52			53		29	37	34	41			35	E	35	E		
diverge		1405	4	2277	1941	1691	2130			8040	8040	49	51	52	52			51	51	47	38	33	41			40	E	39	E	39	E
merge		640	5	388	2258	1861	1411	2123		8040	8040	51	49	51	53	52		51	51	8	46	37	27	41		32	D	30	D	30	D
basic	Btw MD 28 & MD 189	531	4	1383	1649	1390	2136			6559	6561	53	53	53	52			53	53	26	32	26	41			31	D	31	D	31	D
		1407	4	1347	1652	1423	2139			6561		53	53	53	52			53		26	32	27	41			31	D	31	D		
diverge		1536	4	1744	1598	1639	2144			7124	7124	52	52	53	52			52	52	34	31	31	41			34	D	32	D	32	D
basic	Btw MD 189 & Montrose Rd	74	4	1718	1575	1624	2122			7040	7111	52	53	53	53			53	52	33	30	31	40			34	D	34	D	35	E
		1921	4	1501	1802	1638	2182			7123		53	53	53	53			53		29	35	31	42			34	D	34	D		
		3344	4	1310	1772	1834	2191			7106		50	51	52	52			51		27	35	36	42			35	E	35	E		
diverge	Montrose Rd interchange	1487	4	1876	1846	1467	2135			7325	7325	42	48	50	52			48	48	46	39	30	41			39	E	38	E	38	E
basic		425	4	1970	1813	1409	2116			7308	7308	54	53	54	53			53	52	37	34	26	40			35	E	35	E	36	E
		2955	4	1999	1820	1427	2061			7307		52	53	53	49			52		39	35	27	42			36	E	36	E		
weave	Btw Montrose Rd & Spur Split	1533	6	1767	1737	1943	1944	1987	1445	10824	10823	52	52	51	52	53	53	52	51	34	34	38	38	38	27	35	E	35	E	37	E
		1210	6	1657	1938	2062	1870	1894	1407	10827		52	51	51	52	53	53	52		32	39	42	37	36	27	35	E	35	E		
		1521	6	1540	2214	2221	1679	1845	1320	10820		48	42	43	49	52	53	48		32	53	53	35	36	25	39	E	39	E		
weave		447	5	1577	2200	2343	1878	1640		9638	9638	45	36	35	44	53		43	43	36	62	68	44	31		48	F	48	F	48	F
basic		1229	2	1857	1876					3733	3733	44	43					43	43	43	45					44	E	44	E	44	E
merge	Btw Spur Split & MD 187	736	3	14	1851	1874				3739	3734	47	44	45				45	47	0	44	44				29	D	29	D	28	D
		519	3	48	1806	1872				3725		51	50	50				50		1	38	39				26	C	26	C		
weave		624	5	17	368	1644	1716	1101		4845	4845	49	50	56	56	59		54	54	0	8	30	31	19		18	B	18	B	18	B
basic	MD 187 interchange	511	3	1318	1356	1098				3773	3784	58	58	58				58	58	23	24	19				22	C	22	C	22	C
		1863	3	1308	1377	1102				3787		58	58	58				58		23	24	19				22	C	22	C		
diverge		520	4	167	1330	1404	1100			4002	4002	58	59	59	59			58	58	3	23	24	19			17	B	17	B	17	B
basic		797	3	1477	1410	1094				3981	3981	57	57	57				57	57	26	25	19				24	C	24	C	24	C
diverge	Btw MD 187 & I-495	674	4	242	1525	1428	1098			4293	4293	59	58	58	58			58	58	4	27	25	19			19	B	19	B	19	B
basic		824	3	1756	1431	1093				4280	4299	58	58	58				58	58	31	25	19				25	C	25	C	25	C
		3315	3	1785	1425	1094				4304		57	58	58				58		32	25	19				25	C	25	C		
		1136	3	1740	1549	1011				4300		56	56	58				57		32	28	17				26	D	26	D		
merge		429	4	405	1660	1279	949			4294	4294	51	56	57	59			56	56	8	30	23	16			19	B	20	C	20	C
basic		386	3	1342	1140	644				3126	3126	58	59	59				59	59	23	20	11				18	C	18	C	18	C
basic		500	2	1343	1786					3128	3128	56	56					56	56	24	32					28	D	28	D	28	D
basic		1849	3	2167	2164	1652				5983	5983	36	37	51				41	41	62	59	33				51	F	51	F	51	F
merge	Btw Spur Split & Democracy	716	4	2165	2164	1492	152			5973	5973	29	29	51	53			41	41	76	76	29	3			46	F	36	E	36	E
basic	Blvd	1170	3	2136	2178	1105				5418	5418	32	32	53				39	39	71	71	21				54	F	54	F	54	F
merge		820	4	347	1923	2074	1099			5444	5444	34	26	27	53			35	35	11	84	86	21			50	F	60	F	60	F
basic	Democracy Blvd interchange	457	3	1798	1880	1078				4756	4756	27	27	53				36	36	80	81	20				61	F	61	F	61	F
merge		887	4	705	1213	1826	1088			4831	4831	19	19	26	53			29	29	65	96	84	20			66	F	82	F	82	F
basic		790	3	1731	1751	1086				4569	4569	33	32	54				40	40	62	66	20				50	F	50	F	50	F
diverge	Btw Democracy Blvd & I-495	894	4	410	1698	1854	1090			5053	5053	52	42	42	54			48	48	8	47	51	20			32	D	35	E	35	E
basic		3447	3	2021	1938	1088				5047	5047	47	48	54				49	49	45	42	20				36	E	36	E	36	E
merge	D - Btw Middlebrook Rd & MD 1	468	2	189	1175					1364	1364	31	27					29	29	7	52					30	D	30	D	30	D
merge	CD - MD 124 interchange	497	2	149	823					972	972	34	39					36	36	10	27					19	B	19	B	19	B
diverge	CD - Btw MD 124 & MD 117	2235	2	679	1329					2007	2007	51	43					47	47	14	31					22	C	22	C	22	C
weave	CD - Btw MD 117 & I-370	600	3	1429	683	1328				3440	3440	43	52	43				46	46	33	13	31				26	C	26	C	26	C
basic		4137	2	1418	591					2009	2009	53	54					53	53	27	11					19	C	19	C	19	C
weave		1981	3	1253	1035	1156				3444	3444	52	53	48				51	51	24	20	25				23	B	23	B	23	B
basic	CD - I-370 interchange	1052	2	864	1083					1947	1947	53	53					53	53	16	21					19	C	19	C	19	C
merge		704	3	127	787	1040				1955	1955	42	52	53				49	49	3	15	20				13	B	13	B	13	B
basic		981	2	457	936					1393	1393	54	54					54	54	9	18					13	B	13	B	13	B
diverge	CD - Btw I-370 & Shady Grove Rd	483	3	1183	1397	1029				3609	3609	50	50	52				51	51	24	28	20				24	C	24	C	24	C
basic		951	2	2234	1348					3582	3582	46	50					48	48	49	27					38	E	38	E	38	E
diverge		501	3	1766	1836	508				4110	4110	50	51	54				52	52	36	37	10				27	C	27	C	27	C
merge		356	4	253	1598	1705	501			4057	4057	48	51	52	54			51	51	5	32	33	10			20	C	23	C	23	C
basic	CD - Shady Grove Rd interchange	759	3	1416	1538	504				3458	3458	52	52	54				53	53	28	30	10				22	C	22	C	22	C
weave		577	4	178	1282	1596	362			3418	3418	50	53	53	54			52	52	4	25	31	7			16	B	16	B	16	B
diverge	CD - Btw Shady Grove Rd & MD 28	190	3	431	1017	1115				2564	2564	53	53	52				53	53	8	19	22				17	B	17	B	17	B
basic		4624	2	1437	1155					2591	2591	52	53					53	53	28	22					25	C	25	C	25	C
diverge		2601	3	1065	1020	1351				3436	3436	53	53	53				53	53	20	19	26				22	C	22	C	22	C
weave		177	4	14	1085	1363	977			3438	3438	33	51	52	53			47	47	0	22	26	19			17	B	17	B	17	B
merge		274	3	249	937	1490				2676	2676	44	51	52				49	49	6	19	29				18	B	18	B	18	B
basic	CD - MD 28 interchange	924	2	701	1419					2120	2120	52	52					52	52	14	28					21	C	21	C	21	C
weave		258	3	623	1194	1229				3046	3046	36	45	51				44	44	18	27	24				23	B	23	B	23	B
basic		862	2	1734	1158					2892	2892	52	53					52	52	34	22					28	D	28	D	28	D
diverge	CD - Btw MD 28 & MD 189	379	3	205	1828	1169				3202	3202	52	51	51				51	51	4	37	23				21	C	21	C	21	C
basic		525	2	2067	1150					3217	3217	49	51					50	50	43	23					33	D	33	D	33	D
weave		710	3	2038	1294	1428				4761	4761	50	49	47				49	49	42	27	31				33	D	33	D	33	D
basic		1166	2	1844	2347					4191	4191	47	47					47	47	40	51					46	F	46	F	46	F
merge		286	3	450	1509	2236				4195	4195	24	31	41				32	32	20	51	56				42	F	42	F	42	F
basic	CD - MD 189 interchange	810	2	1169	2130					3299	3297	45	46					45	48	27	47					37	E	37	E	35	E
		649	2	1117	2178					3295		53	52					52		21	43					32	D	32	D		
diverge	CD - Btw MD 189 & Montrose Rd	220	3	372	1327	2222				3921	3921	46	50	51				49	49	8	27	44				26	C	26	C	26	C
basic		1046	2	1723	2216					3938	3938	52	50					51	51	34	45					39	E	39	E	39	E
		2216	2	1944	1994					3938		51	51					51		39	40					39	E	39	E		
merge		463	3	1913	1939	87				3938	3938	51	51	50				51	51	38	39	2				26	C	26	C	26	C
basic		950	2	1821	1881					3702	3702	49	50					49	49	38	38					38	E	38	E	38	E
merge		402	3	428	1614	1675				3717	3717	43	47	50				46	46	10	35	34				27	C	27	C	27	C
basic	CD - Montrose Rd interchange	1126	2	1061	1418					2479	2479	52	53					52	52	21	27					24	C	24	C	24	C
weave		342	3	354	1081	1379				2814	2814	41	48	52				47	47	9	23	27				20	C	20	C	20	C
basic		1121	2	1137	1301					2438	2438	53	53					53	53	22	25					23	C	23	C	23	C
diverge	CD - Btw Montrose Rd & Spur Split	262	3	640	1479	1361				3481	3481	48	49	52				50	50	14	31	27				24	C	24	C	24	C
basic		1304	2	2150	1330					3481	3481	51	53					52	52	43	25					34	D	34	D	34	D

I-270 Northbound - 2017 Existing - 4-5 PM

VISSIM Lookup Data				Volume									Speed								Density											
				Volume Per Lane						Across All Lanes	Overall Volume		Speed Per Lane						Across All Lanes	Overall Speed	Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)						Total Volume	Average Volume (veh/hr)		Speed (mph)						Average Speed	Average Speed (mph)	Combined Density (pcphpl)							Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Btw MD 124 & MD 117	7479	4	1468	1542	1634	2096			6740	6740		15	17	19	36			22	22	98	93	88	59				85	F	85	F	85	F
diverge	Btw MD 117 & I-370	1357	5	1305	1496	1551	1603	2024		7979	7979		42	15	16	17	30		24	24	31	100	98	94	67			78	F	76	F	76	F
basic		843	5	1309	1453	1566	1650	2003		7981	7981		24	17	18	19	31		22	22	57	89	91	88	66			78	F	78	F	78	F
merge		531	6	67	1313	1420	1481	1670	1984	7934	7934		20	15	13	16	20	26	18	18	4	94	116	96	89	78		79	F	71	F	71	F
basic	I-370 interchange	3610	4	1420	1494	1625	1979			6518	6508		19	22	29	37			27	30	94	80	63	54				73	F	73	F	68	F
		633	4	1417	1539	1616	1902			6474			30	30	32	44			34		67	68	62	45				60	F	60	F		
		1171	4	1418	1552	1594	1935			6499			34	34	36	43			37		62	65	58	48				58	F	58	F		
merge		337	5	146	1299	1528	1570	1951		6495	6495		31	33	35	36	40		35	35	8	71	71	65	56			54	F	50	F	50	F
basic	Shady Grove Rd interchange	3947	4	1266	1523	1560	1946			6295	6295		39	40	41	45			41	41	44	48	45	45				46	F	46	F	46	F
weave	Btw Shady Grove Rd & MD 28	1523	5	1103	2031	1614	1585	1954		8287	8307		51	47	47	47	49		48	51	23	46	39	38	41			37	E	37	E	34	D
		1475	5	985	2148	1643	1581	1956		8312			52	50	50	50	52		51		19	44	34	33	38			34	D	34	D		
		1482	5	669	1957	2270	1473	1954		8324			54	52	52	53	53		53		13	38	44	28	37			32	D	32	D		
basic	MD 28 interchange	3696	4	1881	2026	1585	1965			7457	7457		52	52	53	52			52	52	37	40	31	38				36	E	36	E	36	E
		464	4	1486	2010	1901	2064			7461			53	53	53	52			53		29	39	37	39				36	E	36	E		
diverge		1405	4	2276	1987	1845	2091			8199	8199		48	50	52	52			51	51	48	40	36	40				41	E	42	E	42	E
merge		640	5	454	2168	1923	1585	2078		8208	8208		41	42	46	49	52		46	46	13	53	44	33	40			37	E	37	E	37	E
basic	Btw MD 28 & MD 189	531	4	1444	1734	1522	2085			6785	6783		51	52	52	52			52	52	29	34	29	40				33	D	33	D	33	D
		1407	4	1411	1734	1550	2088			6782			53	53	53	52			53		27	33	30	40				32	D	32	D		
diverge		1536	4	1842	1660	1803	2095			7399	7399		52	53	53	52			52	52	36	32	35	40				36	E	34	D	34	D
basic	Btw MD 189 & Montrose Rd	74	4	1824	1628	1789	2076			7317	7404		52	53	53	53			53	52	36	31	34	40				35	E	35	E	36	E
		1921	4	1592	1860	1803	2152			7406			53	53	53	53			53		31	36	34	41				35	E	35	E		
		3344	4	1358	1819	2049	2178			7405			49	51	51	52			51		28	37	41	42				37	E	37	E		
diverge	Montrose Rd interchange	1487	4	1899	1947	1775	2086			7707	7707		33	42	46	52			43	43	59	47	39	40				46	F	48	F	48	F
basic		425	4	2065	1925	1646	2054			7690	7688		53	54	54	53			53	52	39	37	31	39				36	E	36	E	37	E
		2955	4	2102	1931	1638	2018			7688			52	53	53	50			52		41	37	31	40				38	E	38	E		
weave	Btw Montrose Rd & Spur Split	1533	6	1568	1512	2033	2046	2108	1498	10765	10767		53	52	50	51	52	53	52	50	30	29	42	41	41	28		35	E	35	E	37	E
		1210	6	1466	1800	2096	1961	2007	1441	10770			52	51	50	51	52	53	51		29	36	43	39	38	27		35	E	35	E		
		1521	6	1457	2143	2156	1728	1957	1325	10765			46	40	41	47	51	53	46		32	55	54	38	38	25		40	E	40	E		
weave		447	5	1742	2075	2165	2019	1711		9711	9711		38	28	27	37	53		37	37	47	75	81	55	32			58	F	58	F	58	F
basic	Btw Spur Split & MD 187	1229	2	1947	1925					3872	3872		33	30					32	32	60	65						62	F	62	F	62	F
merge		736	3	136	1837	1906				3879	3877		27	23	23				24	24	6	83	88					59	F	59	F	60	F
		519	3	403	1700	1772				3874			28	24	22				25		17	81	90					63	F	63	F		
weave		624	5	39	849	1491	1541	970		4890	4890		36	30	23	23	59		34	34	1	32	84	91	17			45	F	45	F	45	F
basic	MD 187 interchange	511	3	1304	1314	968				3586	3622		25	25	58				36	39	73	74	17					55	F	55	F	49	F
		1863	3	1310	1352	969				3631			30	30	58				39		63	64	17					48	F	48	F		
diverge		520	4	153	1334	1395	969			3851	3851		50	34	34	59			44	44	3	56	57	17				33	D	39	E	39	E
basic		797	3	1459	1423	963				3846	3846		38	37	57				44	44	48	48	17					37	E	37	E	37	E
diverge	Btw MD 187 & I-495	674	4	239	1506	1453	967			4165	4165		56	43	42	58			50	50	4	42	41	17				26	C	29	D	29	D
basic		824	3	1731	1473	965				4169	4207		49	48	58				52	54	39	34	17					30	D	30	D	27	D
		3315	3	1772	1476	963				4210			53	53	58				54		36	30	17					27	D	27	D		
		1136	3	1755	1595	872				4223			55	55	58				56		33	30	15					26	D	26	D		
merge		429	4	413	1670	1361	776			4220	4220		50	55	57	59			55	55	8	31	25	13				19	B	21	C	21	C
basic		386	3	1355	1164	525				3045	3045		58	59	59				59	59	24	20	9					18	C	18	C	18	C
basic		500	2	1363	1686					3048	3048		56	56					56	56	25	31						28	D	28	D	28	D
basic	Btw Spur Split & Democracy Blvd	1849	3	2071	2130	1722				5923	5923		31	34	50				38	38	69	64	34					56	F	56	F	56	F
merge		716	4	2079	2125	1525	195			5924	5924		26	27	48	50			38	38	82	81	32	4				50	F	39	E	39	E
basic		1170	3	2060	2132	1082				5275	5275		27	28	53				36	36	78	77	20					58	F	58	F	58	F
merge		820	4	546	1710	1974	1074			5304	5304		27	17	20	53			29	29	21	104	101	20				61	F	75	F	75	F
basic	Democracy Blvd interchange	457	3	1663	1746	1053				4462	4462		17	18	53				29	29	103	101	20					75	F	75	F	75	F
merge		887	4	831	965	1666	1066			4528	4528		8	7	16	53			21	21	110	137	109	20				94	F	119	F	119	F
basic		790	3	1626	1598	1063				4286	4286		16	16	54				28	28	104	107	20					77	F	77	F	77	F
diverge	Btw Democracy Blvd & I-495	894	4	415	1616	1679	1065			4776	4776		48	19	19	54			35	35	9	91	93	20				53	F	64	F	64	F
basic		3447	3	1877	1872	1063				4812	4812		28	30	54				37	37	69	65	20					51	F	51	F	51	F
merge	D - Btw Middlebrook Rd & MD 12	468	2	178	1173					1351	1351		37	33					35	35	5	36						21	C	21	C	21	C
merge	CD - MD 124 interchange	497	2	112	783					895	895		41	45					43	43	3	18						10	B	10	B	10	B
diverge	CD - Btw MD 124 & MD 117	2235	2	798	1250					2048	2048		51	43					47	47	16	29						22	C	22	C	22	C
weave	CD - Btw MD 117 & I-370	600	3	1501	847	1201				3549	3549		40	53	43				45	45	38	16	28					27	C	27	C	27	C
basic		4137	2	1495	793					2288	2288		53	53					53	53	29	15						22	C	22	C	22	C
weave		1981	3	1348	1238	1195				3782	3782		51	50	37				46	46	27	26	36					30	C	30	C	30	C
basic	CD - I-370 interchange	1052	2	1002	1326					2328	2328		53	53					53	53	19	25						22	C	22	C	22	C
merge		704	3	162	901	1272				2336	2336		42	52	53				49	49	4	18	24					15	B	15	B	15	B
basic		981	2	491	1137					1628	1628		54	53					53	53	9	22						16	B	16	B	16	B
diverge	CD - Btw I-370 & Shady Grove Rd	483	3	1321	1318	1278				3917	3917		46	46	50				47	47	29	29	26					28	D	28	D	28	D
basic		951	2	2161	1737					3898	3898		27	34					30	30	83	53						68	F	68	F	68	F
diverge		501	3	1867	2056	246				4170	4170		26	31	51				36	36	76	69	5					50	F	50	F	50	F
merge		356	4	516	1505	1844	261			4127	4127		19	19	25	44			27	27	29	85	79	6				50	F	64	F	64	F
basic	CD - Shady Grove Rd interchange	759	3	1461	1602	346				3409	3409		20	23	34				26	26	80	74	10					55	F	55	F	55	F
weave		577	4	311	1147	1388	555			3401	3401		19	19	22	23			21	21	18	67	69	27				45	F	45	F	45	F
diverge	CD - Btw Shady Grove Rd & MD 28	190	3	445	1051	898				2393	2393		52	53	24				43	43	9	20	52					27	C	27	C	27	C
basic		4624	2	1472	984					2456	2456		50	38					44	44	30	29						30	D	30	D	30	D
diverge		2601	3	988	970	1388				3346	3346		53	53	53				53	53	19	18	27					21	C	21	C	21	C
weave		177	4	12	1002	1300	1038			3352	3352		32	51	52	53			47	47	0	20	25	20				16	B	16	B	16	B
merge		274	3	260	843	1422				2525	2525		45	51	52				49	49	6	17	28					17	B	17	B	17	B
basic	CD - MD 28 interchange	924	2	568	1359					1927	1927		52	52					52	52	11	27						19	C	19	C	19	C
weave		258	3	720	1120	1186				3025	3025		31	41	50				40	40	24	28	24					25	C	25	C	25	C
basic		862	2	1741	1114					2855	2855		51	53					52	52	35	21						28	D	28	D	28	D
diverge	CD - Btw MD 28 & MD 189	379	3	191	1828	1121				3140	3140		51	51	51				51	51	4	37	22					21	C	21	C	21	C
basic		525	2	2049	1104					3152	3152		50	51					50	50	42	22						32	D	32	D	32	D
weave		710	3	1970	1275	1392				4637	4637		51	51	49				50	50	40	26	29					31	C	31	C	31	C
basic		1166	2	1727	2286					4014	4014		48	49					48	48	36	48						42	E	42	E	42	E
merge		286	3	397	1438	2179				4014	4014		32	39	47				39	39	13	37	47					33	D	33	D	33	D
basic	CD - MD 189 interchange	810	2	1043	2067					3109	3106		53	52					52	52	20	40						30	D	30	D	30	D
		649	2	1016	2086					3102			53	52					53		19	41						30	D	30	D		
diverge	CD - Btw MD 189 & Montrose Rd	220	3	372	1227	2129				3729	3745		45	49	52				49	49	8	25	42					25	C	25	C	25	C
basic		1046	2	1630	2113					3743			52	51					51	51	32	42						37	E	37	E	37	E
		2216	2	1866	1880					3745			51	51					51		37	38						37	E	37	E		
merge		463	3	1849	1785	113				3747	3747		51	51	49				51	51	37	35	2					25	C	25	C	25	C
basic		950	2	1741	1704					3444	3444		50	51					50	50	35	34						35	E	35	E	35	E
merge		402	3	439	1553	1472				3463	3463		45	49	51				48	48	10	32	29					24	C	24	C	24	C
basic	CD - Montrose Rd interchange	1126	2	914	1205					2119	2119		53	53					53	53	18	23						20	C	20	C	20	C
weave		342	3	336	956	1146				2438	2438		42	49	52				48	48	8	20	22					17	B	17	B	17	B
basic		1121	2	979	1072					2051	2051		53	54					53	53	19	20						20	C	20	C	20	C
diverge	CD - Btw Montrose Rd & Spur Split	262	3	613	1323	1113				3049	3049		48	49	53				50	50	13	27	21					21	C	21	C	21	C
basic		1304	2	1940	1107					3047	3047		52	54					53	53	38	21						30	D	30	D	30	D

I-270 Northbound - 2017 Existing - 5-6 PM

VISSIM Lookup Data				Volume									Speed								Density									
				Volume Per Lane							Across All Lanes	Overall Volume	Speed Per Lane							Across All Lanes	Overall Speed	Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)							Total Volume	Average Volume (veh/hr)	Speed (mph)							Average Speed	Average Speed (mph)	Combined Density (pcphpl)							Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Btw MD 124 & MD 117	7479	4	1372	1470	1584	2081				6506	6506	13	15	17	42				22	22	106	100	92	50				87	F	87	F	87	F
diverge	Btw MD 117 & I-370	1357	5	1308	1408	1469	1545	2039			7769	7769	40	13	14	16	40			25	25	33	107	104	100	52			79	F	81	F	81	F
basic		843	5	1277	1382	1494	1602	2016			7771	7771	22	15	16	18	39			22	22	60	93	94	90	52			78	F	78	F	78	F
merge		531	6	201	1197	1311	1371	1667	1992		7740	7740	15	11	11	15	20	37		18	18	15	114	127	92	85	56		81	F	85	F	85	F
basic	I-370 interchange	3610	4	1284	1403	1577	1958				6221	6220	17	21	29	46				28	30	99	83	63	42				72	F	72	F	71	F
		633	4	1278	1451	1586	1893				6208		28	28	30	45				33		80	81	73	43				69	F	69	F		
		1171	4	1268	1457	1575	1926				6226		28	29	30	40				32		76	79	72	51				69	F	69	F		
merge		337	5	19	1241	1443	1582	1955			6240	6240	30	28	28	30	36			31	31	1	82	84	79	65			62	F	56	F	56	F
basic	Shady Grove Rd interchange	3947	4	1185	1481	1607	1956				6229	6229	32	33	34	39				35	35	63	66	64	56				62	F	62	F	62	F
weave	Btw Shady Grove Rd & MD 28	1523	5	1213	1656	1628	1669	1952			8118	8153	19	21	31	33	39			29	37	68	91	73	70	60			73	F	73	F	57	F
		1475	5	1129	1931	1600	1567	1930			8157		39	37	38	39	42			39		35	65	58	57	54			54	F	54	F		
		1482	5	826	1813	2093	1521	1932			8185		45	43	43	45	47			45		26	53	58	41	44			44	F	44	F		
basic	MD 28 interchange	3696	4	1817	1962	1595	1934				7308	7309	47	48	50	51				49	49	41	43	33	38				39	E	39	E	38	E
		464	4	1443	1974	1882	2017				7316		51	51	51	52				51		29	39	37	39				36	E	36	E		
diverge		1405	4	2292	1954	1820	2039				8105	8105	48	50	52	52				51	51	49	39	36	39				41	E	41	E	41	E
merge		640	5	415	2246	1911	1513	2027			8112	8112	49	46	49	51	52			49	49	9	50	39	30	39			33	D	33	D	33	D
basic	Btw MD 28 & MD 189	531	4	1450	1690	1466	2039				6646	6643	53	53	53	52				53	53	28	32	28	39				32	D	32	D	32	D
		1407	4	1401	1695	1505	2041				6642		53	53	53	52				53		27	33	29	39				32	D	32	D		
diverge		1536	4	1906	1625	1784	2049				7364	7364	51	52	53	53				52	52	38	31	34	39				36	E	34	D	34	D
basic	Btw MD 189 & Montrose Rd	74	4	1888	1591	1764	2035				7278	7359	52	53	53	53				53	52	37	30	34	39				35	E	35	E	36	E
		1921	4	1616	1853	1778	2120				7366		53	53	53	53				53		31	36	34	40				35	E	35	E		
		3344	4	1354	1799	2052	2152				7357		49	50	51	52				51		28	36	40	41				37	E	37	E		
diverge		1487	4	1897	1934	1762	2066				7659	7659	34	42	46	51				43	43	57	46	38	40				45	F	47	F	47	F
basic	Montrose Rd interchange	425	4	2056	1902	1642	2039				7639	7635	53	54	54	53				53	52	39	36	31	38				36	E	36	E	37	E
		2955	4	2091	1902	1624	2016				7634		52	53	53	50				52		41	37	31	40				37	E	37	E		
weave	Btw Montrose Rd & Spur Split	1533	6	1619	1584	2020	2027	2096	1503		10848	10855	53	52	50	51	52	53		52	50	31	31	41	40	40	28		35	E	35	E	37	E
		1210	6	1526	1843	2098	1931	2006	1455		10859		52	51	50	51	53	53		52		30	37	43	38	38	27		35	E	35	E		
		1521	6	1505	2163	2161	1721	1972	1336		10858		46	40	41	47	52	53		46		33	55	54	37	38	25		40	E	40	E		
weave		447	5	1790	2077	2148	2019	1771			9806	9806	38	27	27	37	53			36	36	48	77	82	56	33			59	F	59	F	59	F
basic	Btw Spur Split & MD 187	1229	2	1970	1953						3922	3912	32	29						30	19	63	68						66	F	66	F	66	F
merge		736	3	224	1795	1899					3918		24	19	18					20		9	98	105					71	F	71	F	77	F
		519	3	673	1587	1642					3902		22	15	14					17		30	106	119					85	F	85	F		
weave		624	5	57	1172	1344	1353	975			4901	4901	30	23	11	10	59			27	27	2	51	123	132	17			65	F	65	F	65	F
basic	MD 187 interchange	511	3	1292	1241	971					3505	3521	12	11	58					27	28	112	116	17					82	F	82	F	77	F
		1863	3	1293	1259	974					3526		14	14	58					29		103	106	17					75	F	75	F		
diverge		520	4	224	1289	1317	974				3804	3804	44	21	20	59				36	36	5	98	102	17				56	F	69	F	69	F
basic		797	3	1444	1372	967					3783	3783	23	22	57					34	34	87	89	17					64	F	64	F	64	F
diverge	Btw MD 187 & I-495	674	4	202	1452	1404	972				4030	4030	48	23	23	58				38	38	4	87	88	17				49	F	60	F	60	F
basic		824	3	1592	1468	971					4030	4075	25	25	58					36	40	84	84	17					62	F	62	F	51	F
		3315	3	1622	1485	971					4077		31	32	58					40		72	66	17					52	F	52	F		
		1136	3	1637	1580	886					4103		36	37	58					44		61	56	15					44	E	44	E		
merge		429	4	503	1426	1377	805				4112	4112	28	34	38	57				39	39	44	65	52	14				44	F	54	F	54	F
basic		386	3	1237	1196	580					3012	3012	39	41	52					44	44	54	44	12					36	E	36	E	36	E
basic		500	2	1306	1714						3021	3021	41	44						43	43	49	48						49	F	49	F	49	F
basic	Btw Spur Split & Democracy Blvd	1849	3	2035	2133	1783					5952	5952	29	33	50					38	38	71	65	36					57	F	57	F	57	F
merge		716	4	2043	2119	1547	237				5946	5946	24	26	44	46				35	35	87	84	35	5				53	F	41	E	41	E
basic		1170	3	2019	2129	1027					5175	5175	25	27	52					35	35	81	79	20					60	F	60	F	60	F
merge		820	4	644	1585	1952	1019				5199	5199	24	14	19	53				28	28	27	113	104	19				66	F	81	F	81	F
basic	Democracy Blvd interchange	457	3	1571	1731	997					4300	4300	14	17	53					28	28	112	106	19					79	F	79	F	79	F
merge		887	4	834	871	1644	1008				4357	4357	7	6	14	53				20	20	126	150	116	19				103	F	131	F	131	F
basic		790	3	1541	1561	1005					4107	4107	13	13	54					27	27	120	119	19					86	F	86	F	86	F
diverge	Btw Democracy Blvd & I-495	894	4	528	1522	1627	1006				4683	4683	46	15	16	54				33	33	12	104	105	19				60	F	74	F	74	F
basic		3447	3	1808	1863	1004					4676	4676	23	25	54					34	34	81	75	19					58	F	58	F	58	F
merge	D - Btw Middlebrook Rd & MD 12	468	2	299	1070						1369	1369	19	15						17	17	21	93						57	F	57	F	57	F
merge	CD - MD 124 interchange	497	2	173	748						921	921	26	29						27	27	30	55						42	F	42	F	42	F
diverge	CD - Btw MD 124 & MD 117	2235	2	862	1275						2137	2137	51	44						47	47	17	30						23	C	23	C	23	C
weave	CD - Btw MD 117 & I-370	600	3	1364	932	1209					3504	3504	42	53	43					46	46	33	18	28					26	C	26	C	26	C
basic		4137	2	1365	864						2229	2229	52	52						52	52	27	17						22	C	22	C	22	C
weave		1981	3	1403	1275	1176					3854	3854	31	25	16					24	24	50	62	97					70	F	70	F	70	F
basic	CD - I-370 interchange	1052	2	1126	1329						2455	2455	23	25						24	24	68	66						67	F	67	F	67	F
merge		704	3	308	941	1257					2506	2506	21	25	31					26	26	29	51	49					43	F	43	F	43	F
basic		981	2	491	1124						1614	1614	43	48						46	46	13	24						18	C	18	C	18	C
diverge	CD - Btw I-370 & Shady Grove Rd	483	3	1352	1203	1296					3852	3852	44	45	49					46	46	31	27	27					28	D	28	D	28	D
basic		951	2	2011	1814						3826	3826	20	28						24	24	100	66						83	F	83	F	83	F
diverge		501	3	1775	2062	44					3880	3880	18	24	40					27	27	99	86	1					62	F	62	F	62	F
merge		356	4	723	1240	1769	100				3832	3832	12	10	16	25				16	16	59	124	110	4				74	F	98	F	98	F
basic	CD - Shady Grove Rd interchange	759	3	1302	1410	305					3017	3017	10	12	21					14	14	134	117	15					88	F	88	F	88	F
weave		577	4	535	731	868	850				2984	2984	11	6	7	15				10	10	51	136	131	62				95	F	95	F	95	F
diverge	CD - Btw Shady Grove Rd & MD 28	190	3	537	1276	498					2312	2312	52	52	24					43	43	11	25	81					39	E	39	E	39	E
basic		4624	2	1728	561						2289	2289	48	31						39	39	37	30						33	D	33	D	33	D
diverge		2601	3	871	875	1407					3153	3153	53	54	53					53	53	17	17	27					20	C	20	C	20	C
weave		177	4	8	873	1190	1085				3156	3156	38	52	53	53				49	49	0	17	23	21				15	B	15	B	15	B
merge		274	3	226	734	1319					2280	2280	44	51	53					49	49	5	15	26					15	B	15	B	15	B
basic	CD - MD 28 interchange	924	2	469	1256						1725	1725	53	52						52	52	9	24						17	B	17	B	17	B
weave		258	3	723	1035	1072					2830	2830	36	44	51					43	43	21	24	21					22	B	22	B	22	B
basic		862	2	1666	1010						2676	2676	52	53						53	53	33	19						26	D	26	D	26	D
diverge	CD - Btw MD 28 & MD 189	379	3	195	1750	1025					2970	2970	52	51	52					51	51	4	35	20					20	C	20	C	20	C
basic		525	2	1980	1005						2986	2986	50	52						51	51	40	20						30	D	30	D	30	D
weave		710	3	1846	1225	1442					4513	4513	51	51	48					50	50	37	25	30					31	C	31	C	31	C
basic		1166	2	1543	2238						3781	3781	50	50						50	50	31	45						38	E	38	E	38	E
merge		286	3	335	1298	2150					3783	3783	38	46	50					45	45	9	29	44					27	C	27	C	27	C
basic	CD - MD 189 interchange	810	2	894	2065						2959	2957	54	52						53	53	17	40						28	D	28	D	28	D
		649	2	875	2081						2956		54	52						53		17	40						28	D	28	D		
diverge	CD - Btw MD 189 & Montrose Rd	220	3	479	1159	2123					3760	3760	45	48	52					49	49	11	24	42					26	C	26	C	26	C
basic		1046	2	1661	2115						3776	3778	52	51						51	51	33	42						38	E	38	E	38	E
		2216	2	1907	1872						3779		51	51						51		38	37						38	E	38	E		
merge		463	3	1861	1807	115					3782	3782	51	52	49					51	51	37	36	2					25	C	25	C	25	C
basic		950	2	1748	1725						3474	3474	50	51						50	50	36	35						35	E	35	E	35	E
merge		402	3	441	1563	1482					3487	3487	45	49	51					48	48	10	33	30					24	C	24	C	24	C
basic	CD - Montrose Rd interchange	1126	2	925	1214						2138	2138	53	53						53	53	18	23						21	C	21	C	21	C
weave		342	3	316	971	1173					2460	2460	41	49	52					48	48	8	20	23					17	B	17	B	17	B
basic		1121	2	1036	1119						2155	2155	53	53						53	53	20	21						21	C	21	C	21	C
diverge	CD - Btw Montrose Rd & Spur Split	262	3	626	1367	1184					3176	3176	48	48	51					49	49	13	29	24					22	C	22	C	22	C
basic		1304	2	2007	1170						3177	3177	51	54						52	52	40	22						31	D	31	D	31	D

I-270 Northbound - 2017 Existing - 6-7 PM

VISSIM Lookup Data				Volume								Speed									Density									
				Volume Per Lane						Across All Lanes	Overall Volume	Speed Per Lane							Across All Lanes	Overall Speed	Density Per Lane						Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)						Total Volume	Average Volume (veh/hr)	Speed (mph)							Average Speed	Average Speed (mph)	Combined Density (pcphpl)						Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Btw MD 124 & MD 117	7479	4	1497	1549	1650	2094			6791	6791	17	18	20	38				23	23	92	89	83	55			80	F	80	F	80	F
diverge	Btw MD 117 & I-370	1357	5	1360	1490	1534	1600	2041		8025	8025	40	18	18	20	36			26	26	35	89	89	84	58		71	F	71	F	71	F
basic		843	5	1298	1490	1554	1626	2029		7997	7997	26	20	20	23	37			25	25	52	79	81	76	57		69	F	69	F	69	F
merge		531	6	108	1239	1502	1421	1650	2016	7936	7936	17	16	16	19	24	34		21	21	6	85	105	80	73	61	68	F	65	F	65	F
basic	I-370 interchange	3610	4	1358	1432	1598	2021			6409	6381	19	23	30	45				29	31	89	75	59	46			67	F	67	F	65	F
		633	4	1244	1446	1661	1970			6320		28	28	31	46				33		70	71	66	44			63	F	63	F		
		1171	4	1221	1445	1649	2015			6329		30	30	32	42				34		66	69	65	49			62	F	62	F		
merge		337	5	12	1194	1414	1650	2050		6320	6320	34	29	30	31	39			33	33	0	73	76	74	59		57	F	50	F	50	F
basic	Shady Grove Rd interchange	3947	4	1107	1432	1685	2036			6261	6261	32	34	35	41				36	36	54	59	61	53			57	F	57	F	57	F
weave	Btw Shady Grove Rd & MD 28	1523	5	1099	1370	1682	1915	2037		8103	8105	14	11	22	28	40			23	30	131	126	85	80	58		96	F	96	F	73	F
		1475	5	1162	1637	1593	1743	1978		8114		21	21	25	30	41			28		76	92	74	69	54		73	F	73	F		
		1482	5	845	1715	2025	1581	1933		8098		37	35	37	41	47			39		33	61	64	46	45		50	F	50	F		
basic	MD 28 interchange	3696	4	1849	1967	1612	1938			7366	7367	44	45	47	50				47	47	44	46	36	39			41	E	41	E	41	E
		464	4	1486	1988	1883	2016			7373		49	49	49	51				49		32	41	39	40			38	E	38	E		
diverge		1405	4	2277	1972	1819	2034			8102	8102	47	50	51	52				50	50	49	40	36	39			41	E	42	E	42	E
merge		640	5	366	2249	1900	1563	2030		8109	8109	50	48	50	52	52			51	51	7	47	38	30	39		33	D	31	D	31	D
basic	Btw MD 28 & MD 189	531	4	1472	1714	1545	2048			6779	6779	53	53	53	52				53	53	28	33	29	39			32	D	32	D	32	D
		1407	4	1427	1722	1578	2053			6779		53	53	53	52				53		28	33	30	39			32	D	32	D		
diverge	Btw MD 189 & Montrose Rd	1536	4	1934	1659	1837	2058			7488	7488	51	52	52	52				52	52	38	32	35	39			36	E	35	E	35	E
basic		74	4	1921	1622	1818	2040			7401	7482	52	53	53	53				53	51	38	31	35	39			36	E	36	E	37	E
		1921	4	1644	1892	1841	2113			7490		53	53	53	53				53		32	36	35	40			36	E	36	E		
		3344	4	1366	1849	2124	2141			7480		49	50	51	52				51		29	37	42	41			37	E	37	E		
diverge	Montrose Rd interchange	1487	4	1870	1985	1871	2045			7771	7771	28	37	42	50				39	39	69	55	45	41			52	F	56	F	56	F
basic		425	4	2114	1972	1669	2002			7758	7762	53	53	54	53				53	52	40	37	31	38			37	E	37	E	38	E
		2955	4	2156	1975	1669	1963			7763		52	53	53	50				52		43	38	32	39			38	E	38	E		
weave	Btw Montrose Rd & Spur Split	1533	6	1462	1388	2090	2100	2125	1443	10608	10604	53	53	49	50	52	53		52	50	28	27	43	42	41	27	35	E	35	E	37	E
		1210	6	1355	1742	2122	2018	1991	1377	10605		52	51	49	51	52	53		51		26	35	44	41	38	26	35	E	35	E		
		1521	6	1373	2146	2137	1756	1928	1257	10598		46	40	41	47	51	53		46		31	55	54	38	38	24	40	E	40	E		
weave		447	5	1745	2032	2138	2067	1617		9599	9599	37	27	26	37	53			36	36	48	78	84	57	30		60	F	60	F	60	F
basic		1229	2	1947	1926					3873	3873	31	28						29	29	65	70					67	F	67	F	67	F
merge	Btw Spur Split & MD 187	736	3	193	1794	1888				3875	3867	24	18	18					20	19	8	100	105				71	F	71	F	76	F
		519	3	573	1621	1663				3857		24	16	14					18		24	105	119				83	F	83	F		
weave		624	5	27	948	1477	1422	908		4782	4782	35	30	13	11	59			30	30	1	32	117	128	15		59	F	59	F	59	F
basic	MD 187 interchange	511	3	1451	1342	906				3698	3704	14	12	58					28	28	106	113	16				78	F	78	F	78	F
		1863	3	1442	1354	910				3705		14	12	58					28		106	112	16				78	F	78	F		
diverge		520	4	200	1419	1391	909			3919	3919	40	13	12	59				31	31	5	115	121	16			64	F	80	F	80	F
basic		797	3	1539	1464	904				3907	3907	16	14	57					29	29	99	104	16				73	F	73	F	73	F
diverge	Btw MD 187 & I-495	674	4	241	1537	1515	907			4199	4199	45	16	15	58				33	33	5	101	104	16			57	F	70	F	70	F
basic		824	3	1677	1612	903				4192	4232	18	17	58					31	32	98	99	16				71	F	71	F	68	F
		3315	3	1665	1663	906				4234		18	19	58					32		97	93	16				69	F	69	F		
		1136	3	1648	1766	841				4254		20	22	57					33		94	90	15				66	F	66	F		
merge		429	4	724	1151	1606	771			4252	4252	13	15	21	55				26	26	99	121	99	14			83	F	106	F	106	F
basic		386	3	1225	1365	615				3205	3205	19	22	42					28	28	111	90	15				72	F	72	F	72	F
basic		500	2	1395	1819					3214	3214	21	26						24	24	101	85					93	F	93	F	93	F
basic		1849	3	2045	2136	1625				5806	5806	30	34	51					38	38	69	64	32				55	F	55	F	55	F
merge	Btw Spur Split & Democracy Blvd	716	4	2067	2116	1442	176			5801	5801	25	26	50	52				38	38	85	83	29	3			50	F	38	E	38	E
basic		1170	3	2050	2114	1005				5169	5169	26	27	53					35	35	81	80	19				60	F	60	F	60	F
merge		820	4	442	1759	1986	1000			5187	5187	28	17	20	53				30	30	16	104	102	19			60	F	74	F	74	F
basic	Democracy Blvd interchange	457	3	1693	1810	980				4483	4483	17	18	53					30	30	102	100	18				73	F	73	F	73	F
merge		887	4	885	961	1703	993			4542	4542	8	7	15	53				21	21	115	143	112	19			97	F	123	F	123	F
basic		790	3	1698	1619	993				4310	4310	16	14	54					28	28	110	115	19				81	F	81	F	81	F
diverge	Btw Democracy Blvd & I-495	894	4	420	1664	1707	995			4786	4786	47	18	18	54				34	34	9	95	98	18			55	F	67	F	67	F
basic		3447	3	1872	1914	993				4780	4780	25	27	54					35	35	76	71	19				55	F	55	F	55	F
merge	) - Btw Middlebrook Rd & MD 1	468	2	192	1038					1230	1230	31	29						30	30	7	43					25	C	25	C	25	C
merge	CD - MD 124 interchange	497	2	122	640					762	762	27	33						30	30	15	29					22	C	22	C	22	C
diverge	CD - Btw MD 124 & MD 117	2235	2	753	1256					2009	2009	51	43						47	47	15	29					22	C	22	C	22	C
weave	CD - Btw MD 117 & I-370	600	3	1398	767	1242				3407	3407	40	52	43					45	45	36	15	29				27	C	27	C	27	C
basic		4137	2	1392	688					2080	2080	52	53						52	52	27	13					20	C	20	C	20	C
weave		1981	3	1288	1116	1162				3566	3566	38	32	23					31	31	35	38	58				44	F	44	F	44	F
basic	CD - I-370 interchange	1052	2	941	1194					2135	2135	27	31						29	29	42	43					43	E	43	E	43	E
merge		704	3	218	765	1117				2100	2100	19	27	35					27	27	20	36	35				30	D	30	D	30	D
basic		981	2	367	996					1363	1363	46	50						48	48	9	20					15	B	15	B	15	B
diverge	CD - Btw I-370 & Shady Grove Rd	483	3	1330	1237	1139				3705	3705	44	45	49					46	46	31	28	24				27	C	27	C	27	C
basic		951	2	1980	1698					3678	3678	20	26						23	23	103	66					84	F	84	F	84	F
diverge		501	3	1697	1992	28				3717	3717	16	22	40					26	26	105	91	1				66	F	66	F	66	F
merge		356	4	620	1240	1737	74			3672	3672	14	10	16	25				16	16	45	125	113	3			72	F	94	F	94	F
basic	CD - Shady Grove Rd interchange	759	3	1312	1402	289				3004	3004	10	12	20					14	14	137	121	14				91	F	91	F	91	F
weave		577	4	518	714	816	914			2963	2963	11	5	6	14				9	9	46	146	141	69			101	F	101	F	101	F
diverge	CD - Btw Shady Grove Rd & MD 28	190	3	410	903	578				1891	1891	54	54	43					50	50	8	17	22				16	B	16	B	16	B
basic		4624	2	1270	635					1905	1905	53	53						53	53	24	12					18	C	18	C	18	C
diverge		2601	3	703	706	1226				2635	2635	54	54	53					53	53	13	13	23				17	B	17	B	17	B
weave		177	4	5	699	947	986			2637	2637	43	53	53	53				51	51	0	14	18	19			13	B	13	B	13	B
merge		274	3	192	576	1056				1824	1824	45	51	53					50	50	4	11	20				12	B	12	B	12	B
basic	CD - MD 28 interchange	924	2	330	1010					1340	1340	53	53						53	53	6	19					13	B	13	B	13	B
weave		258	3	688	882	840				2410	2410	36	44	52					44	44	20	20	16				19	B	19	B	19	B
basic		862	2	1498	799					2297	2297	52	53						53	53	30	15					22	C	22	C	22	C
diverge	CD - Btw MD 28 & MD 189	379	3	203	1582	814				2600	2600	52	50	50					51	51	4	32	16				17	B	17	B	17	B
basic		525	2	1796	813					2609	2609	50	52						51	51	36	16					26	D	26	D	26	D
weave		710	3	1605	1078	1318				4001	4001	52	51	49					51	51	32	21	27				27	C	27	C	27	C
basic		1166	2	1289	1995					3284	3284	51	51						51	51	26	40					33	D	33	D	33	D
merge		286	3	298	1091	1897				3285	3285	41	49	51					47	47	7	23	38				23	C	23	C	23	C
basic	CD - MD 189 interchange	810	2	685	1827					2512	2510	54	53						53	53	13	35					24	C	24	C	24	C
		649	2	665	1843					2508		54	53						53		13	36					24	C	24	C		
diverge	CD - Btw MD 189 & Montrose Rd	220	3	468	950	1879				3297	3297	46	48	52					49	49	11	20	37				22	C	22	C	22	C
basic		1046	2	1447	1863					3310	3310	52	51						52	52	28	37					33	D	33	D	33	D
		2216	2	1705	1605					3310		51	52						52		34	32					33	D	33	D		
merge		463	3	1616	1591	101				3308	3308	52	52	50					51	51	32	31	2				22	C	22	C	22	C
basic		950	2	1520	1492					3011	3011	51	52						51	51	30	29					30	D	30	D	30	D
merge		402	3	350	1371	1305				3026	3026	46	50	52					49	49	8	28	26				20	C	20	C	20	C
basic	CD - Montrose Rd interchange	1126	2	852	1092					1944	1944	53	53						53	53	16	21					19	C	19	C	19	C
weave		342	3	297	893	1044				2234	2234	42	49	53					48	48	7	18	20				15	B	15	B	15	B
basic		1121	2	932	981					1913	1913	53	54						53	53	18	19					18	C	18	C	18	C
diverge	CD - Btw Montrose Rd & Spur Split	262	3	550	1241	1022				2813	2813	48	49	52					50	50	12	26	20				19	B	19	B	19	B
basic		1304	2	1798	1015					2813	2813	52	54						53	53	35	19					27	D	27	D	27	D

Arterial Segments - 2017 Existing - 3-4 PM

VISSIM Lookup Data				Volume									Speed									Density							
				Volume Per Lane						Across All Lanes	Overall Volume		Speed Per Lane						Across All Lanes	Overall Speed	Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)						Total Volume	Average Volume (veh/hr)		Speed (mph)						Average Speed	Average Speed (mph)	Combined Density (pcphpl)							Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
diverge	MD 117 Eastbound at I-270	495	3	760	385	530				1675	1675		32	32	32				32	32	24	12	17					18	B	18	B	18	B
diverge	I-370 Eastbound at I-270	623	4	0	887	473	411			1771	1771		0	50	49	52			38	38	0	18	10	8				9	A	9	A	9	A
diverge		625	3	426	383	235				1044	1044		51	51	53				51	51	9	8	5					7	A	7	A	7	A
weave		667	5	222	1026	1342	421	238		3249	3249		52	52	52	54	54		53	53	4	20	26	8	5			13	B	13	B	13	B
diverge	I-370 Westbound at I-270	461	4	1101	579	438	1226			3344	3344		50	51	54	53			52	52	22	11	8	24				16	B	14	B	14	B
diverge		1411	3	250	469	1142				1862	1862		54	54	53				54	54	5	9	22					12	B	12	B	12	B
merge		577	3	1015	578	587				2181	2181		43	51	54				49	49	24	11	11					15	B	15	B	15	B
diverge	Shady Grove Rd Eastbound at I-270	248	4	335	896	297	307			1835	1835		35	34	36	37			35	35	10	27	8	8				13	B	15	B	15	B
diverge		494	4	534	258	313	352			1457	1457		33	36	36	36			35	35	16	7	9	10				11	B	11	B	11	B
merge		271	4	205	636	327	316			1485	1485		34	36	37	37			36	36	6	18	9	9				10	B	11	B	11	B
diverge	Shady Grove Rd Westbound at I-270	490	4	580	290	149	131			1150	1150		17	22	20	20			20	20	34	14	8	7				15	B	18	B	18	B
weave		615	4	641	154	225	270			1289	1289		32	35	35	34			34	34	20	4	7	8				10	B	10	B	10	B
diverge	MD 28 Eastbound at I-270	1745	3	1008	503	203				1713	1713		26	27	27				27	27	39	19	8					22	C	22	C	22	C
diverge		487	3	116	519	502				1137	1137		28	27	26				27	27	4	20	19					14	B	14	B	14	B
diverge	MD 28 Westbound at I-270	320	3	608	442	44				1094	1094		10	13	8				10	10	59	34	6					33	D	33	D	28	D
		101	3	588	405	84				1077	1077		25	25	22				24	24	24	17	4					15	B	15	B		
		43	3	581	716	91				1388	1388		25	23	27				25	25	23	32	3					20	D	20	C		
weave		489	3	430	891	426				1747	1747		26	25	25				25	25	17	37	17					24	B	24	B	24	B
merge		235	3	727	547	226				1500	1500		25	25	26				25	25	30	22	9					20	C	20	C	20	C
diverge	MD 189 Eastbound at I-270	249	3	94	248	700				1042	1042		27	27	26				27	27	3	9	27					13	B	13	B	13	B
merge		72	3	416	269	337				1021	1021		27	28	27				27	27	16	10	13					13	B	13	B	13	B
		334	3	425	277	337				1039	1039		27	28	27				27	27	16	10	13					13	B	13	B		
diverge	MD 189 Westbound at I-270	361	3	288	326	392				1005	1005		27	27	26				26	26	11	12	15					13	B	13	B	13	B
merge		519	3	82	618	295				995	995		27	26	27				27	27	3	24	11					13	B	13	B	13	B
diverge	Montrose Rd Eastboundat I-270	816	3	246	635	269				1150	1150		38	37	38				38	38	7	17	7					10	B	10	B	10	B
weave		314	3	509	872	389				1770	1770		32	34	37				34	34	16	26	11					18	B	18	B	18	B
merge		1393	3	533	736	625				1894	1894		38	37	37				37	37	14	20	17					17	B	17	B	17	B
diverge	Montrose Rd Westbound at I-270	315	3	1068	907	477				2452	2452		31	33	37				34	34	36	28	13					25	C	25	C	25	C
weave		405	3	642	565	504				1711	1711		31	35	37				35	35	21	16	14					17	B	17	B	17	B
merge		191	3	112	594	545				1251	1251		30	37	37				35	35	4	16	15					12	B	12	B	12	B
diverge	MD 187 Northbound at I-270 East Spur	292	6	460	414	401	375	324	109	2083	2083		10	10	10	9	11	6	9	9	45	43	43	41	29	17		36	E	44	F	44	F
merge		263	5	70	508	501	522	557		2158	2158		32	36	37	37	37		36	36	2	14	14	14	15			12	B	10	B	10	B
diverge	MD 187 Southbound at I-270 East Spur	302	4	305	482	429	556			1772	1772		36	37	37	37			37	37	9	13	12	15				12	B	11	B	11	B
diverge		165	5	436	361	409	459	95		1760	1760		32	34	34	35	36		34	34	14	11	12	14	3			11	B	12	B	12	B
diverge		161	6	458	357	390	381	139	50	1774	1774		25	24	25	25	36	33	28	28	19	15	16	15	4	2		12	B	17	B	17	B
diverge	Democracy Blvd Eastbound at I-270 West Spur	2296	3	643	305	274				1221	1221		40	40	40				40	40	16	8	7					10	B	10	B	10	B
diverge		605	3	400	354	369				1123	1123		32	29	28				30	30	13	12	13					13	B	13	B	13	B
diverge	Democracy Blvd Westbound at I-270 West Spur	857	4	470	437	345	482			1733	1733		42	42	43	42			42	42	11	11	8	12				10	B	10	B	10	B
merge		2127	4	278	436	384	216			1313	1313		41	42	43	43			42	42	7	10	9	5				8	A	9	A	9	A
diverge	VA 193 Eastbound at I-270 East Spur	1094	3	112	164	478				755	755		32	24	14				23	23	4	7	34					15	B	15	B	15	B
merge		299	3	131	350	28				509	509		27	32	35				31	31	5	11	1					6	A	6	A	6	A
diverge	VA 193 Westbound at I-270 East Spur	1504	3	699	204	448				1351	1351		31	18	20				23	23	23	12	23					19	B	19	B	19	B
merge		452	2	372	424					796	796		30	32					31	31	13	13						13	B	13	B	13	B
merge	G.W. Memorial Pkwy Eastbound at I-495	981	2	389	1322					1711	1711		42	37					39	39	9	37						23	C	23	C	23	C
diverge	G.W. Memorial Pkwy Westbound at I-495	2359	2	1903	936					2839	2839		36	39					37	37	55	26						40	E	40	E	40	E
weave	Clara Barton Pkwy Eastbound at I-495	6436	2	196	271					467	467		48	48					48	48	4	6						5	A	5	A	5	A
diverge	Clara Barton Pkwy Westbound at I-495	3047	2	764	52					815	815		47	48					47	47	16	1						9	A	9	A	9	A
merge		3254	2	366	293					659	659		48	47					48	48	8	6						7	A	7	A	7	A
diverge	MD 190 Eastbound at I-495	550	2	670	589					1260	1260		41	41					41	41	16	15						16	B	16	B	16	B
weave		554	4	101	754	416	238			1509	1509		40	42	43	39			41	41	3	18	10	6				9	A	9	A	9	A
merge		582	3	405	759	491				1655	1655		43	42	43				43	43	10	18	12					13	B	13	B	13	B
diverge	MD 190 Westbound at I-495	886	3	719	1022	500				2241	2241		42	41	42				42	42	18	25	12					18	B	18	B	18	B
weave		316	3	611	796	562				1969	1969		34	35	37				35	35	19	23	15					19	B	19	B	19	B
diverge	MD 187 Northbound at I-495	790	3	604	621	664				1889	1889		21	21	20				20	20	30	31	33					31	D	31	D	31	D
merge		1654	3	752	781	514				2047	2047		36	37	37				37	37	21	22	14					19	B	19	B	19	B
diverge	MD 187 Southbound at I-495	1642	3	685	447	528				1660	1660		29	27	27				28	28	24	17	20					20	C	20	C	20	C
merge		796	3	511	554	357				1422	1422		36	37	37				37	37	14	15	10					13	B	13	B	13	B
weave	MD 355 Northbound at I-495	1654	3	447	571	1043				2060	2060		34	33	31				33	33	13	18	34					22	B	22	B	22	B
weave		370	4	263	892	419	295			1869	1869		42	42	42	43			42	42	6	22	10	7				11	A	11	A	11	A
diverge	MD 355 Southbound at I-495	204	4	562	280	436	432			1710	1710		43	43	38	37			40	40	13	7	12	12				11	B	10	B	10	B
merge		781	4	588	551	320	217			1675	1675		27	27	26	24			26	26	22	21	13	9				16	B	18	B	18	B

Arterial Segments - 2017 Existing - 4-5 PM

VISSIM Lookup Data				Volume									Speed								Density									
				Volume Per Lane						Across All Lanes	Overall Volume		Speed Per Lane						Across All Lanes	Overall Speed	Density Per Lane						Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)						Total Volume	Average Volume (veh/hr)		Speed (mph)						Average Speed	Average Speed (mph)	Combined Density (pcphpl)						Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
diverge	MD 117 Eastbound at I-270	495	3	931	491	605				2027	2027		30	31	31				31	31	31	16	20				22	C	22	C	22	C
diverge	I-370 Eastbound	623	4	0	989	573	518			2079	2079		0	50	48	52			38	38	0	20	12	10			11	B	11	B	11	B
diverge		625	3	538	490	315				1344	1344		50	50	52				51	51	11	10	6				9	A	9	A	9	A
weave		667	5	296	1207	1504	491	315		3811	3811		51	51	52	53	54		52	52	6	24	29	9	6		15	B	15	B	15	B
diverge	I-370 Westbound at I-270	461	4	1075	660	592	1257			3584	3584		50	51	54	53			52	52	22	13	11	24			18	B	15	B	15	B
diverge		1411	3	379	623	1133				2135	2135		54	54	53				54	54	7	12	22				13	B	13	B	13	B
merge		577	3	1109	773	767				2649	2649		44	52	53				50	50	26	15	15				19	B	19	B	19	B
diverge	Shady Grove Rd Eastbound at I-270	248	4	441	918	319	315			1993	1993		34	33	36	37			35	35	13	28	9	9			15	B	17	B	17	B
diverge		494	4	521	251	326	356			1454	1454		33	36	36	36			35	35	16	7	9	10			11	B	11	B	11	B
merge		271	4	221	677	338	320			1556	1556		34	36	37	37			36	36	7	19	9	9			11	B	12	B	12	B
diverge	Shady Grove Rd Westbound at I-270	490	4	607	301	149	130			1187	1187		17	21	19	20			20	20	35	14	8	7			16	B	19	B	19	B
weave		615	4	644	165	223	284			1316	1316		32	35	34	34			34	34	21	5	7	9			10	A	10	A	10	A
diverge	MD 28 Eastbound at I-270	1745	3	1052	474	272				1798	1798		26	27	27				26	26	41	18	10				23	C	23	C	23	C
diverge		487	3	129	520	572				1221	1221		28	26	26				27	27	5	20	22				16	B	16	B	16	B
diverge	MD 28 Westbound at I-270	320	3	657	498	76				1231	1231		10	13	6				10	10	69	39	12				40	F	40	F	33	D
		101	3	620	440	137				1197	1197		25	24	22				24	24	26	18	6				17	B	17	B		
		43	3	614	799	146				1560	1560		25	23	26				25	25	25	36	6				22	C	22	C		
weave		489	3	438	1033	592				2063	2063		25	24	24				24	24	18	44	25				29	C	29	C	29	C
merge		235	3	880	671	304				1855	1855		24	25	26				25	25	37	28	12				25	C	25	C	25	C
diverge	MD 189 Eastbound at I-270	249	3	99	274	656				1029	1029		27	27	26				27	27	4	10	25				13	B	13	B	13	B
merge		72	3	414	302	377				1093	1093		27	28	27				27	27	16	11	14				14	B	14	B	14	B
		334	3	421	316	377				1114	1114		27	28	27				27	27	16	12	14				14	B	14	B		
diverge	MD 189 Westbound at I-270	361	3	363	419	474				1255	1255		26	26	26				26	26	14	17	19				16	B	16	B	16	B
merge		519	3	100	691	373				1163	1163		26	26	26				26	26	4	27	14				15	B	15	B	15	B
diverge	Montrose Rd Eastboundat I-270	816	3	358	651	301				1311	1311		38	37	38				38	38	10	18	8				12	B	12	B	12	B
weave		314	3	506	858	390				1754	1754		33	35	37				35	35	16	25	11				17	B	17	B	17	B
merge		1393	3	476	720	619				1816	1816		38	37	37				37	37	13	20	17				17	B	17	B	17	B
diverge	Montrose Rd Westbound at I-270	315	3	1094	935	483				2512	2512		31	34	37				34	34	36	28	13				26	C	26	C	26	C
weave		405	3	667	548	508				1723	1723		31	35	37				34	34	22	16	14				17	B	17	B	17	B
merge		191	3	116	576	547				1240	1240		30	37	37				35	35	4	16	15				12	B	12	B	12	B
diverge	MD 187 Northbound at I-270 East Spur	292	6	502	475	480	389	416	181	2442	2442		9	9	9	8	10	6	8	8	56	54	53	48	45	33	48	F	54	F	54	F
merge		263	5	65	532	574	600	631		2402	2402		32	36	37	37	37		36	36	2	15	16	16	17		13	B	11	B	11	B
diverge	MD 187 Southbound at I-270 East Spur	302	4	322	521	463	580			1886	1886		36	37	37	36			36	36	9	14	13	16			13	B	12	B	12	B
diverge		165	5	468	391	441	476	96		1871	1871		32	33	33	33	36		33	33	15	12	14	14	3		12	B	14	B	14	B
diverge		161	6	492	383	421	402	137	48	1883	1883		24	20	21	21	36	33	26	26	21	19	21	19	4	1	14	B	20	C	20	C
diverge	Democracy Blvd Eastbound at I-270 West Spu	2296	3	563	294	265				1122	1122		39	40	39				39	39	15	8	7				10	B	10	B	10	B
diverge		605	3	396	376	394				1165	1165		31	30	29				30	30	13	13	14				13	B	13	B	13	B
diverge	Democracy Blvd Westbound at I-270 West Spur	857	4	565	476	379	537			1958	1958		41	42	42	42			42	42	14	12	9	13			12	B	12	B	12	B
merge		2127	4	326	474	403	204			1406	1406		41	42	43	43			42	42	8	11	10	5			8	A	10	B	10	B
diverge	VA 193 Eastbound at I-270 East Spur	1094	3	93	159	527				779	779		32	25	13				24	24	3	6	41				17	B	17	B	17	B
merge		299	3	129	336	27				492	492		27	32	35				31	31	5	11	1				5	A	5	A	5	A
diverge	VA 193 Westbound at I-270 East Spur	1504	3	572	189	446				1206	1206		12	10	13				12	12	73	40	42				52	F	52	F	52	F
merge		452	2	341	349					689	689		30	32					31	31	12	11					11	B	11	B	11	B
merge	G.W. Memorial Pkwy Eastbound at I-495	981	2	356	1321					1677	1677		42	37					39	39	9	37					23	C	23	C	23	C
diverge	G.W. Memorial Pkwy Westbound at I-495	2359	2	1673	1046					2719	2719		23	27					25	25	84	46					65	F	65	F	65	F
weave	Clara Barton Pkwy Eastbound at I-495	6436	2	125	261					386	386		48	47					48	48	3	6					4	A	4	A	4	A
diverge	Clara Barton Pkwy Westbound at I-495	3047	2	1070	94					1163	1163		46	47					47	47	23	2					13	B	13	B	13	B
merge		3254	2	496	353					849	849		48	47					48	48	11	8					9	A	9	A	9	A
diverge	MD 190 Eastbound at I-495	550	2	709	659					1368	1368		41	40					41	41	17	17					17	B	17	B	17	B
weave		554	4	94	730	372	356			1552	1552		40	42	43	37			40	40	2	18	9	10			10	B	10	B	10	B
merge		582	3	360	730	446				1536	1536		43	42	43				43	43	9	17	10				12	B	12	B	12	B
diverge	MD 190 Westbound at I-495	886	3	764	965	449				2178	2178		41	42	42				42	42	19	24	11				18	B	18	B	18	B
weave		316	3	621	866	547				2034	2034		33	35	37				35	35	19	25	15				20	C	20	C	20	C
diverge	MD 187 Northbound at I-495	790	3	721	743	768				2232	2232		19	20	19				19	19	38	39	41				39	E	39	E	39	E
merge		1654	3	899	907	655				2461	2461		36	37	37				36	36	25	25	18				23	C	23	C	23	C
diverge	MD 187 Southbound at I-495	1642	3	711	449	523				1684	1684		29	27	27				28	28	25	17	20				20	C	20	C	20	C
merge		796	3	479	514	345				1338	1338		36	37	37				37	37	13	14	10				12	B	12	B	12	B
weave	MD 355 Northbound at I-495	1654	3	592	696	1116				2405	2405		34	33	31				33	33	18	22	36				25	C	25	C	25	C
weave		370	4	267	957	562	414			2201	2201		42	42	42	43			42	42	7	23	14	10			13	B	13	B	13	B
diverge	MD 355 Southbound at I-495	204	4	600	332	448	429			1809	1809		43	42	38	37			40	40	14	8	12	12			12	B	11	B	11	B
merge		781	4	616	592	361	234			1803	1803		28	28	27	25			27	27	22	21	14	10			17	B	19	B	19	B

Arterial Segments - 2017 Existing - 5-6 PM

VISSIM Lookup Data				Volume									Speed								Density									
				Volume Per Lane							Across All Lanes	Overall Volume	Speed Per Lane							Across All Lanes	Overall Speed	Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)							Total Volume	Average Volume (veh/hr)	Speed (mph)							Average Speed	Average Speed (mph)	Combined Density (pcphpl)							Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
diverge	MD 117 Eastbound at I-270	495	3	1020	583	778					2381	2381	30	30	30					30	30	35	20	26					27	C	27	C	27	C
diverge	I-370 Eastbound	623	4	0	1266	770	755				2792	2792	0	47	42	48				34	34	0	27	19	16				16	B	16	B	16	B
diverge		625	3	708	697	545					1950	1950	44	45	48					46	46	17	16	11					15	B	15	B	15	B
weave		667	5	298	1240	1538	652	528			4256	4256	51	52	52	53	53			52	52	6	24	30	13	10			17	B	17	B	17	B
diverge	I-370 Westbound at I-270	461	4	1079	708	693	1389				3870	3870	51	52	54	53				52	52	22	14	13	27				19	B	16	B	16	B
diverge		1411	3	446	735	1238					2419	2419	54	54	53					54	54	8	14	24					15	B	15	B	15	B
merge		577	3	1158	890	900					2948	2948	44	52	53					50	50	27	18	17					20	C	20	C	20	C
diverge	Shady Grove Rd Eastbound at I-270	248	4	554	982	272	284				2092	2092	33	32	35	37				34	34	17	31	8	8				16	B	19	B	19	B
diverge		494	4	576	230	279	338				1423	1423	33	36	36	36				35	35	18	6	8	10				10	B	11	B	11	B
merge		271	4	257	725	301	297				1579	1579	34	36	37	37				36	36	8	20	8	8				11	B	12	B	12	B
diverge	Shady Grove Rd Westbound at I-270	490	4	695	352	190	179				1415	1415	16	18	18	20				18	18	44	20	11	9				21	C	25	C	25	C
weave		615	4	779	215	270	349				1613	1613	29	35	34	34				33	33	27	6	8	11				13	B	13	B	13	B
diverge	MD 28 Eastbound at I-270	1745	3	1220	607	377					2205	2205	25	26	27					26	26	49	24	14					29	D	29	D	29	D
diverge		487	3	109	667	710					1486	1486	28	26	26					27	27	4	26	28					19	B	19	B	19	B
diverge	MD 28 Westbound at I-270	320	3	613	448	68					1129	1129	10	12	6					9	9	64	37	11					37	E	37	E	31	D
		101	3	581	392	130					1103	1103	24	24	22					24	24	24	16	6					15	B	15	B		
		43	3	575	782	140					1498	1498	25	22	26					25	25	23	35	5					21	C	21	C		
weave		489	3	430	1034	577					2042	2042	25	24	24					25	25	17	44	24					28	C	28	C	28	C
merge		235	3	892	681	291					1865	1865	24	25	26					25	25	37	28	11					26	C	26	C	26	C
diverge	MD 189 Eastbound at I-270	249	3	90	271	652					1013	1013	27	27	26					27	27	3	10	25					13	B	13	B	13	B
merge		72	3	516	330	416					1263	1263	27	28	27					27	27	20	12	16					16	B	16	B	16	B
		334	3	520	347	419					1286	1286	27	28	27					27	27	19	13	16					16	B	16	B		
diverge	MD 189 Westbound at I-270	361	3	313	375	453					1141	1141	26	26	26					26	26	12	14	18					15	B	15	B	15	B
merge		519	3	119	778	389					1286	1286	27	26	26					26	26	5	31	15					17	B	17	B	17	B
diverge	Montrose Rd Eastboundat I-270	816	3	288	565	253					1106	1106	38	37	38					38	38	8	15	7					10	B	10	B	10	B
weave		314	3	490	939	376					1805	1805	33	35	36					35	35	15	27	11					18	B	18	B	18	B
merge		1393	3	524	798	656					1978	1978	38	37	37					37	37	14	22	18					18	B	18	B	18	B
diverge	Montrose Rd Westbound at I-270	315	3	1061	990	727					2778	2778	31	34	36					34	34	35	29	21					28	D	28	D	28	D
weave		405	3	571	693	767					2031	2031	31	35	37					34	34	19	20	21					20	B	20	B	20	B
merge		191	3	137	776	795					1708	1708	28	36	37					34	34	5	22	22					16	B	16	B	16	B
diverge	MD 187 Northbound at I-270 East Spur	292	6	539	529	522	464	362	150		2565	2565	8	8	8	8	9	5		8	8	69	67	66	62	41	28		55	F	67	F	67	F
merge		263	5	61	566	652	694	752			2725	2725	31	36	37	37	37			36	36	2	16	18	19	21			15	B	12	B	12	B
diverge	MD 187 Southbound at I-270 East Spur	302	4	343	579	523	612				2058	2058	36	36	36	36				36	36	10	16	15	17				14	B	14	B	14	B
diverge		165	5	501	453	486	533	69			2042	2042	32	31	32	32	36			33	33	16	15	16	17	2			13	B	15	B	15	B
diverge		161	6	526	450	474	475	96	36		2058	2058	23	19	20	20	36	35		25	25	23	24	25	25	3	1		17	B	24	C	24	C
diverge	Democracy Blvd Eastbound at I-270 West Spur	2296	3	540	283	254					1076	1076	38	38	38					38	38	15	8	7					10	B	10	B	10	B
diverge		605	3	434	410	431					1274	1274	27	26	26					27	27	16	16	17					16	B	16	B	16	B
diverge	Democracy Blvd Westbound at I-270 West Spur	857	4	596	455	352	503				1907	1907	41	42	42	42				42	42	15	11	8	12				12	B	11	B	11	B
merge		2127	4	385	491	398	206				1480	1480	41	42	43	43				42	42	10	12	9	5				9	A	10	B	10	B
diverge	VA 193 Eastbound at I-270 East Spur	1094	3	94	194	571					859	859	33	23	11					22	22	3	9	54					22	C	22	C	22	C
merge		299	3	88	365	47					500	500	27	32	34					31	31	3	12	1					5	A	5	A	5	A
diverge	VA 193 Westbound at I-270 East Spur	1504	3	150	132	291					574	574	1	1	2					1	1	223	214	150					196	F	196	F	196	F
merge		452	2	379	320						700	700	30	33						31	31	13	10						11	B	11	B	11	B
merge	G.W. Memorial Pkwy Eastbound at I-495	981	2	362	1332						1693	1693	42	37						39	39	9	37						23	C	23	C	23	C
diverge	G.W. Memorial Pkwy Westbound at I-495	2359	2	1325	1252						2577	2577	10	14						12	12	138	94						116	F	116	F	116	F
weave	Clara Barton Pkwy Eastbound at I-495	6436	2	31	224						255	255	49	47						48	48	1	5						3	A	3	A	3	A
diverge	Clara Barton Pkwy Westbound at I-495	3047	2	1024	82						1107	1107	47	48						47	47	22	2						12	B	12	B	12	B
merge		3254	2	528	404						932	932	48	47						48	48	11	9						10	B	10	B	10	B
diverge	MD 190 Eastbound at I-495	550	2	763	696						1460	1460	41	40						40	40	19	18						18	B	18	B	18	B
weave		554	4	96	783	440	321				1640	1640	40	42	43	37				40	40	2	19	11	9				10	A	10	A	10	A
merge		582	3	383	774	513					1670	1670	43	42	43					43	43	9	19	12					13	B	13	B	13	B
diverge	MD 190 Westbound at I-495	886	3	742	997	528					2267	2267	42	42	42					42	42	18	24	13					18	B	18	B	18	B
weave		316	3	612	969	662					2244	2244	32	34	35					34	34	19	29	19					23	B	23	B	23	B
diverge	MD 187 Northbound at I-495	790	3	678	711	738					2127	2127	19	19	19					19	19	37	38	40					38	E	38	E	38	E
merge		1654	3	877	876	605					2358	2358	36	37	37					36	36	25	24	17					22	C	22	C	22	C
diverge	MD 187 Southbound at I-495	1642	3	781	518	605					1903	1903	28	26	26					27	27	29	20	24					24	C	24	C	24	C
merge		796	3	544	598	374					1516	1516	36	37	37					37	37	15	17	10					14	B	14	B	14	B
weave	MD 355 Northbound at I-495	1654	3	749	780	1093					2622	2622	31	29	27					29	29	26	30	45					34	D	34	D	34	D
weave		370	4	290	1065	699	481				2535	2535	42	42	42	43				42	42	7	26	17	12				15	B	15	B	15	B
diverge	MD 355 Southbound at I-495	204	4	615	361	490	506				1972	1972	43	43	38	37				40	40	15	9	13	14				13	B	12	B	12	B
merge		781	4	755	638	392	248				2033	2033	28	28	27	24				27	27	27	23	15	10				19	B	22	C	22	C

Arterial Segments - 2017 Existing - 6-7 PM

VISSIM Lookup Data				Volume									Speed								Density											
				Volume Per Lane						Across All Lanes	Overall Volume		Speed Per Lane						Across All Lanes	Overall Speed	Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)						Total Volume	Average Volume (veh/hr)		Speed (mph)						Average Speed	Average Speed (mph)	Combined Density (pcphpl)							Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
diverge	MD 117 Eastbound at I-270	495	3	774	413	622				1809	1809	31	31	31					31	31	25	14	20					20	C	20	C	20	C
diverge	I-370 Eastbound	623	4	0	924	534	469			1926	1926	0	50	49	52				38	38	0	19	11	9				10	B	10	B	10	B
diverge		625	3	526	449	268				1244	1244	50	51	52					51	51	11	9	5					8	A	8	A	8	A
weave		667	5	225	1033	1341	450	272		3320	3320	52	52	52	53	54			52	52	4	20	26	9	5			13	B	13	B	13	B
diverge	I-370 Westbound at I-270	461	4	988	595	481	1218			3282	3282	51	52	54	53				53	53	20	12	9	23				16	B	13	B	13	B
diverge		1411	3	316	519	1119				1954	1954	54	54	53					54	54	6	10	21					12	B	12	B	12	B
merge		577	3	1217	714	672				2604	2604	43	51	54					49	49	29	14	13					19	B	19	B	19	B
diverge	Shady Grove Rd Eastbound at I-270	248	4	327	746	173	178			1424	1424	35	35	37	38				36	36	10	22	5	5				10	B	12	B	12	B
diverge		494	4	450	175	196	224			1045	1045	34	37	37	37				36	36	13	5	5	6				7	A	8	A	8	A
merge		271	4	210	601	207	205			1223	1223	35	36	37	38				37	37	6	17	6	6				9	A	10	B	10	B
diverge	Shady Grove Rd Westbound at I-270	490	4	603	299	141	116			1159	1159	17	21	21	21				20	20	36	14	7	6				16	B	19	B	19	B
weave		615	4	665	129	184	220			1199	1199	31	35	35	34				34	34	22	4	5	7				9	A	9	A	9	A
diverge	MD 28 Eastbound at I-270	1745	3	1064	444	227				1735	1735	26	27	27					26	26	42	17	9					22	C	22	C	22	C
diverge		487	3	82	520	529				1131	1131	28	27	26					27	27	3	20	21					14	B	14	B	14	B
diverge	MD 28 Westbound at I-270	320	3	536	701	156				1393	1393	11	13	7					10	10	51	54	24					43	F	43	F	36	E
		101	3	497	612	249				1359	1359	25	25	24					24	24	20	25	11					19	B	19	B		
		43	3	492	903	264				1658	1658	25	23	27					25	25	20	39	10					23	C	23	C		
weave		489	3	461	1073	723				2258	2258	25	24	24					24	24	19	46	30					32	C	32	C	32	C
merge		235	3	958	769	318				2045	2045	24	25	27					25	25	40	31	12					28	D	28	D	28	D
diverge	MD 189 Eastbound at I-270	249	3	99	238	639				976	976	27	27	26					27	27	4	9	25					12	B	12	B	12	B
merge		72	3	534	294	408				1236	1236	27	28	27					27	27	20	11	15					15	B	15	B	16	B
		334	3	533	320	406				1259	1259	27	28	27					27	27	20	12	15					16	B	16	B		
diverge	MD 189 Westbound at I-270	361	3	292	425	473				1190	1190	26	26	26					26	26	11	17	19					15	B	15	B	15	B
merge		519	3	94	698	406				1198	1198	26	26	26					26	26	4	27	16					16	B	16	B	16	B
diverge	Montrose Rd Eastboundat I-270	816	3	201	672	289				1163	1163	38	37	38					38	38	5	18	8					11	B	11	B	11	B
weave		314	3	461	908	427				1796	1796	33	35	37					35	35	14	26	12					18	B	18	B	18	B
merge		1393	3	375	750	671				1796	1796	38	37	37					37	37	10	21	18					16	B	16	B	16	B
diverge	Montrose Rd Westbound at I-270	315	3	973	897	459				2329	2329	32	35	37					35	35	31	26	13					23	C	23	C	23	C
weave		405	3	640	517	484				1641	1641	31	35	37					34	34	21	15	13					16	B	16	B	16	B
merge		191	3	120	560	523				1202	1202	30	37	37					35	35	4	15	14					11	B	11	B	11	B
diverge	MD 187 Northbound at I-270 East Spur	292	6	506	500	505	459	301	106	2378	2378	8	8	8	8	10	6		8	8	61	61	61	58	30	18		48	F	61	F	61	F
merge		263	5	70	580	620	676	724		2669	2669	31	36	37	37	37			36	36	2	16	17	19	20			15	B	12	B	12	B
diverge	MD 187 Southbound at I-270 East Spur	302	4	287	520	456	522			1785	1785	37	37	37	37				37	37	8	14	13	14				12	B	12	B	12	B
diverge		165	5	411	405	448	467	42		1773	1773	33	33	33	34	37			34	34	13	12	14	14	1			11	B	13	B	13	B
diverge		161	6	429	401	446	430	56	24	1785	1785	26	24	25	25	37	36		29	29	17	17	18	18	2	1		12	B	17	B	17	B
diverge	Democracy Blvd Eastbound at I-270 West Spur	2296	3	483	252	207				942	942	40	40	40					40	40	12	6	5					8	A	8	A	8	A
diverge		605	3	356	321	324				1001	1001	30	28	28					29	29	12	12	12					12	B	12	B	12	B
diverge	Democracy Blvd Westbound at I-270 West Spur	857	4	464	449	339	420			1671	1671	41	42	43	43				42	42	11	11	8	10				10	B	10	B	10	B
merge		2127	4	296	449	397	259			1402	1402	41	42	43	43				42	42	7	11	9	6				8	A	9	A	9	A
diverge	VA 193 Eastbound at I-270 East Spur	1094	3	76	131	547				754	754	33	30	14					26	26	2	4	39					15	B	15	B	15	B
merge		299	3	78	348	40				466	466	27	32	35					31	31	3	11	1					5	A	5	A	5	A
diverge	VA 193 Westbound at I-270 East Spur	1504	3	178	141	282				601	601	1	1	2					1	1	220	222	151					198	F	198	F	198	F
merge		452	2	408	353					761	761	30	32						31	31	14	11						12	B	12	B	12	B
merge	G.W. Memorial Pkwy Eastbound at I-495	981	2	351	1263					1613	1613	42	37						39	39	8	35						22	C	22	C	22	C
diverge	G.W. Memorial Pkwy Westbound at I-495	2359	2	1325	1195					2520	2520	10	13						12	12	138	91						114	F	114	F	114	F
weave	Clara Barton Pkwy Eastbound at I-495	6436	2	188	292					480	480	48	47						48	48	4	6						5	A	5	A	5	A
diverge	Clara Barton Pkwy Westbound at I-495	3047	2	841	61					902	902	47	48						47	47	18	1						10	B	10	B	10	B
merge		3254	2	480	434					914	914	48	47						47	47	10	9						10	B	10	B	10	B
diverge	MD 190 Eastbound at I-495	550	2	637	545					1182	1182	42	41						41	41	16	13						14	B	14	B	14	B
weave		554	4	95	693	346	253			1386	1386	40	42	43	38				41	41	2	17	8	7				9	A	9	A	9	A
merge		582	3	393	699	424				1516	1516	43	42	43					43	43	9	17	10					12	B	12	B	12	B
diverge	MD 190 Westbound at I-495	886	3	651	1106	497				2254	2254	42	41	42					42	42	16	27	12					18	B	18	B	18	B
weave		316	3	801	1005	634				2440	2440	31	33	36					33	33	26	31	18					25	C	25	C	25	C
diverge	MD 187 Northbound at I-495	790	3	550	586	617				1753	1753	19	20	18					19	19	30	31	35					32	D	32	D	32	D
merge		1654	3	754	754	409				1916	1916	36	37	37					37	37	21	21	11					18	B	18	B	18	B
diverge	MD 187 Southbound at I-495	1642	3	667	451	539				1657	1657	24	26	26					25	25	42	18	21					27	C	27	C	27	C
merge		796	3	477	528	351				1356	1356	36	37	37					37	37	13	15	10					12	B	12	B	12	B
weave	MD 355 Northbound at I-495	1654	3	882	797	1034				2714	2714	29	25	23					26	26	34	39	55					43	F	43	F	43	F
weave		370	4	237	1023	733	488			2481	2481	41	42	42	43				42	42	6	25	18	12				15	B	15	B	15	B
diverge	MD 355 Southbound at I-495	204	4	614	316	435	399			1765	1765	43	43	38	37				40	40	15	8	12	11				11	B	10	B	10	B
merge		781	4	653	610	360	249			1872	1872	26	27	24	22				25	25	25	23	15	11				19	B	21	C	21	C

I-495 Inner Loop - 2027 No-Build - 6-7 AM

VISSIM Lookup Data				Volume								Speed								Density							
				Volume Per Lane						Across All Lanes	Overall Volume	Speed Per Lane						Across All Lanes	Overall Speed	Density Per Lane						Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)						Total Volume	Average Volume (veh/hr)	Speed (mph)						Average Speed	Average Speed (mph)	Combined Density (pcphpl)						Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Btw VA 267 & VA 193	2183	5	708	2005	1736	1403	1331		7184	7184	58	57	58	58	59		58	58	12	36	31	24	23		25	C	25	C	25	C
diverge		1499	5	687	1973	1697	1461	1358		7175	7175	58	55	55	57	57		57	57	12	36	31	26	24		26	C	27	C	27	C
basic	VA 193 interchange	2217	4	2293	1622	1321	1216			6451	6451	55	56	57	58			57	57	43	29	23	21			29	D	29	D	29	D
merge	Btw VA 193 & GWMP	351	6	44	1044	1835	1697	1315	1227	7162	7162	33	47	56	58	58	58	52	52	1	23	33	30	23	21	22	C	19	B	19	B
basic		1019	5	1241	1554	1737	1407	1252		7191	7191	55	54	57	58	58		56	56	23	30	31	24	22		26	D	26	D	26	D
diverge		1536	5	1256	1469	1672	1503	1321		7220	7220	58	55	57	58	58		57	57	22	27	30	26	23		26	C	26	C	26	C
basic	GWMP interchange	673	4	1430	1634	1532	1363			5959	5957	54	56	57	57			56	57	27	30	27	24			27	D	27	D	27	D
		677	4	1399	1600	1551	1405			5955		55	57	58	58			57		26	29	27	25			27	D	27	D		
		490	4	1460	1602	1523	1373			5958		55	56	57	58			57		27	29	27	24			27	D	27	D		
weave	Btw GWMP & Clara Barton Pkwy	672	6	924	2130	1930	1616	1631	194	8425	8425	48	44	47	50	51	52	49	49	20	50	42	33	33	4	30	D	30	D	30	D
diverge		1295	5	781	1915	1910	1910	1937		8452	8452	40	35	37	42	45		40	40	21	57	52	46	44		44	F	43	F	43	F
basic	Clara Barton Pkwy interchange	500	4	1782	1845	1948	2031			7606	7622	47	48	50	51			49	52	39	39	39	40			39	E	39	E	37	E
		706	4	1814	1862	1947	2010			7633		53	53	54	55			54		35	36	36	37			36	E	36	E		
merge	Btw Clara Barton Pkwy & MD 190	1511	5	91	1807	1902	1955	2007		7763	7761	56	54	55	56	56		55	56	2	34	35	35	36		28	D	24	C	23	C
		777	5	14	1900	1913	1947	1985		7758		56	57	57	58	58		57		0	34	34	34	35		27	C	23	C		
basic		3461	4	2175	1899	1819	1851			7744	7748	54	56	57	58			56	57	41	34	32	32			35	E	35	E	35	E
		1064	4	2112	1898	1861	1891			7762		55	56	57	58			57		39	34	33	33			35	E	35	E		
diverge		400	5	544	1572	1853	1877	1901		7746	7746	56	54	55	56	57		56	56	10	29	34	34	34		28	D	25	C	25	C
basic	MD 190 interchange	1947	4	1439	1767	1852	1910			6968	6968	56	56	57	57			57	57	26	32	33	34			31	D	31	D	31	D
merge		1495	5	414	1265	1695	1827	1915		7115	7115	62	57	57	57	57		58	58	7	23	30	32	34		25	C	20	C	20	C
basic		621	5	547	1202	1637	1801	1903		7090	7090	62	57	57	57	57		58	58	9	22	29	32	34		25	C	25	C	25	C
merge	Btw MD 190 & I-270 West Spur	1123	6	62	946	1248	1613	1789	1905	7562	7562	60	61	57	57	57	57	58	58	1	16	22	29	32	34	22	C	13	B	13	B
basic		398	5	838	1105	2011	2035	1420		7409	7509	61	58	56	57	58		58	57	14	20	36	36	25		26	D	26	D	27	D
		1764	5	718	1066	2249	2353	1146		7531		61	57	54	54	58		57		12	19	42	44	20		27	D	27	D		
weave		732	6	803	1248	2113	2046	1324	17	7551	7575	61	58	56	56	58	61	58	58	13	22	38	37	23	0	22	C	22	C	22	C
		2506	6	1004	1450	1835	1658	1567	68	7582		60	57	57	56	57	61	58		17	26	33	30	28	1	22	C	22	C		
basic	Btw I-270 West Spur & MD 187	6678	3	1404	1404	1476				4284	4282	58	56	56				56	56	25	25	27				26	D	26	D	26	D
		1173	3	1473	1400	1396				4270		57	56	56				57		26	25	25				25	C	25	C		
diverge		305	4	192	1415	1305	1358			4269	4269	45	42	43	50			45	45	4	35	31	28			24	C	23	C	23	C
basic	MD 187 interchange	2021	3	1208	1257	1351				3816	3816	57	56	56				56	56	22	23	25				23	C	23	C	23	C
merge	Btw MD 187 & I-270 East Spur	440	4	70	1287	1310	1315			3983	3988	50	58	57	57			55	55	1	23	23	23			18	B	16	B	16	B
basic		659	3	833	1639	1516				3988		58	57	56				57	57	15	29	27				24	C	24	C	24	C
diverge		1113	3	537	1763	1696				3996	3996	57	54	54				55	55	10	33	32				25	C	25	C	25	C
basic	I-270 East Spur interchange	1519	2	1787	1731					3518	3518	51	51					51	51	36	34					35	E	35	E	35	E
weave		1951	4	1622	1519	1359	1079			5578	5578	56	57	61	63			59	59	29	27	23	17			24	C	24	C	24	C
weave		513	6	37	1560	1467	1515	1425	230	6233	6233	53	58	58	62	63	62	59	59	1	27	26	25	23	4	18	B	18	B	18	B
basic		1013	5	1551	1491	1602	1573	44		6260	6265	57	57	60	61	64		60	60	28	26	27	26	1		22	C	22	C	22	C
		1002	5	1514	1491	1629	1624	14		6271		57	57	60	62	65		60		27	26	27	27	0		22	C	22	C		
merge	Btw I-270 East Spur & MD 185	521	5	1502	1473	1635	1653	2		6265	6265	59	58	62	63	59		60	60	26	26	27	27	0		21	C	18	B	18	B
basic		1603	4	1762	1497	1494	1501			6254	6256	56	57	61	62			59	59	32	27	25	24			27	D	27	D	27	D
		252	4	1872	1470	1439	1487			6267		55	57	61	62			59		34	26	24	24			27	D	27	D		
basic	ML - Btw VA 193 & GWMP	2189	2	628	615					1244	1244	64	64					64	64	10	10					10	A	10	A	10	A
		1496	2	628	617					1245		64	64					64		10	10					10	A	10	A		
		2215	2	617	627					1244		64	64					64		10	10					10	A	10	A		
		928	2	413	830					1244		64	63					64		7	13					10	A	10	A		
diverge	ML - GWMP interchange	812	3	392	432	420				1244	1244	64	64	63				63	63	6	7	7				7	A	7	A	7	A
merge		1860	2	474	258					732	732	64	64					64	64	8	4					6	A	6	A	6	A
basic		1146	1	734						734	734	59						59	59	13						13	B	13	B	13	B

I-495 Inner Loop - 2027 No-Build - 7-8 AM

VISSIM Lookup Data				Volume									Speed									Density									
				Volume Per Lane							Across All Lanes	Overall Volume	Speed Per Lane							Across All Lanes	Overall Speed	Density Per Lane								Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)							Total Volume	Average Volume (veh/hr)	Speed (mph)							Average Speed	Average Speed (mph)	Combined Density (pcphpl)								Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Btw VA 267 & VA 193	2183	5	916	2077	1845	1504	1425			7767	7767	58	56	56	58	58			57	57	16	38	33	27	25			28	D	28	D	28	D
diverge		1499	5	995	1937	1750	1545	1487			7713	7713	52	44	45	47	49			48	48	20	45	40	34	31			34	D	35	E	35	E
basic	VA 193 interchange	2217	4	1971	1612	1498	1478				6559	6559	34	34	36	37				35	35	60	49	43	41				48	F	48	F	48	F
merge	Btw VA 193 & GWMP	351	6	156	1122	1599	1658	1512	1479		7527	7527	11	22	24	26	27	27		23	23	15	54	68	66	57	56		53	F	46	F	46	F
basic		1019	5	1174	1491	1717	1592	1522			7498	7498	28	19	23	25	25			24	24	43	81	75	66	63			66	F	66	F	66	F
diverge		1536	5	1002	1487	1666	1654	1610			7420	7420	39	17	20	22	22			24	24	26	89	83	78	74			70	F	66	F	66	F
basic	GWMP interchange	673	4	1450	1622	1661	1657				6390	6349	17	19	21	22				20	19	89	85	80	76				83	F	83	F	86	F
		677	4	1411	1582	1661	1688				6342		15	18	21	22				19		94	88	83	79				86	F	86	F		
		490	4	1427	1570	1649	1658				6303		15	18	20	21				18		99	91	85	82				89	F	89	F		
weave	Btw GWMP & Clara Barton Pkwy	672	6	1434	1756	1882	1834	1411	858		9175	9175	23	17	20	21	13	17		19	19	63	106	94	90	113	51		86	F	86	F	86	F
diverge		1295	5	965	1985	2055	2119	2057			9182	9182	31	31	34	39	38			34	34	32	67	61	55	55			54	F	53	F	53	F
basic	Clara Barton Pkwy interchange	500	4	1974	2077	2159	2163				8373	8391	43	46	48	48				46	49	47	46	46	46				46	F	46	F	44	E
		706	4	2015	2077	2151	2161				8404		51	51	52	52				51		41	41	42	43				42	E	42	E		
merge	Btw Clara Barton Pkwy & MD 190	1511	5	126	1990	2092	2146	2158			8513	8514	56	53	54	55	55			55	55	2	38	39	40	40			32	D	27	C	26	C
		777	5	22	2098	2129	2133	2135			8517		55	56	56	57	58			56		0	38	38	38	37			30	D	26	C		
basic		3461	4	2377	2105	2013	1994				8488	8491	54	56	57	58				56	56	45	38	36	35				39	E	39	E	39	E
		1064	4	2301	2076	2079	2042				8499		54	56	57	57				56		43	38	37	36				39	E	39	E		
diverge		400	5	630	1678	2024	2084	2058			8474	8474	55	54	55	56	57			55	55	12	32	37	37	37			31	D	27	C	27	C
basic	MD 190 interchange	1947	4	1555	1894	2057	2068				7574	7574	56	56	57	57				56	56	28	34	37	37				34	D	34	D	34	D
merge		1495	5	618	1392	1790	2024	2077			7901	7901	62	57	56	57	57			58	58	10	25	32	36	37			28	D	22	C	22	C
basic		621	5	773	1340	1716	1984	2066			7880	7880	61	57	56	57	57			58	58	13	24	31	35	37			28	D	28	D	28	D
merge	Btw MD 190 & I-270 West Spur	1123	6	110	1363	1456	1686	1975	2065		8654	8654	59	60	57	56	57	57		58	58	2	23	26	30	35	37		26	C	17	B	17	B
basic		398	5	1181	1339	2144	2213	1597			8474	8581	61	57	55	56	58			57	56	20	24	39	40	28			30	D	30	D	32	D
		1764	5	977	1270	2419	2533	1407			8606		61	57	52	52	57			56		16	23	47	49	25			32	D	32	D		
weave		732	6	1068	1380	2244	2257	1635	27		8610	8611	60	57	55	56	58	60		58	58	18	24	41	41	29	0		26	C	26	C	26	C
		2506	6	1245	1556	1851	1926	1924	109		8611		60	57	56	55	57	61		58		21	28	33	35	34	2		26	C	26	C		
basic	Btw I-270 West Spur & MD 187	6678	3	1546	1521	1561					4628	4628	57	56	56					56	56	27	28	29					28	D	28	D	28	D
		1173	3	1606	1522	1503					4630		56	55	55					56		29	28	28					28	D	28	D		
diverge		305	4	247	1512	1411	1456				4626	4626	42	38	40	47				42	42	6	41	36	32				29	D	28	D	28	D
basic	MD 187 interchange	2021	3	1263	1335	1442					4040	4040	56	55	55					56	56	23	24	26					25	C	25	C	25	C
merge	Btw MD 187 & I-270 East Spur	440	4	146	1421	1429	1400				4396	4396	45	57	57	57				54	54	3	25	25	25				20	C	18	B	18	B
basic		659	3	958	1787	1658					4402	4402	57	56	56					56	56	17	33	30					27	D	27	D	27	D
diverge		1113	3	603	1931	1876					4410	4410	56	52	52					54	54	11	38	37					28	D	28	D	28	D
basic	I-270 East Spur interchange	1519	2	1956	1922						3878	3878	48	48						48	48	42	41						41	E	41	E	41	E
weave		1951	4	1787	1739	1802	1585				6914	6914	51	51	55	56				53	53	37	36	35	31				35	E	35	E	35	E
weave		513	6	79	1752	1726	1976	1920	534		7986	7986	44	46	46	48	48	59		49	49	2	43	42	46	44	9		31	D	31	D	31	D
basic		1013	5	1812	1826	2050	2061	248			7997	7988	44	44	45	45	48			45	44	44	44	49	50	6			39	E	39	E	39	E
		1002	5	1845	1880	2030	2044	178			7978		43	44	45	44	43			44		46	46	49	51	6			40	E	40	E		
merge	Btw I-270 East Spur & MD 185	521	5	1843	1881	2050	2074	89			7937	7937	41	42	44	43	37			41	41	52	51	53	55	4			43	F	37	E	37	E
basic		1603	4	2086	1911	1937	1968				7902	7903	43	46	50	53				48	48	50	43	40	38				43	E	43	E	42	E
		252	4	2163	1867	1900	1980				7910		47	50	53	55				51		46	38	37	36				39	E	39	E		
basic	ML - Btw VA 193 & GWMP	2189	2	656	637						1294	1294	64	64						64	64	10	10						10	A	10	A	10	A
		1496	2	655	638						1294		64	64						64		10	10						10	A	10	A		
		2215	2	650	644						1295		64	64						64		10	10						10	A	10	A		
		928	2	561	734						1295		64	64						64		9	12						10	A	10	A		
diverge	ML - GWMP interchange	812	3	551	545	198					1294	1294	64	64	63					64	64	9	9	3					7	A	7	A	7	A
merge		1860	2	671	384						1054	1054	63	63						63	63	11	6						8	A	8	A	8	A
basic		1146	1	1054							1054	1054	57							57	57	19							19	C	19	C	19	C

I-495 Inner Loop - 2027 No-Build - 8-9 AM

VISSIM Lookup Data				Volume									Speed									Density									
				Volume Per Lane							Across All Lanes	Overall Volume	Speed Per Lane							Across All Lanes	Overall Speed	Density Per Lane								Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)							Total Volume	Average Volume (veh/hr)	Speed (mph)							Average Speed	Average Speed (mph)	Combined Density (pcphpl)								Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Btw VA 267 & VA 193	2183	5	903	1332	1363	1424	1536			6558	6558	23	12	14	17	19			17	17	40	110	102	88	81			84	F	84	F	84	F
diverge		1499	5	860	1037	1304	1526	1721			6447	6447	14	7	10	13	16			12	12	63	154	136	121	109			117	F	118	F	118	F
basic	VA 193 interchange	2217	4	1189	1309	1543	1661				5703	5703	9	11	14	16				12	12	142	123	111	108				121	F	121	F	121	F
merge	Btw VA 193 & GWMP	351	6	470	1035	1050	1287	1561	1636		7040	7040	5	8	8	10	13	14		10	10	102	130	136	135	118	115		123	F	122	F	122	F
basic		1019	5	1417	1029	1358	1595	1660			7059	7059	16	7	10	14	15			12	12	91	151	133	118	114			122	F	122	F	122	F
diverge		1536	5	1015	1224	1473	1634	1718			7063	7063	22	9	12	14	16			15	15	47	144	126	115	110			109	F	106	F	106	F
basic	GWMP interchange	673	4	1349	1514	1651	1753				6267	6262	11	14	16	18				15	16	121	111	102	97				108	F	108	F	104	F
		677	4	1327	1500	1662	1771				6260		12	14	17	20				16		117	106	96	90				103	F	103	F		
		490	4	1354	1504	1657	1741				6256		12	14	18	20				16		117	106	96	90				102	F	102	F		
weave	Btw GWMP & Clara Barton Pkwy	672	6	1437	1700	1847	1830	1379	933		9125	9125	21	15	18	19	12	17		17	17	69	115	102	97	121	57		93	F	93	F	93	F
diverge		1295	5	976	1969	2048	2118	2045			9157	9157	30	30	34	39	38			34	34	33	68	61	56	55			55	F	54	F	54	F
basic	Clara Barton Pkwy interchange	500	4	1935	2062	2153	2174				8324	8347	43	45	48	48				46	49	46	46	46	46				46	F	46	F	43	E
		706	4	1979	2059	2161	2164				8363		51	51	52	52				51		40	41	42	42				41	E	41	E		
merge	Btw Clara Barton Pkwy & MD 190	1511	5	125	1971	2082	2150	2150			8477	8476	55	53	53	55	55			54	55	2	38	40	40	40			32	D	27	C	26	C
		777	5	22	2081	2112	2130	2128			8473		54	56	56	57	58			56		0	38	38	38	37			30	D	26	C		
basic		3461	4	2368	2076	2019	1991				8454	8457	53	55	57	58				56	56	46	38	36	35				39	E	39	E	39	E
		1064	4	2289	2030	2091	2054				8464		54	55	57	57				56		43	37	37	36				39	E	39	E		
diverge		400	5	683	1624	1962	2103	2073			8445	8445	55	54	54	56	57			55	55	13	31	37	38	37			31	D	27	C	27	C
basic	MD 190 interchange	1947	4	1502	1818	2059	2089				7468	7468	56	56	57	57				56	56	28	33	37	37				34	D	34	D	34	D
merge		1495	5	730	1350	1703	2020	2098			7901	7901	61	56	55	56	57			57	57	12	25	31	36	38			28	D	23	C	23	C
basic		621	5	911	1321	1619	1952	2071			7874	7874	53	51	50	51	52			52	52	19	28	34	40	41			32	D	32	D	32	D
merge	Btw MD 190 & I-270 West Spur	1123	6	225	1601	1532	1589	1866	2049		8862	8862	48	46	45	43	43	46		45	45	6	40	38	43	49	47		37	E	28	D	28	D
basic		398	5	1538	1535	1883	1928	1762			8646	8714	45	38	33	32	37			37	33	36	44	63	67	51			52	F	52	F	60	F
		1764	5	1412	1460	2063	2030	1765			8729		44	35	27	24	30			32		34	44	81	88	61			62	F	62	F		
weave		732	6	1599	1420	1875	1812	1807	155		8669	8618	44	34	25	21	23	46		32	37	37	43	79	91	80	3		55	F	55	F	51	F
		2506	6	1696	1490	1226	1861	2047	282		8603		52	46	33	20	24	56		38		33	33	38	98	87	5		49	F	49	F		
basic	Btw I-270 West Spur & MD 187	6678	3	1350	1309	1276					3935	3937	56	56	57					56	56	24	24	23					24	C	24	C	24	C
		1173	3	1306	1327	1316					3949		56	57	57					57		24	24	23					24	C	24	C		
diverge		305	4	253	1254	1206	1235				3948	3948	43	41	44	51				45	45	6	31	28	25				23	C	22	C	22	C
basic	MD 187 interchange	2021	3	959	1142	1244					3345	3345	56	57	57					57	57	17	21	22					20	C	20	C	20	C
merge	Btw MD 187 & I-270 East Spur	440	4	115	1121	1201	1218				3655	3655	50	57	57	58				55	55	2	20	21	21				16	B	15	B	15	B
basic		659	3	726	1511	1419					3655	3655	57	56	57					57	57	13	27	25					22	C	22	C	22	C
diverge		1113	3	476	1613	1579					3667	3667	57	53	54					55	55	8	31	30					23	C	23	C	23	C
basic	I-270 East Spur interchange	1519	2	1630	1611						3241	3241	49	49						49	49	34	34						34	D	34	D	34	D
weave		1951	4	1504	1515	1649	1409				6078	6078	50	51	54	54				52	52	32	31	32	28				31	D	31	D	31	D
weave		513	6	93	1519	1546	1877	1784	566		7384	7384	44	43	45	47	46	58		47	47	2	39	38	44	43	10		29	D	29	D	29	D
basic		1013	5	1597	1672	1962	1961	256			7448	7473	44	44	45	44	46			44	44	40	41	48	49	7			37	E	37	E	37	E
		1002	5	1643	1757	1953	1961	184			7499		43	44	45	44	42			44		41	42	47	49	6			37	E	37	E		
merge	Btw I-270 East Spur & MD 185	521	5	1655	1773	1998	1999	95			7520	7520	41	43	45	44	36			42	42	45	46	49	52	5			40	E	35	E	35	E
basic		1603	4	1904	1795	1910	1924				7533	7537	47	49	53	56				51	52	42	37	37	35				38	E	38	E	37	E
		252	4	1992	1767	1869	1931				7558		53	55	59	60				57		38	32	32	33				34	D	34	D		
basic	ML - Btw VA 193 & GWMP	2189	2	569	552						1120	1121	64	64						64	64	9	9						9	A	9	A	9	A
		1496	2	569	552						1120		64	64						64		9	9						9	A	9	A		
		2215	2	566	555						1121		64	64						64		9	9						9	A	9	A		
		928	2	542	582						1124		64	64						64		9	9						9	A	9	A		
diverge	ML - GWMP interchange	812	3	539	518	68					1125	1125	64	64	63					64	64	9	8	1					6	A	6	A	6	A
merge		1860	2	663	384						1047	1047	64	63						63	63	11	6						8	A	8	A	8	A
basic		1146	1	1045							1045	1045	58							58	58	18							18	C	18	C	18	C

I-495 Inner Loop - 2027 No-Build - 9-10 AM

VISSIM Lookup Data				Volume									Speed									Density									
				Volume Per Lane						Across All Lanes	Overall Volume		Speed Per Lane						Across All Lanes	Overall Speed		Density Per Lane						Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)						Total Volume	Average Volume (veh/hr)		Speed (mph)						Average Speed	Average Speed (mph)		Combined Density (pcphpl)						Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Btw VA 267 & VA 193	2183	5	973	1163	1300	1487	1666		6590	6590		18	9	10	13	16		13	13		55	139	130	115	106		109	F	109	F	109	F
diverge		1499	5	860	1033	1355	1589	1776		6614	6614		12	7	10	13	17		12	12		72	156	136	121	109		119	F	121	F	121	F
basic	VA 193 interchange	2217	4	1336	1388	1580	1701			6005	6005		10	12	15	17			13	13		133	117	108	104			116	F	116	F	116	F
merge	Btw VA 193 & GWMP	351	6	335	1117	1122	1332	1580	1651	7137	7137		7	10	9	10	14	15	11	11		53	109	129	132	117	114	109	F	97	F	97	F
basic		1019	5	1430	1069	1379	1618	1676		7172	7172		16	7	11	14	15		13	13		89	148	132	117	114		120	F	120	F	120	F
diverge		1536	5	1071	1246	1495	1651	1728		7191	7191		24	9	12	15	16		15	15		45	142	124	115	110		107	F	104	F	104	F
basic	GWMP interchange	673	4	1333	1524	1664	1764			6286	6278		11	14	17	19			15	16		122	110	102	96			107	F	107	F	104	F
		677	4	1312	1508	1674	1776			6270			11	14	18	20			16			118	106	96	90			102	F	102	F		
		490	4	1345	1512	1673	1746			6277			12	15	18	20			16			118	105	95	90			102	F	102	F		
weave	Btw GWMP & Clara Barton Pkwy	672	6	1445	1696	1851	1826	1379	936	9133	9133		21	15	19	19	12	17	17	17		69	114	101	97	121	57	93	F	93	F	93	F
diverge		1295	5	1021	1967	2041	2119	2021		9169	9169		32	31	35	39	38		35	35		33	65	60	54	54		53	F	52	F	52	F
basic	Clara Barton Pkwy interchange	500	4	1934	2030	2157	2133			8255	8271		44	46	48	48			46	49		45	45	45	46			45	F	45	F	43	E
		706	4	1963	2042	2149	2129			8283			51	51	52	51			51			40	41	42	42			41	E	41	E		
merge	Btw Clara Barton Pkwy & MD 190	1511	5	137	1935	2038	2128	2113		8352	8344		52	50	51	52	52		51	51		3	40	41	41	41		33	D	28	D	28	D
		777	5	37	2021	2053	2114	2104		8328			42	49	50	52	53		49			1	43	42	41	40		34	D	29	D		
basic		3461	4	2272	2022	1996	1975			8264	8255		45	46	47	48			47	45		52	45	44	43			46	F	46	F	48	F
		1064	4	2232	2009	2013	1972			8226			43	41	40	39			41			54	52	54	54			53	F	53	F		
diverge		400	5	649	1681	1923	1959	1943		8155	8155		50	38	37	35	35		39	39		13	47	55	60	60		47	F	38	E	38	E
basic	MD 190 interchange	1947	4	1708	1784	1836	1890			7218	7218		32	29	27	29			29	29		58	67	74	71			68	F	68	F	68	F
merge		1495	5	1100	1434	1540	1613	1788		7474	7474		13	17	17	17	21		17	17		87	90	97	102	92		93	F	91	F	91	F
basic		621	5	1201	1485	1451	1465	1751		7353	7353		11	15	13	13	18		14	14		116	106	113	118	100		111	F	111	F	111	F
merge	Btw MD 190 & I-270 West Spur	1123	6	841	1378	1654	1413	1336	1793	8415	8415		25	11	16	12	10	18	15	15		35	124	109	123	130	103	104	F	89	F	89	F
basic		398	5	1920	1795	1449	1298	1752		8213	8325		27	19	12	10	18		17	19		74	95	124	135	101		106	F	106	F	99	F
		1764	5	1965	1727	1539	1360	1760		8350			33	23	13	10	19		20			61	77	121	132	96		97	F	97	F		
weave		732	6	2041	1691	1546	1370	1554	163	8364	8372		35	24	15	11	14	42	23	29		60	72	109	123	112	4	80	F	80	F	67	F
		2506	6	2022	1559	1163	1497	1871	262	8374			46	36	20	12	18	55	31			44	45	59	127	104	5	64	F	64	F		
basic	Btw I-270 West Spur & MD 187	6678	3	1300	1290	1201				3792	3792		55	57	58				57	57		24	23	21				23	C	23	C	23	C
		1173	3	1197	1313	1282				3792			56	57	58				57			22	23	22				22	C	22	C		
diverge		305	4	171	1174	1213	1236			3795	3795		47	47	50	56			50	50		4	26	24	22			19	B	18	B	18	B
basic	MD 187 interchange	2021	3	951	1175	1253				3379	3379		56	57	58				57	57		17	21	22				20	C	20	C	20	C
merge	Btw MD 187 & I-270 East Spur	440	4	94	1075	1218	1238			3625	3625		51	57	58	58			56	56		2	19	22	22			16	B	14	B	14	B
basic		659	3	669	1512	1450				3630	3630		57	57	57				57	57		12	27	26				22	C	22	C	22	C
diverge		1113	3	408	1617	1613				3637	3637		58	55	56				56	56		7	30	29				22	C	22	C	22	C
basic	I-270 East Spur interchange	1519	2	1620	1642					3261	3261		51	52					52	52		32	32					32	D	32	D	32	D
weave		1951	4	1475	1540	1645	1425			6085	6085		56	58	62	62			59	59		27	27	27	23			26	C	26	C	26	C
weave		513	6	59	1450	1545	1875	1774	359	7062	7062		52	58	58	62	63	61	59	59		1	26	27	31	29	6	20	C	20	C	20	C
basic		1013	5	1472	1616	1975	1956	74		7093	7098		56	57	60	59	63		59	59		27	29	34	34	1		25	C	25	C	25	C
		1002	5	1487	1663	1955	1971	26		7103			56	57	60	60	63		59			27	29	33	33	0		25	C	25	C		
merge	Btw I-270 East Spur & MD 185	521	5	1475	1666	1966	1982	6		7095	7095		58	59	62	63	58		60	60		26	29	32	32	0		24	C	22	C	22	C
basic		1603	4	1788	1685	1807	1806			7086	7088		55	57	60	62			58	58		33	30	30	30			31	D	31	D	31	D
		252	4	1927	1638	1738	1801			7103			54	57	60	62			58			36	29	29	29			31	D	31	D		
basic	ML - Btw VA 193 & GWMP	2189	2	553	521					1074	1075		64	64					64	64		9	8					9	A	9	A	9	A
		1496	2	552	524					1076			64	64					64			9	8					9	A	9	A		
		2215	2	552	524					1076			64	64					64			9	8					9	A	9	A		
		928	2	541	534					1075			64	64					64			9	8					9	A	9	A		
diverge	ML - GWMP interchange	812	3	540	501	34				1076	1076		64	64	63				64	64		9	8	1				6	A	6	A	6	A
merge		1860	2	664	377					1041	1041		63	63					63	63		11	6					8	A	8	A	8	A
basic		1146	1	1045						1045	1045		58						58	58		18						18	C	18	C	18	C

I-495 Outer Loop - 2027 No-Build - 6-7 AM

VISSIM Lookup Data				Volume								Speed								Density									
				Volume Per Lane						Across All Lanes	Overall Volume	Speed Per Lane							Across All Lanes	Overall Speed	Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)						Total Volume	Average Volume (veh/hr)	Speed (mph)							Average Speed	Average Speed (mph)	Combined Density (pcphpl)							Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Btw VA 267 & VA 193	873	5	625	986	1417	1605	1519			6153	6136	55	53	53	53	52			53	53	12	19	27	31	29			24	C	24	C	24	C
		73	5	587	940	1384	1565	1464			5939		55	53	53	53	53			53		11	18	27	30	28			23	C	23	C		
merge		853	6	22	588	970	1439	1627	1515		6160	6160	54	55	54	53	53	54		54	54	0	11	18	27	31	29		19	B	10	B	10	B
merge	VA 193 interchange & GWMP interchange	1322	5	438	981	1454	1629	1517			6019	6019	55	54	53	53	53			53	53	8	19	28	31	29			23	C	18	B	18	B
basic		786	4	1070	1474	1635	1511				5690	5694	53	53	53	53				53	53	20	28	31	29				27	D	27	D	27	D
		727	4	1057	1486	1644	1511				5698		54	53	53	53				53		20	29	32	29				27	D	27	D		
diverge		591	5	383	1115	1511	1649	1509			6168	6168	54	54	53	53	53			53	53	7	21	29	32	29			24	C	19	B	19	B
basic		1853	4	1474	1542	1660	1506				6182	6178	53	53	53	53				53	53	28	30	32	29				30	D	30	D	30	D
		1408	4	1467	1551	1670	1485				6173		53	53	53	53				53		28	30	32	28				30	D	30	D		
diverge		603	5	1456	1562	1713	1567	545			6844	6844	52	53	52	52	53			52	52	28	30	33	30	10			27	C	20	C	20	C
basic		284	4	1435	1538	1745	2086				6804	6804	52	53	52	52				52	52	28	30	34	41				33	D	33	D	33	D
weave	Btw GWMP & Clara Barton Pkwy	1522	5	1434	1329	1603	1823	2160			8348	8348	53	53	53	53	53			53	53	28	26	31	35	42			32	D	32	D	32	D
basic	Clara Barton Pkwy interchange	1713	4	2005	1715	1949	2275				7944	7944	53	53	53	52				53	53	39	33	37	44				38	E	38	E	38	E
diverge		922	5	160	2001	1724	1950	2270			8105	8105	54	53	53	53	52			53	53	3	38	33	37	44			31	D	25	C	25	C
basic	Btw Clara Barton Pkwy & MD 190	521	4	2120	1707	1939	2223				7989	8096	52	53	52	50				52	49	42	33	38	45				39	E	39	E	42	E
		3149	4	2198	1880	2013	2022				8114		45	48	50	51				48		50	40	41	40				43	E	43	E		
merge		1788	5	143	2213	2160	1840	1761			8117	8117	49	38	44	49	51			46	46	3	59	50	38	35			37	E	37	E	37	E
basic	MD 190 interchange	2663	4	1610	1939	1983	1981				7513	7513	53	53	53	53				53	53	31	37	38	38				36	E	36	E	36	E
diverge		1585	5	609	1995	2008	1993	1967			8571	8571	54	51	51	52	52			52	52	11	39	40	39	38			34	D	32	D	32	D
diverge		1032	6	1108	762	2042	2091	1910	1944		9857	9857	53	53	52	53	53	53		53	53	21	15	40	40	36	37		31	D	25	C	25	C
basic	Btw MD 190 & I-270 West Spur	446	5	2176	1966	1783	1856	1915			9696	9839	50	52	53	53	53			52	43	44	39	35	36	37			38	E	38	E	49	F
		2659	5	2169	1996	1823	1901	1976			9864		40	43	46	48	50			45		55	48	41	40	40			45	F	45	F		
		936	5	1893	1948	1999	2043	1953			9835		22	26	32	38	43			32		90	79	66	56	47			68	F	68	F		
weave		551	6	2	1752	1841	2113	2175	1946		9830	9830	40	30	33	38	42	44		38	38	0	66	61	59	55	46		48	F	48	F	48	F
basic	Btw I-270 West Spur & MD 187	7657	3	732	1498	1435					3665	3665	53	47	48					49	50	14	33	31					26	D	26	D	26	D
		1085	3	1263	1245	1151					3660		53	53	53					53		24	24	22					23	C	23	C		
merge		406	4	163	1184	1196	1126				3669	3669	51	53	53	53				53	53	3	23	23	21				18	B	16	B	16	B
basic	MD 187 interchange	2022	3	923	1094	1124					3141	3141	54	53	53					53	53	18	21	21					20	C	20	C	20	C
diverge		325	4	201	1024	1109	1126				3460	3460	53	53	53	53				53	53	4	20	21	21				17	B	15	B	15	B
basic	Btw MD 187 & I-270 East Spur	1192	3	1221	1110	1125					3456	3456	53	53	53					53	53	23	21	21					22	C	22	C	22	C
		913	3	1212	1113	1131					3456		53	53	53					53		23	21	21					22	C	22	C		
		494	3	1111	1164	1182					3457		53	53	53					53		21	22	23					22	C	22	C		
merge		910	4	935	1247	1233	33				3448	3448	49	49	49	48				49	49	19	26	26	1				18	B	17	B	17	B
basic	I-270 East Spur interchange	288	3	840	1238	1119					3197	3197	53	53	53					53	53	16	24	21					20	C	20	C	20	C
diverge		1593	4	1032	1988	1294	1132				5445	5445	54	53	53	53				53	53	19	38	25	22				26	C	26	C	26	C
diverge		402	5	623	1209	2055	1297	1121			6306	6306	53	53	53	53	53			53	53	12	23	40	25	21			24	C	25	C	25	C
basic	Btw I-270 East Spur & MD 185	1045	4	1810	2090	1300	1113				6313	6297	53	53	53	53				53	53	35	40	25	21				30	D	30	D	30	D
		2087	4	1739	2248	1253	1062				6302		52	51	53	54				53		34	45	24	20				31	D	31	D		
		1257	4	1905	1679	1687	1020				6292		51	53	53	54				52		38	32	32	19				31	D	31	D		
		526	4	1404	1861	1738	1256				6260		53	53	53	54				53		27	36	33	24				30	D	30	D		
basic	ML - Btw VA 267 & VA 193	873	2	582	171						752	751	64	66						65	65	9	3						6	A	6	A	6	A
		2286	2	587	164						752		64	66						65		9	3						6	A	6	A		
		787	2	593	156						748		64	66						65		9	2						6	A	6	A		
		954	2	598	152						750		64	65						64		10	2						6	A	6	A		
merge	ML - VA 193 interchange & GWMP interchange	303	3	590	126	31					747	747	64	61	51					59	59	9	2	1					4	A	4	A	4	A
basic		1881	2	608	57						665	665	64	67						65	65	10	1						5	A	5	A	5	A
basic		1422	1	666							666	666	58							58	58	12							12	B	12	B	12	B

I-495 Outer Loop - 2027 No-Build - 7-8 AM

VISSIM Lookup Data				Volume								Speed									Density											
				Volume Per Lane						Across All Lanes	Overall Volume	Speed Per Lane							Across All Lanes	Overall Speed	Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)						Total Volume	Average Volume (veh/hr)	Speed (mph)							Average Speed	Average Speed (mph)	Combined Density (pcphpl)							Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Btw VA 267 & VA 193	873	5	762	1188	1519	1630	1524		6623	6605	54	53	52	52	52			53	53	14	23	29	32	29			26	D	26	D	25	C
		73	5	721	1139	1480	1584	1467		6391		54	53	53	53	53			53		14	22	29	30	28			24	C	24	C		
merge		853	6	46	709	1171	1534	1644	1522	6627	6627	53	54	54	53	53	54		54	54	1	13	22	29	31	29		21	C	12	B	12	B
merge	VA 193 interchange & GWMP interchange	1322	5	432	1161	1558	1654	1515		6320	6320	55	53	53	53	53			53	53	8	22	30	32	29			24	C	20	C	20	C
basic		786	4	1265	1586	1661	1507			6019	6024	53	53	53	53				53	53	24	31	32	29				29	D	29	D	29	D
		727	4	1251	1603	1673	1503			6030		53	53	53	53				53		24	31	32	29				29	D	29	D		
diverge		591	5	518	1328	1645	1681	1494		6667	6667	53	53	53	53	53			53	53	10	25	32	32	29			26	C	22	C	22	C
basic		1853	4	1821	1690	1688	1486			6685	6681	52	53	53	53				53	53	35	33	32	28				32	D	32	D	32	D
		1408	4	1830	1697	1687	1461			6676		52	53	53	53				53		36	33	32	28				32	D	32	D		
diverge		603	5	1844	1729	1708	1526	547		7355	7355	50	52	52	52	53			52	52	37	34	33	29	10			29	D	20	C	20	C
basic		284	4	1871	1712	1702	2028			7312	7312	49	52	52	52				51	51	39	34	33	40				36	E	36	E	36	E
weave	Btw GWMP & Clara Barton Pkwy	1522	5	1305	1743	1740	1761	2105		8654	8654	53	51	52	53	53			52	52	25	35	34	34	40			34	D	34	D	34	D
basic	Clara Barton Pkwy interchange	1713	4	1943	1702	1887	2244			7775	7775	53	53	53	52				53	53	37	33	36	43				37	E	37	E	37	E
diverge		922	5	159	1942	1712	1885	2238		7935	7935	54	53	53	53	52			53	53	3	37	33	36	44			30	D	24	C	24	C
basic	Btw Clara Barton Pkwy & MD 190	521	4	2062	1689	1880	2189			7820	7919	52	53	52	50				52	50	41	33	37	44				39	E	39	E	41	E
		3149	4	2152	1863	1945	1975			7935		46	49	51	51				49		47	38	39	39				41	E	41	E		
merge		1788	5	167	2129	2047	1789	1805		7937	7937	48	40	45	49	51			47	47	4	55	47	37	36			36	E	35	E	35	E
basic	MD 190 interchange	2663	4	1360	1776	1943	2015			7094	7094	53	53	53	53				53	53	26	34	37	39				34	D	34	D	34	D
diverge		1585	5	545	1719	1844	1969	2032		8109	8109	53	51	51	51	51			52	52	10	34	37	39	40			32	D	30	D	30	D
diverge		1032	6	1003	730	1781	1928	1970	2065	9477	9477	23	25	37	47	50	52		39	39	75	59	53	42	40	40		52	F	63	F	63	F
basic	Btw MD 190 & I-270 West Spur	446	5	1901	1807	1725	1902	2010		9345	9526	32	38	47	50	51			44	37	70	51	38	39	40			48	F	48	F	59	F
		2659	5	1958	1869	1762	1910	2041		9541		29	34	40	45	48			39		74	58	45	43	43			53	F	53	F		
		936	5	1709	1817	1923	2029	2089		9567		16	20	25	32	38			26		111	94	78	65	56			81	F	81	F		
weave		551	6	94	1631	1854	2019	2093	1923	9614	9614	15	16	22	28	35	39		26	26	15	106	89	74	62	51		66	F	66	F	66	F
basic	Btw I-270 West Spur & MD 187	7657	3	1240	1405	1481				4126	4161	22	16	18					19	21	60	94	88					81	F	81	F	76	F
		1085	3	1529	1492	1388				4408		37	35	33					35		45	47	46					46	F	46	F		
merge		406	4	293	1365	1455	1352			4466	4466	25	36	38	37				34	34	18	42	41	40				35	E	34	D	34	D
basic	MD 187 interchange	2022	3	1021	1306	1371				3699	3699	43	45	45					45	45	26	31	33					30	D	30	D	30	D
diverge		325	4	288	1163	1344	1399			4195	4195	47	48	49	49				48	48	7	26	29	30				23	C	20	C	20	C
basic	Btw MD 187 & I-270 East Spur	1192	3	1458	1351	1401				4211	4225	51	51	51					51	52	30	27	28					28	D	28	D	28	D
		913	3	1471	1353	1411				4235		52	53	53					53		29	26	27					27	D	27	D		
		494	3	1327	1420	1493				4240		53	53	53					53		25	27	29					27	D	27	D		
merge		910	4	1013	1549	1603	70			4234	4234	50	49	49	48				49	49	21	32	33	1				22	C	22	C	22	C
basic	I-270 East Spur interchange	288	3	835	1512	1432				3779	3779	53	53	53					53	53	16	29	27					24	C	24	C	24	C
diverge		1593	4	1405	2227	1591	1455			6679	6679	54	53	53	53				53	53	27	43	30	28				32	D	32	D	32	D
diverge		402	5	652	1579	2306	1598	1448		7583	7583	53	53	52	53	53			53	53	13	30	45	30	28			29	D	29	D	29	D
basic	Btw I-270 East Spur & MD 185	1045	4	2205	2349	1603	1444			7601	7605	52	52	53	53				53	51	43	46	31	27				37	E	37	E	38	E
		2087	4	2128	2527	1603	1347			7605		50	48	52	53				51		43	53	31	26				38	E	38	E		
		1257	4	2289	2088	2069	1170			7616		48	51	52	53				51		49	42	40	22				38	E	38	E		
		526	4	1867	2258	2057	1402			7584		51	51	53	53				52		38	45	40	27				37	E	37	E		
basic	ML - Btw VA 267 & VA 193	873	2	594	171					765	763	63	66						65	65	9	3						6	A	6	A	6	A
		2286	2	598	166					764		64	66						65		9	3						6	A	6	A		
		787	2	598	161					759		64	66						65		10	3						6	A	6	A		
		954	2	602	159					761		63	65						64		10	3						6	A	6	A		
merge	ML - VA 193 interchange & GWMP interchange	303	3	591	135	33				759	759	64	62	50					58	58	9	2	1					4	A	4	A	4	A
basic		1881	2	612	60					672	672	64	67						65	65	10	1						5	A	5	A	5	A
basic		1422	1	671						671	671	58							58	58	12							12	B	12	B	12	B

I-495 Outer Loop - 2027 No-Build - 8-9 AM

VISSIM Lookup Data				Volume								Speed									Density									
				Volume Per Lane						Across All Lanes	Overall Volume	Speed Per Lane							Across All Lanes	Overall Speed	Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)						Total Volume	Average Volume (veh/hr)	Speed (mph)							Average Speed	Average Speed (mph)	Combined Density (pcphpl)							Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Btw VA 267 & VA 193	873	5	965	1361	1577	1636	1509		7049	7030	53	53	52	53	52			53	53	19	26	31	32	29			27	D	27	D	27	D
		73	5	925	1306	1536	1585	1455		6807		53	53	53	53	53			53		18	25	30	30	28			26	D	26	D		
merge		853	6	65	923	1337	1581	1646	1508	7060	7060	53	54	53	53	54	54		53	53	1	17	26	30	31	29		22	C	15	B	15	B
merge	VA 193 interchange & GWMP interchange	1322	5	619	1290	1596	1648	1502		6655	6655	54	53	53	53	53			53	53	12	25	31	32	29			25	C	22	C	22	C
basic		786	4	1361	1621	1652	1490			6124	6129	53	53	53	53				53	53	26	31	32	29				29	D	29	D	29	D
		727	4	1345	1639	1664	1487			6135		53	53	53	53				53		26	32	32	28				29	D	29	D		
diverge		591	5	499	1421	1680	1669	1481		6750	6750	54	53	53	53	53			53	53	9	27	32	32	28			26	C	23	C	23	C
basic		1853	4	1900	1727	1674	1469			6770	6768	52	53	53	53				53	53	37	33	32	28				33	D	33	D	33	D
		1408	4	1916	1739	1666	1444			6766		52	53	53	53				53		38	34	32	28				33	D	33	D		
diverge		603	5	1950	1776	1684	1479	528		7418	7418	49	51	52	52	53			51	51	41	36	33	29	10			30	D	19	B	19	B
basic		284	4	2008	1775	1676	1918			7376	7376	47	50	51	51				50	50	43	36	33	38				38	E	38	E	38	E
weave	Btw GWMP & Clara Barton Pkwy	1522	5	1168	1934	1776	1666	1962		8506	8506	52	50	52	53	53			52	52	23	40	35	32	38			34	D	34	D	34	D
basic	Clara Barton Pkwy interchange	1713	4	1795	1535	1714	2082			7126	7126	53	53	53	52				53	53	35	29	33	40				34	D	34	D	34	D
diverge		922	5	102	1793	1540	1705	2084		7224	7224	54	53	54	53	52			53	53	2	34	29	32	41			28	D	22	C	22	C
basic	Btw Clara Barton Pkwy & MD 190	521	4	1869	1526	1695	2029			7120	7214	52	53	52	51				52	51	36	29	33	41				35	E	35	E	36	E
		3149	4	1992	1678	1743	1816			7229		48	51	51	51				50		42	34	35	36				37	E	37	E		
merge		1788	5	154	1928	1769	1640	1741		7231	7231	49	44	47	50	51			48	48	3	46	39	33	34			31	D	29	D	29	D
basic	MD 190 interchange	2663	4	958	1469	1807	1966			6200	6200	54	53	53	53				53	53	18	28	35	38				30	D	30	D	30	D
diverge		1585	5	553	1383	1525	1847	2013		7320	7320	51	51	52	51	51			51	51	11	28	30	36	40			29	D	26	C	26	C
diverge		1032	6	795	702	1481	1600	1923	2105	8607	8607	10	11	24	40	47	50		30	30	123	108	77	41	41	43		72	F	103	F	103	F
basic	Btw MD 190 & I-270 West Spur	446	5	1508	1533	1527	1860	2040		8467	8567	19	25	38	46	49			35	30	104	75	41	42	42			61	F	61	F	72	F
		2659	5	1540	1600	1575	1834	2042		8591		18	23	32	40	45			32		107	81	52	47	46			66	F	66	F		
		936	5	1368	1555	1723	1877	2024		8547		11	15	21	27	35			22		133	112	87	72	60			93	F	93	F		
weave		551	6	222	1259	1577	1760	1886	1849	8554	8554	8	11	17	23	29	34		20	20	72	135	112	90	74	59		90	F	90	F	90	F
basic	Btw I-270 West Spur & MD 187	7657	3	1192	1027	1168				3388	3384	13	8	9					10	10	112	148	140					133	F	133	F	132	F
		1085	3	1212	1073	1070				3355		15	13	12					13		113	124	128					122	F	122	F		
merge		406	4	389	818	1055	1103			3364	3364	7	11	14	15				12	12	118	130	120	121				122	F	122	F	122	F
basic	MD 187 interchange	2022	3	684	972	1111				2767	2767	18	20	21					20	20	117	112	111					113	F	113	F	113	F
diverge		325	4	312	765	1015	1122			3213	3213	33	23	25	25				26	26	10	104	104	104				81	F	73	F	73	F
basic	Btw MD 187 & I-270 East Spur	1192	3	1058	1041	1135				3234	3259	26	25	26					26	26	99	99	100					99	F	99	F	95	F
		913	3	1059	1040	1174				3273		26	26	26					26		95	93	94					94	F	94	F		
		494	3	934	1094	1265				3293		26	27	27					27		88	86	85					86	F	86	F		
merge		910	4	651	1139	1357	174			3322	3322	25	25	25	27				26	26	79	88	93	28				72	F	70	F	70	F
basic	I-270 East Spur interchange	288	3	453	1090	1357				2899	2899	26	28	28					27	27	65	79	85					76	F	76	F	76	F
diverge		1593	4	1884	1882	1205	1438			6409	6409	38	30	30	30				32	32	54	82	75	80				73	F	73	F	73	F
diverge		402	5	623	1857	2057	1236	1493		7265	7265	47	38	33	31	31			36	36	13	55	78	68	75			58	F	49	F	49	F
basic	Btw I-270 East Spur & MD 185	1045	4	2311	2113	1337	1545			7305	7364	36	32	33	33				33	31	69	80	65	72				71	F	71	F	75	F
		2087	4	2134	2036	1585	1594			7349		30	27	31	35				31		77	88	65	64				73	F	73	F		
		1257	4	1959	1889	2047	1518			7413		23	24	30	36				28		94	91	80	52				79	F	79	F		
		526	4	1743	2018	2009	1649			7419		24	28	32	37				30		88	86	75	54				76	F	76	F		
basic	ML - Btw VA 267 & VA 193	873	2	579	205					784	782	64	66						65	65	9	3						6	A	6	A	6	A
		2286	2	584	199					783		64	66						65		9	3						6	A	6	A		
		787	2	589	190					779		64	66						65		9	3						6	A	6	A		
		954	2	594	187					781		64	65						64		9	3						6	A	6	A		
merge	ML - VA 193 interchange & GWMP interchange	303	3	570	159	49				778	778	64	60	51					58	58	9	3	1					4	A	4	A	4	A
basic		1881	2	588	59					647	647	64	68						66	66	9	1						5	A	5	A	5	A
basic		1422	1	646						646	646	58							58	58	11							11	B	11	B	11	B

I-495 Outer Loop - 2027 No-Build - 9-10 AM

VISSIM Lookup Data				Volume								Speed									Density									
				Volume Per Lane						Across All Lanes	Overall Volume	Speed Per Lane							Across All Lanes	Overall Speed	Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)						Total Volume	Average Volume (veh/hr)	Speed (mph)							Average Speed	Average Speed (mph)	Combined Density (pcphpl)							Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Btw VA 267 & VA 193	873	5	857	1320	1625	1695	1549		7046	7027	54	53	52	52	52			53	53	16	25	32	33	30			27	D	27	D	27	D
		73	5	813	1266	1589	1647	1488		6801		53	53	53	53	53			53		15	24	31	32	28			26	D	26	D		
merge		853	6	59	803	1291	1644	1708	1545	7049	7049	53	54	53	53	53	54		53	53	1	15	25	31	32	29		22	C	14	B	14	B
merge	VA 193 interchange & GWMP interchange	1322	5	462	1272	1663	1717	1541		6656	6656	55	53	53	53	53			53	53	9	24	32	33	29			25	C	22	C	22	C
basic		786	4	1384	1690	1727	1530			6332	6339	53	53	53	53				53	53	27	33	33	29				30	D	30	D	30	D
		727	4	1368	1713	1737	1528			6346		53	53	53	53				53		26	33	33	29				30	D	30	D		
diverge		591	5	528	1443	1760	1750	1517		6998	6998	53	53	53	53	53			53	53	10	28	34	34	29			27	C	24	C	24	C
basic		1853	4	1947	1809	1757	1503			7016	7011	52	53	53	53				53	53	38	35	34	29				34	D	34	D	34	D
		1408	4	1958	1826	1754	1465			7004		52	52	53	53				53		39	35	34	28				34	D	34	D		
diverge		603	5	1984	1865	1784	1513	598		7744	7744	49	51	52	52	53			51	51	41	37	35	29	11			31	D	20	C	20	C
basic		284	4	2024	1861	1779	2035			7699	7699	48	51	52	52				50	50	43	37	35	40				39	E	39	E	39	E
weave	Btw GWMP & Clara Barton Pkwy	1522	5	1252	1922	1871	1804	2100		8949	8949	52	50	52	53	53			52	52	24	39	37	35	40			35	E	35	E	35	E
basic	Clara Barton Pkwy interchange	1713	4	1942	1721	1893	2237			7793	7793	53	53	53	52				53	53	37	33	36	43				38	E	38	E	38	E
diverge		922	5	85	1935	1722	1893	2234		7869	7869	54	53	53	53	52			53	53	2	37	33	36	44			30	D	24	C	24	C
basic	Btw Clara Barton Pkwy & MD 190	521	4	1993	1699	1878	2185			7756	7861	52	53	52	50				52	50	39	33	37	44				38	E	38	E	40	E
		3149	4	2120	1889	1936	1933			7878		47	49	51	51				49		46	39	39	39				41	E	41	E		
merge		1788	5	225	2096	2051	1779	1738		7890	7890	47	40	44	49	50			46	46	5	54	48	37	35			36	E	36	E	36	E
basic	MD 190 interchange	2663	4	1222	1696	1859	1884			6660	6660	53	53	53	53				53	53	23	33	36	36				32	D	32	D	32	D
diverge		1585	5	618	1689	1770	1882	1902		7860	7860	52	51	51	52	52			52	52	12	34	35	37	37			31	D	29	D	29	D
diverge		1032	6	942	774	1785	1844	1888	1934	9167	9167	21	22	35	46	50	52		38	38	78	62	56	41	39	38		52	F	66	F	66	F
basic	Btw MD 190 & I-270 West Spur	446	5	1853	1782	1661	1831	1876		9003	9129	30	36	44	48	50			42	38	73	55	39	39	38			49	F	49	F	55	F
		2659	5	1916	1848	1696	1823	1869		9152		28	33	40	45	49			39		76	60	44	41	39			52	F	52	F		
		936	5	1892	1971	1892	1811	1561		9126		22	27	33	39	43			32		96	79	62	50	38			65	F	65	F		
weave		551	6	100	1878	1993	1857	1805	1464	9097	9097	20	27	33	37	41	43		34	34	21	81	69	56	48	36		52	F	52	F	52	F
basic	Btw I-270 West Spur & MD 187	7657	3	1301	1416	1455				4173	4159	23	18	19					20	20	78	114	111					101	F	101	F	102	F
		1085	3	1461	1349	1256				4066		22	20	19					20		96	107	113					106	F	106	F		
merge		406	4	480	1002	1306	1263			4050	4050	15	16	19	19				18	18	91	121	109	111				108	F	107	F	107	F
basic	MD 187 interchange	2022	3	927	1175	1230				3332	3332	17	19	19					18	18	117	110	110					112	F	112	F	112	F
diverge		325	4	311	997	1196	1226			3729	3729	37	19	20	20				24	24	9	105	104	106				81	F	73	F	73	F
basic	Btw MD 187 & I-270 East Spur	1192	3	1263	1219	1237				3719	3710	22	21	21					21	23	99	101	103					101	F	101	F	96	F
		913	3	1228	1199	1275				3702		23	23	23					23		95	94	94					94	F	94	F		
		494	3	1129	1218	1357				3703		24	25	26					25		92	90	87					90	F	90	F		
merge		910	4	897	1247	1360	170			3674	3674	24	25	25	26				25	25	83	90	93	17				71	F	67	F	67	F
basic	I-270 East Spur interchange	288	3	694	1239	1325				3259	3259	27	28	28					28	28	64	77	81					74	F	74	F	74	F
diverge		1593	4	1808	1890	1354	1380			6431	6431	42	33	30	30				34	34	47	79	74	79				70	F	70	F	70	F
diverge		402	5	623	1797	2022	1386	1397		7224	7224	48	40	35	32	31			37	37	13	50	75	69	74			56	F	46	F	46	F
basic	Btw I-270 East Spur & MD 185	1045	4	2249	2085	1438	1439			7211	7141	38	34	35	34				35	34	64	77	63	69				68	F	68	F	70	F
		2087	4	2045	2088	1551	1477			7161		33	31	35	37				34		73	84	60	58				69	F	69	F		
		1257	4	1940	1818	1907	1434			7099		29	30	34	39				33		86	82	72	49				72	F	72	F		
		526	4	1633	1910	1873	1608			7024		28	31	34	39				33		85	83	73	53				73	F	73	F		
basic	ML - Btw VA 267 & VA 193	873	2	630	187					818	817	63	66						65	65	10	3						6	A	6	A	6	A
		2286	2	637	181					818		63	66						65		10	3						6	A	6	A		
		787	2	642	172					815		64	66						65		10	3						6	A	6	A		
		954	2	648	168					817		63	65						64		10	3						7	A	7	A		
merge	ML - VA 193 interchange & GWMP interchange	303	3	639	144	31				815	815	64	62	50					59	59	10	2	1					4	A	4	A	4	A
basic		1881	2	661	70					731	731	64	67						65	65	11	1						6	A	6	A	6	A
basic		1422	1	732						732	732	58							58	58	13							13	B	13	B	13	B

I-270 Southbound - 2027 No-Build 6-7 AM

VISSIM Lookup Data				Volume										Speed										Density											
				Volume Per Lane								Across All Lanes	Overall Volume	Speed Per Lane								Across All Lanes	Overall Speed	Density Per Lane								Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)								Total Volume	Average Volume (veh/hr)	Speed (mph)								Average Speed	Average Speed (mph)	Combined Density (pcphpl)								Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Through MD 117 interchange	658	4	1826	1905	1912	1927					7570	7604	19	20	20	20					20	20	96	95	97	96					96	F	96	F	98	F
		3062	4	1846	1874	1909	1982					7611		19	19	20	21					20		101	100	99	95					99	F	99	F		
merge	Btw MD 117 & I-370	1569	5	1443	2000	1903	1907	2044				9297	9297	33	28	28	30	32				30	30	45	72	69	66	64				63	F	62	F	62	F
basic		1151	5	1418	2115	2112	2053	1639				9338	9338	41	32	31	33	40				36	36	36	68	70	64	41				56	F	56	F	56	F
		431	5	1405	2238	2209	2087	1299				9238	9238	32	34	34	39	45				37	37	46	67	66	55	29				53	F	53	F	53	F
diverge		1058	6	1149	456	2132	2244	2088	1276			9345	9345	52	52	45	45	47	51			49	49	22	9	49	51	46	25			34	D	33	D	33	D
basic	I-370 interchange	1258	4	2376	2050	2149	1185					7759	7757	42	45	49	53					47	47	59	46	45	22					43	E	43	E	43	E
		193	4	2462	1952	2174	1157					7745		44	48	51	53					49		57	41	44	22					41	E	41	E		
diverge		1263	5	1427	1364	1698	2113	1143				7745	7745	51	51	52	52	53				52	52	28	27	33	41	22				30	D	33	D	33	D
basic		3427	4	1291	1651	1911	1132					5985	5985	53	53	53	53					53	53	25	32	37	21					29	D	29	D	29	D
merge	Shady Grove Rd interchange	1046	5	405	1671	2136	1775	1130				7117	7117	48	45	47	49	53				48	48	9	39	46	37	21				30	D	31	D	31	D
basic		420	4	2115	1927	1942	1130					7114	7110	40	43	46	52					45	47	54	45	43	22					41	E	41	E	39	E
		497	4	2139	1883	1955	1130					7108		45	48	50	52					49		49	40	40	22					38	E	38	E		
diverge		1518	4	2106	1897	1971	1127					7102	7102	49	50	51	53					51	51	44	39	39	21					36	E	41	E	41	E
basic	Btw Shady Grove Rd & MD 28	3645	4	1387	1795	1940	1125					6247	6247	53	53	53	53					53	53	27	35	37	21					30	D	30	D	30	D
merge		473	5	193	1627	1949	1922	1127				6819	6819	51	53	53	53	53				53	53	4	31	37	37	21				26	C	24	C	24	C
basic		1022	4	1767	1962	1965	1127					6821	6814	51	52	52	52					52	52	35	39	38	21					33	D	33	D	33	D
		1591	4	1862	1966	1857	1124					6809		52	52	53	53					52		36	38	36	21					33	D	33	D		
merge	MD 28 interchange	655	5	93	1980	2167	1727	1128				7095	7095	52	52	52	53	53				52	52	2	39	43	33	21				28	D	28	D	28	D
basic		921	4	2125	2037	1802	1127					7091	7091	49	50	52	52					51	51	44	41	35	22					36	E	36	E	36	E
diverge		1515	4	2190	1910	1870	1126					7096	7096	49	50	51	53					51	51	46	39	37	21					36	E	41	E	41	E
basic	MD 189 interchange	3237	4	1524	1844	1882	1124					6374	6368	53	53	53	53					53	53	29	35	36	21					31	D	31	D	31	D
		1874	4	1563	1825	1866	1125					6379		53	53	53	53					53		30	35	36	21					31	D	31	D		
		3407	4	1579	1812	1849	1117					6357		53	53	53	53					53		30	35	36	21					31	D	31	D		
merge	Montrose Rd interchange	598	5	1135	1542	1798	1829	1111				7415	7415	53	54	53	53	53				53	53	22	29	34	35	21				28	D	28	D	28	D
basic	Btw Montrose Rd & Spur Split	882	5	1163	1528	1801	1833	1115				7440	7443	53	53	53	53	53				53	53	22	29	35	35	21				28	D	28	D	28	D
		303	5	1185	1517	1802	1836	1118				7458		53	53	53	53	53				53		22	29	35	35	21				29	D	29	D		
		3023	5	1216	1501	1782	1824	1119				7442		53	53	53	53	53				53		23	29	34	35	21				29	D	29	D		
weave		3707	7	938	859	1593	2106	2181	1639	1129		10446	10432	53	53	52	51	50	52	53		52	52	18	17	31	42	45	32	21		29	D	29	D	29	D
		722	7	962	1166	1817	2190	1431	1680	1118		10364		53	53	52	50	52	53	53		52		18	22	36	45	28	32	21		29	D	29	D		
diverge		400	8	1009	1268	1803	2138	1392	1674	522	596	10402	10402	54	54	53	51	53	53	54	54	53	53	19	24	35	42	27	32	10	11	25	C	18	B	18	B
weave		330	7	1021	1276	1782	2109	1446	1581	285		9499	9499	54	54	53	52	53	53	54		53	53	19	24	34	41	28	30	5		26	C	26	C	26	C
basic	Spur Split through MD 187 interchange	965	4	769	1463	1486	299					4017	4017	58	57	57	59					58	58	14	26	26	5					18	C	18	C	18	C
diverge		1138	4	829	1460	1416	311					4016	4016	63	63	63	64					63	63	13	24	23	5					16	B	16	B	16	B
basic		2602	3	1325	1400	311						3036	3036	63	63	64						63	63	21	23	5						16	B	16	B	16	B
merge		443	4	24	1342	1425	310					3101	3101	49	63	63	64					60	60	1	22	23	5					13	B	15	B	15	B
basic		947	3	1350	1439	312						3101		63	63	64						63		22	23	5						17	B	17	B	17	B
merge	Btw MD 187 & I-495	1023	4	94	1272	1515	313					3195	3195	57	63	63	64					62	62	2	21	24	5					13	B	16	B	16	B
basic		473	3	1357	1598	224						3179	3196	63	63	64						63	63	22	26	4						17	B	17	B	17	B
		3140	3	1206	1845	148						3199		63	62	64						63		19	30	2						17	B	17	B		
diverge		1491	3	1168	993	1032						3193	3193	63	64	63						63	63	19	16	17						17	B	17	B	17	B
basic		1568	2	1131	922							2054	2054	63	64							63	63	18	15							16	B	16	B	16	B
basic	Spur Split to Democracy Blvd	2999	4	1239	1256	1651	1411					5558	5558	53	54	53	53					53	53	24	24	32	27					27	D	27	D	27	D
weave		962	5	452	1656	1960	1493	731				6291	6291	54	52	52	53	53				53	53	9	32	38	29	14				24	C	24	C	24	C
basic	Democracy Blvd	2457	4	1502	1923	1736	736					5897	5897	53	53	53	53					53	53	29	37	34	14					28	D	28	D	28	D
merge	Democracy Blvd to I-495	522	5	65	435	2109	2429	1115				6154	6154	51	53	51	51	53				52	52	1	8	42	48	21				24	C	17	B	17	B
merge		937	4	85	2141	2309	1591					6126	6126	52	50	50	53					51	51	2	44	47	30					31	D	31	D	31	D
basic		2520	3	2193	2187	1784						6164	6164	50	51	51						51	51	44	44	35						41	E	41	E	41	E
basic	CD - I-370 interchange	1623	2	1729	37							1765	1765	43	46							45	45	41	1							21	C	21	C	21	C
weave	CD - Btw I-370 & Shady Grove Rd	795	4	1087	935	1720	589					4331	4331	42	41	40	40					41	41	26	23	44	15					27	C	27	C	27	C
diverge		1609	3	702	1360	1149						3211	3211	41	42	42						42	42	17	33	28						26	C	26	C	26	C
basic		702	2	1227	1233							2460	2460	42	42							42	42	30	30							30	D	30	D	30	D
merge	CD - Shady Grove Rd interchange	477	3	141	1406	1409						2956	2956	40	41	41						41	41	4	34	35						24	C	24	C	24	C
basic		800	2	1486	1476							2962	2962	41	41							41	41	37	36							36	E	36	E	36	E
merge	CD - Btw Shady Grove Rd & MD 28	707	3	38	1545	1561						3144	3144	40	42	41						41	41	1	38	38						26	C	26	C	26	C
basic		1081	2	1440	1695							3135	3135	42	41							41	41	35	42							39	E	39	E	39	E
merge		609	3	1748	1518	719						3985	3985	41	41	42						41	41	44	37	17						33	D	33	D	33	D
diverge		1506	3	1824	1588	575						3987	3987	40	41	42						41	41	46	39	14						33	D	33	D	33	D
diverge		2914	2	1735	1693							3428	3428	41	41							41	41	43	42							42	F	42	F	42	F
basic		170	2	1675	1417							3092	3092	41	42							41	41	41	35							38	E	38	E	38	E
diverge		291	3	323	1376	1440						3140	3140	42	42	42						42	42	8	33	35						25	C	25	C	25	C
basic	CD - MD 28 interchange	926	2	1273	1406							2680	2680	42	42							42	42	31	34							33	D	33	D	33	D
merge		231	3	65	1313	1414						2792	2792	31	41	41						38	38	2	32	35						23	C	23	C	23	C
basic		1111	2	1375	1451							2826	2826	41	41							41	41	34	36							35	E	35	E	35	E
merge	CD - Btw MD 28 & MD 189	577	3	1003	1341	1440						3784	3784	42	42	41						42	42	24	33	35						31	D	31	D	31	D
basic		1056	3	1044	1327	1432						3803	3803	42	42	41						42	42	25	32	35						31	D	31	D	31	D
merge		610	4	699	1786	1745	283					4512	4512	42	38	39	41					40	40	17	48	46	7					29	D	34	D	34	D
basic		838	3	604	1933	1958						4495	4495	42	39	39						40	40	15	50	51						39	E	39	E	39	E
diverge		350	3	599	1963	1962						4524	4524	42	41	41						41	41	14	49	48						37	E	37	E	37	E
basic	CD - MD 189 interchange	816	2	1962	1966							3928	3930	41	41							41	38	48	48							48	F	48	F	53	F
		1802	2	1968	1963							3931		36	36							36		55	55							55	F	55	F		
merge	CD - Btw MD 189 & Montrose Rd	465	3	1283	1544	1595						4422	4422	35	37	37						36	36	37	43	44						41	F	41	F	41	F
diverge		2184	3	1784	1418	1233						4435	4435	35	36	37						36	36	52	40	34						42	F	42	F	42	F
basic		775	2	1846	1467							3313	3313	36	37							36	36	52	41							46	F	46	F	46	F
diverge		235	3	150	1711	1474						3336	3336	37	36	36						37	37	4	48	41						31	D	31	D	31	D
basic	CD - Montrose Rd interchange	1196	2	1656	1454							3110	3110	36	36							36	36	46	41							43	E	43	E	43	E
weave		422	3	1034	1298	1526						3858	3858	35	37	36						36	36	30	36	43						37	E	37	E	37	E
basic		1029	2	1338	1515							2853	2853	38	36							37	37	35	42							39	E	39	E	39	E
merge		415	3	50	1401	1542						2993	2993	40	39	36						38	38	1	37	43						27	C	27	C	27	C
basic		1427	2	1453	1534							2987	2987	38	37							37	37	39	43							41	E	41	E	41	E

I-270 Southbound - 2027 No-Build 7-8 AM

VISSIM Lookup Data				Volume										Speed										Density											
				Volume Per Lane								Across All Lanes	Overall Volume	Speed Per Lane								Across All Lanes	Overall Speed	Density Per Lane								Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)								Total Volume	Average Volume (veh/hr)	Speed (mph)								Average Speed	Average Speed (mph)	Combined Density (pcphpl)								Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Through MD 117 interchange	658	4	1736	1788	1835	1831					7189	7219	17	18	18	18					18	18	103	103	102	103					103	F	103	F	105	F
		3062	4	1717	1753	1839	1917					7226		16	16	18	20					17		110	109	104	99					105	F	105	F		
merge	Btw MD 117 & I-370	1569	5	1535	1958	1798	1804	1884				8978	8978	33	29	30	32	36				32	32	48	69	61	57	54				58	F	59	F	59	F
basic		1151	5	1581	2115	2058	1882	1364				9000	9000	48	44	43	45	50				46	46	34	49	49	43	27				40	E	40	E	40	E
		431	5	1631	2230	2126	1780	1133				8900	8900	44	43	40	43	51				44	44	38	53	54	42	22				42	E	42	E	42	E
diverge		1058	6	1519	702	1821	2087	1737	1143			9009	9009	53	53	51	50	52	53			52	52	29	14	37	42	34	22			30	D	30	D	30	D
basic	I-370 interchange	1258	4	2270	1703	1741	1106					6820	6819	48	50	52	53					51	51	48	34	34	21					34	D	34	D	34	D
		193	4	2424	1542	1748	1098					6812		47	51	52	53					51		52	31	34	21					34	D	34	D		
diverge		1263	5	1651	1049	1303	1722	1095				6820	6820	51	52	53	53	53				53	53	33	20	25	33	21				26	C	28	D	28	D
basic		3427	4	939	1302	1489	1092					4821	4821	54	53	53	53					53	53	18	25	28	21					23	C	23	C	23	C
merge	Shady Grove Rd interchange	1046	5	440	1652	1900	1248	1094				6333	6333	52	51	52	53	53				52	52	9	33	37	24	21				25	C	26	C	26	C
basic		420	4	2189	1643	1413	1094					6338	6341	46	48	51	52					49	50	48	35	28	21					33	D	33	D	33	D
		497	4	2194	1582	1474	1094					6344		47	50	52	52					50		47	32	29	21					32	D	32	D		
diverge		1518	4	2126	1592	1531	1094					6342	6342	50	52	53	53					52	52	43	31	29	21					31	D	35	E	35	E
basic	Btw Shady Grove Rd & MD 28	3645	4	1079	1480	1539	1095					5193	5193	53	53	53	53					53	53	21	28	29	21					25	C	25	C	25	C
merge		473	5	184	1373	1604	1537	1095				5793	5793	52	53	53	53	53				53	53	4	26	31	29	20				22	C	20	C	20	C
basic		1022	4	1490	1635	1580	1095					5800	5795	52	52	53	53					52	53	29	32	30	21					28	D	28	D	28	D
		1591	4	1594	1664	1440	1093					5791		53	53	53	53					53		31	32	28	21					28	D	28	D		
merge	MD 28 interchange	655	5	185	1834	2002	1291	1095				6408	6408	52	52	52	54	53				53	53	4	36	39	24	21				25	C	26	C	26	C
basic		921	4	2029	1851	1433	1096					6410	6410	50	51	53	52					51	51	42	37	28	21					32	D	32	D	32	D
diverge		1515	4	2106	1679	1532	1098					6416	6416	50	51	52	53					51	51	43	34	30	21					32	D	36	E	36	E
basic	MD 189 interchange	3237	4	1352	1620	1563	1099					5634	5642	53	53	53	53					53	53	26	31	30	21					27	D	27	D	27	D
		1874	4	1390	1595	1562	1098					5646		53	53	53	53					53		27	31	30	21					27	D	27	D		
		3407	4	1400	1586	1561	1099					5647		53	53	53	53					53		27	30	30	21					27	D	27	D		
merge	Montrose Rd interchange	598	5	1474	1425	1582	1555	1094				7130	7130	53	53	53	54	53				53	53	28	27	30	29	21				27	C	29	D	29	D
basic	Btw Montrose Rd & Spur Split	882	5	1458	1441	1597	1561	1097				7154	7155	53	53	53	53	53				53	53	28	28	31	30	21				27	D	27	D	27	D
		303	5	1461	1443	1598	1568	1100				7170		53	53	53	53	53				53		28	28	31	30	21				27	D	27	D		
		3023	5	1459	1441	1596	1563	1095				7154		53	53	53	53	53				53		28	28	31	30	21				27	D	27	D		
weave		3707	7	1109	1019	1740	2135	2109	1777	1106		10995	10980	53	52	48	45	42	46	53		48	49	21	20	37	49	51	40	21		34	D	34	D	34	D
		722	7	1235	1299	1487	1929	1795	2035	1123		10904		53	53	51	48	49	51	53		51		24	25	29	41	37	41	21		31	D	31	D		
diverge		400	8	1269	1347	1496	1887	1803	2018	516	608	10946	10946	53	53	53	52	52	52	54	54	53	53	24	26	29	37	36	40	10	11	26	C	20	C	20	C
weave		330	7	1264	1346	1480	1873	1863	1913	274		10015	10015	53	53	53	52	52	52	54		53	53	24	26	28	37	37	37	5		28	D	28	D	28	D
basic	Spur Split through MD 187 interchange	965	4	1033	1876	1841	292					5042	5042	57	56	56	59					57	57	18	34	33	5					23	C	23	C	23	C
diverge		1138	4	1092	1835	1808	306					5041	5041	63	62	62	64					63	63	18	30	30	5					21	C	21	C	21	C
basic		2602	3	1675	1778	309						3762	3762	63	63	64						63	63	27	29	5						20	C	20	C	20	C
merge		443	4	68	1674	1854	311					3908	3908	40	61	62	64					57	57	2	28	30	5					16	B	20	C	20	C
basic		947	3	1710	1879	317						3906	3906	61	61	64						62	62	28	31	5						21	C	21	C	21	C
merge	Btw MD 187 & I-495	1023	4	225	1600	2055	322					4203	4203	52	61	61	64					59	59	4	27	34	5					18	B	22	C	22	C
basic		473	3	1883	2039	254						4175	4200	59	59	63						60	61	33	35	4						24	C	24	C	24	C
		3140	3	1798	2253	153						4204		61	60	63						61		30	38	2						24	C	24	C		
diverge		1491	3	1744	1417	1039						4199	4199	63	63	63						63	63	28	23	17						23	C	23	C	23	C
basic		1568	2	1681	1369							3050	3050	63	63							63	63	27	22							25	C	25	C	25	C
basic	Spur Split to Democracy Blvd	2999	4	1451	1294	1364	951					5059	5059	53	54	53	54					53	53	28	25	26	18					24	C	24	C	24	C
weave		962	5	521	1679	1779	1088	704				5772	5772	54	52	52	54	53				53	53	10	33	34	21	13				22	C	22	C	22	C
basic	Democracy Blvd	2457	4	1455	1766	1363	710					5295	5295	53	53	53	53					53	53	28	34	26	13					25	C	25	C	25	C
merge	Democracy Blvd to I-495	522	5	113	460	1939	2264	993				5769	5769	50	52	51	52	53				52	52	2	9	39	45	19				23	C	17	B	17	B
merge		937	4	86	2038	2180	1437					5741	5741	51	50	50	52					51	51	2	42	44	28					29	D	29	D	29	D
basic		2520	3	2046	2059	1642						5747	5747	46	47	48						47	47	46	45	35						42	E	42	E	42	E
basic	CD - I-370 interchange	1623	2	1954	65							2019	2019	42	46							44	44	47	1							24	C	24	C	24	C
weave	CD - Btw I-370 & Shady Grove Rd	795	4	952	1020	1836	754					4562	4562	39	35	35	35					36	36	25	30	54	22					32	D	32	D	32	D
diverge		1609	3	1021	1213	843						3077	3077	41	42	42						41	41	25	30	20						25	C	25	C	25	C
basic	CD - Shady Grove Rd interchange	702	2	886	892							1778	1778	42	42							42	42	21	21							21	C	21	C	21	C
merge		477	3	113	1094	1022						2229	2229	40	42	42						41	41	3	27	25						18	B	18	B	18	B
basic		800	2	1160	1075							2235	2235	42	42							42	42	28	26							27	D	27	D	27	D
merge	CD - Btw Shady Grove Rd & MD 28	707	3	69	1303	1226						2598	2598	40	42	42						41	41	2	32	30						21	C	21	C	21	C
basic		1081	2	1178	1417							2595	2595	42	41							42	42	29	35							32	D	32	D	32	D
merge		609	3	1522	1466	767						3756	3756	41	42	42						42	42	38	36	18						31	D	31	D	31	D
diverge		1506	3	1668	1495	593						3755	3755	41	42	42						42	42	41	36	14						31	D	31	D	31	D
diverge		2914	2	1495	1685							3180	3180	41	41							41	41	37	42							39	E	39	E	39	E
basic		170	2	1423	1105							2528	2528	42	42							42	42	35	27							31	D	31	D	31	D
diverge		291	3	297	1140	1131						2567	2567	42	42	42						42	42	7	27	27						21	C	21	C	21	C
basic	CD - MD 28 interchange	926	2	1030	1115							2144	2144	42	42							42	42	25	27							26	D	26	D	26	D
merge		231	3	89	1099	1136						2324	2324	32	42	42						38	38	3	27	28						19	B	19	B	19	B
basic		1111	2	1166	1191							2357	2357	42	42							42	42	28	29							29	D	29	D	29	D
merge	CD - Btw MD 28 & MD 189	577	3	1163	1185	1195						3544	3544	42	42	42						42	42	28	29	29						29	D	29	D	29	D
basic		1056	3	1153	1206	1201						3560	3560	42	42	42						42	42	28	29	29						29	D	29	D	29	D
merge		610	4	770	1704	1588	278					4340	4340	41	39	39	41					40	40	19	44	41	7					28	D	31	D	31	D
basic		838	3	769	1783	1772						4325	4325	42	40	40						41	41	19	45	45						36	E	36	E	36	E
diverge		350	3	793	1783	1778						4353	4353	42	41	42						42	42	19	44	43						36	E	36	E	36	E
basic	CD - MD 189 interchange	816	2	1772	1787							3559	3560	41	42							42	38	43	44							43	E	43	E	48	F
		1802	2	1771	1789							3560		36	36							36		50	50							50	F	50	F		
merge	CD - Btw MD 189 & Montrose Rd	465	3	1479	1545	1539						4562	4562	35	37	37						36	36	43	43	43						43	F	43	F	43	F
diverge		2184	3	1737	1432	1413						4582	4582	35	36	36						36	36	50	40	40						43	F	43	F	43	F
basic		775	2	1698	1348							3046	3046	36	37							36	36	48	37							42	E	42	E	42	E
diverge		235	3	114	1592	1360						3065	3065	37	36	37						37	37	3	44	38						28	D	28	D	28	D
basic	CD - Montrose Rd interchange	1196	2	1551	1344							2895	2895	36	37							36	36	43	37							40	E	40	E	40	E
weave		422	3	994	1440	1524						3958	3958	36	37	36						36	36	28	40	43						37	E	37	E	37	E
basic		1029	2	1553	1575							3128	3128	38	36							37	37	41	44							43	E	43	E	43	E
merge		415	3	302	1724	1805						3832	3832	37	37	35						36	36	8	48	52						36	E	36	E	36	E
basic		1427	2	1950	1871							3821	3821	38	36							37	37	53	53							53	F	53	F	53	F

I-270 Southbound - 2027 No-Build 8-9 AM

VISSIM Lookup Data				Volume										Speed										Density											
				Volume Per Lane								Across All Lanes	Overall Volume	Speed Per Lane								Across All Lanes	Overall Speed	Density Per Lane								Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)								Total Volume	Average Volume (veh/hr)	Speed (mph)								Average Speed	Average Speed (mph)	Combined Density (pcphpl)								Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Through MD 117 interchange	658	4	1707	1763	1809	1819					7098	7151	17	17	18	18					17	17	105	106	103	104					104	F	104	F	106	F
		3062	4	1702	1736	1812	1913					7163		16	16	18	19					17		110	109	105	100					106	F	106	F		
merge	Btw MD 117 & I-370	1569	5	1648	1958	1739	1741	1802				8889	8889	33	29	29	32	36				32	32	51	69	60	56	51				57	F	60	F	60	F
basic		1151	5	1758	2105	1971	1768	1329				8932	8932	46	44	44	46	51				46	46	39	49	46	39	26				40	E	40	E	40	E
		431	5	1814	2196	2034	1672	1130				8847	8847	43	41	38	44	52				44	44	43	55	54	39	22				43	E	43	E	43	E
diverge		1058	6	1712	915	1613	1965	1601	1140			8946	8946	52	52	51	51	52	53			52	52	33	18	32	39	32	22			29	D	31	D	31	D
basic	I-370 interchange	1258	4	2113	1535	1579	1110					6336	6335	49	51	53	53					52	52	44	30	31	21					31	D	31	D	31	D
		193	4	2314	1343	1567	1104					6328		48	52	53	53					51		49	26	30	21					32	D	32	D		
diverge		1263	5	1638	916	1132	1538	1101				6325	6325	51	53	53	53	53				53	53	33	18	22	29	21				25	C	25	C	25	C
basic		3427	4	772	1135	1323	1102					4330	4330	54	54	53	53					53	53	15	22	25	21					21	C	21	C	21	C
merge	Shady Grove Rd interchange	1046	5	410	1517	1671	1079	1101				5779	5779	53	52	53	53	53				53	53	8	29	32	21	21				22	C	23	C	23	C
basic		420	4	2057	1429	1191	1102					5780	5780	50	51	53	52					52	52	42	28	23	21					29	D	29	D	29	D
		497	4	2049	1389	1242	1101					5780		49	52	53	52					52		42	27	24	21					29	D	29	D		
diverge		1518	4	1997	1385	1301	1100					5782	5782	51	53	53	53					53	53	40	27	25	21					28	D	30	D	30	D
basic		3645	4	1029	1305	1319	1096					4749	4749	53	53	53	53					53	53	20	25	25	21					23	C	23	C	23	C
merge	Btw Shady Grove Rd & MD 28	473	5	204	1343	1454	1317	1096				5414	5414	52	53	53	54	53				53	53	4	26	28	25	21				21	C	19	B	19	B
basic		1022	4	1443	1501	1371	1096					5411	5405	52	53	53	53					52	53	28	29	26	21					26	D	26	D	26	D
		1591	4	1541	1545	1221	1094					5401		53	53	53	53					53		30	30	23	21					26	D	26	D		
merge	MD 28 interchange	655	5	191	1795	1921	1053	1096				6056	6056	52	52	52	54	53				53	53	4	35	37	20	21				23	C	25	C	25	C
basic		921	4	1989	1763	1204	1095					6050	6050	50	51	53	52					52	52	40	35	23	21					30	D	30	D	30	D
diverge		1515	4	2084	1566	1309	1096					6056	6056	50	52	53	53					52	52	42	31	25	21					30	D	33	D	33	D
basic	MD 189 interchange	3237	4	1250	1494	1361	1097					5202	5207	53	53	53	53					53	53	24	29	26	21					25	C	25	C	25	C
		1874	4	1273	1476	1363	1101					5213		53	53	53	53					53		25	28	26	21					25	C	25	C		
		3407	4	1287	1461	1360	1100					5208		53	53	53	53					53		25	28	26	21					25	C	25	C		
merge	Montrose Rd interchange	598	5	1416	1324	1462	1352	1098				6651	6651	53	53	53	54	53				53	53	27	25	28	26	21				25	C	27	C	27	C
basic	Btw Montrose Rd & Spur Split	882	5	1386	1350	1482	1359	1104				6681	6691	53	53	53	53	53				53	53	27	26	28	26	21				26	D	26	D	26	D
		303	5	1393	1350	1492	1361	1105				6701		53	53	53	53	53				53		27	26	29	26	21				26	D	26	D		
		3023	5	1390	1348	1488	1362	1105				6693		53	53	53	53	53				53		27	26	29	26	21				26	D	26	D		
weave		3707	7	957	858	1606	2095	2098	1633	1114		10360	10349	53	53	51	50	48	50	53		51	51	18	17	32	43	44	33	21		30	D	30	D	30	D
		722	7	966	1013	1409	2031	1773	1978	1123		10293		53	53	52	50	51	52	53		52		18	19	27	42	36	39	21		29	D	29	D		
diverge		400	8	997	1073	1433	1977	1757	1972	409	719	10336	10336	53	54	53	52	52	52	54	54	53	53	19	20	27	39	34	38	8	13	25	C	20	C	20	C
weave		330	7	997	1076	1422	1960	1835	1848	121		9259	9259	54	54	53	52	52	53	54		53	53	19	20	27	38	36	36	2		25	C	25	C	25	C
basic	Spur Split through MD 187 interchange	965	4	1125	1837	1758	148					4868	4868	57	56	57	59					57	57	20	33	31	3					22	C	22	C	22	C
diverge		1138	4	1195	1772	1730	172					4869	4869	63	62	63	64					63	63	19	29	28	3					20	C	20	C	20	C
basic		2602	3	1559	1703	176						3438	3438	63	63	64						63	63	25	28	3						19	C	19	C	19	C
merge		443	4	77	1594	1789	177					3637	3637	43	61	62	64					58	58	2	27	29	3					15	B	19	B	19	B
basic		947	3	1633	1818	185						3636	3636	62	62	64						62	62	27	30	3						20	C	20	C	20	C
merge	Btw MD 187 & I-495	1023	4	257	1571	2038	193					4058	4058	51	61	61	64					59	59	5	26	34	3					17	B	22	C	22	C
basic		473	3	1779	2094	164						4037	4067	59	59	64						60	61	31	36	3						23	C	23	C	23	C
		3140	3	1688	2266	118						4072		61	60	63						62		28	38	2						23	C	23	C		
diverge		1491	3	1626	1295	1149						4069	4069	63	63	63						63	63	26	21	19						22	C	22	C	22	C
basic		1568	2	1566	1237							2803	2803	63	63							63	63	25	20							23	C	23	C	23	C
basic	Spur Split to Democracy Blvd	2999	4	1274	1029	1247	919					4469	4469	52	52	52	52					52	52	25	20	24	18					22	C	22	C	22	C
weave		962	5	653	1365	1444	996	704				5162	5162	47	45	46	47	53				48	48	17	37	37	27	13				26	C	26	C	26	C
basic	Democracy Blvd	2457	4	1184	1435	1193	714					4526	4526	45	45	46	52					47	47	40	45	35	14					33	D	33	D	33	D
merge	Democracy Blvd to I-495	522	5	200	491	1536	1883	1008				5117	5117	41	43	42	44	45				43	43	22	33	54	52	30				38	E	36	E	36	E
merge		937	4	170	1678	1874	1363					5086	5086	40	40	42	44					42	42	17	60	56	41					44	F	45	F	45	F
basic		2520	3	1763	1835	1537						5136	5136	38	40	41						40	40	60	56	46						54	F	54	F	54	F
basic	CD - I-370 interchange	1623	2	1916	70							1986	1986	41	46							43	43	47	2							24	C	24	C	24	C
weave	CD - Btw I-370 & Shady Grove Rd	795	4	977	1004	1827	729					4537	4537	40	36	36	37					37	37	25	28	51	20					31	C	31	C	31	C
diverge		1609	3	1135	1205	751						3092	3092	41	42	42						41	41	28	30	18						25	C	25	C	25	C
basic	CD - Shady Grove Rd interchange	702	2	746	792							1538	1538	42	42							42	42	18	19							18	C	18	C	18	C
merge		477	3	121	1008	917						2046	2046	41	42	42						42	42	3	25	22						17	B	17	B	17	B
basic		800	2	1072	979							2051	2051	42	42							42	42	26	24							25	C	25	C	25	C
merge	CD - Btw Shady Grove Rd & MD 28	707	3	77	1246	1150						2473	2473	40	42	42						41	41	2	30	28						20	C	20	C	20	C
basic		1081	2	1093	1376							2469	2469	42	41							42	42	26	34							30	D	30	D	30	D
merge		609	3	1388	1327	786						3501	3501	41	42	42						42	42	34	32	19						29	D	29	D	29	D
diverge		1506	3	1545	1295	663						3503	3503	41	42	42						42	42	38	31	16						29	D	29	D	29	D
diverge		2914	2	1351	1499							2849	2849	42	41							41	41	33	37							35	E	35	E	35	E
basic		170	2	1278	888							2166	2166	42	42							42	42	31	22							26	D	26	D	26	D
diverge		291	3	350	938	910						2197	2197	42	42	42						42	42	9	23	22						18	B	18	B	18	B
basic	CD - MD 28 interchange	926	2	802	894							1695	1695	42	42							42	42	19	22							20	C	20	C	20	C
merge		231	3	105	907	917						1929	1929	34	42	42						39	39	3	22	22						16	B	16	B	16	B
basic		1111	2	978	977							1955	1955	42	42							42	42	24	24							24	C	24	C	24	C
merge	CD - Btw MD 28 & MD 189	577	3	1036	1002	990						3029	3029	42	42	42						42	42	25	24	24						25	C	25	C	25	C
basic		1056	3	1012	1025	1009						3045	3045	42	42	42						42	42	24	25	25						25	C	25	C	25	C
merge		610	4	724	1496	1415	260					3894	3894	42	41	42	43					42	42	18	37	35	6					24	C	26	C	26	C
basic		838	3	818	1527	1533						3878	3878	42	41	41						41	41	20	38	38						32	D	32	D	32	D
diverge		350	3	855	1509	1541						3905	3905	42	41	42						42	42	21	37	37						32	D	32	D	32	D
basic	CD - MD 189 interchange	816	2	1493	1549							3043	3042	42	42							42	38	36	37							37	E	37	E	41	E
		1802	2	1504	1538							3042		37	37							37		42	43							42	E	42	E		
merge	CD - Btw MD 189 & Montrose Rd	465	3	1564	1344	1266						4174	4174	35	37	37						36	36	45	37	35						39	E	39	E	39	E
diverge		2184	3	1725	1214	1255						4195	4195	35	37	36						36	36	49	34	36						40	E	40	E	40	E
basic		775	2	1632	1083							2715	2715	36	37							37	37	46	30							38	E	38	E	38	E
diverge		235	3	107	1531	1095						2734	2734	38	36	37						37	37	3	43	30						25	C	25	C	25	C
basic	CD - Montrose Rd interchange	1196	2	1489	1086							2575	2575	36	37							37	37	42	30							36	E	36	E	36	E
weave		422	3	1077	1331	1235						3643	3643	34	36	36						35	35	32	37	35						35	E	35	E	35	E
basic		1029	2	1351	1319							2670	2670	39	37							38	38	35	37							36	E	36	E	36	E
merge		415	3	374	1664	1610						3649	3649	38	38	36						37	37	10	45	46						34	D	34	D	34	D
basic		1427	2	1901	1741							3641	3641	38	36							37	37	50	48							49	F	49	F	49	F

I-270 Southbound - 2027 No-Build 9-10 AM

VISSIM Lookup Data				Volume									Speed									Density									
				Volume Per Lane							Across All Lanes	Overall Volume	Speed Per Lane								Across All Lanes	Overall Speed	Density Per Lane								Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)							Total Volume	Average Volume (veh/hr)	Speed (mph)								Average Speed	Average Speed (mph)	Combined Density (pcphpl)								Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Through MD 117 interchange	658	4	1825	1886	1905	1916				7531	7593	19	20	20	20					20	20	96	95	96	97					96	F	96	F	98	F
		3062	4	1872	1872	1890	1972				7606		19	19	19	21					20		99	100	99	96					98	F	98	F		
merge	Btw MD 117 & I-370	1569	5	1643	1991	1813	1823	1850			9120	9120	35	30	29	32	35				32	32	48	69	63	59	53				58	F	60	F	60	F
basic		1151	5	1691	2135	2079	1851	1378			9134	9134	46	42	43	45	50				45	45	38	52	50	42	28				42	E	42	E	42	E
		431	5	1748	2246	2144	1724	1159			9021	9021	42	41	39	43	51				43	43	43	57	57	42	23				44	F	44	F	44	F
diverge		1058	6	1610	755	1842	2087	1669	1157		9121	9121	52	53	50	50	51	53			52	52	31	15	37	42	33	22			30	D	31	D	31	D
basic	I-370 interchange	1258	4	2294	1687	1669	1120				6770	6767	46	50	52	53					50	50	51	35	32	21					35	E	35	E	35	E
		193	4	2460	1487	1695	1110				6753		46	50	52	53					50		55	30	33	21					35	E	35	E		
diverge		1263	5	1845	970	1178	1650	1107			6750	6750	48	52	53	53	53				52	52	39	19	23	32	21				27	C	28	D	28	D
basic		3427	4	759	1172	1423	1105				4459	4459	54	53	53	53					53	53	14	22	27	21					21	C	21	C	21	C
merge	Shady Grove Rd interchange	1046	5	316	1337	1610	1176	1106			5545	5545	53	53	53	53	53				53	53	6	26	31	22	21				21	C	21	C	21	C
basic		420	4	1893	1312	1234	1106				5546	5545	51	52	53	52					52	52	38	26	24	21					27	D	27	D	27	D
		497	4	1923	1267	1247	1108				5545		50	53	53	52					52		39	24	24	21					27	D	27	D		
diverge		1518	4	1867	1284	1279	1107				5537	5537	52	53	53	53					53	53	37	24	24	21					27	C	29	D	29	D
basic	Btw Shady Grove Rd & MD 28	3645	4	945	1211	1289	1108				4553	4553	54	53	53	53					53	53	18	23	25	21					22	C	22	C	22	C
merge		473	5	181	1247	1330	1289	1110			5157	5157	52	53	53	54	53				53	53	4	24	25	24	21				20	C	18	B	18	B
basic		1022	4	1335	1388	1326	1108				5158	5151	52	53	53	53					53	53	26	27	26	21					25	C	25	C	25	C
		1591	4	1389	1411	1241	1106				5148		53	53	53	53					53		27	27	24	21					25	C	25	C		
merge	MD 28 interchange	655	5	161	1608	1699	1145	1109			5723	5723	53	53	53	54	53				53	53	3	31	33	22	21				22	C	22	C	22	C
basic		921	4	1766	1609	1239	1108				5722	5722	51	52	53	52					52	52	35	31	24	21					28	D	28	D	28	D
diverge		1515	4	1853	1471	1290	1112				5727	5727	52	53	53	53					52	52	37	28	25	21					28	D	30	D	30	D
basic	MD 189 interchange	3237	4	1323	1442	1312	1110				5187	5187	53	53	53	53					53	53	25	28	25	21					25	C	25	C	25	C
		1874	4	1334	1428	1320	1112				5194		53	53	53	53					53		26	27	25	21					25	C	25	C		
		3407	4	1332	1421	1318	1113				5184		53	53	53	53					53		26	27	25	21					25	C	25	C		
merge	Montrose Rd interchange	598	5	1537	1381	1421	1313	1110			6762	6762	52	53	54	54	53				53	53	30	27	27	25	21				26	C	28	D	28	D
basic	Btw Montrose Rd & Spur Split	882	5	1501	1409	1441	1322	1114			6787	6785	53	53	53	53	53				53	53	29	27	28	25	21				26	D	26	D	26	D
		303	5	1502	1407	1450	1328	1118			6804		53	53	53	53	53				53		29	27	28	25	21				26	D	26	D		
		3023	5	1494	1395	1449	1331	1114			6783		53	53	53	53	53				53		29	27	28	26	21				26	D	26	D		
weave		3707	7	784	724	1492	1996	2041	1556	1121	9715	9704	53	53	52	51	50	52	53		52	52	15	14	29	40	41	31	21		27	C	27	C	27	C
		722	7	757	838	1362	1978	1691	1898	1126	9649		54	54	53	51	52	52	53		53		14	16	26	40	33	37	21		27	C	27	C		
diverge		400	8	780	898	1386	1918	1682	1896	354	774	9689	9689	54	54	53	52	53	53	54	54	53	53	15	17	26	37	33	37	7	14	23	C	19	B	19	B
weave		330	7	785	901	1374	1895	1744	1794	41		8533	8533	54	54	53	52	53	53	56		54	54	15	17	26	37	34	35	1		23	C	23	C	23	C
basic	Spur Split through MD 187 interchange	965	4	896	1746	1715	68				4425	4425	58	56	57	60					58	58	16	32	31	1					20	C	20	C	20	C
diverge		1138	4	959	1704	1666	96				4425	4425	63	62	62	65					63	63	15	28	27	1					18	B	18	B	18	B
basic		2602	3	1530	1650	99					3279	3279	63	63	65						64	64	25	27	2						18	C	18	C	18	C
merge		443	4	56	1545	1708	99				3408	3408	44	62	62	65					58	58	1	26	28	2					14	B	18	B	18	B
basic		947	3	1574	1730	104					3408	3408	62	62	64						63	63	26	28	2						19	C	19	C	19	C
merge	Btw MD 187 & I-495	1023	4	241	1508	1938	110				3798	3795	51	61	62	64					59	59	5	25	32	2					16	B	21	C	21	C
basic		473	3	1684	1995	93					3772		59	59	64						61	62	29	34	1						22	C	22	C	21	C
		3140	3	1606	2125	68					3799		62	61	64						62		26	36	1						21	C	21	C		
diverge		1491	3	1555	1348	899					3802	3802	63	63	63						63	63	25	22	14						20	C	20	C	20	C
basic		1568	2	1512	1301						2813	2813	63	63							63	63	24	21							23	C	23	C	23	C
basic	Spur Split to Democracy Blvd	2999	4	1195	869	1132	989				4185	4185	52	53	53	53					52	52	23	17	22	19					20	C	20	C	20	C
weave		962	5	768	1187	1248	997	663			4863	4863	50	49	49	49	53				50	50	16	26	27	22	12				21	C	21	C	21	C
basic	Democracy Blvd	2457	4	1031	1292	1145	670				4138	4138	47	47	48	53					49	49	25	31	27	13					24	C	24	C	24	C
merge	Democracy Blvd to I-495	522	5	160	459	1506	1770	877			4772	4772	45	45	45	47	48				46	46	4	15	39	41	21				24	C	20	C	20	C
merge		937	4	109	1681	1796	1173				4760	4760	45	46	47	48					46	46	5	41	42	27					29	D	29	D	29	D
basic		2520	3	1733	1746	1325					4805	4805	47	47	48						47	47	40	39	30						36	E	36	E	36	E
basic	CD - I-370 interchange	1623	2	2179	113						2293	2293	38	44							41	41	58	3							30	D	30	D	30	D
weave	CD - Btw I-370 & Shady Grove Rd	795	4	998	1086	1966	538				4588	4588	41	39	38	39					39	39	25	28	52	14					30	C	30	C	30	C
diverge		1609	3	1132	1387	1004					3524	3524	40	41	42						41	41	28	34	24						29	D	29	D	29	D
basic	CD - Shady Grove Rd interchange	702	2	917	1039						1956	1956	42	42							42	42	22	25							24	C	24	C	24	C
merge		477	3	130	1171	1167					2468	2468	40	42	42						41	41	3	28	28						20	C	20	C	20	C
basic		800	2	1247	1225						2472	2472	42	42							42	42	30	30							30	D	30	D	30	D
merge	CD - Btw Shady Grove Rd & MD 28	707	3	84	1420	1399					2903	2903	40	41	41						41	41	2	35	34						24	C	24	C	24	C
basic		1081	2	1311	1582						2894	2894	42	41							41	41	32	39							36	E	36	E	36	E
merge		609	3	1651	1470	754					3876	3876	41	42	42						41	41	41	36	18						32	D	32	D	32	D
diverge		1506	3	1773	1500	604					3878	3878	41	42	42						42	42	44	37	14						32	D	32	D	32	D
diverge		2914	2	1608	1679						3287	3287	41	41							41	41	40	42							41	F	41	F	41	F
basic		170	2	1524	1143						2667	2667	41	42							41	41	38	28							33	D	33	D	33	D
diverge		291	3	425	1117	1164					2706	2706	42	42	42						42	42	10	27	28						22	C	22	C	22	C
basic	CD - MD 28 interchange	926	2	971	1125						2096	2096	42	42							42	42	23	27							25	C	25	C	25	C
merge		231	3	127	1096	1152					2375	2375	33	41	42						39	39	4	27	28						20	C	20	C	20	C
basic		1111	2	1182	1222						2404	2404	42	42							42	42	29	30							29	D	29	D	29	D
merge	CD - Btw MD 28 & MD 189	577	3	1036	1183	1218					3437	3437	42	42	42						42	42	25	29	30						28	D	28	D	28	D
basic		1056	3	1049	1189	1217					3455	3455	42	42	42						42	42	25	29	30						28	D	28	D	28	D
merge		610	4	703	1586	1501	194				3985	3985	42	41	41	42					41	41	17	40	38	5					25	C	27	C	27	C
basic		838	3	692	1649	1627					3968	3968	42	41	41						41	41	17	41	41						33	D	33	D	33	D
diverge		350	3	711	1649	1633					3993	3993	42	41	42						42	42	17	41	40						32	D	32	D	32	D
basic	CD - MD 189 interchange	816	2	1645	1635						3279	3277	41	42							42	38	40	40							40	E	40	E	44	E
		1802	2	1643	1633						3276		36	36							36		46	46							46	F	46	F		
merge	CD - Btw MD 189 & Montrose Rd	465	3	1490	1376	1281					4146	4146	34	36	37						36	36	44	38	35						39	E	39	E	39	E
diverge		2184	3	1745	1108	1304					4157	4157	35	37	35						36	36	51	31	37						40	E	40	E	40	E
basic		775	2	1659	871						2530	2530	36	37							37	37	47	24							35	E	35	E	35	E
diverge		235	3	151	1523	874					2547	2547	37	36	37						37	37	4	42	24						24	C	24	C	24	C
basic	CD - Montrose Rd interchange	1196	2	1458	861						2319	2319	36	37							37	37	41	24							32	D	32	D	32	D
weave		422	3	1157	1146	959					3262	3262	34	37	36						36	36	35	32	27						31	C	31	C	31	C
basic		1029	2	1076	1031						2106	2106	40	37							39	39	27	28							28	D	28	D	28	D
merge		415	3	269	1405	1235					2910	2910	40	40	37						39	39	7	36	34						25	C	25	C	25	C
basic		1427	2	1572	1336						2908	2908	40	37							39	39	40	36							38	E	38	E	38	E

I-270 Northbound - 2027 No-Build - 6-7 AM

VISSIM Lookup Data				Volume									Speed								Density									
				Volume Per Lane							Across All Lanes	Overall Volume	Speed Per Lane							Across All Lanes	Overall Speed	Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)							Total Volume	Average Volume (veh/hr)	Speed (mph)							Average Speed	Average Speed (mph)	Combined Density (pcphpl)							Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Btw Watkins Mill Rd & MD 117	7479	4	840	704	345	211				2100	2100	63	64	66	66				65	65	13	11	5	3				8	A	8	A	8	A
diverge	Btw MD 117 & I-370	1357	5	560	883	711	318	193			2664	2664	64	63	63	65	66			64	64	9	14	11	5	3			8	A	12	B	12	B
basic		843	5	393	1075	718	293	186			2665	2665	64	63	63	65	66			64	64	6	17	12	5	3			9	A	9	A	9	A
merge		531	6	3	298	1298	619	254	181		2652	2652	59	60	62	63	66	66		63	63	0	5	21	10	4	3		7	A	9	A	9	A
basic	I-370 interchange	3616	4	917	654	273	181				2026	2024	63	64	66	66				65	65	15	10	4	3				8	A	8	A	8	A
		633	4	803	642	393	179				2018		63	64	66	66				65		13	10	6	3				8	A	8	A		
		1171	4	806	643	377	196				2022		63	64	66	66				65		13	10	6	3				8	A	8	A		
merge		337	4	0	809	639	334	241			2022	2022	0	63	64	66	66			52	52	0	13	10	5	4			6	A	8	A	8	A
basic	Shady Grove Rd interchange	3947	4	823	640	326	234				2023	2023	63	64	66	66				65	65	13	10	5	4				8	A	8	A	8	A
weave	Btw Shady Grove Rd & MD 28	1523	5	489	1003	601	298	227			2618	2619	64	63	63	66	66			64	64	8	16	10	5	3			8	A	8	A	8	A
		1475	5	326	972	799	297	225			2619		64	63	64	66	66			65		5	16	13	5	3			8	A	8	A		
		1482	5	277	936	822	362	224			2620		64	63	64	66	66			64		4	15	13	6	3			8	A	8	A		
basic	MD 28 interchange	3696	4	930	762	398	260				2349	2349	63	64	66	66				64	64	15	12	6	4				9	A	9	A	9	A
		464	4	949	755	373	272				2349		63	63	65	65				64		15	12	6	4				9	A	9	A		
weave		1405	5	629	897	713	347	264			2850	2851	63	63	63	66	66			64	64	10	15	11	5	4			9	A	9	A	9	A
		640	5	635	953	665	340	260			2852		63	63	64	66	66			64		10	15	11	5	4			9	A	9	A		
basic	Btw MD 28 & MD 189	531	4	1268	679	342	259				2547	2546	63	64	66	65				64	64	21	11	5	4				10	A	10	A	10	A
		1407	4	1245	712	334	255				2546		63	63	66	65				64		20	11	5	4				10	A	10	A		
diverge	Btw MD 189 & Montrose Rd	1536	4	1367	910	328	250				2855	2855	63	63	66	65				64	64	22	15	5	4				11	B	14	B	14	B
basic		74	4	1355	899	325	246				2825	2857	63	64	66	65				64	64	22	14	5	4				11	B	11	B	11	B
		1921	4	1252	933	428	245				2859		63	64	66	65				64		20	15	7	4				11	B	11	B		
		3344	4	1251	892	418	295				2856		63	64	66	65				64		20	14	6	5				11	B	11	B		
diverge	Montrose Rd interchange	1486	5	701	1047	782	330	294			3153	3153	63	63	63	66	65			64	64	11	17	12	5	5			10	B	14	B	14	B
basic		425	5	1186	725	632	311	289			3144	3148	63	64	64	66	65			64	64	19	12	10	5	4			10	A	10	A	10	A
		2954	5	1171	741	642	309	285			3148		63	64	64	66	64			64		19	12	10	5	4			10	A	10	A		
weave	Btw Montrose Rd & Spur Split	1533	7	729	974	1055	783	711	320	302	4874	4871	64	64	63	64	64	66	64	64	64	12	15	17	13	11	5	5	11	B	11	B	11	B
		1210	7	621	1103	1137	711	690	314	298	4873		64	63	63	64	64	66	64	64		10	18	18	11	11	5	5	11	B	11	B		
		1521	7	379	1424	1162	573	708	328	294	4866		64	63	63	64	64	66	64	64		6	23	19	9	11	5	5	11	B	11	B		
weave		447	6	539	1014	687	911	977	408		4537	4537	64	64	64	63	64	66		64	64	9	16	11	15	16	6		12	B	12	B	12	B
basic	Btw Spur Split & MD 187	1227	2	832	818						1651	1651	63	64						64	64	13	13						13	B	13	B	13	B
merge		736	3	0	834	816					1651	1648	61	63	64					63	63	0	13	13					9	A	9	A	9	A
		519	3	1	835	808					1644		62	63	64					63		0	13	13					9	A	9	A		
weave		624	4	0	47	813	792	294			1946	1946	0	58	63	64	64			50	50	0	1	13	13	5			6	A	6	A	6	A
basic	MD 187 interchange	511	3	708	753	298					1758	1764	64	64	64					64	64	11	12	5					9	A	9	A	9	A
		1863	3	693	745	327					1766		64	64	64					64		11	12	5					9	A	9	A		
diverge		520	4	227	661	702	483				2072	2072	63	63	64	65				64	64	4	11	11	8				8	A	8	A	8	A
basic		797	3	874	709	476					2059	2059	63	64	65					64	64	14	11	7					11	B	11	B	11	B
diverge	Btw MD 187 & I-495	674	4	295	957	714	474				2439	2439	64	63	64	65				64	64	5	15	11	7				10	B	10	B	10	B
basic		824	3	1249	719	465					2434	2443	63	64	65					64	64	20	11	7					13	B	13	B	13	B
		3315	3	1248	754	444					2446		63	64	65					64		20	12	7					13	B	13	B		
		1125	3	1093	1004	346					2443		63	63	64					63		18	16	6					13	B	13	B		
merge		429	4	77	1203	1153	11				2444	2444	49	62	63	67				60	60	2	20	19	0				10	B	13	B	13	B
basic		386	3	1101	1071	5					2177	2177	63	63	65					64	64	18	17	0					12	B	12	B	12	B
basic		500	2	1086	1094						2180	2180	59	59						59	59	19	19						19	C	19	C	19	C
basic	Btw Spur Split & Democracy Blvd	1863	4	209	983	1222	498				2912	2912	67	63	63	65				65	65	3	16	20	8				12	B	12	B	12	B
merge		718	5	199	991	1233	482	10			2914	2914	67	63	63	65	57			63	63	3	16	20	7	0			9	A	9	A	9	A
basic		1170	4	185	997	1235	434				2851	2851	66	63	63	66				65	65	3	16	20	7				11	B	11	B	11	B
merge		820	4	151	1039	1254	420				2865	2865	60	63	63	66				63	63	3	17	20	6				11	B	13	B	13	B
basic	Democracy Blvd interchange	457	3	1086	1243	398					2728	2728	63	63	66					64	64	18	20	6					15	B	15	B	15	B
merge		887	4	41	1082	1270	373				2766	2766	54	63	63	66				62	62	1	17	20	6				11	B	13	B	13	B
basic		790	3	1093	1270	340					2702	2702	63	63	66					64	64	18	20	5					14	B	14	B	14	B
diverge	Btw Democracy Blvd & I-495	894	4	488	1200	1327	281				3295	3295	59	63	64	66				63	63	8	19	21	4				13	B	16	B	16	B
basic		2455	3	1664	1479	157					3300	3300	60	61	64					62	62	28	25	2					19	C	19	C	19	C
diverge	CD - Btw MD 124 & MD 117	2235	2	284	622						906	906	43	43						43	43	7	15						11	B	11	B	11	B
weave	CD - Btw MD 117 & I-370	600	3	399	410	614					1423	1423	41	42	43					42	42	10	10	14					11	A	11	A	11	A
basic		4137	2	305	541						846	846	43	42						42	42	7	13						10	A	10	A	10	A
weave		1981	3	408	745	339					1492	1492	43	42	43					43	43	10	18	8					12	A	12	A	12	A
basic	CD - I-370 interchange	1052	2	387	328						714	714	43	43						43	43	9	8						8	A	8	A	8	A
merge		704	3	32	369	316					717	717	42	43	43					43	43	1	9	7					6	A	6	A	6	A
basic		981	2	271	312						583	583	43	46						45	45	6	7						7	A	7	A	7	A
diverge	CD - Btw I-370 & Shady Grove Rd	483	3	542	378	310					1230	1230	45	46	58					50	50	12	8	5					9	A	9	A	9	A
basic		944	3	540	386	306					1232	1232	46	46	59					50	50	12	9	5					9	A	9	A	9	A
diverge		528	3	516	414	298					1228	1228	46	47	60					51	51	11	9	5					8	A	8	A	8	A
merge		301	4	27	502	406	290				1226	1226	37	46	48	60				48	48	1	11	9	5				6	A	7	A	7	A
basic	CD - Shady Grove Rd interchange	954	3	429	441	273					1143	1143	47	49	61					53	53	9	9	5					8	A	8	A	8	A
weave		357	4	30	435	439	239				1142	1142	42	44	55	64				51	51	1	10	8	4				6	A	6	A	6	A
diverge	CD - Btw Shady Grove Rd & MD 28	190	3	260	513	443					1216	1216	43	43	43					43	43	6	12	11					10	B	10	B	10	B
basic		4624	2	761	462						1223	1223	43	43						43	43	18	11						14	B	14	B	14	B
diverge		2601	3	337	516	631					1484	1484	43	44	43					43	43	8	12	15					12	B	12	B	12	B
weave		177	4	1	440	516	527				1484	1484	39	43	43	44				42	42	0	10	12	12				9	A	9	A	9	A
merge		274	3	28	413	509					950	950	42	43	43					43	43	1	10	12					7	A	7	A	7	A
basic	CD - MD 28 interchange	924	2	369	511						880	880	43	43						43	43	9	12						10	A	10	A	10	A
weave		258	3	379	545	519					1443	1443	41	42	43					42	42	10	13	12					12	A	12	A	12	A
basic		862	2	898	506						1405	1405	42	43						43	43	22	12						17	B	17	B	17	B
diverge	CD - Btw MD 28 & MD 189	379	3	115	901	471					1488	1488	40	42	43					42	42	3	22	11					12	B	12	B	12	B
basic		525	3	242	787	464					1494	1494	43	43	43					43	43	6	19	11					12	B	12	B	12	B
weave		710	4	264	660	556	342				1822	1822	43	43	43	43				43	43	6	16	13	8				11	A	11	A	11	A
basic		1165	3	176	488	846					1511	1511	44	43	42					43	43	4	12	20					12	B	12	B	12	B
merge		286	3	171	557	784					1511	1511	43	43	42					43	43	4	13	19					12	B	12	B	12	B
basic	CD - MD 189 interchange	810	2	614	719						1334	1333	42	43						42	42	15	17						16	B	16	B	16	B
		649	2	607	726						1333		42	43						43		15	17						16	B	16	B		
diverge	CD - Btw MD 189 & Montrose Rd	220	3	159	692	740					1590	1590	42	42	43					42	42	4	17	18					13	B	13	B	13	B
basic		1046	2	852	744						1596	1596	42	43						42	42	21	18						19	C	19	C	19	C
		2216	2	844	752						1596		42	43						42		20	18						19	C	19	C		
merge		463	3	726	790	77					1594	1594	42	43	44					43	43	17	19	2					13	B	13	B	13	B
basic		950	2	674	620						1294	1294	42	43						42	42	16	15						15	B	15	B	15	B
merge		402	3	96	639	567					1302	1302	40	42	42					41	41	2	15	14					10	B	10	B	10	B
basic	CD - Montrose Rd interchange	1126	2	399	561						960	960	43	43						43	43	9	13						11	B	11	B	11	B
weave		342	3	86	409	565					1060	1060	42	43	43					42	42	2	10	13					8	A	8	A	8	A
basic		1121	2	440	570						1011	1011	43	43						43	43	10	14						12	B	12	B	12	B
diverge	CD - Btw Montrose Rd & Spur Split	262	3	453	667	595					1715	1715	41	41	42					41	41	11	17	14					14	B	14	B	14	B
basic		1304	2	1039	673						1713	1713	44	47						45	45	24	15						19	C	19	C	19	C

I-270 Northbound - 2027 No-Build - 7-8 AM

VISSIM Lookup Data				Volume									Speed									Density									
				Volume Per Lane							Across All Lanes	Overall Volume	Speed Per Lane							Across All Lanes	Overall Speed	Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)							Total Volume	Average Volume (veh/hr)	Speed (mph)							Average Speed	Average Speed (mph)	Combined Density (pcphpl)							Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Btw Watkins Mill Rd & MD 117	7479	4	908	901	492	285				2585	2585	63	63	65	66				64	64	15	14	8	4				10	A	10	A	10	A
diverge	Btw MD 117 & I-370	1357	5	1200	1010	921	456	249			3837	3837	62	62	63	65	66			64	64	20	16	15	7	4			12	B	17	B	17	B
basic		843	5	878	1364	958	413	230			3843	3843	62	62	63	65	66			64	64	14	22	15	6	4			12	B	12	B	12	B
merge		531	6	8	632	1818	816	335	219		3828	3828	57	59	61	63	65	66		62	62	0	11	30	13	5	3		10	B	14	B	14	B
basic	I-370 interchange	3616	4	1266	971	390	222				2848	2849	63	63	65	66				64	64	21	16	6	3				11	B	11	B	11	B
		633	4	992	938	682	231				2843		63	63	65	66				64		16	15	11	4				11	B	11	B		
		1171	4	996	927	655	278				2856		63	63	65	66				64		16	15	10	4				11	B	11	B		
merge		337	4	0	999	903	570	386			2857	2857	0	63	63	65	65			51	51	0	16	14	9	6			9	A	10	B	10	B
basic	Shady Grove Rd interchange	3947	4	1017	909	561	384				2870	2870	63	63	65	65				64	64	16	15	9	6				11	B	11	B	11	B
weave	Btw Shady Grove Rd & MD 28	1523	5	661	1175	863	515	365			3578	3585	63	63	63	65	65			64	64	11	19	14	8	6			11	B	11	B	11	B
		1475	5	385	1218	1101	521	361			3585		65	63	63	65	65			64		6	20	18	8	6			11	B	11	B		
		1482	5	291	1193	1147	604	358			3592		64	63	63	65	65			64		5	19	18	9	6			11	B	11	B		
basic	MD 28 interchange	3696	4	1220	1101	650	397				3368	3369	63	63	65	65				64	64	20	18	10	6				13	B	13	B	13	B
		464	4	1265	1099	604	408				3375		62	63	64	64				63		21	18	10	6				14	B	14	B		
weave		1405	5	962	1197	998	519	372			4048	4047	58	62	63	65	65			63	63	17	20	16	8	6			13	B	13	B	13	B
		640	5	1172	1196	829	484	364			4046		61	63	63	65	65			63		19	19	13	8	6			13	B	13	B		
basic	Btw MD 28 & MD 189	531	4	1471	832	480	366				3149	3152	63	63	65	65				64	64	24	13	8	6				13	B	13	B	13	B
		1407	4	1443	875	477	358				3153		62	63	65	65				64		24	14	7	6				13	B	13	B		
diverge		1536	4	1734	1156	457	338				3684	3684	62	63	65	65				64	64	28	19	7	5				15	B	18	B	18	B
basic	Btw MD 189 & Montrose Rd	74	4	1721	1137	452	330				3640	3689	63	63	65	65				64	64	28	18	7	5				15	B	15	B	15	B
		1921	4	1538	1225	595	331				3689		63	63	65	65				64		25	20	9	5				15	B	15	B		
		3344	4	1514	1146	623	406				3690		63	63	65	65				64		25	18	10	6				15	B	15	B		
diverge	Montrose Rd interchange	1486	5	749	1295	996	483	411			3933	3933	63	63	63	65	64			64	64	12	21	16	7	6			13	B	16	B	16	B
basic		425	5	1341	936	785	458	406			3926	3930	63	64	64	65	64			64	64	22	15	12	7	6			12	B	12	B	13	B
		2954	5	1336	949	791	455	399			3930		63	64	64	65	64			64		22	15	13	7	6			13	B	13	B		
weave	Btw Montrose Rd & Spur Split	1533	7	987	1187	1276	981	836	462	405	6134	6140	63	63	63	64	64	65	64	64	64	16	19	21	16	13	7	6	14	B	14	B	14	B
		1210	7	858	1359	1406	875	785	456	400	6140		63	63	63	64	64	65	64	64		14	22	23	14	13	7	6	14	B	14	B		
		1521	7	544	1810	1469	656	800	475	393	6147		64	62	63	64	64	65	64	64		9	30	24	10	13	7	6	14	B	14	B		
weave		447	6	751	1324	879	1022	1144	594		5715	5715	64	63	64	63	63	65		64	64	12	21	14	16	18	9		15	B	15	B	15	B
basic	Btw Spur Split & MD 187	1227	2	1119	1131						2250	2250	63	63						63	63	18	18						18	C	18	C	18	C
merge		736	3	0	1119	1130					2249	2245	64	63	63					63	62	0	18	18					12	B	12	B	12	B
		519	3	3	1112	1123					2238		58	62	63					61		0	18	18					12	B	12	B		
weave		624	5	0	128	1053	1064	402			2646	2646	56	56	63	63	64			60	60	0	2	17	17	6			9	A	9	A	9	A
basic	MD 187 interchange	511	3	826	938	411					2175	2183	64	64	64					64	64	13	15	6					12	B	12	B	12	B
		1863	3	802	923	459					2185		64	64	64					64		13	15	7					12	B	12	B		
diverge		520	4	436	735	869	736				2776	2776	63	63	64	64				63	63	7	12	14	12				11	B	11	B	11	B
basic		797	3	1139	891	733					2762	2762	63	64	64					64	64	18	14	12					15	B	15	B	15	B
diverge	Btw MD 187 & I-495	674	4	500	1266	912	728				3406	3428	63	63	63	64				63	63	8	21	15	12				14	B	14	B	14	B
basic		824	3	1755	926	720					3402		63	64	64					63	63	29	15	11					18	C	18	C	18	C
		3315	3	1742	982	708					3432		62	63	64					63		29	16	11					18	C	18	C		
		1125	3	1438	1382	617					3437		62	62	63					62		24	22	10					19	C	19	C		
merge		429	4	209	1578	1628	26				3441	3441	48	60	63	68				60	60	4	27	26	0				15	B	19	B	19	B
basic		386	3	1413	1385	14					2811	2811	63	63	65					64	64	23	22	0					15	B	15	B	15	B
basic		500	2	1418	1397						2815	2815	59	58						59	59	24	24						24	C	24	C	24	C
basic	Btw Spur Split & Democracy Blvd	1863	4	306	1026	1440	730				3502	3502	66	63	63	65				64	64	5	17	23	11				14	B	14	B	14	B
merge		718	5	290	1033	1454	702	23			3502	3502	65	63	63	65	57			63	63	5	17	23	11	0			11	B	12	B	12	B
basic		1170	4	277	1039	1445	630				3391	3391	65	63	63	65				64	64	4	17	23	10				14	B	14	B	14	B
merge		820	4	233	1086	1472	615				3407	3407	58	63	63	65				62	62	4	18	24	10				14	B	15	B	15	B
basic	Democracy Blvd interchange	457	3	1129	1467	582					3178	3178	63	63	65					64	64	18	24	9					17	B	17	B	17	B
merge		887	4	82	1107	1496	536				3221	3221	50	63	63	65				60	60	2	18	24	8				13	B	15	B	15	B
basic		790	3	1108	1459	491					3058	3058	63	63	65					64	64	18	23	8					16	B	16	B	16	B
diverge	Btw Democracy Blvd & I-495	894	4	744	1270	1542	407				3962	3962	59	62	63	64				62	62	13	21	25	6				16	B	19	B	19	B
basic		2455	3	1974	1776	220					3970	3970	57	59	64					60	60	35	31	3					23	C	23	C	23	C
diverge	CD - Btw MD 124 & MD 117	2235	2	489	1074						1563	1563	43	43						43	43	12	26						19	B	19	B	19	B
weave	CD - Btw MD 117 & I-370	600	3	600	690	1132					2422	2422	40	41	42					41	41	15	17	27					20	C	20	C	20	C
basic		4137	2	419	752						1171	1171	42	42						42	42	10	18						14	B	14	B	14	B
weave		1981	3	623	1033	542					2198	2198	42	42	43					42	42	15	25	13					18	B	18	B	18	B
basic	CD - I-370 interchange	1052	2	511	315						826	826	42	43						43	43	12	7						10	A	10	A	10	A
merge		704	3	79	477	272					829	829	42	42	43					43	43	2	11	6					7	A	7	A	7	A
basic		981	2	231	260						491	491	43	46						44	44	5	6						6	A	6	A	6	A
diverge	CD - Btw I-370 & Shady Grove Rd	483	3	834	446	257					1537	1537	42	45	58					48	48	20	10	5					12	B	12	B	12	B
basic		944	3	822	465	251					1538	1538	43	46	59					49	49	19	10	4					11	B	11	B	11	B
diverge		528	3	783	515	241					1539	1539	43	47	59					50	50	18	11	4					11	B	11	B	11	B
merge		301	4	70	740	495	231				1536	1536	35	44	49	60				47	47	2	17	10	4				8	A	10	B	10	B
basic	CD - Shady Grove Rd interchange	954	3	597	522	214					1334	1334	46	51	62					53	53	13	10	4					9	A	9	A	9	A
weave		357	4	73	539	534	188				1334	1334	41	44	58	64				52	52	2	13	9	3				7	A	7	A	7	A
diverge	CD - Btw Shady Grove Rd & MD 28	190	3	345	759	373					1476	1476	43	43	43					43	43	8	18	9					12	B	12	B	12	B
basic		4624	2	1082	415						1497	1497	42	43						43	43	26	10						18	C	18	C	18	C
diverge		2601	3	427	590	722					1739	1739	43	43	43					43	43	10	14	17					14	B	14	B	14	B
weave		177	4	1	535	514	694				1744	1744	35	43	43	44				41	41	0	13	12	16				10	A	10	A	10	A
merge		274	3	84	468	484					1035	1035	42	43	43					43	43	2	11	11					8	A	8	A	8	A
basic	CD - MD 28 interchange	924	2	340	475						815	815	43	43						43	43	8	11						10	A	10	A	10	A
weave		258	3	615	627	474					1716	1716	36	40	43					39	39	18	16	11					15	B	15	B	15	B
basic		862	2	1163	448						1610	1610	42	43						42	42	28	10						19	C	19	C	19	C
diverge	CD - Btw MD 28 & MD 189	379	3	251	1168	393					1812	1812	38	41	43					40	40	7	29	9					15	B	15	B	15	B
basic		525	3	389	1046	387					1821	1821	43	42	43					43	43	9	25	9					15	B	15	B	15	B
weave		710	4	385	850	624	893				2751	2751	43	42	43	42				42	42	9	20	15	22				16	B	16	B	16	B
basic		1165	3	344	579	1301					2223	2223	43	42	41					42	42	8	14	32					18	C	18	C	18	C
merge		286	3	422	752	1056					2230	2230	42	42	42					42	42	10	18	26					18	B	18	B	18	B
basic	CD - MD 189 interchange	810	2	800	899						1699	1700	42	42						42	42	19	22						20	C	20	C	20	C
		649	2	784	917						1701		42	42						42		19	22						20	C	20	C		
diverge	CD - Btw MD 189 & Montrose Rd	220	3	309	947	946					2202	2202	41	41	42					41	41	8	23	23					18	B	18	B	18	B
basic		1046	2	1262	952						2214	2216	41	42						42	42	31	23						27	D	27	D	27	D
		2216	2	1261	955						2216		41	43						42		31	23						27	D	27	D		
merge		463	3	1111	1038	71					2220	2220	42	43	43					43	43	27	25	2					18	B	18	B	18	B
basic		950	2	1072	908						1981	1981	41	42						42	42	26	22						24	C	24	C	24	C
merge		402	3	234	1042	718					1993	1993	36	41	42					40	40	7	26	17					17	B	17	B	17	B
basic	CD - Montrose Rd interchange	1126	2	561	669						1230	1230	42	42						42	42	13	16						15	B	15	B	15	B
weave		342	3	195	565	648					1407	1407	40	42	42					42	42	5	14	15					11	A	11	A	11	A
basic		1121	2	530	627						1157	1157	43	43						43	43	13	15						14	B	14	B	14	B
diverge	CD - Btw Montrose Rd & Spur Split	262	3	646	861	669					2175	2175	40	38	40					39	39	16	23	17					19	B	19	B	19	B
basic		1304	2	1382	798						2180	2180	43	46						45	45	32	17						25	C	25	C	25	C

I-270 Northbound - 2027 No-Build - 8-9 AM

VISSIM Lookup Data				Volume									Speed									Density									
				Volume Per Lane							Across All Lanes	Overall Volume	Speed Per Lane							Across All Lanes	Overall Speed	Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)							Total Volume	Average Volume (veh/hr)	Speed (mph)							Average Speed	Average Speed (mph)	Combined Density (pcphpl)							Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Btw Watkins Mill Rd & MD 117	7479	4	967	1034	657	399				3056	3056	63	63	64	65				64	64	16	17	10	6				12	B	12	B	12	B
diverge	Btw MD 117 & I-370	1357	5	1405	1086	1074	606	345			4516	4516	60	62	63	64	65			63	63	24	18	17	10	5			15	B	20	C	20	C
basic		843	5	1045	1493	1111	551	318			4518	4518	62	62	63	64	65			63	63	17	25	18	9	5			15	B	15	B	15	B
merge		531	6	9	774	1981	968	460	302		4494	4494	54	58	61	63	64	65		61	61	0	14	33	16	7	5		12	B	16	B	16	B
basic	I-370 interchange	3616	4	1448	1136	516	304				3404	3402	62	63	64	65				64	64	24	18	8	5				14	B	14	B	14	B
		633	4	1124	1087	867	314				3393		63	63	64	65				64		18	17	14	5				14	B	14	B		
		1171	4	1125	1076	834	369				3403		63	63	64	65				64		18	17	13	6				14	B	14	B		
merge		337	4	0	1126	1043	740	499			3408	3408	0	63	63	64	65			51	51	0	18	17	12	8			11	B	12	B	12	B
basic	Shady Grove Rd interchange	3947	4	1142	1056	732	488				3418	3418	63	63	64	65				64	64	18	17	12	8				14	B	14	B	14	B
weave	Btw Shady Grove Rd & MD 28	1523	5	990	1429	960	650	454			4484	4488	61	62	63	64	65			63	63	17	23	16	10	7			15	B	15	B	14	B
		1475	5	703	1382	1299	652	453			4489		64	63	63	64	65			64		11	22	21	10	7			14	B	14	B		
		1482	5	571	1318	1351	793	458			4491		63	63	63	64	65			64		9	21	22	13	7			14	B	14	B		
basic	MD 28 interchange	3696	4	1262	1257	893	532				3944	3945	63	63	64	65				64	64	20	20	14	8				16	B	16	B	16	B
		464	4	1301	1257	840	552				3950		61	62	63	63				63		22	20	13	9				16	B	16	B		
weave		1405	5	1243	1263	1142	748	505			4900	4902	58	61	63	64	65			62	63	22	21	19	12	8			16	B	16	B	16	B
		640	5	1382	1329	985	716	494			4906		61	62	63	64	65			63		23	22	16	11	8			16	B	16	B		
basic	Btw MD 28 & MD 189	531	4	1756	1003	719	496				3973	3973	62	63	64	65				64	63	29	16	11	8				16	B	16	B	16	B
		1407	4	1712	1060	707	493				3973		62	63	64	65				63		28	17	11	8				16	B	16	B		
diverge		1536	4	2018	1452	669	469				4608	4608	61	62	64	65				63	63	34	24	11	7				19	B	23	C	23	C
basic	Btw MD 189 & Montrose Rd	74	4	2009	1428	663	458				4558	4615	62	63	64	65				64	64	33	23	10	7				18	C	18	C	18	C
		1921	4	1764	1492	894	462				4612		63	63	64	65				64		29	24	14	7				18	C	18	C		
		3344	4	1719	1393	933	572				4617		63	63	64	64				64		28	22	15	9				19	C	19	C		
diverge	Montrose Rd interchange	1486	5	1106	1559	1207	732	531			5135	5135	59	62	63	64	64			62	62	19	26	19	12	8			17	B	21	C	21	C
basic		425	5	1760	1226	930	691	518			5126	5134	63	63	64	64	64			64	64	29	20	15	11	8			16	B	16	B	16	B
		2954	5	1751	1247	935	691	511			5135		63	63	64	64	64			64		29	20	15	11	8			16	B	16	B		
weave	Btw Montrose Rd & Spur Split	1533	7	1353	1485	1600	1311	993	740	535	8017	8020	63	63	63	63	64	64	64	63	63	22	24	26	21	16	12	8	18	B	18	B	19	B
		1210	7	1200	1710	1812	1187	870	724	519	8021		63	62	62	63	64	64	64	63	63	19	28	30	19	14	11	8	19	B	19	B		
		1521	7	810	2352	1945	841	838	732	504	8022		64	61	62	64	64	64	64	63	63	13	39	32	13	13	12	8	19	B	19	B		
weave		447	6	1098	1802	1248	1126	1270	921		7465	7465	63	63	63	63	63	64		63	63	18	29	20	18	20	15		20	C	20	C	20	C
basic	Btw Spur Split & MD 187	1227	2	1578	1655						3232	3226	62	62						62	62	26	27						27	D	27	D	27	D
merge		736	3	2	1575	1655					3232		54	61	61					59	59	0	26	28					18	B	18	B	18	B
		519	3	11	1543	1664					3218		54	61	61					59		0	26	28					18	B	18	B		
weave		624	5	0	247	1417	1567	508			3740	3740	53	51	62	62	63			58	58	0	5	23	26	8			12	B	12	B	12	B
basic	MD 187 interchange	511	3	1200	1313	519					3032	3044	63	63	64					63	63	19	21	8					16	B	16	B	16	B
		1863	3	1168	1274	606					3048		63	63	64					63		19	21	10					16	B	16	B		
diverge		520	4	525	940	1167	1128				3761	3761	62	63	63	64				63	63	9	15	19	18				15	B	14	B	14	B
basic		797	3	1419	1196	1124					3740	3740	63	63	63					63	63	23	19	18					20	C	20	C	20	C
diverge	Btw MD 187 & I-495	674	4	380	1513	1213	1126				4232	4252	63	63	63	63				63	63	6	25	20	18				17	B	17	B	17	B
basic		824	3	1875	1236	1111					4222		62	63	64					63	62	31	20	18					23	C	23	C	23	C
		3315	3	1878	1280	1098					4256		61	63	63					62		31	21	18					23	C	23	C		
		1125	3	1631	1628	1003					4262		58	59	59					59		29	28	18					25	C	25	C		
merge		429	4	346	1850	1991	84				4271	4271	41	50	55	60				52	52	10	40	38	1				22	C	29	D	29	D
basic		386	3	1701	1656	49					3405	3405	55	55	54					54	54	34	33	1					22	C	22	C	22	C
basic		500	2	1767	1644						3411	3411	50	50						50	50	37	35						36	E	36	E	36	E
basic	Btw Spur Split & Democracy Blvd	1863	4	475	1117	1529	1163				4285	4285	65	63	63	64				64	64	8	18	25	19				17	B	17	B	17	B
merge		718	5	454	1113	1546	1142	36			4291	4291	65	63	63	64	57			62	62	7	18	25	18	1			14	B	15	B	15	B
basic		1170	4	430	1122	1518	1066				4135	4135	64	63	63	64				64	64	7	18	24	17				17	B	17	B	17	B
merge		820	4	379	1174	1547	1056				4156	4156	57	62	63	64				62	62	7	19	25	17				17	B	17	B	17	B
basic	Democracy Blvd interchange	457	3	1212	1539	1016					3768	3768	62	63	63					63	63	20	25	16					20	C	20	C	20	C
merge		887	4	111	1175	1563	971				3820	3820	49	62	63	64				59	59	2	19	25	16				16	B	16	B	16	B
basic		790	3	1169	1501	931					3601	3601	62	62	63					62	62	19	24	15					20	C	20	C	20	C
diverge	Btw Democracy Blvd & I-495	894	4	827	1371	1611	812				4621	4621	57	58	60	60				59	59	15	24	27	14				20	C	22	C	22	C
basic		2455	3	2174	2118	340					4632	4632	42	45	62					50	50	53	47	6					35	E	35	E	35	E
diverge	CD - Btw MD 124 & MD 117	2235	2	751	1363						2114	2114	42	42						42	42	18	33						25	C	25	C	25	C
weave	CD - Btw MD 117 & I-370	600	3	961	1075	1417					3453	3453	30	33	36					33	33	33	33	40					36	D	36	D	36	D
basic		4137	2	770	1224						1994	1994	42	41						42	42	19	30						24	C	24	C	24	C
weave		1981	3	1029	1401	698					3128	3128	42	41	43					42	42	25	34	17					25	C	25	C	25	C
basic	CD - I-370 interchange	1052	2	794	593						1387	1387	42	43						42	42	19	14						17	B	17	B	17	B
merge		704	3	119	750	526					1395	1395	41	42	43					42	42	3	18	12					11	B	11	B	11	B
basic		981	2	454	511						965	965	43	45						44	44	11	12						11	B	11	B	11	B
diverge	CD - Btw I-370 & Shady Grove Rd	483	3	1065	759	523					2347	2347	41	43	52					45	45	26	18	10					18	B	18	B	18	B
basic		944	3	1062	766	523					2351	2351	42	43	54					46	46	26	18	10					18	C	18	C	18	C
diverge		528	3	1034	807	508					2349	2349	42	44	56					47	47	25	19	9					18	B	18	B	18	B
merge		301	4	123	1021	725	481				2350	2350	35	43	47	57				45	45	4	24	16	9				13	B	15	B	15	B
basic	CD - Shady Grove Rd interchange	954	3	822	771	426					2020	2020	45	48	60					51	51	19	16	7					14	B	14	B	14	B
weave		357	4	114	791	774	343				2021	2021	40	43	57	63				51	51	3	19	14	6				10	A	10	A	10	A
diverge	CD - Btw Shady Grove Rd & MD 28	190	3	481	1147	600					2228	2228	43	43	43					43	43	11	27	14					18	B	18	B	18	B
basic		4624	2	1581	672						2253	2253	41	43						42	42	39	16						27	D	27	D	27	D
diverge		2601	3	648	974	1197					2819	2819	43	42	42					42	42	15	23	29					23	C	23	C	23	C
weave		177	4	6	832	992	997				2826	2826	32	42	43	43				40	40	0	20	24	23				17	B	17	B	17	B
merge		274	3	122	739	967					1828	1828	41	43	43					42	42	3	18	23					15	B	15	B	15	B
basic	CD - MD 28 interchange	924	2	576	961						1536	1536	43	43						43	43	14	23						18	C	18	C	18	C
weave		258	3	831	930	1006					2767	2767	32	38	42					37	37	27	25	24					25	C	25	C	25	C
basic		862	2	1671	974						2645	2645	40	42						41	41	42	24						33	D	33	D	33	D
diverge	CD - Btw MD 28 & MD 189	379	3	483	1668	821					2972	2972	17	33	39					30	30	30	52	22					34	D	34	D	34	D
basic		525	3	752	1501	734					2987	2987	40	39	42					41	41	19	39	18					25	C	25	C	25	C
weave		710	4	745	1285	967	965				3962	3962	42	41	42	42				42	42	18	32	23	23				24	B	24	B	24	B
basic		1165	3	596	1006	1718					3320	3320	43	42	40					42	42	14	24	44					27	D	27	D	27	D
merge		286	3	639	1123	1558					3320	3320	42	42	41					42	42	15	27	38					27	C	27	C	27	C
basic	CD - MD 189 interchange	810	2	1187	1421						2608	2606	42	42						42	42	29	35						32	D	32	D	32	D
		649	2	1148	1455						2603		42	42						42		28	35						32	D	32	D		
diverge	CD - Btw MD 189 & Montrose Rd	220	3	428	1345	1518					3291	3291	41	41	42					41	41	11	33	37					27	C	27	C	27	C
basic		1046	2	1785	1525						3310	3323	41	42						41	41	44	37						41	E	41	E	41	E
		2216	2	1803	1526						3329		40	42						41		45	37						41	E	41	E		
merge		463	3	1622	1538	182					3342	3342	41	41	41					41	41	40	38	5					28	D	28	D	28	D
basic		950	2	1459	1361						2820	2820	40	41						41	41	37	33						35	E	35	E	35	E
merge		402	3	374	1404	1053					2831	2831	25	38	40					34	34	15	38	27					27	C	27	C	27	C
basic	CD - Montrose Rd interchange	1126	2	805	941						1747	1747	42	42						42	42	19	23						21	C	21	C	21	C
weave		342	3	280	799	912					1991	1991	39	42	42					41	41	7	20	22					16	B	16	B	16	B
basic		1121	2	730	883						1613	1613	42	42						42	42	18	21						19	C	19	C	19	C
diverge	CD - Btw Montrose Rd & Spur Split	262	3	779	1090	975					2843	2843	38	33	35					35	35	21	34	28					28	D	28	D	28	D
basic		1304	2	1724	1121						2844	2844	42	45						44	44	42	25						33	D	33	D	33	D

I-270 Northbound - 2027 No-Build - 9-10 AM

VISSIM Lookup Data				Volume									Speed									Density									
				Volume Per Lane							Across All Lanes	Overall Volume	Speed Per Lane							Across All Lanes	Overall Speed	Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)							Total Volume	Average Volume (veh/hr)	Speed (mph)							Average Speed	Average Speed (mph)	Combined Density (pcphpl)							Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Btw Watkins Mill Rd & MD 117	7479	4	989	982	621	413				3005	3005	63	63	65	65				64	64	16	16	10	6				12	B	12	B	12	B
diverge	Btw MD 117 & I-370	1357	5	1135	1065	1010	590	371			4170	4170	62	62	63	64	65			63	63	18	17	16	9	6			13	B	17	B	17	B
basic		843	5	830	1400	1048	545	350			4172	4172	62	62	63	64	65			63	63	14	23	17	9	5			14	B	14	B	14	B
merge		531	6	6	597	1817	922	471	336		4149	4149	57	59	62	63	65	65		62	62	0	10	30	15	7	5		11	B	14	B	14	B
basic	I-370 interchange	3616	4	1326	1051	516	339				3231	3228	63	63	64	65				64	64	22	17	8	5				13	B	13	B	13	B
		633	4	1060	1015	796	342				3213		63	63	64	65				64		17	16	13	5				13	B	13	B		
		1171	4	1061	1006	771	387				3225		63	63	64	65				64		17	16	12	6				13	B	13	B		
merge		337	4	0	1061	974	696	493			3224	3224	0	63	63	64	65			51	51	0	17	16	11	8			10	B	11	B	11	B
basic	Shady Grove Rd interchange	3947	4	1076	979	695	483				3234	3234	63	63	64	65				64	64	17	16	11	8				13	B	13	B	13	B
weave	Btw Shady Grove Rd & MD 28	1523	5	974	1414	893	633	460			4374	4370	62	62	63	64	65			63	64	16	23	14	10	7			14	B	14	B	14	B
		1475	5	632	1356	1279	644	458			4368		64	63	63	64	65			64		10	22	21	10	7			14	B	14	B		
		1482	5	487	1291	1328	795	465			4367		63	63	63	64	65			64		8	21	21	13	7			14	B	14	B		
basic	MD 28 interchange	3696	4	1239	1220	899	552				3910	3910	63	63	64	65				64	64	20	20	14	9				16	B	16	B	16	B
		464	4	1279	1209	845	577				3910		62	62	63	64				63		21	20	14	9				16	B	16	B		
weave		1405	5	1157	1222	1099	768	527			4772	4772	58	62	63	64	65			62	63	20	20	18	12	8			16	B	16	B	16	B
		640	5	1311	1251	952	739	518			4770		61	63	63	64	65			63		22	20	15	12	8			15	B	15	B		
basic	Btw MD 28 & MD 189	531	4	1637	964	741	518				3860	3859	62	63	64	65				64	63	27	15	12	8				15	B	15	B	16	B
		1407	4	1589	1023	733	514				3859		61	62	64	64				63		26	17	12	8				16	B	16	B		
diverge		1536	4	2097	1430	681	451				4659	4659	60	61	64	65				62	62	35	24	11	7				19	B	23	C	23	C
basic	Btw MD 189 & Montrose Rd	74	4	2086	1423	664	436				4609	4657	62	63	64	65				64	64	34	23	10	7				19	C	19	C	19	C
		1921	4	1823	1529	870	443				4664		63	63	64	65				64		30	25	14	7				19	C	19	C		
		3344	4	1764	1414	931	545				4654		63	63	64	65				64		29	23	15	8				19	C	19	C		
diverge	Montrose Rd interchange	1486	5	982	1551	1221	742	523			5020	5020	62	62	63	64	64			63	63	16	25	20	12	8			16	B	20	C	20	C
basic		425	5	1660	1194	934	708	510			5006	5006	63	64	64	64	64			64	64	27	19	15	11	8			16	B	16	B	16	B
		2954	5	1658	1204	939	708	496			5006		63	64	64	64	64			64		27	19	15	11	8			16	B	16	B		
weave	Btw Montrose Rd & Spur Split	1533	7	1259	1425	1563	1257	982	734	500	7719	7722	63	63	63	63	64	64	64	63	63	20	23	25	20	16	12	8	18	B	18	B	18	B
		1210	7	1112	1648	1748	1130	883	718	484	7723		63	62	62	63	64	64	64	63		18	27	29	18	14	11	8	18	B	18	B		
		1521	7	755	2237	1858	798	870	735	472	7725		64	61	62	64	64	64	64	63		12	37	30	13	14	12	7	18	B	18	B		
weave		447	6	1015	1700	1163	1104	1291	932		7205	7205	63	63	64	63	63	64		63	63	16	27	19	18	21	15		19	B	19	B	19	B
basic	Btw Spur Split & MD 187	1227	2	1487	1531						3017	3012	62	63						62	62	24	25						25	C	25	C	25	C
merge		736	3	2	1485	1530					3018		54	61	61					59	58	0	25	25					17	B	17	B	17	B
		519	3	11	1460	1534					3005		49	60	61					57		0	25	26					17	B	17	B		
weave		624	4	0	205	1367	1440	469			3481	3481	53	51	62	63	64			58	58	0	4	22	23	7			11	B	11	B	11	B
basic	MD 187 interchange	511	3	1160	1225	480					2864	2871	63	63	64					63	63	19	20	8					15	B	15	B	15	B
		1863	3	1141	1181	551					2873		63	63	64					63		18	19	9					15	B	15	B		
diverge		520	4	357	947	1084	964				3352	3352	63	63	63	64				63	63	6	15	17	15				13	B	13	B	13	B
basic		797	3	1265	1113	955					3333	3333	63	63	64					63	63	20	18	15					18	C	18	C	18	C
diverge	Btw MD 187 & I-495	674	4	348	1350	1132	955				3785	3785	63	63	63	64				63	63	6	22	18	15				15	B	15	B	15	B
basic		824	3	1687	1141	949					3776	3792	62	63	64					63	62	27	18	15					20	C	20	C	21	C
		3315	3	1695	1180	923					3797		62	63	64					63		28	19	15					21	C	21	C		
		1125	3	1517	1500	775					3791		60	61	60					60		26	25	13					21	C	21	C		
merge		429	4	236	1722	1767	64				3789	3789	46	56	59	63				56	56	5	32	31	1				17	B	23	C	23	C
basic		386	3	1577	1504	36					3117	3117	60	60	59					60	60	27	26	1					18	C	18	C	18	C
basic		500	2	1661	1458						3119	3119	55	54						55	55	31	28						29	D	29	D	29	D
basic	Btw Spur Split & Democracy Blvd	1863	4	435	1077	1561	1158				4232	4232	65	63	63	64				64	64	7	17	25	18				17	B	17	B	17	B
merge		718	5	412	1075	1571	1125	49			4233	4233	65	63	63	64	57			62	62	7	17	25	18	1			14	B	15	B	15	B
basic		1170	4	394	1076	1533	1023				4026	4026	65	63	63	64				64	64	6	17	25	16				16	B	16	B	16	B
merge		820	4	349	1120	1563	1016				4048	4048	57	63	63	64				62	62	6	18	25	16				16	B	17	B	17	B
basic	Democracy Blvd interchange	457	3	1147	1554	973					3674	3674	62	63	64					63	63	19	25	16					20	C	20	C	20	C
merge		887	4	110	1104	1580	930				3723	3723	49	62	63	64				59	59	2	18	25	15				15	B	15	B	15	B
basic		790	3	1089	1517	891					3497	3497	62	63	63					63	63	18	24	14					19	C	19	C	19	C
diverge	Btw Democracy Blvd & I-495	894	4	870	1298	1633	765				4566	4566	57	59	61	62				60	60	16	22	27	13				19	B	22	C	22	C
basic		2455	3	2144	2121	308					4574	4574	41	46	61					49	49	54	47	5					35	E	35	E	35	E
diverge	CD - Btw MD 124 & MD 117	2235	2	657	1296						1953	1953	42	42						42	42	16	31						23	C	23	C	23	C
weave	CD - Btw MD 117 & I-370	600	3	885	944	1289					3118	3118	35	38	40					37	37	26	25	33					28	C	28	C	28	C
basic		4137	2	729	1205						1934	1934	42	42						42	42	18	30						24	C	24	C	24	C
weave		1981	3	941	1331	609					2881	2881	42	41	43					42	42	23	33	15					23	B	23	B	23	B
basic	CD - I-370 interchange	1052	2	832	645						1477	1477	42	43						42	42	20	15						18	C	18	C	18	C
merge		704	3	115	787	578					1480	1480	42	42	43					42	42	3	19	14					12	B	12	B	12	B
basic		981	2	493	563						1056	1056	43	45						44	44	12	13						12	B	12	B	12	B
diverge	CD - Btw I-370 & Shady Grove Rd	483	3	1073	786	584					2444	2444	41	43	53					46	46	26	19	11					19	B	19	B	19	B
basic		944	3	1070	788	584					2443	2443	42	43	54					47	47	26	18	11					18	C	18	C	18	C
diverge		528	3	1033	833	569					2435	2435	42	44	56					48	48	25	19	10					18	B	18	B	18	B
merge		301	4	109	1014	768	543				2434	2434	34	43	47	58				45	45	3	24	17	10				13	B	15	B	15	B
basic	CD - Shady Grove Rd interchange	954	3	825	821	493					2139	2139	45	49	60					51	51	19	17	8					15	B	15	B	15	B
weave		357	4	107	803	823	402				2135	2135	40	43	57	63				51	51	3	19	15	6				11	A	11	A	11	A
diverge	CD - Btw Shady Grove Rd & MD 28	190	3	511	1060	656					2227	2227	43	43	42					43	43	12	25	16					18	B	18	B	18	B
basic		4624	2	1524	723						2247	2247	41	43						42	42	37	17						27	D	27	D	27	D
diverge		2601	3	663	957	1082					2701	2701	42	43	42					42	42	16	23	26					22	C	22	C	22	C
weave		177	4	6	838	944	916				2705	2705	34	42	43	43				41	41	0	20	23	21				16	B	16	B	16	B
merge		274	3	126	738	919					1783	1783	42	43	43					42	42	3	18	22					14	B	14	B	14	B
basic	CD - MD 28 interchange	924	2	570	908						1478	1478	43	43						43	43	14	22						18	C	18	C	18	C
weave		258	3	747	894	945					2586	2586	32	38	42					38	38	24	24	23					23	B	23	B	23	B
basic		862	2	1568	913						2481	2481	41	42						42	42	39	22						30	D	30	D	30	D
diverge	CD - Btw MD 28 & MD 189	379	3	462	1571	784					2817	2817	27	37	42					35	35	18	44	19					27	C	27	C	27	C
basic		525	3	714	1390	727					2832	2832	42	41	43					42	42	17	34	17					23	C	23	C	23	C
weave		710	4	681	1158	975	967				3780	3780	42	42	42	42				42	42	16	28	23	24				23	B	23	B	23	B
basic		1165	3	490	890	1602					2982	2982	43	42	40					42	42	12	21	40					24	C	24	C	24	C
merge		286	3	529	1019	1433					2981	2981	42	42	41					42	42	13	25	35					24	C	24	C	24	C
basic	CD - MD 189 interchange	810	2	1086	1298						2384	2384	42	42						42	42	26	31						29	D	29	D	29	D
		649	2	1057	1326						2383		42	42						42		26	32						29	D	29	D		
diverge	CD - Btw MD 189 & Montrose Rd	220	3	403	1248	1378					3030	3030	41	40	41					41	41	10	31	34					25	C	25	C	25	C
basic		1046	2	1661	1382						3043	3042	41	42						41	41	41	33						37	E	37	E	37	E
		2216	2	1664	1378						3041		41	42						41		42	33						37	E	37	E		
merge		463	3	1496	1420	124					3040	3040	41	42	43					42	42	37	34	3					25	C	25	C	25	C
basic		950	2	1394	1274						2668	2668	41	42						41	41	35	31						33	D	33	D	33	D
merge		402	3	334	1336	1011					2681	2681	29	39	41					36	36	12	35	25					24	C	24	C	24	C
basic	CD - Montrose Rd interchange	1126	2	809	925						1734	1734	42	42						42	42	19	22						21	C	21	C	21	C
weave		342	3	227	782	903					1912	1912	39	42	42					41	41	6	19	22					16	B	16	B	16	B
basic		1121	2	685	878						1563	1563	42	42						42	42	16	21						19	C	19	C	19	C
diverge	CD - Btw Montrose Rd & Spur Split	262	3	717	1034	944					2694	2694	39	36	39					38	38	19	29	25					24	C	24	C	24	C
basic		1304	2	1622	1069						2691	2691	43	46						44	44	39	24						31	D	31	D	31	D

Arterial Segments - 2027 No-build - 6-7 AM

VISSIM Lookup Data				Volume									Speed									Density											
				Volume Per Lane							Across All Lanes	Overall Volume	Speed Per Lane							Across All Lanes	Overall Speed	Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)							Total Volume	Average Volume (veh/hr)	Speed (mph)							Average Speed	Average Speed (mph)	Combined Density (pcphpl)							Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
diverge	MD 117 Eastbound at I-270	495	3	565	743	367					1675	1675	32	32	32					32	32	18	23	12					18	B	18	B	18	B
weave	I-370 Eastbound at I-270	623	4	249	539	180	82				1050	1050	50	50	51	53				51	51	5	11	4	2				5	A	5	A	5	A
diverge		625	3	109	47	14					170	170	53	53	54					53	53	2	1	0					1	A	1	A	1	A
weave		667	5	193	906	585	79	13			1775	1775	52	52	53	54	55			53	53	4	18	11	2	0			7	A	7	A	7	A
diverge	I-370 Westbound at I-270	461	4	577	231	131	1747				2685	2685	53	53	53	51				53	53	11	4	3	35				13	B	6	A	6	A
diverge		1411	3	39	78	1802					1919	1919	54	53	50					53	53	1	1	36					13	B	13	B	13	B
weave		623	3	272	76	114					462	462	53	53	54					53	53	5	1	2					3	A	3	A	3	A
diverge	Shady Grove Rd Eastbound at I-270	248	4	113	268	163	142				687	687	37	37	38	38				37	37	3	7	4	4				5	A	5	A	5	A
diverge		482	4	85	172	221	221				698	698	37	37	37	37				37	37	2	5	6	6				5	A	4	A	4	A
merge		271	4	77	338	227	209				851	851	35	37	37	37				37	37	2	9	6	6				6	A	6	A	6	A
diverge	Shady Grove Rd Westbound at I-270	490	4	360	218	131	109				817	817	17	21	20	20				20	20	21	11	7	6				11	B	13	B	13	B
weave		615	4	479	156	208	224				1067	1067	33	36	35	34				35	35	15	4	6	7				8	A	8	A	8	A
diverge	MD 28 Eastbound at I-270	1745	3	943	350	58					1351	1351	26	27	28					27	27	37	13	2					17	B	17	B	17	B
diverge		487	3	27	421	298					746	746	27	27	27					27	27	1	16	11					9	A	9	A	9	A
diverge	MD 28 Westbound at I-270	320	3	39	101	1					141	141	20	21	14					18	18	2	5	0					2	A	2	A	3	A
		101	3	39	94	8					141	141	24	25	21					23	23	2	4	0					2	A	2	A		
		43	3	53	223	8					284	284	24	21	27					24	24	2	11	0					5	A	5	A		
weave		489	3	204	494	79					778	778	25	26	28					26	26	8	19	3					10	A	10	A	10	A
merge		235	3	422	209	63					693	693	26	28	28					27	27	17	8	2					9	A	9	A	9	A
diverge	MD 189 Eastbound at I-270	249	3	144	106	188					438	438	27	28	27					27	27	5	4	7					5	A	5	A	5	A
merge		72	3	207	105	169					482	482	27	28	27					28	28	8	4	6					6	A	6	A	6	A
		334	3	205	116	169					491	491	27	28	27					28	28	8	4	6					6	A	6	A		
diverge	MD 189 Westbound at I-270	361	3	90	109	180					379	379	27	28	27					27	27	3	4	7					5	A	5	A	5	A
merge		519	3	53	397	57					508	508	28	27	29					28	28	2	15	2					6	A	6	A	6	A
diverge	Montrose Rd Eastboundat I-270	816	3	81	54	2					136	136	38	38	39					39	39	2	1	0					1	A	1	A	1	A
weave		314	3	281	742	33					1056	1056	36	36	36					36	36	8	21	1					10	B	10	B	10	B
merge		1393	3	472	649	381					1502	1502	37	37	38					37	37	13	18	10					14	B	14	B	14	B
diverge	Montrose Rd Westbound at I-270	315	3	336	545	448					1328	1328	37	34	34					35	35	9	17	13					13	B	13	B	13	B
weave		405	3	614	325	155					1094	1094	34	35	36					35	35	18	9	4					11	A	11	A	11	A
merge		191	3	71	289	163					523	523	32	36	37					35	35	2	8	4					5	A	5	A	5	A
diverge	MD 187 Northbound at I-270 East Spur	292	6	109	79	35	16	3	0		243	243	8	8	8	9	16	15		11	11	14	10	5	2	0	0		5	A	10	B	10	B
merge		263	5	76	280	96	82	63			597	597	33	36	37	38	38			37	37	2	8	3	2	2			3	A	4	A	4	A
diverge	MD 187 Southbound at I-270 East Spur	302	4	170	219	175	219				783	783	37	38	38	38				38	38	5	6	5	6				5	A	5	A	5	A
diverge		165	5	238	153	170	173	44			778	778	34	37	37	37	37			37	37	7	4	5	5	1			4	A	5	A	5	A
diverge		161	6	244	151	166	135	61	27		784	784	27	35	35	35	37	35		34	34	9	4	5	4	2	1		4	A	6	A	6	A
diverge	Democracy Blvd Eastbound at I-270 West Spur	2296	3	246	52	18					316	316	42	42	41					42	42	6	1	0					3	A	3	A	3	A
diverge		605	3	122	109	109					340	340	30	28	28					28	28	4	4	4					4	A	4	A	4	A
diverge	Democracy Blvd Westbound at I-270 West Spur	857	4	96	47	26	52				221	221	43	44	43	43				43	43	2	1	1	1				1	A	1	A	1	A
merge		2127	4	134	85	59	43				321	321	41	43	43	43				43	43	3	2	1	1				2	A	2	A	2	A
merge	VA 193 Eastbound at I-270 East Spur	299	3	467	576	56					1100	1100	25	32	34					30	30	19	19	2					13	B	13	B	13	B
merge	VA 193 Westbound at I-270 East Spur	452	2	253	176						429	429	30	33						31	31	9	5						7	A	7	A	7	A
merge	G.W. Memorial Pkwy Eastbound at I-495	968	3	902	1234	1133					3269	3269	46	47	48					47	47	20	27	24					24	C	24	C	24	C
		418	3	151	1563	1539					3254	3254	42	46	47					45	45	4	35	33					24	C	24	C		
diverge	G.W. Memorial Pkwy Westbound at I-495	2359	2	1724	523						2247	2247	45	46						46	46	39	12						25	C	25	C	25	C
weave	Clara Barton Pkwy Eastbound at I-495	6436	2	144	237						382	382	48	48						48	48	3	5						4	A	4	A	4	A
diverge	Clara Barton Pkwy Westbound at I-495	3047	2	227	8						235	235	48	48						48	48	5	0						2	A	2	A	2	A
merge		3254	2	300	196						496	496	48	48						48	48	6	4						5	A	5	A	5	A
diverge	MD 190 Eastbound at I-495	550	2	583	356						938	938	42	42						42	42	14	9						11	B	11	B	11	B
weave		554	4	124	714	228	135				1201	1201	40	42	43	41				41	41	3	17	5	3				7	A	7	A	7	A
merge		582	3	491	744	326					1561	1561	42	42	44					43	43	12	18	8					12	B	12	B	12	B
diverge	MD 190 Westbound at I-495	450	3	218	372	174					765	765	41	41	41					41	41	5	9	4					6	A	6	A	6	A
weave		316	3	264	345	125					735	735	38	40	42					40	40	7	9	3					6	A	6	A	6	A
diverge	MD 187 Northbound at I-495	790	3	139	93	152					384	384	28	26	12					22	22	5	4	12					7	A	7	A	7	A
merge		1654	3	144	113	49					306	306	37	38	38					37	37	4	3	1					3	A	3	A	3	A
diverge	MD 187 Southbound at I-495	1642	3	577	400	433					1411	1411	31	30	29					30	30	19	14	15					16	B	16	B	16	B
merge		796	3	562	546	404					1513	1513	35	36	36					36	36	16	15	11					14	B	14	B	14	B
weave	MD 355 Northbound at I-495	1654	3	53	55	243					351	351	36	36	34					35	35	2	2	7					3	A	3	A	3	A
weave		370	4	213	639	40	18				909	909	43	43	43	43				43	43	5	15	1	0				5	A	5	A	5	A
diverge	MD 355 Southbound at I-495	204	4	790	468	486	334				2079	2079	42	43	39	38				41	41	19	11	13	9				13	B	11	B	11	B
merge		781	4	929	745	572	487				2732	2732	23	23	22	22				23	23	41	34	26	22				31	D	33	D	33	D

Arterial Segments - 2027 No-build - 7-8 AM

VISSIM Lookup Data				Volume									Speed									Density									
				Volume Per Lane							Across All Lanes	Overall Volume	Speed Per Lane							Across All Lanes	Overall Speed	Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)							Total Volume	Average Volume (veh/hr)	Speed (mph)							Average Speed	Average Speed (mph)	Combined Density (pcphpl)							Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
diverge	MD 117 Eastbound at I-270	495	3	689	817	533					2039	2039	28	27	29					28	28	27	33	20					27	C	27	C	27	C
weave	I-370 Eastbound	623	4	281	877	517	432				2108	2108	48	48	47	51				48	48	6	18	11	9				11	B	11	B	11	B
diverge		625	3	289	500	385					1174	1174	49	49	50					49	49	6	10	8					8	A	8	A	8	A
weave		667	5	275	1156	890	507	386			3214	3214	51	52	52	53	53			52	52	5	23	17	10	7			13	B	13	B	13	B
diverge	I-370 Westbound at I-270	461	4	1029	474	342	1823				3669	3669	51	52	54	50				52	52	20	9	6	37				18	B	12	B	12	B
diverge		1411	3	142	307	1843					2292	2292	54	54	49					52	52	3	6	38					16	B	16	B	16	B
weave		623	3	344	185	406					935	935	53	54	54					53	53	7	4	8					6	A	6	A	6	A
diverge	Shady Grove Rd Eastbound at I-270	248	4	235	464	204	196				1099	1099	36	35	36	36				36	36	7	14	6	6				8	A	9	A	9	A
diverge		482	4	219	214	307	329				1069	1069	35	36	36	36				36	36	6	6	9	9				8	A	7	A	7	A
merge		271	4	86	397	307	294				1084	1084	35	37	37	37				36	36	2	11	8	8				8	A	7	A	7	A
diverge	Shady Grove Rd Westbound at I-270	490	4	353	297	278	274				1202	1202	18	20	20	20				20	20	20	15	14	14				16	B	16	B	16	B
weave		615	4	435	322	400	433				1591	1591	34	34	34	33				34	34	13	10	12	13				12	A	12	A	12	A
diverge	MD 28 Eastbound at I-270	1745	3	1170	667	251					2089	2089	26	26	27					26	26	46	26	10					27	C	27	C	27	C
diverge		487	3	85	611	544					1239	1239	27	26	26					27	27	3	23	21					16	B	16	B	16	B
diverge	MD 28 Westbound at I-270	320	3	183	247	15					445	445	15	15	9					13	13	13	17	2					10	B	10	B	9	A
		101	3	154	218	46					418	418	24	24	21					23	23	7	9	2					6	A	6	A		
		43	3	181	395	50					626	626	24	21	27					24	24	8	19	2					10	B	10	B		
weave		489	3	310	777	212					1299	1299	25	26	27					26	26	12	31	8					17	B	17	B	17	B
merge		235	3	609	378	137					1124	1124	26	27	28					27	27	24	14	5					14	B	14	B	14	B
diverge	MD 189 Eastbound at I-270	249	3	349	259	557					1165	1165	27	27	27					27	27	13	10	21					15	B	15	B	15	B
merge		72	3	413	212	292					918	918	27	28	27					27	27	16	8	11					11	B	11	B	12	B
		334	3	410	233	292					935	935	27	28	27					27	27	15	9	11					12	B	12	B		
diverge	MD 189 Westbound at I-270	361	3	217	382	451					1051	1051	27	26	26					26	26	8	15	18					14	B	14	B	14	B
merge		519	3	92	643	280					1016	1016	27	26	26					26	26	4	25	11					13	B	13	B	13	B
diverge	Montrose Rd Eastboundat I-270	816	3	486	361	111					959	959	37	38	38					38	38	13	10	3					9	A	9	A	9	A
weave		314	3	391	682	105					1178	1178	34	35	36					35	35	12	20	3					11	A	11	A	11	A
merge		1393	3	530	565	366					1460	1460	37	37	37					37	37	14	16	10					13	B	13	B	13	B
diverge	Montrose Rd Westbound at I-270	315	3	744	695	672					2111	2111	33	33	34					33	33	23	21	20					21	C	21	C	21	C
weave		405	3	857	448	230					1535	1535	29	31	34					32	32	30	15	7					17	B	17	B	17	B
merge		191	3	51	297	233					581	581	32	36	37					35	35	2	8	6					5	A	5	A	5	A
diverge	MD 187 Northbound at I-270 East Spur	292	6	232	189	186	252	155	34		1048	1048	9	7	7	9	8	3		7	7	27	26	27	29	20	14		24	C	26	C	26	C
merge		263	5	130	480	238	229	227			1304	1304	32	36	37	37	37			36	36	4	14	7	6	6			7	A	8	A	8	A
diverge	MD 187 Southbound at I-270 East Spur	302	4	476	641	570	676				2363	2363	34	35	35	35				34	34	14	19	17	20				17	B	17	B	17	B
diverge		165	5	691	472	525	555	100			2343	2343	26	27	28	29	34			29	29	26	18	19	20	3			17	B	21	C	21	C
diverge		161	6	737	455	496	484	138	48		2359	2359	17	10	11	10	35	32		19	19	44	46	47	47	4	2		32	D	46	F	46	F
diverge	Democracy Blvd Eastbound at I-270 West Spur	2296	3	525	199	159					883	883	41	40	40					40	40	13	5	4					7	A	7	A	7	A
diverge		605	3	296	265	280					840	840	24	22	21					22	22	12	12	13					13	B	13	B	13	B
diverge	Democracy Blvd Westbound at I-270 West Spur	857	4	168	85	53	106				412	412	43	43	43	43				43	43	4	2	1	3				2	A	2	A	2	A
merge		2127	4	120	114	96	80				410	410	41	43	43	43				42	42	3	3	2	2				2	A	3	A	3	A
merge	VA 193 Eastbound at I-270 East Spur	299	3	672	847	135					1654	1654	25	31	33					30	30	27	28	4					20	C	20	C	20	C
merge	VA 193 Westbound at I-270 East Spur	452	2	355	426						781	781	30	32						31	31	12	13						13	B	13	B	13	B
merge	G.W. Memorial Pkwy Eastbound at I-495	968	3	647	969	876					2492	2492	46	47	48					47	47	14	21	19					18	B	18	B	18	B
		418	3	90	1242	1151					2483	2483	43	46	47					46	46	2	27	25					18	B	18	B		
diverge	G.W. Memorial Pkwy Westbound at I-495	2359	2	1361	1057						2418	2418	11	14						13	13	124	75						99	F	99	F	99	F
weave	Clara Barton Pkwy Eastbound at I-495	6436	2	516	562						1078	1078	48	47						48	48	11	12						12	B	12	B	12	B
diverge	Clara Barton Pkwy Westbound at I-495	3047	2	422	23						444	444	48	48						48	48	9	0						5	A	5	A	5	A
merge		3254	2	321	213						534	534	48	47						48	48	7	5						6	A	6	A	6	A
diverge	MD 190 Eastbound at I-495	550	2	1135	776						1911	1911	39	39						39	39	29	20						25	C	25	C	25	C
weave		554	4	167	1016	493	271				1947	1947	40	42	43	38				40	40	4	25	12	7				12	B	12	B	12	B
merge		582	3	599	1028	623					2250	2250	42	42	43					43	43	14	25	15					18	B	18	B	18	B
diverge	MD 190 Westbound at I-495	450	3	376	678	299					1353	1353	40	40	41					40	40	10	17	7					11	B	11	B	11	B
weave		316	3	499	503	222					1224	1224	35	38	40					38	38	14	13	6					11	A	11	A	11	A
diverge	MD 187 Northbound at I-495	790	3	353	371	389					1113	1113	14	14	12					13	13	26	26	34					29	D	29	D	29	D
merge		1654	3	391	367	150					908	908	36	37	38					37	37	11	10	4					8	A	8	A	8	A
diverge	MD 187 Southbound at I-495	1642	3	967	698	755					2420	2420	24	24	24					24	24	40	30	32					34	D	34	D	34	D
merge		796	3	846	847	611					2305	2305	35	36	36					35	35	25	24	17					22	C	22	C	22	C
weave	MD 355 Northbound at I-495	1654	3	253	319	693					1266	1266	35	35	33					34	34	7	9	21					13	B	13	B	13	B
weave		370	4	230	750	282	202				1463	1463	42	42	43	43				43	43	5	18	7	5				9	A	9	A	9	A
diverge	MD 355 Southbound at I-495	204	4	789	551	605	572				2517	2517	42	42	36	35				39	39	19	13	17	16				16	B	16	B	16	B
merge		781	4	934	759	601	493				2787	2787	23	22	22	22				22	22	41	34	28	23				32	D	34	D	34	D

Arterial Segments - 2027 No-build - 8-9 AM

VISSIM Lookup Data				Volume									Speed								Density									
				Volume Per Lane							Across All Lanes	Overall Volume	Speed Per Lane							Across All Lanes	Overall Speed	Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)							Total Volume	Average Volume (veh/hr)	Speed (mph)							Average Speed	Average Speed (mph)	Combined Density (pcphpl)							Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
diverge	MD 117 Eastbound at I-270	495	3	673	806	550					2028	2028	29	28	29					29	29	24	30	20					25	C	25	C	25	C
weave	I-370 Eastbound	623	4	243	824	479	404				1949	1949	49	49	47	51				49	49	5	17	10	8				10	B	10	B	10	B
diverge		625	3	357	454	329					1140	1140	48	49	50					49	49	8	9	7					8	A	8	A	8	A
weave		667	5	321	1266	1053	467	329			3437	3437	51	51	52	53	53			52	52	6	25	20	9	6			13	B	13	B	13	B
diverge	I-370 Westbound at I-270	461	4	1284	575	436	1902				4197	4197	48	50	53	50				50	50	27	12	8	39				21	C	16	B	16	B
diverge		1411	3	166	403	1900					2469	2469	54	54	48					52	52	3	8	40					17	B	17	B	17	B
weave		623	3	605	289	543					1438	1438	52	53	53					53	53	12	6	10					9	A	9	A	9	A
diverge	Shady Grove Rd Eastbound at I-270	248	4	280	600	268	278				1425	1425	35	30	34	35				34	34	8	20	8	8				11	B	12	B	12	B
diverge		482	4	307	284	388	437				1416	1416	33	36	36	35				35	35	9	8	11	13				10	B	10	B	10	B
merge		271	4	82	431	391	400				1305	1305	34	37	37	37				36	36	2	12	11	11				9	A	8	A	8	A
diverge	Shady Grove Rd Westbound at I-270	490	4	421	330	306	302				1359	1359	18	20	19	20				19	19	24	17	16	16				18	B	19	B	19	B
weave		615	4	493	421	515	559				1988	1988	34	31	31	30				31	31	15	14	17	19				16	B	16	B	16	B
diverge	MD 28 Eastbound at I-270	1745	3	1057	686	366					2109	2109	26	26	26					26	26	42	27	14					27	C	27	C	27	C
diverge		487	3	97	645	672					1414	1414	27	26	26					27	27	4	25	26					18	B	18	B	18	B
diverge	MD 28 Westbound at I-270	320	3	246	462	69					778	778	13	15	8					12	12	19	32	9					20	C	20	C	18	B
		101	3	230	399	135					764	764	24	24	22					24	24	10	17	6					11	B	11	B		
		43	3	257	613	145					1015	1015	25	22	27					24	24	11	28	6					15	B	15	B		
weave		489	3	431	1049	462					1943	1943	25	25	26					25	25	17	43	18					26	C	26	C	26	C
merge		235	3	868	630	246					1744	1744	25	26	27					26	26	35	24	9					23	C	23	C	23	C
diverge	MD 189 Eastbound at I-270	249	3	388	304	715					1408	1408	27	27	26					27	27	15	11	27					18	B	18	B	18	B
merge		72	3	624	236	299					1158	1158	27	28	27					27	27	24	9	11					15	B	15	B	15	B
		334	3	611	271	300					1182	1182	27	28	27					27	27	23	10	11					15	B	15	B		
diverge	MD 189 Westbound at I-270	361	3	228	384	486					1098	1098	27	27	26					26	26	9	15	19					14	B	14	B	14	B
merge		519	3	99	673	256					1028	1028	27	26	27					26	26	4	26	10					13	B	13	B	13	B
diverge	Montrose Rd Eastboundat I-270	816	3	624	603	281					1508	1508	37	37	38					37	37	17	17	8					14	B	14	B	14	B
weave		314	3	533	869	318					1719	1719	32	34	36					34	34	17	26	9					17	B	17	B	17	B
merge		1393	3	604	766	620					1989	1989	37	36	37					37	37	16	21	17					18	B	18	B	18	B
diverge	Montrose Rd Westbound at I-270	315	3	1034	723	787					2545	2545	29	33	34					32	32	37	22	24					27	C	27	C	27	C
weave		405	3	861	531	348					1739	1739	30	31	35					32	32	29	17	10					19	B	19	B	19	B
merge		191	3	38	374	353					765	765	31	36	37					35	35	1	10	10					7	A	7	A	7	A
diverge	MD 187 Northbound at I-270 East Spur	292	6	346	303	306	355	147	37		1495	1495	7	7	7	7	7	2		6	6	47	46	47	48	20	15		37	E	47	F	47	F
merge		263	5	112	510	353	353	350			1678	1678	31	35	36	37	37			35	35	4	15	10	10	10			10	B	9	A	9	A
diverge	MD 187 Southbound at I-270 East Spur	302	4	483	752	708	833				2776	2776	33	29	29	29				30	30	15	26	26	30				24	C	22	C	22	C
diverge		165	5	702	602	631	679	142			2756	2756	26	16	17	18	31			22	22	27	40	40	40	5			30	D	36	E	36	E
diverge		161	6	746	582	608	597	178	62		2773	2773	18	7	7	7	34	29		17	17	43	88	88	87	5	2		52	F	73	F	73	F
diverge	Democracy Blvd Eastbound at I-270 West Spur	2296	3	717	379	359					1455	1455	39	38	38					38	38	19	10	10					13	B	13	B	13	B
diverge		605	3	494	472	498					1465	1465	23	21	21					22	22	22	23	24					23	C	23	C	23	C
diverge	Democracy Blvd Westbound at I-270 West Spur	857	4	279	279	180	271				1009	1009	43	43	43	43				43	43	7	7	4	6				6	A	6	A	6	A
merge		2127	4	160	259	242	144				806	806	41	43	43	43				42	42	4	6	6	3				5	A	5	A	5	A
merge	VA 193 Eastbound at I-270 East Spur	299	3	408	569	59					1036	1036	25	31	34					30	30	17	18	2					12	B	12	B	12	B
merge	VA 193 Westbound at I-270 East Spur	452	2	349	377						727	727	30	32						31	31	12	12						12	B	12	B	12	B
merge	G.W. Memorial Pkwy Eastbound at I-495	968	3	509	773	680					1962	1962	46	47	48					47	47	11	17	14					14	B	14	B	14	B
		418	3	59	1003	893					1955	1955	44	47	48					46	46	1	22	19					14	B	14	B		
diverge	G.W. Memorial Pkwy Westbound at I-495	2359	2	1357	1242						2599	2599	10	14						12	12	135	89						112	F	112	F	112	F
weave	Clara Barton Pkwy Eastbound at I-495	6436	2	439	526						965	965	48	47						48	48	9	11						10	B	10	B	10	B
diverge	Clara Barton Pkwy Westbound at I-495	3047	2	521	35						555	555	47	48						48	48	11	1						6	A	6	A	6	A
merge		3254	2	139	176						314	314	48	47						48	48	3	4						3	A	3	A	3	A
diverge	MD 190 Eastbound at I-495	550	2	743	703						1446	1446	6	8						7	7	125	95						110	F	110	F	110	F
weave		554	4	102	662	333	193				1290	1290	40	42	42	38				41	41	3	16	8	5				8	A	8	A	8	A
merge		582	3	628	708	412					1748	1748	42	42	43					43	43	15	17	10					14	B	14	B	14	B
diverge	MD 190 Westbound at I-495	450	3	563	838	352					1753	1753	38	39	40					39	39	15	22	9					15	B	15	B	15	B
weave		316	3	600	508	200					1308	1308	33	38	41					37	37	19	14	5					12	B	12	B	12	B
diverge	MD 187 Northbound at I-495	790	3	484	393	327					1204	1204	9	8	5					7	7	68	79	102					83	F	83	F	83	F
merge		1654	3	567	445	164					1175	1175	36	37	39					37	37	16	12	4					11	B	11	B	11	B
diverge	MD 187 Southbound at I-495	1642	3	680	672	838					2189	2189	11	12	13					12	12	112	91	87					97	F	97	F	97	F
merge		796	3	875	783	461					2119	2119	35	36	36					36	36	25	22	13					20	C	20	C	20	C
weave	MD 355 Northbound at I-495	1654	3	315	401	832					1548	1548	35	34	33					34	34	9	12	26					16	B	16	B	16	B
weave		370	4	216	719	318	233				1485	1485	42	42	43	43				43	43	5	17	8	6				9	A	9	A	9	A
diverge	MD 355 Southbound at I-495	204	4	902	703	698	647				2950	2950	42	42	36	35				39	39	22	17	20	19				19	B	19	B	19	B
merge		781	4	1023	860	721	605				3209	3209	22	22	22	22				22	22	46	39	33	28				37	E	40	E	40	E

Arterial Segments - 2027 No-build - 9-10 AM

VISSIM Lookup Data				Volume									Speed								Density									
				Volume Per Lane							Across All Lanes	Overall Volume	Speed Per Lane							Across All Lanes	Overall Speed	Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)							Total Volume	Average Volume (veh/hr)	Speed (mph)							Average Speed	Average Speed (mph)	Combined Density (pcphpl)							Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
diverge	MD 117 Eastbound at I-270	495	3	563	719	462					1744	1744	32	32	32					32	32	18	23	15					19	B	19	B	19	B
weave	I-370 Eastbound	623	4	234	736	416	330				1717	1717	49	49	48	51				50	50	5	15	9	7				9	A	9	A	9	A
diverge		625	3	345	391	255					991	991	49	50	51					50	50	7	8	5					7	A	7	A	7	A
weave		667	5	277	1154	990	405	260			3085	3085	51	52	52	53	53			52	52	6	23	19	8	5			12	B	12	B	12	B
diverge	I-370 Westbound at I-270	461	4	1035	504	386	1757				3682	3682	51	52	54	52				52	52	21	10	7	35				18	B	13	B	13	B
diverge		1411	3	180	366	1750					2296	2296	54	54	52					53	53	3	7	34					15	B	15	B	15	B
weave		623	3	576	291	544					1410	1410	52	53	53					53	53	11	6	10					9	A	9	A	9	A
diverge	Shady Grove Rd Eastbound at I-270	248	4	282	577	260	259				1378	1378	35	32	35	35				34	34	8	18	8	7				10	B	11	B	11	B
diverge		482	4	280	293	385	414				1372	1372	34	35	35	35				35	35	8	9	11	12				10	B	9	A	9	A
merge		271	4	112	503	392	381				1388	1388	34	36	37	36				36	36	3	14	11	11				10	B	9	A	9	A
diverge	Shady Grove Rd Westbound at I-270	490	4	417	281	241	227				1167	1167	18	21	19	19				19	19	24	14	13	12				15	B	17	B	17	B
weave		615	4	497	340	421	447				1705	1705	34	32	32	31				32	32	15	11	13	14				13	B	13	B	13	B
diverge	MD 28 Eastbound at I-270	1745	3	1023	547	217					1787	1787	26	26	27					26	26	40	21	8					23	C	23	C	23	C
diverge		487	3	80	611	566					1257	1257	27	26	26					26	26	3	24	22					16	B	16	B	16	B
diverge	MD 28 Westbound at I-270	320	3	273	663	138					1074	1074	13	14	8					12	12	22	47	18					29	D	29	D	25	C
		101	3	249	575	233					1057	1057	24	24	24					24	24	10	24	10					15	B	15	B		
		43	3	273	813	248					1333	1333	25	23	27					25	25	11	36	9					19	B	19	B		
weave		489	3	490	1042	611					2142	2142	24	24	25					25	25	21	43	24					29	C	29	C	29	C
merge		235	3	900	702	280					1881	1881	25	26	27					26	26	36	28	10					25	C	25	C	25	C
diverge	MD 189 Eastbound at I-270	249	3	300	280	632					1211	1211	27	27	27					27	27	11	11	24					15	B	15	B	15	B
merge		72	3	565	241	293					1099	1099	27	28	27					27	27	21	9	11					14	B	14	B	14	B
		334	3	555	273	293					1121	1121	27	28	27					27	27	21	10	11					14	B	14	B		
diverge	MD 189 Westbound at I-270	361	3	188	361	394					943	943	27	27	26					27	27	7	14	15					12	B	12	B	12	B
merge		519	3	77	600	263					940	940	27	26	26					26	26	3	23	10					12	B	12	B	12	B
diverge	Montrose Rd Eastboundat I-270	816	3	555	633	325					1512	1512	37	37	38					37	37	15	17	9					14	B	14	B	14	B
weave		314	3	564	1019	432					2015	2015	32	34	36					34	34	18	31	12					20	B	20	B	20	B
merge		1393	3	569	896	794					2259	2259	38	36	37					37	37	15	25	22					21	C	21	C	21	C
diverge	Montrose Rd Westbound at I-270	315	3	881	768	750					2398	2398	32	34	35					34	34	28	23	22					24	C	24	C	24	C
weave		405	3	760	533	396					1689	1689	31	33	35					33	33	25	17	11					18	B	18	B	18	B
merge		191	3	59	421	401					881	881	31	36	37					35	35	2	12	11					8	A	8	A	8	A
diverge	MD 187 Northbound at I-270 East Spur	292	6	355	303	303	355	145	35		1495	1495	8	7	7	8	8	3		7	7	44	42	44	45	19	14		35	E	43	F	43	F
merge		263	5	100	495	358	344	350			1645	1645	32	35	36	37	37			35	35	3	14	10	9	10			9	A	9	A	9	A
diverge	MD 187 Southbound at I-270 East Spur	302	4	386	637	579	703				2305	2305	35	35	34	34				34	34	11	19	17	21				17	B	16	B	16	B
diverge		165	5	569	494	532	576	116			2288	2288	29	27	27	28	34			29	29	20	19	20	21	4			17	B	20	C	20	C
diverge		161	6	605	481	511	499	158	55		2309	2309	20	9	10	10	34	31		19	19	31	52	53	53	5	2		32	D	45	F	45	F
diverge	Democracy Blvd Eastbound at I-270 West Spur	2296	3	627	294	271					1192	1192	39	39	39					39	39	16	8	7					10	B	10	B	10	B
diverge		605	3	418	393	410					1221	1221	23	21	21					22	22	19	19	20					19	B	19	B	19	B
diverge	Democracy Blvd Westbound at I-270 West Spur	857	4	263	214	139	243				859	859	43	43	43	43				43	43	6	5	3	6				5	A	5	A	5	A
merge		2127	4	232	278	219	134				863	863	41	43	43	43				42	42	6	7	5	3				5	A	6	A	6	A
merge	VA 193 Eastbound at I-270 East Spur	299	3	367	596	67					1030	1030	25	32	34					30	30	15	19	2					12	B	12	B	12	B
merge	VA 193 Westbound at I-270 East Spur	452	2	343	323						666	666	30	33						31	31	12	10						11	B	11	B	11	B
merge	G.W. Memorial Pkwy Eastbound at I-495	968	3	574	838	717					2129	2129	46	47	48					47	47	13	18	15					15	B	15	B	15	B
		418	3	68	1090	962					2120	2120	44	47	48					46	46	2	24	20					15	B	15	B		
diverge	G.W. Memorial Pkwy Westbound at I-495	2359	2	1168	1159						2326	2326	8	12						10	10	146	99						122	F	122	F	122	F
weave	Clara Barton Pkwy Eastbound at I-495	6436	2	180	331						511	511	48	47						48	48	4	7						5	A	5	A	5	A
diverge	Clara Barton Pkwy Westbound at I-495	3047	2	447	28						475	475	48	48						48	48	10	1						5	A	5	A	5	A
merge		3254	2	80	91						171	171	48	48						48	48	2	2						2	A	2	A	2	A
diverge	MD 190 Eastbound at I-495	550	2	751	837						1589	1589	5	8						7	7	141	110						125	F	125	F	125	F
weave		554	4	121	773	389	290				1573	1573	40	42	42	37				40	40	3	19	9	8				10	B	10	B	10	B
merge		582	3	607	794	488					1888	1888	42	42	43					43	43	15	19	12					15	B	15	B	15	B
diverge	MD 190 Westbound at I-495	450	3	569	807	375					1751	1751	39	39	40					39	39	15	21	9					15	B	15	B	15	B
weave		316	3	500	497	263					1260	1260	36	39	41					39	39	14	13	7					11	A	11	A	11	A
diverge	MD 187 Northbound at I-495	790	3	450	361	303					1114	1114	8	7	5					7	7	83	92	112					96	F	96	F	96	F
merge		1654	3	530	425	156					1111	1111	36	37	38					37	37	15	12	4					10	B	10	B	10	B
diverge	MD 187 Southbound at I-495	1642	3	693	599	643					1935	1935	16	17	17					17	17	78	63	76					72	F	72	F	72	F
merge		796	3	693	659	406					1757	1757	35	36	36					36	36	20	18	11					17	B	17	B	17	B
weave	MD 355 Northbound at I-495	1654	3	271	337	701					1308	1308	35	35	33					34	34	8	10	22					13	B	13	B	13	B
weave		370	4	215	711	289	217				1432	1432	42	43	43	43				43	43	5	17	7	5				9	A	9	A	9	A
diverge	MD 355 Southbound at I-495	204	4	877	616	629	488				2610	2610	42	42	38	37				40	40	21	15	17	14				17	B	15	B	15	B
merge		781	4	882	776	653	534				2846	2846	23	23	23	22				23	23	38	34	29	24				31	D	34	D	34	D

I-495 Inner Loop - 2027 No Build 3-4 PM

VISSIM Lookup Data				Volume								Speed									Density															
				Volume Per Lane							Across All Lanes	Overall Volume	Speed Per Lane							Across All Lanes	Overall Speed	Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)							Total Volume	Average Volume (veh/hr)	Speed (mph)							Average Speed	Average Speed (mph)	Combined Density (pcphpl)							Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Btw VA 267 & VA 193	2184	5	224	1424	1298	985	904			4835	4835	59	58	58	59	59			59	59	4	25	23	17	16			17	B	17	B	17	B
diverge		1468	5	263	1496	1222	973	882			4836	4836	59	57	57	58	59			58	58	5	27	22	17	15			17	B	18	B	18	B
basic	VA 193 interchange	2206	4	1381	1165	1001	941				4488	4488	52	51	51	52				52	52	28	24	20	19				23	C	23	C	23	C
merge		354	6	137	1052	1378	1135	1007	991		5701	5701	21	33	39	39	40	42		36	36	14	38	40	35	30	27		31	D	31	D	31	D
basic	Btw VA 193 & GWMP	1017	5	903	1226	1461	1072	993			5654	5654	30	28	31	31	33			31	31	36	55	56	43	36			45	F	45	F	45	F
diverge		1526	5	254	1352	1576	1253	1090			5525	5525	19	23	25	26	29			25	25	26	77	78	62	47			58	F	60	F	60	F
basic	GWMP interchange	667	4	1433	1604	1247	1085				5369	5330	23	25	26	25				25	25	83	79	61	62				71	F	71	F	70	F
		665	4	1490	1458	1306	1080				5335		23	25	27	24				25		81	71	60	64				69	F	69	F		
		488	4	1572	1365	1276	1058				5270		25	26	26	23				25		76	65	64	68				68	F	68	F		
weave	Btw GWMP & Clara Barton Pkwy	674	6	1166	1812	1746	1598	1441	660		8423	8423	27	25	25	25	23	25		25	25	50	83	83	80	86	39		70	F	70	F	70	F
diverge		1293	5	923	1817	1865	1900	1902			8408	8408	45	26	26	28	29			31	31	21	80	83	78	76			68	F	62	F	62	F
basic	Clara Barton Pkwy interchange	500	4	1855	1789	1902	1896				7442	7447	27	25	28	28				27	26	79	86	81	79				81	F	81	F	83	F
		706	4	1917	1741	1884	1908				7450		28	23	26	27				26		78	90	85	82				84	F	84	F		
merge	Btw Clara Barton Pkwy & MD 190	1511	5	1088	1228	1473	1830	1964			7583	7555	17	13	16	22	25			18	18	73	118	110	93	85			96	F	100	F	98	F
		777	5	654	1266	1604	1906	2071			7501		13	13	16	23	27			18		54	118	110	90	81			90	F	94	F		
basic		3461	4	1839	1855	1881	1849				7424	7419	21	22	22	21				21	21	95	89	89	93				91	F	91	F	93	F
		1064	4	1952	1864	1826	1761				7403		22	20	19	18				20		93	96	100	104				98	F	98	F		
diverge		400	5	539	1581	1740	1780	1735			7375	7375	40	17	18	18	17			22	22	14	94	99	102	105			83	F	69	F	69	F
basic	MD 190 interchange	1943	4	1547	1683	1752	1747				6729	6729	14	16	17	17				16	16	117	110	107	107				110	F	110	F	110	F
merge		1495	5	1288	1506	1701	1776	1789			8060	8060	9	13	15	17	17			14	14	139	123	112	108	107			118	F	125	F	125	F
basic		621	5	1167	1518	1739	1778	1830			8033	8033	8	13	16	17	18			14	14	143	121	109	107	104			117	F	117	F	117	F
merge	Btw MD 190 & I-270 West Spur	1123	6	853	1152	1766	1768	1751	1901		9191	9191	7	9	16	17	16	19		14	14	135	131	110	107	108	100		115	F	125	F	125	F
basic		398	5	1668	1813	1851	1819	1855			9006	9130	26	22	19	18	22			21	39	65	84	100	102	87			88	F	88	F	52	F
		1764	5	1382	1356	2150	2228	2042			9158		48	43	40	40	44			43		29	32	55	57	47			44	E	44	E		
weave		732	6	1355	1303	1899	2061	1748	814		9180	9187	53	53	49	49	53	55		52	53	26	25	40	43	33	15		30	D	30	D	29	D
		2474	6	1414	1438	1434	1883	1948	1074		9189		54	54	55	52	53	55		54		27	27	27	37	37	20		29	D	29	D		
basic	Btw I-270 West Spur & MD 187	6705	3	1405	1433	1419					4257	4256	53	54	54					54	54	27	27	27					27	D	27	D	27	D
		1173	3	1418	1429	1405					4252		53	54	55					54		27	27	26					27	D	27	D		
diverge		305	4	184	1392	1319	1356				4252	4252	43	40	43	49				44	44	4	35	31	28				25	C	24	C	24	C
basic	MD 187 interchange	2021	3	1152	1287	1355					3794	3794	53	54	54					54	54	22	24	25					24	C	24	C	24	C
merge	Btw MD 187 & I-270 East Spur	440	4	91	1285	1308	1360				4044	4044	50	53	54	55				53	53	2	25	24	25				19	B	17	B	17	B
basic		659	3	620	1570	1859					4049	4049	53	53	53					53	53	12	30	36					26	D	26	D	26	D
diverge		1113	3	262	1860	1933					4055	4055	53	47	48					49	49	5	40	41					29	D	29	D	29	D
basic	I-270 East Spur interchange	1519	2	1843	1875						3718	3718	49	50						50	50	38	38						38	E	38	E	38	E
weave		1951	4	1963	1744	1563	1371				6641	6641	51	53	60	61				56	56	39	33	27	23				31	D	31	D	31	D
weave		513	6	129	2036	1782	1848	1554	332		7681	7681	46	48	50	57	55	52		51	51	3	44	37	34	29	7		26	C	26	C	26	C
basic		1013	5	2174	1772	2002	1721	42			7710	7704	45	48	53	50	48			49	47	50	39	39	36	1			33	D	33	D	35	E
		1002	5	2108	1797	2012	1762	20			7699		43	44	48	46	48			46		52	44	44	42	1			36	E	36	E		
merge	Btw I-270 East Spur & MD 185	522	5	2074	1779	2023	1750	11			7636	7636	40	41	46	43	42			42	42	55	47	48	45	0			39	E	31	D	31	D
basic		1603	4	2041	1790	2011	1770				7611	7604	37	37	41	38				38	38	58	51	53	49				53	F	53	F	54	F
		252	4	2027	1782	1982	1769				7559		34	33	36	34				34		62	57	58	55				58	F	58	F		
basic	ML- Btw VA 267 & VA 193	2189	2	768	760						1528	1528	64	64						64	64	12	12						12	B	12	B	12	B
		1496	2	767	761						1528		64	64						64		12	12						12	B	12	B		
		2215	2	763	765						1528		64	64						64		12	12						12	B	12	B		
		928	2	715	815						1529		64	64						64		11	13						12	B	12	B		
diverge	ML - Btw VA 193 & GWMP	812	3	712	706	112					1529	1529	64	64	62					63	63	11	11	2					8	A	8	A	8	A
basic		1860	2	876	525						1401	1401	62	62						62	62	14	9						11	B	11	B	11	B
basic		1146	1	1400							1400	1400	43							43	43	34							34	D	34	D	34	D

I-495 Inner Loop - 2027 No Build 4-5 PM

VISSIM Lookup Data				Volume									Speed									Density											
				Volume Per Lane							Across All Lanes	Overall Volume	Speed Per Lane							Across All Lanes	Overall Speed	Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)							Total Volume	Average Volume (veh/hr)	Speed (mph)							Average Speed	Average Speed (mph)	Combined Density (pcphpl)							Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Btw VA 267 & VA 193	2184	5	265	1379	1297	1040	996			4977	4977	53	41	40	40	42			43	43	5	39	38	31	28			28	D	28	D	28	D
diverge		1468	5	329	1263	1150	1055	1088			4883	4883	47	25	25	26	28			30	30	8	78	73	66	59			57	F	53	F	53	F
basic	VA 193 interchange	2206	4	999	1053	1107	1260				4419	4419	17	18	20	22				19	19	114	105	98	87				101	F	101	F	101	F
merge		354	6	418	633	910	978	1124	1379		5442	5442	10	12	15	16	18	22		15	15	133	145	140	131	119	102		128	F	139	F	139	F
basic	Btw VA 193 & GWMP	1017	5	1052	764	1076	1184	1386			5462	5462	16	12	14	16	20			16	16	106	150	137	118	97			122	F	122	F	122	F
diverge		1526	5	557	841	1154	1300	1588			5440	5440	8	9	12	15	23			14	14	90	152	138	110	78			113	F	126	F	126	F
basic	GWMP interchange	667	4	1150	1294	1315	1622				5382	5370	11	13	17	22				15	16	134	122	90	81				107	F	107	F	97	F
		665	4	1206	1258	1427	1489				5379		11	14	19	19				16		119	98	78	82				94	F	94	F		
		488	4	1350	1260	1408	1325				5342		14	16	19	16				16		104	82	78	88				88	F	88	F		
weave	Btw GWMP & Clara Barton Pkwy	674	6	1436	1614	1614	1632	1271	932		8499	8499	20	16	16	15	11	16		16	16	74	106	101	109	117	62		95	F	95	F	95	F
diverge		1293	5	1326	1768	1755	1844	1825			8519	8519	41	18	17	19	19			23	23	33	99	104	100	99			87	F	79	F	79	F
basic	Clara Barton Pkwy interchange	500	4	1850	1715	1799	1814				7178	7191	19	16	17	18				18	18	100	109	105	103				104	F	104	F	105	F
		706	4	1939	1656	1770	1835				7200		21	15	17	18				18		96	113	107	103				105	F	105	F		
merge	Btw Clara Barton Pkwy & MD 190	1511	5	1303	1058	1327	1753	1922			7363	7367	14	8	10	16	20			14	14	95	143	132	109	99			116	F	124	F	119	F
		777	5	812	1099	1499	1888	2077			7375		12	8	12	19	24			15		69	136	127	100	89			104	F	111	F		
basic		3461	4	1789	1851	1886	1840				7366	7370	18	20	20	19				19	19	102	95	95	100				98	F	98	F	99	F
		1064	4	1944	1888	1805	1748				7384		21	19	17	16				18		97	100	106	109				103	F	103	F		
diverge		400	5	576	1579	1750	1750	1726			7381	7381	39	17	17	16	16			21	21	15	97	103	108	109			86	F	72	F	72	F
basic	MD 190 interchange	1943	4	1544	1671	1732	1731				6679	6679	13	15	16	16				15	15	121	113	111	111				114	F	114	F	114	F
merge		1495	5	1247	1494	1690	1764	1784			7980	7980	9	12	15	16	17			14	14	142	124	113	109	107			119	F	126	F	126	F
basic		621	5	1142	1502	1726	1766	1827			7962	7962	8	13	16	17	18			14	14	145	122	110	108	104			118	F	118	F	118	F
merge	Btw MD 190 & I-270 West Spur	1123	6	865	1141	1767	1758	1735	1891		9156	9156	7	9	16	17	16	19		14	14	134	133	110	108	109	100		116	F	126	F	126	F
basic		398	5	1655	1812	1839	1821	1852			8978	9097	26	22	19	18	22			21	40	65	84	100	101	87			88	F	88	F	51	F
		1764	5	1340	1322	2165	2249	2048			9124		49	44	41	41	45			44		28	31	54	56	46			43	E	43	E		
weave		732	6	1305	1263	1906	2091	1761	812		9138	9131	53	54	51	51	54	55		53	53	25	24	38	41	33	15		29	D	29	D	29	D
		2474	6	1357	1409	1411	1910	1969	1074		9129		52	53	53	52	53	54		53		27	27	27	37	38	20		29	D	29	D		
basic	Btw I-270 West Spur & MD 187	6705	3	1307	1325	1324					3955	3919	35	35	36					35	34	43	43	42					43	E	43	E	46	F
		1173	3	1245	1226	1238					3710		25	25	26					25		65	65	63					64	F	64	F		
diverge		305	4	188	1195	1086	1178				3647	3647	37	19	18	21				24	24	5	75	76	70				57	F	52	F	52	F
basic	MD 187 interchange	2021	3	1026	995	1133					3154	3154	15	14	17					15	15	82	90	83					85	F	85	F	85	F
merge	Btw MD 187 & I-270 East Spur	440	4	166	1078	949	1100				3293	3293	11	14	11	14				12	12	15	91	103	94				76	F	70	F	70	F
basic		659	3	849	1061	1327					3237	3237	13	11	14					13	13	71	113	105					96	F	96	F	96	F
diverge		1113	3	484	1258	1433					3175	3175	10	12	14					12	12	52	114	108					91	F	91	F	91	F
basic	I-270 East Spur interchange	1519	2	1425	1458						2883	2883	14	14						14	14	107	108						107	F	107	F	107	F
weave		1951	4	1330	1335	1454	1412				5531	5531	12	12	16	16				14	14	123	115	96	94				107	F	107	F	107	F
weave		513	6	286	1214	1334	1623	1416	637		6510	6510	12	10	11	16	13	45		18	18	26	130	122	106	111	14		85	F	85	F	85	F
basic		1013	5	1487	1477	1624	1425	485			6497	6466	13	14	15	12	22			15	15	120	108	109	119	22			96	F	96	F	98	F
		1002	5	1512	1554	1571	1402	394			6434		13	14	14	11	18			14		122	116	116	127	24			101	F	101	F		
merge	Btw I-270 East Spur & MD 185	522	5	1516	1565	1597	1369	274			6321	6321	13	14	14	11	10			12	12	122	117	118	125	31			103	F	91	F	91	F
basic		1603	4	1536	1545	1583	1627				6291	6294	13	14	14	15				14	14	118	115	112	108				113	F	113	F	114	F
		252	4	1591	1524	1563	1635				6313		14	13	14	15				14		116	117	114	110				114	F	114	F		
basic	ML- Btw VA 267 & VA 193	2189	2	760	752						1512	1510	64	64						64	64	12	12						12	B	12	B	12	B
		1496	2	759	752						1511		64	64						64		12	12						12	B	12	B		
		2215	2	758	751						1509		64	64						64		12	12						12	B	12	B		
		928	2	714	794						1508		64	64						64		11	13						12	B	12	B		
diverge	ML - Btw VA 193 & GWMP	812	3	710	703	97					1509	1509	64	64	62					63	63	11	11	2					8	A	8	A	8	A
basic		1860	2	872	532						1404	1404	62	61						62	62	14	9						12	B	12	B	12	B
basic		1146	1	1407							1407	1407	41							41	41	35							35	E	35	E	35	E

I-495 Inner Loop - 2027 No Build 5-6 PM

VISSIM Lookup Data				Volume									Speed								Density							
				Volume Per Lane						Across All Lanes	Overall Volume		Speed Per Lane						Across All Lanes	Overall Speed	Density Per Lane						Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)						Total Volume	Average Volume (veh/hr)		Speed (mph)						Average Speed	Average Speed (mph)	Combined Density (pcphpl)						Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Btw VA 267 & VA 193	2184	5	487	909	889	927	1055		4268	4268		15	11	10	11	14		12	12	40	114	117	103	91		93	F	93	F	93	F
diverge		1468	5	335	815	873	952	1126		4100	4100		13	7	8	9	11		10	10	37	142	133	122	108		108	F	104	F	104	F
basic	VA 193 interchange	2206	4	727	837	963	1194			3721	3721		5	7	8	11			8	8	151	140	129	112			133	F	133	F	133	F
merge		354	6	401	411	606	783	972	1322	4495	4495		2	2	3	5	7	11	5	5	172	183	180	166	152	129	164	F	179	F	179	F
basic	Btw VA 193 & GWMP	1017	5	855	463	775	1024	1360		4477	4477		6	2	5	7	11		6	6	152	194	174	153	122		159	F	159	F	159	F
diverge		1526	5	532	483	779	1092	1531		4416	4416		4	3	5	8	17		7	7	137	193	175	144	95		149	F	168	F	168	F
basic	GWMP interchange	667	4	812	882	1061	1581			4336	4304		5	6	9	17			9	10	171	159	122	96			137	F	137	F	125	F
		665	4	871	922	1132	1392			4318			6	7	12	15			10		150	130	103	98			120	F	120	F		
		488	4	995	959	1167	1119			4240			8	9	12	10			10		136	109	98	114			114	F	114	F		
weave	Btw GWMP & Clara Barton Pkwy	674	6	1208	1181	1207	1351	980	752	6678	6678		12	9	10	11	7	8	10	10	103	136	127	129	142	100	123	F	123	F	123	F
diverge		1293	5	1258	1249	1286	1388	1455		6636	6636		23	10	10	11	12		13	13	58	137	137	131	126		118	F	111	F	111	F
basic	Clara Barton Pkwy interchange	500	4	1343	1219	1341	1446			5348	5348		11	9	10	12			10	10	136	144	136	129			136	F	136	F	137	F
		706	4	1391	1171	1323	1463			5348			11	8	10	12			10		134	147	138	128			137	F	137	F		
merge	Btw Clara Barton Pkwy & MD 190	1511	5	934	709	960	1302	1518		5423	5395		7	4	6	10	13		8	8	137	173	160	139	125		147	F	157	F	154	F
		777	5	602	744	1047	1363	1585		5341			5	5	7	11	14		8		125	163	156	132	119		139	F	148	F		
basic		3461	4	1324	1241	1274	1372			5211	5184		10	10	10	11			10	10	136	140	139	133			137	F	137	F	138	F
		1064	4	1410	1223	1181	1285			5099			11	9	8	9			10		133	146	149	141			142	F	142	F		
diverge		400	5	480	1071	1092	1123	1262		5029	5029		35	8	8	8	9		14	14	14	141	152	152	143		120	F	102	F	102	F
basic	MD 190 interchange	1943	4	1065	1008	1089	1264			4425	4425		7	7	7	9			8	8	156	161	156	143			154	F	154	F	154	F
merge		1495	5	749	1026	979	1092	1274		5119	5119		4	7	6	7	9		7	7	180	159	164	155	142		160	F	167	F	167	F
basic		621	5	684	1039	960	1074	1272		5030	5030		4	7	6	7	9		7	7	183	156	164	155	141		160	F	160	F	160	F
merge	Btw MD 190 & I-270 West Spur	1123	6	619	716	1125	947	1049	1286	5742	5742		4	4	8	6	7	10	6	6	169	170	153	165	156	140	159	F	164	F	164	F
basic		398	5	1165	1078	974	1082	1280		5579	5583		12	9	7	8	11		9	11	110	133	155	146	118		132	F	132	F	119	F
		1764	5	997	839	998	1203	1548		5584			13	9	8	10	19		12		94	116	150	136	86		116	F	116	F		
weave		732	6	837	771	839	1080	1422	520	5468	5345		9	8	7	11	24	47	18	19	132	128	144	109	61	11	97	F	97	F	103	F
		2474	6	701	780	618	972	1583	655	5309			5	5	4	15	32	55	19		161	154	164	84	54	12	105	F	105	F		
basic	Btw I-270 West Spur & MD 187	6705	3	601	616	793				2009	1996		3	3	5				4	4	189	187	173				183	F	183	F	183	F
		1173	3	585	570	767				1922			3	3	5				4		193	190	174				185	F	185	F		
diverge		305	4	179	519	496	726			1921	1921		25	3	3	4			9	9	7	194	194	178			143	F	132	F	132	F
basic	MD 187 interchange	2021	3	512	464	721				1696	1696		3	2	4				3	3	201	201	181				194	F	194	F	194	F
merge	Btw MD 187 & I-270 East Spur	440	4	299	536	461	740			2036	2036		5	3	2	4			4	4	85	183	201	178			162	F	156	F	156	F
basic		659	3	820	463	768				2051	2051		6	2	5				4	4	138	200	177				172	F	172	F	172	F
diverge		1113	3	582	588	884				2054	2054		6	3	5				5	5	112	184	170				155	F	155	F	155	F
basic	I-270 East Spur interchange	1519	2	946	988					1934	1934		6	7					6	6	162	162					162	F	162	F	162	F
weave		1951	4	889	997	1222	1215			4323	4323		6	7	10	9			8	8	168	158	131	135			148	F	148	F	148	F
weave		513	6	196	836	1018	1402	1095	817	5365	5365		8	5	7	11	8	37	13	13	27	166	153	133	150	23	109	F	109	F	109	F
basic		1013	5	1149	1179	1349	996	717		5391	5400		8	9	10	7	16		10	10	149	136	134	158	50		126	F	126	F	127	F
		1002	5	1241	1317	1308	936	608		5409			9	10	10	6	12		9		145	138	139	164	59		129	F	129	F		
merge	Btw I-270 East Spur & MD 185	522	5	1274	1371	1382	941	462		5430	5430		9	10	10	6	7		9	9	141	135	135	154	81		129	F	123	F	123	F
basic		1603	4	1334	1348	1375	1448			5505	5508		11	11	11	12			11	11	131	130	128	121			128	F	128	F	128	F
		252	4	1417	1300	1353	1459			5528			12	10	11	12			11		129	133	130	122			129	F	129	F		
basic	ML- Btw VA 267 & VA 193	2189	2	735	723					1459	1450		64	64					64	60	12	12					12	B	12	B	14	B
		1496	2	733	726					1459			64	64					64		12	11					12	B	12	B		
		2215	2	725	723					1448			57	56					57		14	14					14	B	14	B		
		928	2	667	755					1422			53	53					53		21	22					21	C	21	C		
diverge	ML - Btw VA 193 & GWMP	812	3	648	634	114				1396	1396		42	41	35				39	39	27	28	16				24	C	24	C	24	C
basic		1860	2	722	486					1208	1208		19	15					17	17	55	52					54	F	54	F	54	F
basic		1146	1	1134						1134	1134		15						15	15	85						85	F	85	F	85	F

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VISSIM Lookup Data				Volume									Speed									Density									
				Volume Per Lane							Across All Lanes	Overall Volume	Speed Per Lane							Across All Lanes	Overall Speed	Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)							Total Volume	Average Volume (veh/hr)	Speed (mph)							Average Speed	Average Speed (mph)	Combined Density (pcphpl)							Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Btw VA 267 & VA 193	2184	5	483	373	418	647	912			2832	2832	5	2	2	4	7			4	4	106	186	187	164	143			157	F	157	F	157	F
diverge		1468	5	312	340	529	700	997			2878	2878	4	2	3	4	7			4	4	94	196	178	164	141			155	F	156	F	156	F
basic	VA 193 interchange	2206	4	401	535	728	1053				2717	2717	2	3	5	8				4	4	191	178	162	138				167	F	167	F	167	F
merge		354	6	235	213	346	525	739	1122		3180	3180	1	1	2	3	4	8		3	3	199	205	208	194	177	149		189	F	204	F	204	F
basic	Btw VA 193 & GWMP	1017	5	506	250	516	770	1145			3186	3186	3	1	3	5	9			4	4	183	214	196	173	136			180	F	180	F	180	F
diverge		1526	5	332	271	481	812	1315			3211	3211	2	1	3	5	13			5	5	166	212	198	167	104			170	F	192	F	192	F
basic	GWMP interchange	667	4	541	540	804	1302				3186	3196	3	3	6	12				6	6	192	182	150	114				159	F	159	F	146	F
		665	4	588	647	859	1109				3203		4	5	7	10				6		170	150	124	116				140	F	140	F		
		488	4	726	745	908	821				3200		5	6	8	6				6		156	133	121	137				136	F	136	F		
weave	Btw GWMP & Clara Barton Pkwy	674	6	1085	928	983	1120	765	708		5589	5589	10	6	7	8	5	6		7	7	115	153	146	147	158	118		139	F	139	F	139	F
diverge		1293	5	1084	1056	1047	1179	1308			5674	5674	19	7	7	8	10			10	10	61	153	156	147	137			131	F	123	F	123	F
basic	Clara Barton Pkwy interchange	500	4	1177	1016	1168	1322				4683	4698	8	7	8	10				8	8	147	157	148	137				147	F	147	F	147	F
		706	4	1213	977	1170	1349				4709		9	6	8	10				8		144	160	149	135				147	F	147	F		
merge	Btw Clara Barton Pkwy & MD 190	1511	5	855	565	841	1191	1407			4859	4880	6	3	5	8	11			7	7	148	186	169	148	132			157	F	168	F	164	F
		777	5	611	639	952	1244	1475			4922		5	4	6	9	12			7		138	169	162	139	124			147	F	157	F		
basic		3461	4	1330	1217	1177	1284				5008	5033	10	9	9	10				9	9	135	141	145	137				140	F	140	F	140	F
		1064	4	1491	1241	1141	1239				5112		12	9	8	9				10		127	144	152	144				142	F	142	F		
diverge		400	5	561	1130	1111	1111	1231			5144	5144	35	9	8	8	9			14	14	16	134	149	153	144			119	F	100	F	100	F
basic	MD 190 interchange	1943	4	1160	1049	1092	1235				4536	4536	8	7	7	9				8	8	149	158	155	144				152	F	152	F	152	F
merge		1495	5	834	1167	1077	1097	1263			5438	5438	5	8	7	7	9			7	7	172	148	156	155	142			155	F	159	F	159	F
basic		621	5	800	1199	1093	1101	1285			5478	5478	5	9	8	8	10			8	8	172	144	154	153	139			153	F	153	F	153	F
merge	Btw MD 190 & I-270 West Spur	1123	6	720	851	1331	1099	1085	1318		6405	6405	5	6	10	8	7	10		8	8	159	156	137	152	153	137		149	F	151	F	151	F
basic		398	5	1387	1307	1145	1135	1314			6288	6406	16	12	9	8	12			11	14	92	116	141	141	115			121	F	121	F	109	F
		1764	5	1315	1093	1139	1261	1624			6433		22	14	9	10	19			15		70	92	142	135	90			106	F	106	F		
weave		732	6	1297	966	1015	1136	1516	562		6491	6569	20	14	10	11	24	46		21	23	93	97	122	113	71	12		85	F	85	F	83	F
		2474	6	1124	990	840	1228	1674	736		6592		16	14	11	19	31	54		24		113	111	119	75	63	14		82	F	82	F		
basic	Btw I-270 West Spur & MD 187	6705	3	1054	1055	1110					3218	3251	10	10	11					10	10	129	129	123					127	F	127	F	128	F
		1173	3	1107	1103	1232					3442		9	9	11					10		138	137	128					135	F	135	F		
diverge		305	4	312	1023	974	1168				3477	3477	22	9	8	10				12	12	16	136	138	129				105	F	97	F	97	F
basic	MD 187 interchange	2021	3	1003	945	1091					3039	3039	9	8	10					9	9	131	138	130					133	F	133	F	133	F
merge	Btw MD 187 & I-270 East Spur	440	4	268	1054	961	1121				3404	3404	15	9	7	9				10	10	26	132	146	135				110	F	101	F	101	F
basic		659	3	1146	1060	1226					3432	3432	13	9	10					11	11	97	144	134					125	F	125	F	125	F
diverge		1113	3	723	1283	1480					3486	3486	16	12	14					14	14	57	125	121					101	F	101	F	101	F
basic	I-270 East Spur interchange	1519	2	1527	1600						3128	3128	18	19						19	19	102	102						102	F	102	F	102	F
weave		1951	4	1511	1530	1521	1535				6098	6098	16	18	22	24				20	20	112	102	81	76				93	F	93	F	93	F
weave		513	6	73	1426	1475	1758	1633	605		6970	6970	20	14	16	21	21	46		23	23	5	121	106	92	91	13		71	F	71	F	71	F
basic		1013	5	1666	1525	1790	1657	408			7045	7081	17	19	22	20	30			22	22	109	92	90	98	16			81	F	81	F	81	F
		1002	5	1777	1669	1740	1630	300			7116		19	20	21	19	28			21		102	93	96	102	14			81	F	81	F		
merge	Btw I-270 East Spur & MD 185	522	5	1833	1723	1755	1584	190			7086	7086	21	21	20	18	16			19	19	97	93	98	101	17			81	F	72	F	72	F
basic		1603	4	1899	1728	1742	1742				7111	7117	23	21	21	22				22	22	89	91	92	88				90	F	90	F	90	F
		252	4	1991	1712	1720	1733				7157		26	21	21	22				23		83	90	93	90				89	F	89	F		
basic	ML- Btw VA 267 & VA 193	2189	2	714	697						1411	1377	52	52						52	37	41	40						40	E	40	E	67	F
		1496	2	701	686						1387		52	52						52		46	45						45	F	45	F		
		2215	2	686	673						1359		21	21						21		82	82						82	F	82	F		
		928	2	619	705						1324		16	16						16		130	127						128	F	128	F		
diverge	ML - Btw VA 193 & GWMP	812	3	598	376	331					1305	1305	15	14	14					15	15	148	165	145					153	F	153	F	153	F
basic		1860	2	665	514						1179	1179	6	5						5	5	154	162						158	F	158	F	158	F
basic		1146	1	1191							1191	1191	9							9	9	134							134	F	134	F	134	F

I-495 Outer Loop - 2027 No Build 3-4 PM

VISSIM Lookup Data				Volume								Speed									Density									
				Volume Per Lane						Across All Lanes	Overall Volume	Speed Per Lane							Across All Lanes	Overall Speed	Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)						Total Volume	Average Volume (veh/hr)	Speed (mph)							Average Speed	Average Speed (mph)	Combined Density (pcphpl)							Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Btw VA 267 & VA 193	613	5	1422	1462	1527	1426	1295		7132	7095	53	53	53	54	55			53	53	27	28	29	27	24			27	D	27	D	27	D
		345	5	1417	1438	1509	1395	1271		7030		52	52	53	54	55			53		28	28	29	26	23			27	D	27	D		
merge		842	6	98	1400	1437	1494	1411	1285	7126	7126	52	53	53	53	54	55		53	53	2	27	28	29	27	23		23	C	19	B	19	B
merge	VA 193 interchange & GWMP interchange	1316	5	1115	1267	1486	1408	1286		6562	6562	53	54	53	54	56			54	54	21	24	28	26	23			25	C	24	C	24	C
basic		728	4	1281	1490	1415	1270			5456	5472	53	53	54	55				54	54	24	29	27	23				26	D	26	D	26	D
		755	4	1271	1518	1432	1267			5488		53	53	54	56				54		24	29	27	23				26	D	26	D		
diverge		593	5	587	1362	1560	1438	1250		6196	6196	54	53	53	54	56			54	54	11	26	30	27	23			23	C	22	C	22	C
basic		2404	4	1932	1634	1471	1180			6216	6211	52	53	54	56				54	54	37	31	28	21				29	D	29	D	29	D
		840	4	1954	1693	1517	1032			6195		52	53	54	56				54		39	32	28	18				29	D	29	D		
diverge		602	5	2000	1745	1606	1077	1051		7478	7478	50	52	54	55	54			53	53	41	34	30	20	20			29	D	35	E	35	E
basic		284	4	2031	1765	1724	1998			7519	7519	50	52	54	53				52	52	41	34	32	38				36	E	36	E	36	E
weave	Btw GWMP & Clara Barton Pkwy	1524	5	1686	1959	1796	1757	2030		9228	9228	49	48	52	54	54			51	51	35	42	35	33	38			37	E	37	E	37	E
basic	Clara Barton Pkwy interchange	1713	4	2235	1769	1800	2093			7896	7896	43	48	51	50				48	48	52	37	36	42				42	E	42	E	42	E
diverge		922	5	47	2112	1883	1806	2077		7925	7925	53	38	40	42	41			43	43	1	58	48	44	52			41	E	36	E	36	E
basic	Btw Clara Barton Pkwy & MD 190	521	4	1918	1909	1909	2077			7812	7927	42	39	35	31				37	36	47	50	56	69				56	F	56	F	58	F
		3149	4	2009	2023	1972	1942			7946		37	37	35	34				36		56	58	59	62				59	F	59	F		
merge		1788	5	431	1866	1969	1863	1846		7975	7975	37	32	33	36	38			35	35	14	64	66	56	54			51	F	48	F	48	F
basic	MD 190 interchange	2663	4	1872	1753	1701	1664			6989	6989	44	44	46	47				45	45	44	42	39	37				41	E	41	E	41	E
diverge		1585	5	373	2021	1808	1728	1548		7478	7478	56	52	53	55	56			54	54	7	39	35	32	28			28	D	27	C	27	C
diverge		1032	6	755	379	2127	1868	1766	1461	8356	8356	54	55	52	52	55	57		54	54	14	7	42	36	33	26		26	C	21	C	21	C
basic	Btw MD 190 & I-270 West Spur	446	5	1003	2141	1951	1764	1358		8217	8347	54	52	53	55	57			54	54	19	42	38	32	24			31	D	31	D	32	D
		2659	5	1520	2146	2036	1584	1077		8362		51	50	52	56	58			53		31	43	40	29	19			32	D	32	D		
		939	5	2281	2020	1660	1475	931		8366		50	52	55	57	59			54		46	40	31	26	16			32	D	32	D		
weave		554	6	14	2210	2138	1565	1494	937	8358	8358	48	48	51	54	57	58		53	53	0	46	43	29	27	16		27	C	27	C	27	C
basic	Btw I-270 West Spur & MD 187	7657	3	875	1833	1879				4587	4586	53	50	50					51	51	17	37	38					31	D	31	D	30	D
		1085	3	1434	1552	1595				4582		52	53	53					53		28	30	31					29	D	29	D		
merge		406	4	202	1324	1500	1562			4587	4587	51	53	53	53				52	52	4	25	29	30				22	C	19	B	19	B
basic	MD 187 interchange	2022	3	1010	1371	1562				3943	3943	54	53	53					53	53	19	26	30					25	C	25	C	25	C
diverge		325	4	255	1124	1403	1569			4352	4352	52	53	53	53				53	53	5	22	27	30				21	C	18	B	18	B
basic	Btw MD 187 & I-270 East Spur	1192	3	1377	1406	1567				4350	4352	53	53	53					53	53	26	27	30					28	D	28	D	28	D
		913	3	1370	1405	1578				4354		53	53	53					53		26	27	30					28	D	28	D		
		494	3	1222	1469	1662				4352		54	53	53					53		23	28	32					28	D	28	D		
merge		910	4	793	1572	1884	96			4346	4346	51	49	48	48				49	49	16	33	40	2				23	C	25	C	25	C
basic	I-270 East Spur interchange	288	3	526	1453	1814				3792	3792	54	53	53					53	53	10	28	35					24	C	24	C	24	C
diverge		1593	4	1358	2309	1540	1857			7064	7064	53	53	53	53				53	53	26	44	29	36				34	D	33	D	33	D
diverge		402	5	729	1543	2383	1537	1868		8061	8061	52	52	51	53	53			52	52	14	30	47	30	36			31	D	30	D	30	D
basic	Btw I-270 East Spur & MD 185	1045	4	2230	2419	1545	1882			8075	8062	50	50	53	53				52	42	45	49	30	36				40	E	40	E	52	F
		2087	4	2135	2363	1704	1866			8068		43	40	45	51				45		51	60	38	38				47	F	47	F		
		1257	4	2192	2147	1988	1732			8059		30	33	39	45				37		75	66	52	39				58	F	58	F		
		526	4	1924	1940	1992	2160			8016		20	21	26	34				25		98	94	78	64				83	F	83	F		
basic	ML - Btw VA 267 & VA 193	873	2	1067	442					1508	1504	63	65						64	64	17	7						12	B	12	B	12	B
		2286	2	1075	432					1507		63	65						64		17	7						12	B	12	B		
		787	2	1081	417					1497		63	65						64		17	7						12	B	12	B		
		954	2	1094	406					1500		63	64						64		18	7						12	B	12	B		
merge	ML - VA 193 interchange & GWMP interchange	303	3	1069	354	72				1495	1495	63	62	50					58	58	17	6	1					8	A	8	A	8	A
basic		1881	2	1108	200					1308	1308	63	66						65	65	18	3						10	A	10	A	10	A
basic		1423	1	1308						1308	1308	60							60	60	22							22	C	22	C	22	C

I-495 Outer Loop - 2027 No Build 4-5 PM

VISSIM Lookup Data				Volume								Speed									Density									
				Volume Per Lane						Across All Lanes	Overall Volume	Speed Per Lane							Across All Lanes	Overall Speed	Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)						Total Volume	Average Volume (veh/hr)	Speed (mph)							Average Speed	Average Speed (mph)	Combined Density (pcphpl)							Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Btw VA 267 & VA 193	613	5	1323	1362	1465	1451	1291			6891	6855	53	53	53	53	54			53	53	25	26	28	28	24			26	D	26	D	26	D
		345	5	1321	1340	1434	1424	1273			6791		52	53	53	53	54			53		26	26	27	27	24			26	D	26	D		
merge		842	6	85	1314	1336	1412	1444	1294		6886	6886	52	53	53	53	54	55		53	53	2	25	25	27	27	24			22	C	17	B	17	B
merge	VA 193 interchange & GWMP interchange	1316	5	1072	1181	1395	1437	1313			6397	6397	53	54	54	54	55			54	54	20	22	26	27	24			24	C	23	C	23	C
basic		728	4	1171	1401	1433	1313				5319	5336	54	53	53	55				54	54	22	27	27	24				25	C	25	C	25	C
		755	4	1157	1426	1449	1321				5353		54	53	54	55				54		22	27	27	24				25	C	25	C		
diverge		593	5	550	1238	1466	1461	1306			6021	6021	55	54	53	54	55			54	54	10	23	28	28	24			23	C	21	C	21	C
basic		2404	4	1764	1532	1484	1261				6041	6035	53	53	54	55				54	54	34	29	28	23				29	D	29	D	29	D
		840	4	1775	1565	1524	1153				6017		52	53	54	55				54		35	30	29	21				29	D	29	D		
diverge		602	5	1804	1603	1615	1207	983			7213	7213	50	52	53	54	53			53	53	37	31	31	23	19			28	D	33	D	33	D
basic		284	4	1829	1610	1728	2082				7249	7249	50	52	53	53				52	52	37	32	33	40				35	E	35	E	35	E
weave	Btw GWMP & Clara Barton Pkwy	1524	5	1546	1692	1632	1839	2151			8861	8861	36	37	45	50	51			44	44	43	47	37	37	43			42	E	42	E	42	E
basic	Clara Barton Pkwy interchange	1713	4	1669	1606	1862	2134				7272	7272	20	31	40	42				33	33	88	54	48	51				60	F	60	F	60	F
diverge		922	5	28	1762	1729	1767	2015			7300	7300	50	22	27	32	34			33	33	1	82	65	56	60			53	F	49	F	49	F
basic	Btw Clara Barton Pkwy & MD 190	521	4	1759	1784	1776	1879				7198	7329	28	28	26	24				27	25	65	64	68	81				69	F	69	F	74	F
		3149	4	1862	1898	1834	1758				7351		27	27	24	22				25		70	72	76	81				75	F	75	F		
merge		1788	5	561	1620	1744	1759	1723			7407	7407	25	20	21	24	23			23	23	23	84	85	75	76			69	F	64	F	64	F
basic	MD 190 interchange	2663	4	1703	1623	1640	1615				6580	6580	29	28	30	30				29	29	64	64	60	58				62	F	62	F	62	F
diverge		1585	5	527	1846	1700	1666	1538			7279	7279	55	38	38	40	40			42	42	10	54	50	48	44			41	E	38	E	38	E
diverge		1032	6	757	495	2000	1771	1709	1471		8203	8203	54	53	44	44	46	47		48	48	14	9	50	44	41	36		33	D	25	C	25	C
basic	Btw MD 190 & I-270 West Spur	446	5	1069	2042	1873	1713	1392			8088	8228	52	46	46	49	50			49	50	21	49	44	39	33			37	E	37	E	35	E
		2659	5	1526	2066	1990	1554	1107			8244		48	46	48	51	52			49		33	47	44	33	24			36	E	36	E		
		939	5	2218	1971	1665	1463	933			8251		48	50	53	55	56			52		48	41	32	27	17			33	D	33	D		
weave		554	6	13	2133	2050	1593	1489	967		8245	8245	48	49	51	54	56	58		53	53	0	44	41	30	27	17		26	C	26	C	26	C
basic	Btw I-270 West Spur & MD 187	7657	3	842	1749	1763					4355	4353	53	51	51					52	52	16	35	35					29	D	29	D	29	D
		1085	3	1387	1472	1486					4344		52	53	53					53		27	28	29					28	D	28	D		
merge		406	4	205	1279	1417	1454				4355	4355	51	53	53	53				52	52	4	25	27	28				21	C	19	B	19	B
basic	MD 187 interchange	2022	3	951	1287	1452					3690	3690	54	53	53					53	53	18	25	28					23	C	23	C	23	C
diverge		325	4	255	1065	1312	1462				4094	4094	52	53	53	53				53	53	5	21	25	28				20	C	17	B	17	B
basic	Btw MD 187 & I-270 East Spur	1192	3	1313	1314	1463					4089	4090	53	53	53					53	53	25	25	28					26	D	26	D	26	D
		913	3	1307	1315	1469					4091		53	53	53					53		25	25	28					26	D	26	D		
		494	3	1164	1378	1549					4091		54	53	53					53		22	26	30					26	D	26	D		
merge		910	4	775	1476	1760	69				4081	4081	51	49	48	48				49	49	16	31	37	1				21	C	23	C	23	C
basic	I-270 East Spur interchange	288	3	542	1430	1689					3661	3661	54	53	53					53	53	10	27	32					23	C	23	C	23	C
diverge		1593	4	1399	2273	1513	1725				6909	6909	53	53	53	53				53	53	27	44	29	33				33	D	33	D	33	D
diverge		402	5	688	1571	2344	1517	1732			7852	7852	52	52	52	53	53			52	52	14	31	46	29	33			30	D	30	D	30	D
basic	Btw I-270 East Spur & MD 185	1045	4	2217	2379	1526	1739				7862	7837	51	51	53	53				52	43	45	48	29	33				39	E	39	E	49	F
		2087	4	2140	2345	1643	1716				7845		43	42	46	51				45		50	57	36	34				45	F	45	F		
		1257	4	2183	2119	1969	1557				7828		31	34	40	45				37		74	64	51	35				56	F	56	F		
		526	4	1933	2006	1937	1899				7775		25	26	30	37				30		83	80	67	53				71	F	71	F		
basic	ML - Btw VA 267 & VA 193	873	2	993	421						1414	1410	63	65						64	64	16	7						11	B	11	B	11	B
		2286	2	997	415						1412		63	65						64		16	7						11	B	11	B		
		787	2	1000	404						1404		63	65						64		16	6						11	B	11	B		
		954	2	1010	394						1404		63	64						63		16	6						11	B	11	B		
merge	ML - VA 193 interchange & GWMP interchange	303	3	980	352	67					1399	1399	63	62	49					58	58	16	6	1					8	A	8	A	8	A
basic		1881	2	1020	206						1225	1225	63	66						65	65	16	3						10	A	10	A	10	A
basic		1423	1	1225							1225	1225	59							59	59	21							21	C	21	C	21	C

I-495 Outer Loop - 2027 No Build 5-6 PM

VISSIM Lookup Data				Volume								Speed									Density									
				Volume Per Lane						Across All Lanes	Overall Volume	Speed Per Lane							Across All Lanes	Overall Speed	Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)						Total Volume	Average Volume (veh/hr)	Speed (mph)							Average Speed	Average Speed (mph)	Combined Density (pcphpl)							Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Btw VA 267 & VA 193	613	5	1080	1168	1350	1374	1241		6213	6181	53	54	53	53	54			54	54	21	22	26	26	23			24	C	24	C	23	C
		345	5	1071	1136	1334	1358	1225		6124		53	53	53	53	54			53		21	22	25	26	23			23	C	23	C		
merge		842	6	61	1057	1134	1333	1384	1239	6208	6208	53	53	54	53	54	54		54	54	1	20	22	25	26	23		20	C	14	B	14	B
merge	VA 193 interchange & GWMP interchange	1316	5	832	1037	1334	1378	1252		5833	5833	54	54	54	54	55			54	54	16	19	25	26	23			22	C	20	C	20	C
basic		728	4	1038	1342	1378	1253			5012	5025	54	53	54	55				54	54	20	26	26	23				24	C	24	C	24	C
		755	4	1017	1362	1395	1264			5038		54	53	53	54				54		19	26	26	24				24	C	24	C		
diverge		593	5	668	1113	1414	1416	1253		5863	5863	47	48	52	53	54			51	51	18	26	28	27	24			25	C	24	C	24	C
basic		2404	4	1774	1478	1433	1191			5876	5869	51	53	54	55				53	53	35	28	27	22				28	D	28	D	28	D
		840	4	1784	1515	1465	1083			5847		52	53	54	55				53		35	29	28	20				28	D	28	D		
diverge		602	5	1813	1556	1536	1146	949		7000	7000	50	52	53	54	53			53	53	37	30	29	22	18			27	C	32	D	32	D
basic		284	4	1827	1564	1641	2001			7032	7032	50	52	53	53				52	52	37	31	31	39				35	E	35	E	35	E
weave	Btw GWMP & Clara Barton Pkwy	1524	5	1511	1659	1580	1773	2085		8607	8607	35	35	44	50	51			43	43	44	48	37	36	42			41	E	41	E	41	E
basic	Clara Barton Pkwy interchange	1713	4	1559	1524	1805	2078			6965	6965	17	29	38	41				31	31	92	54	48	51				62	F	62	F	62	F
diverge	Btw Clara Barton Pkwy & MD 190	922	5	22	1663	1640	1682	1949		6956	6956	49	22	27	32	35			33	33	0	80	63	53	58			51	F	48	F	48	F
basic		521	4	1660	1680	1690	1814			6844	6898	28	28	26	24				27	25	62	61	66	78				67	F	67	F	73	F
		3149	4	1767	1787	1730	1622			6907		27	26	24	21				25		70	71	75	80				74	F	74	F		
merge		1788	5	530	1503	1605	1650	1570		6857	6857	28	22	23	25	25			24	24	24	84	85	76	76			69	F	64	F	64	F
basic	MD 190 interchange	2663	4	1538	1443	1530	1456			5966	5966	25	23	25	26				25	25	78	82	77	75				78	F	78	F	78	F
diverge		1585	5	450	1531	1472	1515	1406		6375	6375	54	25	25	26	27			31	31	9	77	76	73	70			61	F	54	F	54	F
diverge	Btw MD 190 & I-270 West Spur	1032	6	712	464	1575	1494	1524	1367	7135	7135	53	50	27	27	29	29		36	36	14	10	70	68	64	61		48	F	31	D	31	D
basic		446	5	1011	1612	1547	1519	1302		6992	7060	48	29	29	32	31			34	40	22	66	62	56	53			52	F	52	F	43	E
		2659	5	1351	1650	1627	1382	1072		7082		43	35	37	39	39			39		35	54	52	41	35			43	E	43	E		
		939	5	1808	1592	1425	1303	902		7031		43	45	48	50	53			48		49	42	36	31	21			36	E	36	E		
weave		554	6	36	1681	1659	1414	1340	881	7011	7011	42	44	46	49	51	53		48	48	2	46	42	33	29	19		28	D	28	D	28	D
basic	Btw I-270 West Spur & MD 187	7657	3	720	1407	1419				3546	3540	52	47	48					49	49	14	32	31					26	D	26	D	25	C
		1085	3	1170	1152	1178				3500		53	53	53					53		23	22	23					22	C	22	C		
merge		406	4	207	1067	1084	1141			3499	3499	51	53	53	53				53	53	4	21	21	22				17	B	15	B	15	B
basic	MD 187 interchange	2022	3	676	984	1133				2793	2793	54	53	53					54	54	13	19	22					18	C	18	C	18	C
diverge	Btw MD 187 & I-270 East Spur	325	4	235	784	1003	1136			3158	3158	52	53	53	53				53	53	5	15	19	22				15	B	13	B	13	B
basic		1192	3	1014	1004	1136				3154	3149	53	54	53					53	53	19	19	22					20	C	20	C	20	C
		913	3	1004	1004	1139				3148		53	53	53					53		19	19	22					20	C	20	C		
		494	3	871	1065	1204				3141		53	53	53					53		17	20	23					20	C	20	C		
merge		910	4	570	1107	1411	38			3127	3127	50	49	48	48				49	49	12	23	30	1				16	B	18	B	18	B
basic	I-270 East Spur interchange	288	3	335	1033	1504				2871	2871	49	50	50					49	49	7	21	31					20	C	20	C	20	C
diverge		1593	4	959	1446	1152	1606			5164	5164	9	14	26	44				23	23	114	118	50	38				80	F	94	F	94	F
diverge		402	5	577	1109	1507	1164	1618		5975	5975	43	12	15	24	42			27	27	14	99	113	59	39			65	F	75	F	75	F
basic	Btw I-270 East Spur & MD 185	1045	4	1638	1573	1220	1600			6032	6155	18	16	24	40				24	23	99	112	57	41				78	F	78	F	81	F
		2087	4	1595	1659	1331	1543			6127		18	16	23	34				23		97	111	66	48				80	F	80	F		
		1257	4	1690	1630	1599	1329			6248		17	18	23	30				22		109	101	76	47				83	F	83	F		
		526	4	1512	1627	1600	1546			6285		16	19	21	26				21		107	101	84	65				89	F	89	F		
basic	ML - Btw VA 267 & VA 193	873	2	933	379					1312	1310	63	65						64	64	15	6						10	A	10	A	10	A
		2286	2	939	372					1311		63	65						64		15	6						10	A	10	A		
		787	2	943	363					1307		63	65						64		15	6						10	A	10	A		
		954	2	953	354					1307		63	65						64		15	6						10	A	10	A		
merge	ML - VA 193 interchange & GWMP interchange	303	3	938	317	49				1303	1303	63	63	49					58	58	15	5	1					7	A	7	A	7	A
basic		1881	2	982	199					1180	1180	63	66						65	65	16	3						9	A	9	A	9	A
basic		1423	1	1179						1179	1179	59							59	59	20							20	C	20	C	20	C

I-495 Outer Loop - 2027 No Build 6-7 PM

VISSIM Lookup Data				Volume									Speed									Density									
				Volume Per Lane						Across All Lanes	Overall Volume		Speed Per Lane							Across All Lanes	Overall Speed		Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)						Total Volume	Average Volume (veh/hr)		Speed (mph)							Average Speed	Average Speed (mph)		Combined Density (pcphpl)							Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Btw VA 267 & VA 193	613	5	631	898	1143	1222	1203			5096	5070	54	54	54	54	55			54	54	12	17	22	23	22			19	C	19	C	19	C
		345	5	612	871	1137	1206	1198			5023		54	54	54	54	55			54		12	16	22	22	22			19	C	19	C		
merge		842	6	19	599	874	1144	1232	1223		5092	5092	53	54	54	54	55	55		54	54	0	11	16	22	23	23		16	B	9	A	9	A
merge	VA 193 interchange & GWMP interchange	1316	5	498	839	1145	1239	1237			4958	4958	54	54	54	55	56			55	55	9	16	22	23	23			18	B	16	B	16	B
basic		728	4	839	1141	1247	1249				4477	4489	54	54	54	55				54	54	16	22	23	23				21	C	21	C	21	C
		755	4	773	1160	1278	1290				4501		53	52	53	54				53		15	23	24	24				22	C	22	C		
diverge		593	5	402	815	1223	1327	1303			5071	5071	15	18	38	46	49			33	33	77	88	38	31	28			52	F	68	F	68	F
basic		2404	4	1425	1279	1292	1129				5126	5130	30	44	49	51				44	45	72	32	28	23				39	E	39	E	37	E
		840	4	1628	1337	1263	914				5141		41	48	52	54				49		52	30	25	18				31	D	31	D		
diverge		602	5	1707	1394	1301	915	763			6080	6080	43	48	52	53	53			50	50	50	31	26	18	15			28	D	36	E	36	E
basic		284	4	1752	1430	1376	1557				6115	6115	44	47	51	52				48	48	48	34	29	31				36	E	36	E	36	E
weave	Btw GWMP & Clara Barton Pkwy	1524	5	1205	1740	1441	1362	1557			7305	7305	44	42	46	51	52			47	47	30	46	34	29	32			34	D	34	D	34	D
basic	Clara Barton Pkwy interchange	1713	4	1698	1224	1318	1587				5827	5827	39	45	50	49				46	46	50	31	28	34				36	E	36	E	36	E
diverge		922	5	38	1516	1260	1347	1694			5855	5855	54	43	45	48	48			48	48	1	40	31	30	37			28	D	24	C	24	C
basic	Btw Clara Barton Pkwy & MD 190	521	4	1281	1243	1452	1797				5773	5833	46	46	47	46				46	47	31	29	33	42				34	D	34	D	34	D
		3149	4	1531	1472	1532	1309				5843		46	46	48	48				47		35	34	35	31				34	D	34	D		
merge		1788	5	155	1539	1493	1471	1141			5799	5799	45	46	46	49	49			47	47	4	35	34	31	25			26	C	24	C	24	C
basic	MD 190 interchange	2663	4	1312	1217	1393	1051				4974	4974	50	51	54	54				52	52	27	25	27	20				25	C	25	C	25	C
diverge		1585	5	150	1379	1273	1376	977			5154	5154	57	52	54	56	57			55	55	3	27	24	25	17			19	B	18	B	18	B
diverge		1032	6	500	182	1429	1335	1359	926		5732	5732	56	56	53	55	57	59		56	56	9	3	27	25	24	16		17	B	13	B	13	B
basic	Btw MD 190 & I-270 West Spur	446	5	629	1417	1389	1327	883			5645	5738	56	53	55	57	59			56	56	11	27	26	24	15			21	C	21	C	21	C
		2659	5	932	1333	1429	1249	807			5749		54	53	55	58	59			56		18	26	26	22	14			21	C	21	C		
		939	5	1295	1108	1278	1272	798			5750		53	54	57	58	59			56		25	21	23	22	14			21	C	21	C		
weave		554	6	0	1088	1066	1366	1381	841		5742	5742	52	53	53	56	57	59		55	55	0	21	20	25	24	14		17	B	17	B	17	B
basic	Btw I-270 West Spur & MD 187	7657	3	485	846	812					2142	2143	53	53	53					53	53	9	16	16					14	B	14	B	14	B
		1085	3	872	607	672					2152		53	54	53					53		17	11	13					14	B	14	B		
merge		406	4	215	762	530	650				2158	2158	52	53	54	53				53	53	4	15	10	12				10	B	10	B	10	B
basic	MD 187 interchange	2022	3	254	483	649					1386	1386	55	54	53					54	54	5	9	12					9	A	9	A	9	A
diverge		325	4	106	306	492	654				1558	1558	53	54	54	53				54	54	2	6	9	13				7	A	6	A	6	A
basic	Btw MD 187 & I-270 East Spur	1192	3	410	492	653					1555	1556	54	54	53					54	54	8	9	12					10	A	10	A	10	A
		913	3	408	493	656					1557		54	54	53					54		8	9	13					10	A	10	A		
		494	3	331	535	694					1559		54	54	53					54		6	10	13					10	A	10	A		
merge		910	4	176	474	885	20				1555	1555	49	50	49	48				49	49	4	10	19	0				8	A	10	B	10	B
basic	I-270 East Spur interchange	288	3	54	309	1038					1402	1402	39	44	49					44	44	1	7	22					10	A	10	A	10	A
diverge		1593	4	722	620	531	1221				3094	3094	4	3	5	29				11	11	174	186	112	44				129	F	157	F	157	F
diverge		402	5	355	744	551	614	1257			3521	3521	33	5	3	5	20			13	13	11	145	190	131	66			109	F	115	F	115	F
basic	Btw I-270 East Spur & MD 185	1045	4	1005	548	702	1265				3521	3483	8	3	6	18				9	8	135	193	133	78				135	F	135	F	139	F
		2087	4	884	573	800	1235				3491		7	3	6	17				8		136	189	135	75				134	F	134	F		
		1257	4	797	625	900	1137				3459		5	4	7	15				7		174	182	145	78				145	F	145	F		
		526	4	670	688	872	1203				3433		4	4	6	11				6		179	175	149	115				154	F	154	F		
basic	ML - Btw VA 267 & VA 193	873	2	771	253						1023	1020	63	66						65	65	12	4						8	A	8	A	8	A
		2286	2	776	246						1021		63	66						65		12	4						8	A	8	A		
		787	2	782	234						1015		63	66						65		12	4						8	A	8	A		
		954	2	790	227						1018		63	66						64		13	4						8	A	8	A		
merge	ML - VA 193 interchange & GWMP interchange	303	3	786	206	24					1016	1016	63	64	50					59	59	13	3	0					5	A	5	A	5	A
basic		1881	2	815	138						953	953	63	66						65	65	13	2						8	A	8	A	8	A
basic		1423	1	949							949	949	60							60	60	16							16	B	16	B	16	B

I-270 Southbound - 2027 No-Build - 3-4 PM

VISSIM Lookup Data				Volume										Speed										Density									
				Volume Per Lane								Across All Lanes	Overall Volume	Speed Per Lane								Across All Lanes	Overall Speed	Density Per Lane								Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)								Total Volume	Average Volume (veh/hr)	Speed (mph)								Average Speed	Average Speed (mph)	Combined Density (pcphpl)								Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Through MD 117 interchange	658	4	1253	1489	1236	924					4901	4936	61	62	63	63					62	63	21	24	20	15					20	C	20	C	20	C
		3062	4	1232	1470	1261	981					4943		63	63	63	64					63		20	24	20	16					20	C	20	C		
merge	Btw MD 117 & I-370	1569	5	887	1881	1626	1156	692				6242	6242	58	59	61	63	64				61	61	16	32	27	19	11				21	C	25	C	25	C
basic		1151	5	1138	1947	1446	1033	701				6264	6242	62	62	63	64	64				63	63	19	32	23	17	11				20	C	20	C	20	C
		431	5	1196	1910	1463	907	706				6181		63	61	62	63	64				63		19	32	24	15	11				20	C	20	C		
diverge		1058	6	1188	674	1303	1441	928	729			6263	6263	63	63	63	63	64	64			63	63	19	11	21	23	15	12			17	B	19	B	19	B
basic	I-370 interchange	1258	4	1552	1197	926	734					4408	4407	63	63	64	64					63	63	25	19	15	12					18	C	18	C	18	C
		193	4	1653	1088	922	737					4399		62	63	64	64					63		27	17	15	12					18	C	18	C		
diverge		1263	5	690	1009	1035	921	741				4397	4397	63	63	63	64	64				64	64	11	16	17	15	12				14	B	15	B	15	B
basic		3427	4	926	1042	906	688					3561	3561	63	64	64	64					64	64	15	17	14	11					14	B	14	B	14	B
merge	Shady Grove Rd interchange	1046	5	241	1221	1398	873	678				4411	4411	54	57	62	64	64				60	60	5	22	23	14	11				15	B	16	B	16	B
basic		420	4	1393	1347	976	695					4411	4412	56	62	63	64					61	61	25	22	16	11					19	C	19	C	19	C
		497	4	1369	1302	1015	726					4412		56	62	63	64					61		25	21	16	12					19	C	19	C		
diverge		1518	4	1286	1287	1069	767					4410	4410	55	62	63	64					61	61	24	21	17	12					19	B	21	C	21	C
basic		3645	4	842	1203	1184	846					4076	4076	55	61	63	64					61	61	16	20	19	13					17	B	17	B	17	B
merge	Btw Shady Grove Rd & MD 28	473	5	218	1105	1292	1247	866				4728	4728	58	56	61	64	64				61	61	4	20	22	20	14				16	B	15	B	15	B
basic		1022	4	1153	1392	1401	778					4724	4720	56	59	63	64					60	61	21	24	23	12					20	C	20	C	20	C
		1591	4	1170	1375	1316	857					4718		56	60	63	64					61		21	23	21	14					20	C	20	C		
merge	MD 28 interchange	655	5	11	1237	1473	1154	888				4763	4763	61	56	60	63	64				61	61	0	22	25	18	14				16	B	16	B	16	B
basic		921	4	1305	1346	1199	914					4764	4764	56	59	63	64					60	60	24	23	19	15					20	C	20	C	20	C
diverge		1515	4	1468	1052	1268	978					4765	4765	55	59	63	64					60	60	27	18	20	16					20	C	22	C	22	C
basic	MD 189 interchange	3237	4	656	833	1234	1301					4024	4021	56	59	62	62					60	60	12	14	20	21					17	B	17	B	17	B
		1874	4	653	810	1293	1271					4027		55	60	63	61					60		12	14	21	21					17	B	17	B		
		3407	4	650	794	1341	1230					4016		55	59	62	61					59		12	14	22	21					17	B	17	B		
merge	Montrose Rd interchange	598	5	1158	673	785	1370	1200				5186	5186	63	56	60	63	61				61	61	19	12	13	22	20				17	B	15	B	15	B
basic	Btw Montrose Rd & Spur Split	882	5	1143	694	789	1383	1198				5207	5208	63	57	60	63	60				61	61	18	12	13	22	20				17	B	17	B	17	B
		303	5	1140	703	790	1395	1192				5220		63	57	60	63	60				61		18	13	13	23	20				17	B	17	B		
		3023	5	1142	706	773	1412	1174				5207		63	57	60	63	60				61		18	13	13	23	20				17	B	17	B		
weave		3707	7	568	574	1165	1293	1491	1284	901		7275	7267	59	60	60	58	59	62	60		60	60	10	10	20	23	26	21	15		18	B	18	B	18	B
		722	7	560	664	1074	1495	1171	1238	1023		7224		59	61	61	59	59	60	60		60		10	11	18	26	20	21	17		18	B	18	B		
diverge		400	8	582	721	1107	1418	1303	1190	675	258	7254	7254	59	61	61	59	59	61	62	59	60	60	10	12	18	24	22	20	11	4	15	B	12	B	12	B
weave		334	7	594	731	1107	1380	1372	1154	494		6832	6832	60	61	61	59	59	61	63		61	61	10	12	18	24	24	19	8		16	B	16	B	16	B
basic	Spur Split through MD 187 interchange	965	4	457	1382	1185	427					3451	3451	59	58	60	61					59	59	8	24	20	7					15	B	15	B	15	B
diverge		1138	4	481	1335	1163	473					3452	3452	59	58	59	60					59	59	8	23	20	8					15	B	15	B	15	B
basic		2602	3	1125	1117	536						2777	2777	58	58	60						59	59	20	19	9						16	B	16	B	16	B
merge		443	4	123	1224	1223	571					3141	3141	46	57	58	60					55	55	3	22	21	10					14	B	15	B	15	B
basic		947	3	1222	1253	664						3139	3139	58	58	59						59	59	21	22	11						18	C	18	C	18	C
merge	Btw MD 187 & I-495	1023	4	246	1093	1278	938					3555	3555	51	60	61	63					59	59	5	18	21	15					15	B	15	B	15	B
basic		473	3	1538	1341	659						3538	3561	62	62	64						63	63	25	22	11						19	C	19	C	19	C
		3140	3	1512	1598	456						3565		62	62	64						63		25	26	7						19	C	19	C		
diverge		1491	3	1507	1426	630						3563	3563	63	63	63						63	63	24	23	10						19	B	19	B	19	B
basic		1568	2	1481	1443							2924	2924	62	62							62	62	24	24							24	C	24	C	24	C
basic	Spur Split to Democracy Blvd	2999	4	1001	705	908	823					3437	3437	58	59	59	59					59	59	17	12	16	14					15	B	15	B	15	B
weave		962	5	626	981	1027	812	285				3731	3731	58	58	59	59	60				59	59	11	17	18	14	5				13	B	13	B	13	B
basic	Democracy Blvd	2456	4	835	1080	889	305					3110	3110	59	59	59	61					59	59	14	19	15	5					13	B	13	B	13	B
merge	Democracy Blvd to I-495	522	5	145	396	1333	1492	405				3771	3771	51	53	57	58	61				56	56	3	8	24	26	7				13	B	11	B	11	B
merge		937	4	32	1560	1515	648					3755	3755	55	55	57	60					57	57	1	29	27	11					17	B	19	B	19	B
basic		2520	3	1460	1469	853						3782	3782	56	57	59						57	57	27	26	15						22	C	22	C	22	C
basic	CD - I-370 interchange	1623	2	823	9							832	832	56	57							56	56	15	0							8	A	8	A	8	A
weave	CD - Btw I-370 & Shady Grove Rd	795	4	723	622	1006	418					2769	2769	53	53	52	51					52	52	14	12	20	8					13	B	13	B	13	B
diverge		1609	3	551	806	567						1924	1924	52	53	54						53	53	11	15	11						12	B	12	B	12	B
basic	CD - Shady Grove Rd interchange	702	2	595	625							1220	1220	54	54							54	54	11	12							12	B	12	B	12	B
merge		477	3	169	955	745						1870	1870	48	53	53						51	51	4	18	14						12	B	12	B	12	B
basic		800	2	1028	847							1875	1875	53	53							53	53	20	16							18	C	18	C	18	C
merge	CD - Btw Shady Grove Rd & MD 28	707	3	103	1239	1034						2376	2376	50	53	53						52	52	2	24	20						15	B	15	B	15	B
basic		1081	2	1074	1296							2370	2370	53	53							53	53	21	25							23	C	23	C	23	C
merge		609	3	1189	912	606						2707	2707	53	54	54						53	53	23	17	11						17	B	17	B	17	B
diverge		1506	3	1254	804	645						2703	2703	53	54	54						53	53	24	15	12						17	B	17	B	17	B
diverge		2914	2	1242	813							2055	2055	53	54							53	53	24	15							20	C	20	C	20	C
basic		170	2	1210	770							1980	1980	52	54							53	53	23	15							19	C	19	C	19	C
diverge		291	3	355	874	782						2011	2011	46	53	54						51	51	8	17	15						13	B	13	B	13	B
basic	CD - MD 28 interchange	926	2	695	756							1451	1451	54	54							54	54	13	14							14	B	14	B	14	B
merge		231	3	115	808	781						1704	1704	32	50	53						45	45	4	16	15						12	B	12	B	12	B
basic		1111	2	820	902							1723	1723	53	53							53	53	16	17							16	B	16	B	16	B
merge	CD - Btw MD 28 & MD 189	577	3	920	920	924						2764	2764	51	53	53						52	52	18	18	18						18	B	18	B	18	B
basic		1056	3	884	940	953						2777	2777	53	54	54						53	53	17	18	18						18	C	18	C	18	C
merge		610	4	589	1369	1334	217					3509	3509	54	53	53	53					53	53	11	26	26	4					17	B	19	B	19	B
basic		838	3	696	1395	1405						3496	3496	53	52	52						53	53	13	27	27						23	C	23	C	23	C
diverge		350	3	735	1388	1396						3519	3519	53	52	53						53	53	14	27	27						23	C	23	C	23	C
basic	CD - MD 189 interchange	816	2	1382	1393							2774	2773	53	53							53	53	26	27							27	D	27	D	26	D
		1802	2	1382	1390							2772		53	53							53		26	27							26	D	26	D		
merge	CD - Btw MD 189 & Montrose Rd	465	3	991	1184	1087						3262	3262	52	53	53						53	53	19	23	21						21	C	21	C	21	C
diverge		2184	3	1429	848	995						3272	3272	52	53	53						53	53	28	16	19						21	C	21	C	21	C
basic		775	2	1387	678							2064	2064	52	54							53	53	27	13							20	C	20	C	20	C
diverge		235	3	198	1195	686						2078	2078	48	51	54						51	51	4	24	13						14	B	14	B	14	B
basic	CD - Montrose Rd interchange	1196	2	1072	672							1744	1744	53	54							54	54	20	13							17	B	17	B	17	B
weave		422	3	803	940	770						2513	2513	39	45	50						44	44	21	21	16						19	B	19	B	19	B
basic		1029	2	753	907							1660	1660	51	52							52	52	15	18							16	B	16	B	16	B
merge		415	3	124	959	972						2056	2056	51	53	53						53	53	2	18	19						13	B	13	B	13	B
basic		1431	2	1027	1020							2047	2047	53	53							53	53	20	19							20	C	20	C	20	C

I-270 Southbound - 2027 No-Build - 4-5 PM

VISSIM Lookup Data				Volume										Speed										Density											
				Volume Per Lane								Across All Lanes	Overall Volume	Speed Per Lane								Across All Lanes	Overall Speed	Density Per Lane								Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)								Total Volume	Average Volume (veh/hr)	Speed (mph)								Average Speed	Average Speed (mph)	Combined Density (pc/phpl)								Average Density	LOS	Average Density	LOS	Average Density (pc/phpl)	LOS
basic	Through MD 117 interchange	658	4	1238	1494	1297	1017					5046	5075	62	62	63	63					62	63	20	24	21	16					21	C	21	C	20	C
		3062	4	1222	1480	1315	1064					5081		63	63	63	64					63		20	24	21	17					20	C	20	C		
merge	Btw MD 117 & I-370	1569	5	1078	1925	1682	1204	782				6670	6670	56	57	60	62	64				60	60	19	34	28	20	13				23	C	27	C	27	C
basic		1151	5	1356	1962	1447	1100	823				6688	6663	62	61	62	63	64				62	62	22	33	24	18	13				22	C	22	C	22	C
		431	5	1402	1911	1453	1000	828				6594		62	61	61	63	64				62		23	32	24	16	13				22	C	22	C		
diverge		1058	6	1384	807	1197	1423	1020	853			6684	6684	63	63	63	63	64	64			63	63	22	13	19	23	16	14			18	B	19	B	19	B
basic	I-370 interchange	1258	4	1421	1206	1018	859					4505	4504	63	63	64	64					63	63	23	19	16	14					18	C	18	C	18	C
		193	4	1509	1112	1015	860					4497		62	63	64	64					63		25	18	16	14					18	C	18	C		
diverge		1263	5	572	973	1075	1018	864				4501	4501	63	63	63	64	64				64	64	9	16	17	16	14				14	B	15	B	15	B
basic		3427	4	958	1138	988	731					3814	3814	63	63	64	64					64	64	15	18	16	12					15	B	15	B	15	B
merge	Shady Grove Rd interchange	1046	5	225	1272	1525	860	708				4590	4590	54	58	62	64	64				60	60	4	22	25	14	11				15	B	17	B	17	B
basic		420	4	1564	1343	958	725					4591	4591	56	61	63	64					61	61	28	22	15	12					19	C	19	C	19	C
		497	4	1602	1233	1007	750					4591		56	61	63	64					61		29	20	16	12					19	C	19	C		
diverge		1518	4	1541	1177	1069	800					4588	4588	56	61	63	64					61	61	28	20	17	13					19	B	22	C	22	C
basic		3645	4	792	1067	1158	874					3891	3891	55	61	63	64					61	61	15	18	19	14					16	B	16	B	16	B
merge	Btw Shady Grove Rd & MD 28	473	5	219	1092	1164	1198	888				4560	4560	58	57	60	63	64				61	61	4	19	20	19	14				15	B	14	B	14	B
basic		1022	4	1138	1283	1334	807					4562	4555	56	59	63	64					60	61	21	22	22	13					19	C	19	C	19	C
		1591	4	1129	1277	1268	876					4551		57	60	63	64					61		20	22	21	14					19	C	19	C		
merge	MD 28 interchange	655	5	18	1186	1359	1143	909				4616	4616	61	57	60	63	64				61	61	0	21	23	18	14				15	B	15	B	15	B
basic		921	4	1246	1250	1185	932					4613	4613	56	59	63	63					60	60	22	21	19	15					19	C	19	C	19	C
diverge		1515	4	1371	1020	1238	990					4618	4618	56	59	63	64					60	60	25	17	20	16					20	C	21	C	21	C
basic	MD 189 interchange	3237	4	682	842	1216	1285					4025	4024	56	60	62	62					60	60	12	14	20	21					17	B	17	B	17	B
		1874	4	674	817	1273	1264					4028		56	60	62	61					60		12	14	21	21					17	B	17	B		
		3407	4	671	812	1318	1220					4021		56	59	62	61					60		12	14	21	20					17	B	17	B		
merge	Montrose Rd interchange	598	5	1176	706	806	1335	1194				5217	5217	63	57	60	63	62				61	61	19	13	14	22	20				17	B	15	B	15	B
basic	Btw Montrose Rd & Spur Split	882	5	1161	722	810	1353	1193				5238	5245	63	58	60	63	61				61	61	19	13	14	22	20				17	B	17	B	17	B
		303	5	1164	730	805	1370	1184				5252		63	58	60	63	60				61		19	13	14	22	20				17	B	17	B		
		3023	5	1170	720	804	1377	1175				5247		63	58	60	62	60				61		19	13	14	22	20				17	B	17	B		
weave		3707	7	640	600	1216	1367	1529	1270	878		7499	7491	59	60	60	58	59	62	60		60	60	11	10	21	24	27	21	15		18	B	18	B	18	B
		722	7	629	701	1162	1577	1181	1213	989		7452		59	61	61	58	59	60	60		60		11	12	19	28	20	20	17		18	B	18	B		
diverge		400	8	652	775	1186	1502	1301	1171	639	260	7486	7486	59	61	61	59	59	61	62	59	60	60	11	13	20	26	22	20	10	4	16	B	11	B	11	B
weave		334	7	664	789	1191	1452	1369	1127	463		7056	7056	59	61	61	59	59	61	63		60	60	11	13	20	25	24	19	7		17	B	17	B	17	B
basic	Spur Split through MD 187 interchange	965	4	502	1367	1146	408					3423	3423	59	58	60	61					60	60	9	24	20	7					15	B	15	B	15	B
diverge		1138	4	532	1321	1122	451					3426	3426	59	58	59	60					59	59	9	23	19	8					15	B	15	B	15	B
basic		2602	3	1114	1079	510						2704	2704	58	59	60						59	59	19	19	9						16	B	16	B	16	B
merge		443	4	153	1255	1213	554					3175	3175	44	55	57	59					54	54	4	23	21	9					14	B	16	B	16	B
basic		947	3	1241	1257	679						3177	3177	58	58	59						58	58	22	22	12						19	C	19	C	19	C
merge	Btw MD 187 & I-495	1023	4	248	1102	1287	958					3595	3595	51	60	61	63					59	59	5	19	21	16					15	B	15	B	15	B
basic		473	3	1539	1345	689						3573	3568	60	61	63						61	55	26	23	11						20	C	20	C	24	C
		3140	3	1497	1588	483						3568		51	51	59						54		32	33	9						25	C	25	C		
diverge		1491	3	1443	1401	640						3484	3484	31	32	58						40	40	50	47	11						36	E	36	E	36	E
basic		1568	2	1373	1428							2802	2802	21	24							23	23	66	60							63	F	63	F	63	F
basic	Spur Split to Democracy Blvd	2999	4	1139	762	941	849					3692	3692	58	59	59	59					59	59	20	13	16	15					16	B	16	B	16	B
weave		962	5	780	1045	1038	840	291				3993	3993	58	58	58	59	60				59	59	14	18	18	15	5				14	B	14	B	14	B
basic	Democracy Blvd	2456	4	888	1098	925	315					3225	3225	59	59	59	61					59	59	15	19	16	5					14	B	14	B	14	B
merge	Democracy Blvd to I-495	522	5	139	395	1403	1510	432				3878	3878	49	52	56	58	61				55	55	3	8	25	27	7				14	B	12	B	12	B
merge		937	4	33	1610	1539	679					3860	3860	54	55	57	59					56	56	1	30	27	12					17	B	19	B	19	B
basic		2520	3	1515	1485	887						3886	3886	56	57	59						57	57	28	26	15						23	C	23	C	23	C
basic	CD - I-370 interchange	1623	2	684	6							689	689	56	58							57	57	12	0							6	A	6	A	6	A
weave	CD - Btw I-370 & Shady Grove Rd	795	4	631	502	863	389					2385	2385	53	53	52	50					52	52	12	10	17	8					12	A	12	A	12	A
diverge		1609	3	517	677	427						1621	1621	52	53	54						53	53	10	13	8						10	B	10	B	10	B
basic	CD - Shady Grove Rd interchange	702	2	462	470							931	931	54	54							54	54	9	9							9	A	9	A	9	A
merge		477	3	149	827	563						1538	1538	48	53	53						51	51	3	16	11						10	B	10	B	10	B
basic		800	2	877	664							1542	1542	53	54							53	53	17	13							15	B	15	B	15	B
merge	CD - Btw Shady Grove Rd & MD 28	707	3	127	1179	893						2199	2199	50	52	53						52	52	3	23	17						14	B	14	B	14	B
basic		1081	2	987	1208							2195	2195	53	53							53	53	19	23							21	C	21	C	21	C
merge		609	3	1153	1030	704						2887	2887	53	53	53						53	53	22	20	13						18	B	18	B	18	B
diverge		1506	3	1295	929	664						2888	2888	53	54	53						53	53	25	18	13						18	B	18	B	18	B
diverge		2914	2	1276	948							2223	2223	53	53							53	53	24	18							21	C	21	C	21	C
basic		170	2	1237	883							2120	2120	52	53							53	53	24	17							20	C	20	C	20	C
diverge		291	3	358	898	896						2152	2152	46	52	53						51	51	8	17	17						14	B	14	B	14	B
basic	CD - MD 28 interchange	926	2	718	870							1588	1588	54	53							54	54	14	17							15	B	15	B	15	B
merge		231	3	86	800	883						1768	1768	31	51	53						45	45	3	16	17						12	B	12	B	12	B
basic		1111	2	824	968							1792	1792	53	53							53	53	16	19							17	B	17	B	17	B
merge	CD - Btw MD 28 & MD 189	577	3	965	955	984						2905	2905	51	53	53						52	52	19	18	19						19	B	19	B	19	B
basic		1056	3	926	979	1014						2920	2920	53	53	53						53	53	18	19	19						19	C	19	C	19	C
merge		610	4	645	1367	1311	181					3504	3504	53	53	53	53					53	53	12	26	25	3					17	B	18	B	18	B
basic		838	3	735	1380	1374						3489	3489	53	52	52						52	52	14	27	27						23	C	23	C	23	C
diverge		350	3	768	1369	1373						3510	3510	53	52	53						52	52	15	27	27						23	C	23	C	23	C
basic	CD - MD 189 interchange	816	2	1354	1375							2729	2729	53	53							53	53	26	26							26	D	26	D	26	D
		1802	2	1354	1375							2728		53	53							53		26	26							26	D	26	D		
merge	CD - Btw MD 189 & Montrose Rd	465	3	1003	1169	1085						3257	3257	52	53	53						53	53	20	22	21						21	C	21	C	21	C
diverge		2184	3	1420	836	1016						3273	3273	52	53	53						53	53	28	16	20						21	C	21	C	21	C
basic		775	2	1377	664							2041	2041	52	54							53	53	27	13							20	C	20	C	20	C
diverge		235	3	209	1171	673						2053	2053	48	51	54						51	51	4	23	13						13	B	13	B	13	B
basic	CD - Montrose Rd interchange	1196	2	1039	663							1702	1702	53	54							54	54	20	13							16	B	16	B	16	B
weave		422	3	792	945	769						2507	2507	37	44	50						44	44	22	22	16						20	C	20	C	20	C
basic		1029	2	770	910							1680	1680	51	52							52	52	15	18							17	B	17	B	17	B
merge		415	3	178	1044	1023						2245	2245	51	53	53						52	52	4	20	20						14	B	14	B	14	B
basic		1431	2	1132	1099							2232	2232	53	53							53	53	22	21							21	C	21	C	21	C

I-270 Southbound - 2027 No-Build - 5-6 PM

VISSIM Lookup Data				Volume										Speed										Density									
				Volume Per Lane								Across All Lanes	Overall Volume	Speed Per Lane								Across All Lanes	Overall Speed	Density Per Lane								Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)								Total Volume	Average Volume (veh/hr)	Speed (mph)								Average Speed	Average Speed (mph)	Combined Density (pc/phpl)								Average Density	LOS	Average Density	LOS	Average Density (pc/phpl)	LOS
basic	Through MD 117 interchange	658	4	1295	1563	1400	1132					5389	5419	61	62	63	63					62	63	22	26	23	18					22	C	22	C	22	C
		3062	4	1278	1544	1413	1189					5425		63	63	63	63					63		21	25	23	19					22	C	22	C		
merge	Btw MD 117 & I-370	1569	5	1175	2014	1783	1331	799				7102	7102	56	57	60	62	64				60	60	21	36	30	22	13				24	C	29	D	29	D
basic		1151	5	1504	2094	1545	1140	835				7118	7091	61	61	62	63	64				62	62	25	35	25	18	13				23	C	23	C	23	C
		431	5	1564	2058	1593	967	838				7020		61	60	60	63	64				62		26	35	27	16	13				23	C	23	C		
diverge		1058	6	1545	833	1338	1544	982	869			7111	7111	62	62	62	63	64	64			63	63	25	14	22	25	16	14			19	B	21	C	21	C
basic	I-370 interchange	1258	4	1681	1214	973	877					4745	4744	62	63	64	64					63	63	27	19	15	14					19	C	19	C	19	C
		193	4	1824	1067	967	879					4737		62	63	64	64					63		30	17	15	14					19	C	19	C		
diverge		1263	5	934	957	993	969	883				4735	4735	63	63	63	64	64				63	63	15	15	16	15	14				15	B	15	B	15	B
basic		3427	4	855	1029	939	782					3605	3605	63	64	64	64					64	64	14	16	15	12					14	B	14	B	14	B
merge	Shady Grove Rd interchange	1046	5	229	1227	1370	840	763				4429	4429	54	58	63	64	64				60	60	4	22	22	13	12				15	B	16	B	16	B
basic		420	4	1469	1253	929	778					4429	4429	56	61	63	64					61	61	27	21	15	12					19	C	19	C	19	C
		497	4	1485	1168	979	797					4428		56	61	63	64					61		27	19	16	13					19	C	19	C		
diverge		1518	4	1443	1120	1028	836					4427	4427	56	61	63	64					61	61	26	19	16	13					19	B	20	C	20	C
basic	Btw Shady Grove Rd & MD 28	3645	4	840	1020	1109	913					3882	3882	56	61	63	64					61	61	15	17	18	15					16	B	16	B	16	B
merge		473	5	228	1130	1173	1140	908				4579	4579	58	57	60	63	64				61	61	4	20	20	18	14				15	B	15	B	15	B
basic		1022	4	1167	1314	1320	778					4579	4574	56	59	62	64					60	61	21	22	21	12					19	C	19	C	19	C
		1591	4	1208	1321	1195	848					4572		57	60	63	64					61		22	22	19	14					19	C	19	C		
merge	MD 28 interchange	655	5	12	1300	1440	993	873				4617	4617	60	57	60	63	64				61	61	0	23	24	16	14				15	B	16	B	16	B
basic		921	4	1387	1298	1030	899					4614	4614	56	59	63	63					60	60	25	22	17	14					20	C	20	C	20	C
diverge		1515	4	1575	999	1093	948					4615	4615	56	59	63	64					60	60	29	17	18	15					20	C	21	C	21	C
basic	MD 189 interchange	3237	4	653	807	1075	1235					3770	3773	56	59	62	61					60	60	12	14	18	20					16	B	16	B	16	B
		1874	4	655	797	1133	1194					3778		56	59	62	61					60		12	14	18	20					16	B	16	B		
		3407	4	646	784	1169	1174					3773		56	59	62	61					60		12	13	19	20					16	B	16	B		
merge	Montrose Rd interchange	598	5	1252	685	785	1185	1161				5068	5068	63	57	60	63	61				61	61	20	12	13	19	19				17	B	15	B	15	B
basic	Btw Montrose Rd & Spur Split	882	5	1223	696	799	1211	1157				5087	5084	63	58	60	62	60				61	61	20	12	14	20	19				17	B	17	B	17	B
		303	5	1220	701	803	1223	1152				5099		63	58	60	62	60				61		20	12	14	20	19				17	B	17	B		
		3023	5	1216	703	795	1238	1131				5082		63	58	60	62	60				61		20	12	13	20	19				17	B	17	B		
weave		3707	7	544	562	1189	1296	1448	1153	821		7013	7005	59	60	61	59	59	62	59		60	60	9	10	20	23	25	19	14		17	B	17	B	17	B
		722	7	543	672	1131	1535	1092	1110	881		6964		59	61	61	58	59	61	59		60		9	11	19	27	19	19	15		17	B	17	B		
diverge		400	8	569	732	1166	1457	1186	1080	551	247	6989	6989	59	61	61	59	59	61	62	59	60	60	10	12	19	25	20	18	9	4	15	B	10	B	10	B
weave		334	7	583	748	1163	1418	1249	1036	382		6579	6579	59	61	61	59	59	61	63		61	61	10	12	19	25	21	17	6		16	B	16	B	16	B
basic	Spur Split through MD 187 interchange	965	4	491	1262	1040	337					3130	3130	59	58	60	61					60	60	8	22	18	6					13	B	13	B	13	B
diverge		1138	4	518	1217	1022	373					3130	3130	59	58	59	60					59	59	9	21	18	6					14	B	14	B	14	B
basic		2602	3	929	965	502						2396	2396	44	46	46						45	45	34	31	20						28	D	28	D	28	D
merge		443	4	170	927	1039	639					2774	2774	28	36	38	40					36	36	47	64	56	42					52	F	56	F	56	F
basic		947	3	956	1051	739						2747	2747	37	38	40						38	38	68	62	48						59	F	59	F	59	F
merge	Btw MD 187 & I-495	1023	4	313	765	1018	974					3069	3069	25	30	33	34					30	30	68	82	75	63					72	F	75	F	75	F
basic		473	3	1104	1050	868						3022	3038	30	30	33						31	28	86	84	58						76	F	76	F	83	F
		3140	3	1067	1143	830						3040		23	24	35						28		104	104	44						84	F	84	F		
diverge		1491	3	1079	1129	855						3063	3063	18	19	35						24	24	126	119	36						94	F	94	F	94	F
basic		1568	2	1059	1260							2319	2319	12	16							14	14	118	101							109	F	109	F	109	F
basic	Spur Split to Democracy Blvd	2999	4	1156	706	865	775					3502	3502	58	59	59	59					59	59	20	12	15	13					15	B	15	B	15	B
weave		962	5	935	930	900	747	260				3771	3771	58	58	59	59	60				59	59	16	16	16	13	4				13	B	13	B	13	B
basic	Democracy Blvd	2456	4	774	962	818	274					2828	2828	59	59	59	61					59	59	13	17	14	5					12	B	12	B	12	B
merge	Democracy Blvd to I-495	522	5	127	350	1260	1331	364				3432	3432	50	53	57	58	61				56	56	3	7	23	23	6				12	B	11	B	11	B
merge		937	4	24	1470	1365	558					3416	3416	56	55	57	60					57	57	0	27	24	9					15	B	17	B	17	B
basic		2520	3	1374	1324	738						3437	3437	56	57	59						57	57	25	24	13						20	C	20	C	20	C
basic	CD - I-370 interchange	1623	2	1114	19							1133	1133	56	57							57	57	20	0							10	A	10	A	10	A
weave	CD - Btw I-370 & Shady Grove Rd	795	4	336	480	1203	387					2405	2405	53	50	51	46					50	50	6	10	24	9					12	B	12	B	12	B
diverge		1609	3	369	610	605						1583	1583	51	53	53						53	53	7	12	12						10	B	10	B	10	B
basic	CD - Shady Grove Rd interchange	702	2	399	621							1020	1020	54	54							54	54	7	12							10	A	10	A	10	A
merge		477	3	146	774	694						1614	1614	49	53	53						52	52	3	15	13						10	B	10	B	10	B
basic		800	2	839	777							1616	1616	53	53							53	53	16	15							15	B	15	B	15	B
merge	CD - Btw Shady Grove Rd & MD 28	707	3	110	1101	961						2172	2172	50	53	53						52	52	2	21	18						14	B	14	B	14	B
basic		1081	2	925	1243							2168	2168	53	52							53	53	18	24							21	C	21	C	21	C
merge		609	3	1062	965	686						2713	2713	53	53	53						53	53	20	18	13						17	B	17	B	17	B
diverge		1506	3	1164	860	690						2713	2713	53	54	53						53	53	22	16	13						17	B	17	B	17	B
diverge		2914	2	1153	874							2027	2027	53	54							53	53	22	17							19	B	19	B	19	B
basic		170	2	1127	828							1955	1955	52	53							53	53	22	16							19	C	19	C	19	C
diverge		291	3	320	826	838						1984	1984	46	53	53						51	51	7	16	16						13	B	13	B	13	B
basic	CD - MD 28 interchange	926	2	663	816							1479	1479	54	53							54	54	13	15							14	B	14	B	14	B
merge		231	3	70	724	830						1625	1625	31	51	53						45	45	2	14	16						11	B	11	B	11	B
basic		1111	2	749	898							1647	1647	53	53							53	53	14	17							16	B	16	B	16	B
merge	CD - Btw MD 28 & MD 189	577	3	1061	917	921						2900	2900	51	52	53						52	52	21	18	18						19	B	19	B	19	B
basic		1056	3	1008	944	963						2915	2915	53	54	53						53	53	19	18	18						18	C	18	C	18	C
merge		610	4	686	1433	1387	248					3755	3755	53	52	53	53					53	53	13	28	27	5					18	B	20	C	20	C
basic		838	3	807	1480	1454						3740	3740	53	52	52						52	52	15	29	28						24	C	24	C	24	C
diverge		350	3	853	1467	1444						3764	3764	53	52	53						53	53	16	29	28						24	C	24	C	24	C
basic	CD - MD 189 interchange	816	2	1452	1449							2900	2902	53	53							53	53	28	28							28	D	28	D	28	D
		1802	2	1454	1449							2903		53	53							53		28	28							28	D	28	D		
merge	CD - Btw MD 189 & Montrose Rd	465	3	1076	1237	1132						3446	3446	52	53	53						53	53	21	24	22						22	C	22	C	22	C
diverge		2184	3	1520	866	1068						3454	3454	52	53	52						53	53	30	17	21						22	C	22	C	22	C
basic		775	2	1464	652							2116	2116	52	54							53	53	28	12							20	C	20	C	20	C
diverge		235	3	217	1253	660						2130	2130	48	51	53						51	51	5	25	13						14	B	14	B	14	B
basic	CD - Montrose Rd interchange	1196	2	1118	646							1764	1764	53	54							53	53	21	12							17	B	17	B	17	B
weave		422	3	793	769	710						2272	2272	36	43	51						44	44	23	18	14						18	B	18	B	18	B
basic		1029	2	559	787							1346	1346	52	53							52	52	11	15							13	B	13	B	13	B
merge		415	3	171	876	861						1909	1909	51	53	53						53	53	3	17	16						12	B	12	B	12	B
basic		1431	2	963	940							1903	1903	53	53							53	53	18	18							18	C	18	C	18	C

I-270 Southbound - 2027 No-Build - 6-7 PM

VISSIM Lookup Data				Volume										Speed										Density									
				Volume Per Lane								Across All Lanes	Overall Volume	Speed Per Lane								Across All Lanes	Overall Speed	Density Per Lane								Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)								Total Volume	Average Volume (veh/hr)	Speed (mph)								Average Speed	Average Speed (mph)	Combined Density (pc/phpl)								Average Density	LOS	Average Density	LOS	Average Density (pc/phpl)	LOS
basic	Through MD 117 interchange	658	4	1301	1594	1409	1151					5455	5493	61	62	63	63					62	63	22	26	23	19					22	C	22	C	22	C
		3062	4	1297	1571	1427	1206					5502		63	63	63	63					63		21	25	23	19					22	C	22	C		
merge	Btw MD 117 & I-370	1569	5	907	1942	1737	1312	860				6758	6758	58	59	61	63	64				61	61	16	34	29	21	14				23	C	26	C	26	C
basic		1151	5	1205	2017	1540	1160	858				6780	6756	62	61	62	63	64				63	62	20	33	25	19	14				22	C	22	C	22	C
		431	5	1269	1982	1565	1016	858				6691		62	60	61	63	64				62		21	33	26	16	14				22	C	22	C		
diverge		1058	6	1262	652	1398	1547	1032	891			6782	6782	63	63	62	62	63	64			63	63	20	11	23	25	17	14			18	B	20	C	20	C
basic	I-370 interchange	1258	4	1677	1273	1031	900					4881	4880	62	63	64	64					63	63	27	20	16	14					20	C	20	C	20	C
		193	4	1789	1153	1028	903					4873		62	63	64	64					63		29	18	16	14					20	C	20	C		
diverge		1263	5	794	1051	1090	1031	904				4870	4870	63	63	63	64	64				63	63	13	17	17	16	14				16	B	16	B	16	B
basic		3427	4	965	1110	1004	822					3901	3901	63	64	64	64					64	64	15	18	16	13					16	B	16	B	16	B
merge	Shady Grove Rd interchange	1046	5	286	1377	1503	939	817				4923	4923	53	57	62	64	64				60	60	5	25	24	15	13				17	B	18	B	18	B
basic		420	4	1579	1430	1068	843					4919	4918	55	61	63	63					60	60	29	24	17	14					21	C	21	C	21	C
		497	4	1560	1349	1131	878					4918		55	60	63	63					60		29	23	18	14					21	C	21	C		
diverge		1518	4	1505	1287	1186	932					4910	4910	55	61	63	64					61	61	28	21	19	15					21	C	23	C	23	C
basic	Btw Shady Grove Rd & MD 28	3645	4	995	1157	1272	1033					4458	4458	55	60	63	64					60	60	18	19	21	17					19	C	19	C	19	C
merge		473	5	209	1206	1280	1312	1059				5066	5066	57	56	60	63	64				60	60	4	22	22	21	17				17	B	16	B	16	B
basic		1022	4	1244	1390	1457	975					5066	5057	55	58	62	63					60	60	23	24	24	16					22	C	22	C	21	C
		1591	4	1262	1379	1363	1046					5051		56	59	62	63					60		23	24	22	17					21	C	21	C		
merge	MD 28 interchange	655	5	14	1334	1474	1207	1071				5100	5100	61	56	59	63	64				61	61	0	24	25	19	17				17	B	16	B	16	B
basic		921	4	1400	1354	1238	1103					5096	5096	55	59	62	63					60	60	26	23	20	18					22	C	22	C	22	C
diverge		1515	4	1535	1107	1284	1165					5091	5091	55	58	62	63					60	60	28	19	21	19					22	C	23	C	23	C
basic	MD 189 interchange	3237	4	775	921	1262	1444					4401	4392	56	59	62	61					59	59	14	16	21	24					19	C	19	C	19	C
		1874	4	782	906	1325	1384					4397		56	59	62	60					59		14	16	22	23					19	C	19	C		
		3407	4	789	901	1359	1331					4380		56	58	62	60					59		15	16	22	23					19	C	19	C		
merge	Montrose Rd interchange	598	5	1143	789	889	1371	1306				5498	5498	63	57	59	62	61				60	60	19	14	15	22	22				18	B	16	B	16	B
basic	Btw Montrose Rd & Spur Split	882	5	1152	796	879	1379	1310				5515	5507	63	57	59	62	60				60	60	19	14	15	23	22				19	C	19	C	19	C
		303	5	1160	805	876	1385	1300				5526		63	57	59	62	60				60		19	14	15	23	22				19	C	19	C		
		3023	5	1185	796	870	1381	1270				5503		63	57	59	62	59				60		19	14	15	23	22				19	C	19	C		
weave		3707	7	575	596	1222	1383	1554	1313	967		7609	7601	59	60	60	58	58	61	59		59	59	10	10	21	24	27	22	17		19	B	19	B	19	B
		722	7	581	698	1107	1526	1248	1298	1098		7556		59	61	61	58	58	60	59		59		10	12	19	27	22	22	19		19	B	19	B		
diverge		400	8	614	755	1133	1440	1394	1247	735	265	7583	7583	60	61	61	59	59	60	61	59	60	60	10	13	19	25	24	21	12	5	16	B	13	B	13	B
weave		334	7	625	769	1130	1403	1462	1202	556		7146	7146	60	61	61	59	58	61	63		60	60	11	13	19	24	25	20	9		17	B	17	B	17	B
basic	Spur Split through MD 187 interchange	965	4	455	1467	1225	494					3640	3640	59	58	59	61					59	59	8	26	21	8					16	B	16	B	16	B
diverge		1138	4	483	1416	1198	535					3631	3631	59	58	59	60					59	59	8	25	21	9					16	B	16	B	16	B
basic		2602	3	1177	1145	645						2967	2967	49	50	50						50	50	30	27	17						25	C	25	C	25	C
merge		443	4	129	1160	1199	787					3276	3276	24	37	40	40					35	35	17	52	47	34					37	E	39	E	39	E
basic		947	3	1196	1202	875						3274	3274	36	37	37						37	37	56	54	41						50	F	50	F	50	F
merge	Btw MD 187 & I-495	1023	4	310	928	1204	1083					3524	3524	26	33	36	38					33	33	47	63	58	46					53	F	56	F	56	F
basic		473	3	1386	1255	869						3510	3535	37	36	38						37	38	59	57	39						52	F	52	F	50	F
		3140	3	1380	1465	694						3539		35	36	42						38		63	63	23						50	F	50	F		
diverge		1491	3	1410	1392	757						3559	3559	32	32	45						36	36	77	73	20						56	F	56	F	56	F
basic		1568	2	1406	1459							2865	2865	28	31							30	30	71	65							68	F	68	F	68	F
basic	Spur Split to Democracy Blvd	2999	4	1046	741	925	842					3554	3554	58	59	59	59					59	59	18	13	16	15					15	B	15	B	15	B
weave		962	5	684	1011	1044	833	286				3858	3858	58	58	59	59	60				59	59	12	18	18	14	5				13	B	13	B	13	B
basic	Democracy Blvd	2456	4	855	1101	919	304					3179	3179	59	59	59	60					59	59	15	19	16	5					14	B	14	B	14	B
merge	Democracy Blvd to I-495	522	5	97	293	1391	1419	414				3615	3615	51	54	57	58	61				56	56	2	6	25	25	7				13	B	11	B	11	B
merge		937	4	28	1523	1440	603					3593	3593	56	56	57	60					57	57	0	28	26	10					16	B	18	B	18	B
basic		2520	3	1449	1390	777						3615	3615	56	58	59						58	58	26	24	13						21	C	21	C	21	C
basic	CD - I-370 interchange	1623	2	954	14							968	968	56	57							57	57	17	0							9	A	9	A	9	A
weave	CD - Btw I-370 & Shady Grove Rd	795	4	470	538	1126	500					2634	2634	52	50	50	43					49	49	9	11	23	12					14	B	14	B	14	B
diverge		1609	3	433	653	529						1615	1615	51	53	53						52	52	9	13	10						10	B	10	B	10	B
basic	CD - Shady Grove Rd interchange	702	2	451	560							1011	1011	54	54							54	54	8	11							10	A	10	A	10	A
merge		477	3	174	868	681						1724	1724	47	52	53						51	51	4	17	13						11	B	11	B	11	B
basic		800	2	928	800							1728	1728	53	53							53	53	18	15							17	B	17	B	17	B
merge	CD - Btw Shady Grove Rd & MD 28	707	3	106	1152	1003						2262	2262	47	52	52						51	51	2	23	19						15	B	15	B	15	B
basic		1081	2	1002	1247							2249	2249	53	52							52	52	19	24							22	C	22	C	22	C
merge		609	3	1141	950	597						2689	2689	53	54	54						53	53	22	18	11						17	B	17	B	17	B
diverge		1506	3	1225	861	604						2691	2691	53	54	54						53	53	24	16	11						17	B	17	B	17	B
diverge		2914	2	1212	878							2091	2091	53	54							53	53	23	17							20	C	20	C	20	C
basic		170	2	1181	825							2006	2006	52	53							53	53	23	16							19	C	19	C	19	C
diverge		291	3	345	852	838						2035	2035	46	52	53						51	51	8	17	16						13	B	13	B	13	B
basic	CD - MD 28 interchange	926	2	677	814							1491	1491	54	53							54	54	13	15							14	B	14	B	14	B
merge		231	3	95	771	829						1696	1696	32	50	53						45	45	3	16	16						12	B	12	B	12	B
basic		1111	2	794	920							1714	1714	53	53							53	53	15	18							16	B	16	B	16	B
merge	CD - Btw MD 28 & MD 189	577	3	957	939	942						2838	2838	51	52	53						52	52	19	18	18						18	B	18	B	18	B
basic		1056	3	915	954	981						2851	2851	53	54	53						53	53	17	18	19						18	C	18	C	18	C
merge		610	4	659	1343	1318	201					3520	3520	53	53	53	53					53	53	13	26	25	4					17	B	18	B	18	B
basic		838	3	784	1350	1372						3506	3506	53	52	52						53	53	15	26	27						23	C	23	C	23	C
diverge		350	3	823	1338	1368						3529	3529	53	52	53						52	52	16	26	26						23	C	23	C	23	C
basic	CD - MD 189 interchange	816	2	1328	1366							2694	2691	53	53							53	53	25	26							26	D	26	D	26	D
		1802	2	1329	1360							2689		53	53							53		25	26							26	D	26	D		
merge	CD - Btw MD 189 & Montrose Rd	465	3	1017	1176	1069						3262	3262	51	53	53						53	53	20	23	20						21	C	21	C	21	C
diverge		2184	3	1417	869	988						3274	3274	47	50	51						50	50	32	18	20						23	C	23	C	23	C
basic		775	2	1386	730							2116	2116	47	50							48	48	33	16							24	C	24	C	24	C
diverge		235	3	227	1163	741						2131	2131	46	45	49						47	47	5	30	16						17	B	17	B	17	B
basic	CD - Montrose Rd interchange	1196	2	1020	732							1752	1752	46	52							49	49	28	15							21	C	21	C	21	C
weave		422	3	758	929	842						2528	2528	34	39	48						41	41	29	30	18						26	C	26	C	26	C
basic		1029	2	765	963							1728	1728	51	52							52	52	15	19							17	B	17	B	17	B
merge		415	3	121	956	1035						2113	2113	50	53	53						52	52	2	18	20						14	B	14	B	14	B
basic		1431	2	1023	1080							2103	2103	53	53							53	53	20	21							20	C	20	C	20	C

I-270 Northbound- 2027 No-Build - 3-4 PM

VISSIM Lookup Data				Volume									Speed									Density									
				Volume Per Lane							Across All Lanes	Overall Volume	Speed Per Lane							Across All Lanes	Overall Speed	Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)							Total Volume	Average Volume (veh/hr)	Speed (mph)							Average Speed	Average Speed (mph)	Combined Density (pcphpl)							Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Btw Watkins Mill Rd & MD 117	7479	4	1306	1403	1480	2037				6225	6225	15	17	20	37				22	22	94	89	78	55				79	F	79	F	79	F
diverge	Btw MD 117 & I-370	1357	5	1433	1452	1539	1443	1990			7856	7856	45	25	26	28	37			32	32	33	67	66	59	54			56	F	55	F	55	F
basic		843	5	1250	1643	1662	1373	1980			7907	7907	36	31	32	32	38			34	34	38	59	57	48	53			51	F	51	F	51	F
merge		531	6	183	1089	1944	1476	1248	1975		7915	7915	18	25	30	34	36	37		30	30	22	59	74	49	38	57		50	F	51	F	51	F
basic	I-370 interchange	3610	4	1609	1482	1197	1997				6285	6299	36	40	44	44				41	43	51	42	29	47				42	E	42	E	40	E
		633	4	1333	1527	1473	1973				6306		47	47	48	47				47		33	37	33	43				36	E	36	E		
		1171	4	1319	1538	1472	2010				6338		47	47	48	46				47		32	36	33	45				36	E	36	E		
merge		337	4	0	1306	1537	1473	2029			6345	6345	0	48	48	49	47			39	39	0	30	34	32	45			28	D	21	C	21	C
basic	Shady Grove Rd interchange	3947	4	1285	1563	1484	2039				6371	6371	51	51	52	49				51	51	26	31	29	43				32	D	32	D	32	D
weave	Btw Shady Grove Rd & MD 28	1523	5	1098	2096	1634	1502	2050			8380	8382	54	53	53	53	50			53	53	21	40	31	28	42			33	D	33	D	32	D
		1475	5	1018	2187	1650	1475	2053			8381		54	52	53	53	52			53		19	43	32	28	40			32	D	32	D		
		1482	5	775	1992	2278	1290	2051			8385		54	52	52	54	53			53		15	39	44	24	39			32	D	32	D		
basic	MD 28 interchange	3696	4	1951	1910	1350	2053				7265	7265	51	52	53	51				52	52	39	37	26	40				35	E	35	E	35	E
		464	4	1765	1843	1574	2084				7266		53	53	53	52				53		34	35	30	40				35	E	35	E		
weave		1405	5	878	1750	1833	1526	2096			8084	8084	53	52	52	53	52			53	53	17	34	35	29	40			31	D	31	D	31	D
		640	5	1025	1736	1821	1408	2095			8085		53	53	53	53	52			53		20	33	35	27	40			31	D	31	D		
basic	Btw MD 28 & MD 189	531	4	1752	1554	1408	2112				6825	6822	53	53	53	52				53	52	34	30	27	40				33	D	33	D	33	D
		1407	4	1732	1556	1420	2113				6821		51	52	52	52				52		34	30	27	40				33	D	33	D		
diverge	Btw MD 189 & Montrose Rd	1536	4	2500	1691	1298	2086				7575	7575	45	46	49	52				48	48	56	37	27	40				40	E	40	E	40	E
basic		74	4	2594	1686	1157	2053				7490	7581	50	52	54	53				52	53	53	33	22	39				37	E	37	E	36	E
		1921	4	2285	2064	1159	2077				7586		52	52	54	53				53		45	40	22	40				36	E	36	E		
		3344	4	2186	1993	1319	2083				7581		52	53	54	53				53		43	38	25	40				36	E	36	E		
diverge	Montrose Rd interchange	1486	5	1164	1959	1772	985	2090			7971	7971	50	52	52	54	53			52	52	24	38	34	18	40			31	D	32	D	32	D
basic		425	5	1937	1665	1359	904	2088			7953	7957	53	54	54	55	53			54	53	37	32	26	17	39			30	D	30	D	31	D
		2955	5	1969	1672	1354	941	2021			7957		52	53	53	54	50			52		38	32	26	18	41			31	D	31	D		
weave	Btw Montrose Rd & Spur Split	1533	7	1513	1582	1862	1742	1443	1635	1294	11071	11074	53	53	52	53	53	53	53	53	52	29	31	36	34	28	31	24	30	D	30	D	31	D
		1210	7	1391	1840	2035	1644	1276	1613	1281	11080		53	52	51	53	53	53	53	53		27	36	40	32	24	30	24	31	D	31	D		
		1521	7	1190	2295	2254	1329	1152	1617	1235	11073		52	46	48	52	53	53	53	51		23	50	48	26	22	31	23	32	D	32	D		
weave		447	6	1350	2260	2026	1346	1240	1651		9874	9874	52	48	49	52	53	53		51	51	27	48	42	26	24	31		33	D	33	D	33	D
basic	Btw Spur Split & MD 187	1229	2	1925	1970						3895	3893	47	47						47	47	42	43						42	E	42	E	42	E
merge		736	3	13	1881	2006					3900		45	46	47					46	47	0	42	44					29	D	29	D	27	C
		519	3	64	1770	2049					3883		45	51	52					50		1	35	40					26	C	26	C		
weave		624	5	64	546	1430	1862	1129			5033	5033	38	39	54	56	59			49	49	2	14	27	34	19			19	B	19	B	19	B
basic	MD 187 interchange	511	3	1315	1368	1127					3809	3821	58	58	58					58	58	23	24	20					22	C	22	C	22	C
		1863	3	1306	1386	1132					3824		58	58	58					58		23	24	20					22	C	22	C		
diverge		520	4	164	1328	1415	1130				4037	4037	58	59	59	59				59	59	3	23	25	19				17	B	17	B	17	B
basic		797	3	1460	1431	1124					4015	4015	57	57	57					57	57	26	26	20					24	C	24	C	24	C
diverge	Btw MD 187 & I-495	674	4	294	1508	1460	1128				4390	4396	59	58	58	58				58	58	5	26	26	19				19	B	19	B	19	B
basic		824	3	1786	1467	1124					4376		58	58	58					58	58	31	26	19					25	C	25	C	26	D
		3315	3	1817	1460	1125					4402		57	58	58					58		32	26	19					26	D	26	D		
		1136	3	1765	1587	1040					4392		56	56	58					57		32	29	18					26	D	26	D		
merge		429	4	420	1682	1305	978				4384	4384	50	55	57	59				55	55	9	31	23	17				20	C	21	C	21	C
basic		386	3	1369	1153	664					3186	3186	58	59	59					59	59	24	20	11					18	C	18	C	18	C
basic		500	2	1376	1814						3190	3190	56	56						56	56	25	33						29	D	29	D	29	D
basic	Btw Spur Split & Democracy Blvd	1850	4	1215	1531	1630	1659				6035	6035	54	53	53	52				53	53	23	29	31	32				29	D	29	D	29	D
merge		717	5	1109	1549	1718	1514	140			6029	6029	55	54	54	49	46			51	51	20	29	33	31	3			23	C	22	C	22	C
basic		1170	4	1013	1582	1766	1096				5457	5457	55	54	54	53				54	54	19	30	33	21				26	D	26	D	26	D
merge		820	4	874	1643	1867	1101				5485	5485	52	53	53	53				53	53	17	31	36	21				26	C	28	D	28	D
basic	Democracy Blvd interchange	457	3	1775	1886	1081					4742	4742	52	52	53					52	52	35	37	20					31	D	31	D	31	D
merge		887	4	192	1581	1940	1095				4809	4809	50	54	53	54				52	52	4	30	37	20				23	C	24	C	24	C
basic		790	3	1660	1770	1093					4523	4523	54	54	54					54	54	31	33	20					28	D	28	D	28	D
diverge	Btw Democracy Blvd & I-495	894	4	349	1654	1837	1096				4935	4935	53	54	55	54				54	54	7	31	34	20				23	C	24	C	24	C
basic		2479	3	1971	1877	1097					4945	4945	51	52	54					52	52	39	36	20					32	D	32	D	32	D
diverge	CD - Btw MD 124 & MD 117	2235	2	968	1363						2331	2331	51	44						48	48	19	31						25	C	25	C	25	C
weave	CD - Btw MD 117 & I-370	600	3	1039	1313	1348					3700	3700	39	43	41					41	41	27	31	34					31	C	31	C	31	C
basic		4137	2	866	1406						2273	2273	53	52						53	53	17	27						22	C	22	C	22	C
weave		1981	3	1136	1755	1192					4083	4083	43	41	38					41	41	29	48	40					39	E	39	E	39	E
basic	CD - I-370 interchange	1052	2	1309	1328						2637	2637	43	44						44	44	37	35						36	E	36	E	36	E
merge		704	3	180	1195	1289					2665	2665	42	46	47					45	45	9	30	30					23	C	23	C	23	C
basic		981	2	1041	1085						2126	2126	49	50						50	50	22	22						22	C	22	C	22	C
diverge	CD - Btw I-370 & Shady Grove Rd	483	3	1748	1512	1114					4373	4373	50	52	53					52	52	35	29	21					29	D	29	D	29	D
basic		950	3	1528	1738	1085					4351	4351	51	52	53					52	52	30	34	21					28	D	28	D	28	D
diverge		553	3	1425	1839	1103					4367	4367	52	52	53					52	52	28	36	21					28	D	28	D	28	D
merge		303	4	294	1528	1447	1037				4306	4306	46	52	53	53				51	51	7	30	28	20				21	C	21	C	21	C
basic	CD - Shady Grove Rd interchange	986	3	1370	1280	1014					3665	3665	53	53	53					53	53	26	24	19					23	C	23	C	23	C
weave		352	4	221	1281	1193	947				3641	3641	48	52	53	54				52	52	5	25	23	18				18	B	18	B	18	B
diverge	CD - Btw Shady Grove Rd & MD 28	190	3	448	1038	999					2486	2486	53	54	53					53	53	9	20	19					16	B	16	B	16	B
basic		4624	2	1465	1042						2508	2508	53	53						53	53	28	20						24	C	24	C	24	C
diverge		2601	3	837	1125	1661					3623	3623	54	53	52					53	53	16	21	32					23	C	23	C	23	C
weave		177	4	14	1145	1535	930				3624	3624	34	51	53	53				48	48	0	23	30	18				18	B	18	B	18	B
merge		274	3	253	1032	1432					2716	2716	39	50	53					47	47	7	21	27					18	B	18	B	18	B
basic	CD - MD 28 interchange	924	2	775	1374						2149	2149	52	53						52	52	15	26						21	C	21	C	21	C
weave		258	3	803	1149	1447					3399	3399	30	40	51					41	41	27	29	29					28	C	28	C	28	C
basic		862	2	1923	1352						3275	3275	49	51						50	50	40	27						33	D	33	D	33	D
diverge	CD - Btw MD 28 & MD 189	379	3	536	1965	1182					3683	3683	42	44	50					45	45	13	46	24					28	D	28	D	28	D
basic		525	3	991	1705	1003					3698	3698	52	50	52					51	51	19	35	20					25	C	25	C	25	C
weave		710	4	957	1525	1267	1275				5023	5023	53	52	51	49				51	51	18	30	25	26				25	C	25	C	25	C
basic		1165	3	677	1322	2268					4267	4267	53	52	50					52	52	13	26	46					28	D	28	D	28	D
merge		286	3	738	1454	2074					4267	4267	42	51	52					48	48	18	29	41					29	D	29	D	29	D
basic	CD - MD 189 interchange	810	2	1504	1876						3380	3378	53	53						53	53	29	36						32	D	32	D	32	D
		649	2	1475	1901						3376		53	53						53		28	36						32	D	32	D		
diverge	CD - Btw MD 189 & Montrose Rd	220	3	333	1655	1944					3931	3931	45	49	52					49	49	8	34	38					27	C	27	C	27	C
basic		1046	2	2034	1913						3947	3948	52	53						52	51	40	37						39	E	39	E	39	E
		2216	2	2053	1895						3948		51	52						51		41	37						39	E	39	E		
merge		463	3	1898	1899	153					3950	3950	50	50	48					49	49	39	38	3					27	C	27	C	27	C
basic		950	2	1739	1815						3554	3554	49	50						49	49	36	37						37	E	37	E	37	E
merge		402	3	435	1571	1564					3569	3569	41	46	50					45	45	11	35	32					26	C	26	C	26	C
basic		1126	2	979	1283						2261	2261	53	53						53	53	19	25						22	C	22	C	22	C
weave	CD - Montrose Rd interchange	342	3	336	1009	1234					2579	2579	42	50	53					48	48	8	21	24					18	B	18	B	18	B
basic		1121	2	1017	1153						2169	2169	53	53						53	53	19	22						21	C	21	C	21	C
diverge	CD - Btw Montrose Rd & Spur Split	262	3	560	1323	1202					3085	3085	48	49	52					49	49	12	28	24					21	C	21	C	21	C
basic		1303	2	1891	1192						3083	3083	52	54						53	53	37	23						30	D	30	D	30	D

I-270 Northbound- 2027 No-Build - 4-5 PM

VISSIM Lookup Data				Volume									Speed									Density									
				Volume Per Lane							Across All Lanes	Overall Volume	Speed Per Lane							Across All Lanes	Overall Speed	Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)							Total Volume	Average Volume (veh/hr)	Speed (mph)							Average Speed	Average Speed (mph)	Combined Density (pcphpl)							Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Btw Watkins Mill Rd & MD 117	7479	4	833	934	1111	1945				4822	4822	6	7	9	28				12	12	152	143	129	69				123	F	123	F	123	F
diverge	Btw MD 117 & I-370	1357	5	974	874	941	1104	1882			5775	5775	19	6	7	8	26			13	13	52	150	146	133	74			111	F	116	F	116	F
basic		843	5	975	878	949	1140	1848			5791	5791	12	7	7	9	25			12	12	82	135	134	124	74			110	F	110	F	110	F
merge		531	6	416	653	736	883	1264	1830		5781	5781	4	4	5	7	11	21		9	9	108	168	166	132	118	86		130	F	144	F	144	F
basic	I-370 interchange	3610	4	681	873	1318	1838				4710	4740	4	7	14	28				13	13	161	136	96	67				115	F	115	F	114	F
		633	4	809	944	1206	1795				4754		6	7	11	27				13		142	135	115	66				115	F	115	F		
		1171	4	852	967	1189	1816				4825		7	8	11	25				13		133	128	110	72				111	F	111	F		
merge		337	4	0	879	986	1197	1832			4893	4893	0	7	7	10	20			9	9	0	140	137	121	93			98	F	92	F	92	F
basic	Shady Grove Rd interchange	3947	4	946	1057	1209	1839				5051	5051	9	10	12	25				14	14	114	114	102	76				102	F	102	F	102	F
weave	Btw Shady Grove Rd & MD 28	1523	5	1423	1480	1211	1273	1857			7244	7383	27	14	12	14	25			18	21	54	109	104	96	78			88	F	88	F	79	F
		1475	5	1280	1658	1274	1313	1867			7392		22	18	15	17	29			20		60	96	88	81	66			78	F	78	F		
		1482	5	950	1594	1810	1292	1869			7516		17	19	21	23	37			23		60	88	90	59	52			70	F	70	F		
basic	MD 28 interchange	3696	4	1652	1665	1365	1867				6548	6565	22	24	28	43				29	29	78	74	51	44				61	F	61	F	62	F
		464	4	1532	1633	1612	1919				6696		24	25	27	35				28		69	70	64	55				65	F	65	F		
weave		1405	5	837	1524	1630	1605	1956			7551	7589	32	25	27	29	36			30	30	30	67	66	60	55			56	F	56	F	55	F
		640	5	1013	1524	1630	1538	1966			7672		33	28	29	31	38			32		36	62	61	55	54			53	F	53	F		
basic	Btw MD 28 & MD 189	531	4	1472	1443	1563	1993				6471	6541	29	31	33	39				33	35	59	54	52	52				54	F	54	F	52	F
		1407	4	1470	1474	1615	2009				6567		31	33	36	41				35		54	50	49	50				51	F	51	F		
diverge		1536	4	2248	1674	1598	1972				7491	7491	30	30	35	44				35	35	80	60	48	47				59	F	63	F	63	F
basic	Btw MD 189 & Montrose Rd	74	4	2416	1727	1393	1919				7454	7658	35	37	41	46				40	46	74	51	36	43				51	F	51	F	45	F
		1921	4	2217	2108	1328	1940				7593		40	41	44	47				43		60	55	33	42				47	F	47	F		
		3344	4	2161	2094	1500	1944				7700		46	47	47	49				47		51	48	34	40				43	E	43	E		
diverge	Montrose Rd interchange	1486	5	1355	2028	1893	1138	1957			8372	8372	41	47	48	48	50			47	47	35	46	41	25	40			37	E	41	E	41	E
basic		425	5	2079	1791	1494	1050	1961			8376	8423	49	49	49	50	51			50	50	44	38	32	22	39			35	E	35	E	35	E
		2955	5	2142	1820	1493	1060	1916			8430		49	50	51	51	50			50		45	37	30	21	39			34	D	34	D		
weave	Btw Montrose Rd & Spur Split	1533	7	1375	1459	1986	1913	1641	1725	1240	11338	11348	53	53	51	52	53	53	53	52	52	26	28	40	37	32	33	23	31	D	31	D	32	D
		1210	7	1264	1779	2119	1831	1447	1686	1228	11354		53	51	51	52	53	53	53	52		24	35	42	36	28	32	23	31	D	31	D		
		1521	7	1143	2274	2274	1503	1301	1694	1164	11352		51	45	46	51	53	53	53	50		23	52	50	30	25	32	22	33	D	33	D		
weave		447	6	1434	2235	2119	1430	1303	1743		10264	10264	50	46	48	51	53	53		50	50	29	50	45	29	25	33		35	E	35	E	35	E
basic	Btw Spur Split & MD 187	1229	2	2014	2065						4079	4079	38	39						39	39	54	53						54	F	54	F	54	F
merge		736	3	119	1926	2045					4090	4088	28	22	23					24	24	4	88	91					61	F	61	F	63	F
		519	3	394	1776	1916					4086		27	21	20					23		15	86	97					66	F	66	F		
weave		624	5	124	993	1419	1597	1012			5145	5145	27	21	15	15	59			27	27	5	48	97	109	17			55	F	55	F	55	F
basic	MD 187 interchange	511	3	1323	1316	1008					3647	3690	15	14	58					29	30	92	93	17					68	F	68	F	62	F
		1863	3	1337	1355	1009					3701		17	17	58					31		81	82	17					60	F	60	F		
diverge		520	4	153	1354	1410	1009				3926	3926	46	18	18	59				35	35	3	78	80	17				44	F	53	F	53	F
basic		797	3	1465	1464	1003					3932	3932	24	23	57					35	35	65	65	18					49	F	49	F	49	F
diverge	Btw MD 187 & I-495	674	4	314	1498	1521	1006				4339	4339	52	27	27	58				41	41	6	59	59	17				35	E	41	E	41	E
basic		824	3	1770	1580	1002					4352	4423	36	35	58					43	49	53	49	17					40	E	40	E	34	D
		3315	3	1838	1591	1000					4429		45	45	58					49		45	39	17					34	D	34	D		
		1136	3	1835	1733	890					4459		50	50	58					53		38	36	15					30	D	30	D		
merge		429	4	463	1748	1468	778				4458	4458	46	52	54	59				53	53	11	34	28	13				21	C	24	C	24	C
basic		386	3	1413	1227	526					3167	3167	57	57	59					58	58	25	22	9					19	C	19	C	19	C
basic		500	2	1418	1753						3171	3171	56	56						56	56	26	32						29	D	29	D	29	D
basic	Btw Spur Split & Democracy Blvd	1850	4	1286	1567	1642	1755				6249	6249	54	53	53	51				53	53	24	30	32	34				30	D	30	D	30	D
merge		717	5	1182	1584	1728	1587	163			6243	6243	54	54	53	47	44			50	50	22	30	33	34	4			25	C	24	C	24	C
basic		1170	4	1094	1607	1776	1099				5576	5576	54	54	53	52				53	53	20	30	34	21				26	D	26	D	26	D
merge		820	4	965	1666	1870	1102				5603	5603	51	53	53	53				53	53	19	32	36	21				27	C	29	D	29	D
basic	Democracy Blvd interchange	457	3	1755	1886	1086					4727	4727	52	52	53					52	52	34	37	21					31	D	31	D	31	D
merge		887	4	184	1571	1933	1100				4789	4789	49	53	53	53				52	52	4	30	37	21				23	C	24	C	24	C
basic		790	3	1672	1766	1100					4538	4538	54	54	53					54	54	32	33	21					29	D	29	D	29	D
diverge	Btw Democracy Blvd & I-495	894	4	381	1661	1844	1102				4988	4988	53	54	55	54				54	54	7	31	34	20				23	C	24	C	24	C
basic		2479	3	2002	1888	1102					4992	4992	51	53	53					52	52	40	37	21					32	D	32	D	32	D
diverge	CD - Btw MD 124 & MD 117	2235	2	756	965						1721	1721	52	46						49	49	15	21						18	B	18	B	18	B
weave	CD - Btw MD 117 & I-370	600	3	895	997	937					2829	2829	39	44	42					42	42	23	23	23					23	B	23	B	23	B
basic		4137	2	790	1152						1943	1943	51	50						51	51	16	23						20	C	20	C	20	C
weave		1981	3	1171	1144	835					3149	3149	14	9	6					10	10	86	133	146					122	F	122	F	122	F
basic	CD - I-370 interchange	1052	2	892	1178						2069	2069	6	9						8	8	148	131						140	F	140	F	140	F
merge		704	3	365	590	1160					2115	2115	3	4	10					5	5	148	158	126					144	F	144	F	144	F
basic		981	2	573	1088						1662	1662	4	10						7	7	149	116						133	F	133	F	133	F
diverge	CD - Btw I-370 & Shady Grove Rd	483	3	1740	821	1097					3659	3659	29	6	10					15	15	63	142	112					105	F	105	F	105	F
basic		950	3	1453	1126	1102					3681	3681	18	10	12					13	13	87	121	100					103	F	103	F	103	F
diverge		553	3	1255	1324	1166					3744	3744	14	13	14					14	14	93	110	87					97	F	97	F	97	F
merge		303	4	455	969	1146	1154				3724	3724	6	10	11	13				10	10	89	107	110	92				100	F	102	F	102	F
basic	CD - Shady Grove Rd interchange	986	3	878	1088	1130					3095	3095	9	12	14					11	11	110	103	88					100	F	100	F	100	F
weave		352	4	246	774	1090	1029				3140	3140	3	9	14	15				10	10	88	99	87	73				87	F	87	F	87	F
diverge	CD - Btw Shady Grove Rd & MD 28	190	3	371	855	716					1942	1982	51	52	12					38	38	7	17	69					31	D	31	D	31	D
basic		4624	2	1203	779						1982		52	28						40	40	24	31						27	D	27	D	27	D
diverge		2601	3	657	923	1588					3167	3167	54	52	40					49	49	12	18	41					24	C	24	C	24	C
weave		177	4	9	976	1346	838				3169	3169	33	52	53	53				48	48	0	19	26	16				15	B	15	B	15	B
merge		274	3	209	884	1263					2357	2357	39	50	53					47	47	5	18	24					16	B	16	B	16	B
basic	CD - MD 28 interchange	924	2	631	1229						1861	1861	51	52						52	52	13	24						18	C	18	C	18	C
weave		258	3	874	1062	1334					3270	3270	21	31	47					33	33	43	36	29					36	D	36	D	36	D
basic		862	2	1906	1215						3121	3121	46	50						48	48	42	25						34	D	34	D	34	D
diverge	CD - Btw MD 28 & MD 189	379	3	582	1897	1026					3505	3505	34	36	46					38	38	20	57	24					33	D	33	D	33	D
basic		525	3	984	1674	862					3520	3520	48	41	49					46	46	21	43	18					28	D	28	D	28	D
weave		710	4	962	1466	1194	1272				4893	4893	46	42	33	30				38	38	22	36	41	48				37	E	37	E	37	E
basic		1165	3	717	1253	2157					4127	4127	44	44	40					43	43	18	30	57					35	E	35	E	35	E
merge		286	3	760	1408	1981					4150	4150	37	44	44					42	42	22	34	47					34	D	34	D	34	D
basic	CD - MD 189 interchange	810	2	1457	1798						3255	3263	47	47						47	48	33	40						36	E	36	E	36	E
		649	2	1436	1837						3272		49	49						49		30	39						34	D	34	D		
diverge	CD - Btw MD 189 & Montrose Rd	220	3	346	1625	1885					3856	3856	45	47	50					47	47	8	36	39					28	D	28	D	28	D
basic		1046	2	2034	1847						3882	3897	50	50						50	50	42	38						40	E	40	E	40	E
		2216	2	2050	1854						3904		50	51						50		42	37						40	E	40	E		
merge		463	3	1863	1815	232					3910	3910	49	48	45					47	47	39	39	5					28	D	28	D	28	D
basic		950	2	1659	1644						3303	3303	50	51						50	50	34	33						34	D	34	D	34	D
merge		402	3	434	1511	1370					3315	3315	42	47	50					47	47	11	33	28					24	C	24	C	24	C
basic	CD - Montrose Rd interchange	1126	2	830	1092						1922	1922	53	53						53	53	16	21						18	C	18	C	18	C
weave		342	3	336	880	1034					2250	2250	42	49	53					48	48	8	18	20					15	B	15	B	15	B
basic		1121	2	895	962						1857	1857	53	54						54	54	17	18						18	C	18	C	18	C
diverge	CD - Btw Montrose Rd & Spur Split	262	3	584	1222	1007					2813	2813	48	49	53					50	50	12	25	19					19	B	19	B	19	B
basic		1303	2	1795	1020						2815	2815	52	54						53	53	35	19						27	D	27	D	27	D

I-270 Northbound- 2027 No-Build - 5-6 PM

VISSIM Lookup Data				Volume									Speed									Density									
				Volume Per Lane							Across All Lanes	Overall Volume	Speed Per Lane							Across All Lanes	Overall Speed	Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)							Total Volume	Average Volume (veh/hr)	Speed (mph)							Average Speed	Average Speed (mph)	Combined Density (pcphpl)							Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Btw Watkins Mill Rd & MD 117	7479	4	834	988	1097	1740				4659	4659	6	7	9	42				16	16	150	137	129	41				114	F	114	F	114	F
diverge	Btw MD 117 & I-370	1357	5	992	807	916	1050	1699			5464	5464	17	5	6	8	46			17	17	67	155	144	135	37			108	F	122	F	122	F
basic		843	5	940	827	906	1108	1682			5464	5464	10	6	7	9	42			15	15	97	137	128	121	41			105	F	105	F	105	F
merge		531	6	443	602	654	824	1242	1661		5425	5425	3	4	4	7	12	41		12	12	136	175	169	128	107	43		126	F	152	F	152	F
basic	I-370 interchange	3610	4	603	817	1250	1651				4321	4313	4	6	13	39				15	14	172	145	97	43				114	F	114	F	120	F
		633	4	737	836	1103	1622				4298		5	5	8	27				11		163	156	136	59				128	F	128	F		
		1171	4	756	826	1062	1651				4295		5	5	8	21				10		159	154	134	77				131	F	131	F		
merge		337	4	0	758	814	1040	1672			4285	4285	0	4	5	7	15			6	6	0	176	171	154	112			123	F	116	F	116	F
basic	Shady Grove Rd interchange	3947	4	796	819	998	1673				4286	4286	5	5	7	18				9	9	160	158	143	93				138	F	138	F	138	F
weave	Btw Shady Grove Rd & MD 28	1523	5	1395	849	859	1003	1653			5759	5740	15	5	5	6	19			10	11	100	171	173	162	92			140	F	140	F	130	F
		1475	5	1258	909	863	1068	1633			5732		11	6	5	7	24			11		113	158	160	150	72			131	F	131	F		
		1482	5	1053	836	971	1257	1611			5728		9	5	6	12	35			14		124	159	154	103	50			118	F	118	F		
basic	MD 28 interchange	3696	4	992	1046	1226	1611				4875	4871	7	8	13	33				15	14	144	138	95	49				107	F	107	F	111	F
		464	4	965	998	1199	1682				4844		6	6	8	17				9		162	161	147	101				143	F	143	F		
weave		1405	5	744	804	963	1144	1683			5338	5326	11	5	6	8	16			9	9	69	169	159	147	104			129	F	129	F	129	F
		640	5	935	738	883	1079	1665			5300		10	5	6	8	18			9		97	162	149	137	94			128	F	128	F		
basic	Btw MD 28 & MD 189	531	4	746	828	1063	1667				4303	4285	5	6	9	20				10	11	163	136	127	89				129	F	129	F	115	F
		1407	4	789	761	1067	1661				4278		6	7	10	21				11		138	112	106	83				110	F	110	F		
diverge		1536	4	1055	631	1313	1689				4687	4687	7	4	12	24				12	12	153	173	113	75				128	F	146	F	146	F
basic	Btw MD 189 & Montrose Rd	74	4	936	694	1324	1672				4626	4762	6	4	12	25				12	11	160	164	109	70				126	F	126	F	134	F
		1921	4	841	861	1305	1710				4717		5	5	12	26				12		171	169	114	66				130	F	130	F		
		3344	4	919	941	1188	1743				4791		6	6	9	22				11		164	163	140	78				136	F	136	F		
diverge	Montrose Rd interchange	1486	5	691	673	992	1113	1752			5221	5221	5	4	7	8	18			8	8	144	181	157	144	98			145	F	161	F	161	F
basic		425	5	873	667	946	1075	1737			5298	5399	5	4	6	8	18			8	9	167	179	152	139	97			147	F	147	F	128	F
		2955	5	926	843	977	1037	1632			5414		7	6	8	9	18			10		145	147	129	118	90			126	F	126	F		
weave	Btw Montrose Rd & Spur Split	1533	7	1338	770	784	954	1154	1222	1242	7464	7617	38	11	5	7	10	10	12	13	13	36	76	166	153	125	121	108	112	F	112	F	107	F
		1210	7	1216	1039	920	935	1096	1231	1218	7655		26	11	6	7	10	11	13	12		48	99	155	142	114	112	95	110	F	110	F		
		1521	7	1050	1249	1094	876	1080	1312	1079	7740		17	10	8	9	14	15	16	13		66	133	146	104	80	88	73	99	F	99	F		
weave		447	6	1160	1237	1129	959	1147	1445		7077	7077	14	11	10	11	16	28		15	15	88	123	125	94	77	60		95	F	95	F	95	F
basic	Btw Spur Split & MD 187	1229	2	1443	1258						2700	2700	14	11						13	13	106	126						116	F	116	F	116	F
merge		736	3	362	1078	1294					2734	2741	5	8	9					7	7	83	146	144					124	F	124	F	128	F
		519	3	626	941	1182					2750		7	6	8					7		93	155	150					133	F	133	F		
weave		624	5	285	763	735	1014	650			3447	3447	4	6	5	7	59			16	16	92	134	170	160	11			113	F	113	F	113	F
basic	MD 187 interchange	511	3	689	906	646					2241	2269	4	6	58					23	23	173	150	11					111	F	111	F	111	F
		1863	3	716	913	648					2277		4	6	58					23		171	150	11					111	F	111	F		
diverge		520	4	119	731	943	645				2438	2438	36	4	6	59				26	26	3	176	159	11				87	F	113	F	113	F
basic		797	3	824	966	639					2429	2429	5	7	58					23	23	161	147	11					107	F	107	F	107	F
diverge	Btw MD 187 & I-495	674	4	165	841	993	640				2638	2638	41	6	7	58				28	28	4	159	147	11				80	F	103	F	103	F
basic		824	3	968	1048	638					2654	2736	7	7	58					24	24	153	145	11					103	F	103	F	99	F
		3315	3	1003	1090	636					2730		7	8	58					25		149	139	11					100	F	100	F		
		1136	3	1064	1163	585					2812		8	9	57					25		142	134	10					96	F	96	F		
merge		429	4	475	770	1096	520				2862	2862	4	6	9	55				18	18	140	153	133	9				109	F	142	F	142	F
basic		386	3	751	974	409					2134	2134	6	9	40					18	18	146	122	10					93	F	93	F	93	F
basic		500	2	869	1295						2164	2164	7	13						10	10	131	110						120	F	120	F	120	F
basic	Btw Spur Split & Democracy Blvd	1850	4	818	1018	1191	1445				4473	4473	11	15	19	32				19	19	88	82	73	50				73	F	73	F	73	F
merge		717	5	838	1046	1184	1228	205			4501	4501	20	23	25	33	36			27	27	71	71	66	43	7			52	F	39	E	39	E
basic		1170	4	805	1072	1206	688				3772	3772	30	32	34	44				35	35	53	55	53	21				46	F	46	F	46	F
merge		820	4	761	1119	1229	687				3796	3796	34	37	39	48				39	39	46	50	48	17				40	E	48	F	48	F
basic	Democracy Blvd interchange	457	3	1065	1200	674					2939	2939	38	39	49					42	42	44	43	15					34	D	34	D	34	D
merge		887	4	159	920	1217	681				2978	2978	31	39	41	52				41	41	21	38	39	13				28	D	33	D	33	D
basic		790	3	926	1131	676					2733	2733	46	46	54					49	49	30	31	13					24	C	24	C	24	C
diverge	Btw Democracy Blvd & I-495	894	4	274	928	1179	676				3058	3058	53	48	48	55				51	51	5	28	31	12				19	B	21	C	21	C
basic		2479	3	1134	1252	673					3058	3058	46	47	54					49	49	30	31	12					24	C	24	C	24	C
diverge	CD - Btw MD 124 & MD 117	2235	2	790	877						1667	1667	34	24						29	29	37	70						54	F	54	F	54	F
weave	CD - Btw MD 117 & I-370	600	3	740	967	918					2626	2626	41	35	31					36	36	19	40	48					36	D	36	D	36	D
basic		4137	2	626	1086						1712	1712	49	42						45	45	13	33						23	C	23	C	23	C
weave		1981	3	1074	1017	762					2854	2854	12	7	5					8	8	93	146	163					134	F	134	F	134	F
basic	CD - I-370 interchange	1052	2	766	1059						1826	1826	5	7						6	6	174	155						164	F	164	F	164	F
merge		704	3	379	399	1054					1832	1832	2	2	7					4	4	195	196	156					182	F	182	F	182	F
basic		981	2	387	1015						1403	1403	2	7						4	4	204	159						181	F	181	F	181	F
diverge	CD - Btw I-370 & Shady Grove Rd	483	3	1564	411	985					2961	2961	24	2	6					11	11	67	202	160					143	F	143	F	143	F
basic		950	3	1314	659	976					2949	2949	12	4	7					7	7	112	175	151					146	F	146	F	146	F
diverge		553	3	1075	838	1035					2948	2948	8	5	8					7	7	134	161	135					143	F	143	F	143	F
merge		303	4	538	538	754	1071				2901	2901	3	3	4	7				5	5	161	167	171	148				162	F	166	F	166	F
basic	CD - Shady Grove Rd interchange	986	3	491	707	1084					2282	2282	3	4	7					5	5	193	175	152					174	F	174	F	174	F
weave		352	4	272	325	688	987				2273	2273	2	2	5	8				4	4	180	182	158	134				164	F	164	F	164	F
diverge	CD - Btw Shady Grove Rd & MD 28	190	3	261	612	338					1211	1211	52	53	7					37	37	5	12	86					34	D	34	D	34	D
basic		4624	2	856	355						1211	1211	52	26						39	39	17	22						20	C	20	C	20	C
diverge		2601	3	382	539	1067					1988	1988	54	52	42					49	49	7	11	27					15	B	15	B	15	B
weave		177	4	3	646	751	583				1983	1983	39	52	52	52				49	49	0	13	15	11				10	B	10	B	10	B
merge		274	3	159	603	633					1395	1395	39	49	53					47	47	4	13	12					10	B	10	B	10	B
basic	CD - MD 28 interchange	924	2	335	614						949	949	52	53						52	52	7	12						9	A	9	A	9	A
weave		258	3	613	689	633					1935	1935	22	32	49					34	34	29	22	13					22	B	22	B	22	B
basic		862	2	1242	576						1817	1817	46	49						48	48	28	12						20	C	20	C	20	C
diverge	CD - Btw MD 28 & MD 189	379	3	473	1239	416					2127	2127	29	31	41					34	34	17	42	11					23	C	23	C	23	C
basic		525	3	779	1081	277					2137	2137	38	31	37					35	35	22	38	8					22	C	22	C	22	C
weave		710	4	1098	855	566	641				3160	3160	15	7	4	4				7	7	76	125	152	169				130	F	130	F	130	F
basic		1165	3	1204	824	712					2739	2739	13	7	4					8	8	98	128	179					135	F	135	F	135	F
merge		286	3	1018	952	796					2765	2765	10	7	5					7	7	105	134	166					135	F	135	F	135	F
basic	CD - MD 189 interchange	810	2	1120	843						1962	1972	8	6						7	7	138	160						149	F	149	F	146	F
		649	2	1048	936						1984		8	7						7		134	151						143	F	143	F		
diverge	CD - Btw MD 189 & Montrose Rd	220	3	362	1073	1070					2505	2505	32	9	8					16	16	12	124	142					92	F	92	F	92	F
basic		1046	2	1402	1133						2535	2571	12	9						10	11	124	137						130	F	130	F	125	F
		2216	2	1403	1186						2588		12	10						11		120	125						123	F	123	F		
merge		463	3	1283	1160	195					2638	2638	11	10	10					10	10	123	126	23					90	F	90	F	90	F
basic		950	2	1231	1139						2370	2370	11	10						11	11	116	121						118	F	118	F	118	F
merge		402	3	463	917	1018					2398	2398	5	8	10					8	8	107	123	107					112	F	112	F	112	F
basic	CD - Montrose Rd interchange	1126	2	621	746						1368	1368	13	16						14	14	66	59						62	F	62	F	62	F
weave		342	3	249	712	617					1578	1578	25	30	32					29	29	20	34	30					28	D	28	D	28	D
basic		1121	2	716	523						1239	1239	40	41						41	41	23	17						20	C	20	C	20	C
diverge	CD - Btw Montrose Rd & Spur Split	262	3	372	944	525					1841	1841	49	50	51					50	50	8	19	11					13	B	13	B	13	B
basic		1303	2	1324	513						1837	1837	51	52						51	51	26	10						18	C	18	C	18	C

I-270 Northbound- 2027 No-Build - 6-7 PM

VISSIM Lookup Data				Volume									Speed								Density													
				Volume Per Lane							Across All Lanes	Overall Volume	Speed Per Lane							Across All Lanes	Overall Speed	Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)							Total Volume	Average Volume (veh/hr)	Speed (mph)							Average Speed	Average Speed (mph)	Combined Density (pcphpl)							Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Btw Watkins Mill Rd & MD 117	7479	4	1147	1283	1439	1726				5595	5595	15	18	20	50				26	26	101	94	90	34				80	F	80	F	80	F
diverge	Btw MD 117 & I-370	1357	5	1376	1141	1241	1462	1697			6917	6917	28	10	12	18	51			24	24	57	113	110	93	34			81	F	93	F	93	F
basic		843	5	1200	1198	1276	1532	1679			6886	6886	16	12	14	19	48			22	22	81	101	95	85	35			79	F	79	F	79	F
merge		531	6	304	1024	1080	1145	1611	1658		6822	6822	7	8	8	12	21	48		17	17	54	138	142	96	78	34		90	F	107	F	107	F
basic	I-370 interchange	3610	4	984	1178	1521	1642				5325	5301	7	11	20	44				21	19	139	112	77	37				91	F	91	F	96	F
		633	4	1054	1168	1407	1625				5254		8	9	13	33				16		130	125	108	49				103	F	103	F		
		1171	4	1076	1159	1341	1673				5250		9	10	13	27				14		127	123	109	63				106	F	106	F		
merge		337	4	0	1067	1134	1311	1698			5211	5211	0	8	8	10	20			9	9	0	144	141	130	88			100	F	95	F	95	F
basic	Shady Grove Rd interchange	3947	4	1052	1130	1275	1688				5145	5145	8	9	11	25				13	13	127	126	117	68				110	F	110	F	110	F
weave	Btw Shady Grove Rd & MD 28	1523	5	1661	1204	1211	1352	1688			7116	7029	22	9	9	11	32			17	18	88	143	137	129	55			110	F	110	F	102	F
		1475	5	1439	1280	1213	1419	1680			7030		17	11	10	13	40			18		95	128	122	116	44			101	F	101	F		
		1482	5	1159	1183	1354	1592	1650			6938		12	10	11	19	46			20		99	128	123	86	36			94	F	94	F		
basic	MD 28 interchange	3696	4	1412	1449	1537	1648				6046	6037	13	14	20	39				22	21	113	107	79	42				85	F	85	F	89	F
		464	4	1346	1359	1514	1751				5969		10	10	12	23				14		136	135	125	77				118	F	118	F		
weave		1405	5	812	1221	1315	1462	1749			6559	6541	23	9	10	12	26			16	16	43	139	134	124	70			102	F	102	F	103	F
		640	5	1058	1058	1230	1422	1734			6503		14	8	10	12	30			15		78	138	132	120	61			106	F	106	F		
basic	Btw MD 28 & MD 189	531	4	1050	1183	1399	1738				5370	5326	7	10	12	31				15	16	146	125	118	59				112	F	112	F	101	F
		1407	4	1044	1128	1404	1733				5309		9	11	14	33				17		128	106	102	53				97	F	97	F		
diverge		1536	4	1331	1112	1644	1752				5838	5838	10	10	17	34				18	18	136	130	100	51				104	F	122	F	122	F
basic	Btw MD 189 & Montrose Rd	74	4	1196	1115	1702	1737				5751	5722	9	9	19	36				18	16	146	130	95	49				105	F	105	F	116	F
		1921	4	1132	1256	1638	1751				5776		8	10	17	36				18		151	142	101	49				111	F	111	F		
		3344	4	1211	1253	1444	1782				5690		9	9	12	30				15		145	144	128	62				120	F	120	F		
diverge	Montrose Rd interchange	1486	5	861	864	1197	1338	1813			6073	6073	6	5	8	10	25			11	11	140	170	149	140	75			135	F	153	F	153	F
basic		425	5	996	844	1105	1277	1798			6019	5991	7	5	8	10	28			11	12	160	169	149	138	69			137	F	137	F	122	F
		2955	5	957	940	1092	1248	1750			5987		7	7	9	11	27			12		144	142	129	118	67			120	F	120	F		
weave	Btw Montrose Rd & Spur Split	1533	7	1362	718	724	925	1117	1306	1626	7778	7801	35	11	4	6	9	12	24	14	15	39	77	176	162	138	122	73	112	F	112	F	104	F
		1210	7	1219	993	824	854	1076	1283	1511	7760		25	11	6	6	9	13	25	14		50	105	162	149	126	112	64	110	F	110	F		
		1521	7	1047	1154	1013	909	1150	1418	1167	7858		18	9	8	10	17	22	33	17		61	139	151	101	75	68	37	90	F	90	F		
weave		447	6	1232	1178	1100	1111	1426	1401		7446	7446	16	11	11	15	23	49		21	21	87	124	127	93	72	29		89	F	89	F	89	F
basic	Btw Spur Split & MD 187	1229	2	1461	1258						2719	2719	16	12						14	14	105	125						115	F	115	F	115	F
merge		736	3	382	1042	1287					2711	2704	6	8	10					8	8	86	148	144					126	F	126	F	131	F
		519	3	669	875	1151					2695		8	6	8					7		102	160	152					138	F	138	F		
weave		624	5	407	658	652	993	451			3161	3161	3	5	4	7	59			16	16	130	157	176	160	8			126	F	126	F	126	F
basic	MD 187 interchange	511	3	622	910	452					1983	1983	4	6	58					23	23	178	150	8					112	F	112	F	113	F
		1863	3	634	892	457					1983		4	6	58					23		178	152	8					113	F	113	F		
diverge		520	4	89	633	892	458				2073	2073	35	4	6	59				26	26	3	185	164	8				90	F	117	F	117	F
basic		797	3	713	890	456					2059	2059	4	6	57					23	23	171	154	8					111	F	111	F	111	F
diverge	Btw MD 187 & I-495	674	4	155	701	907	461				2224	2224	40	4	6	58				27	27	4	170	154	8				84	F	109	F	109	F
basic		824	3	797	948	460					2205	2201	5	6	58					23	23	167	153	8					109	F	109	F	111	F
		3315	3	790	952	464					2205		5	6	58					23		168	155	8					110	F	110	F		
		1136	3	793	947	444					2184		5	6	56					22		175	163	8					115	F	115	F		
merge		429	4	402	453	918	399				2172	2172	2	2	6	53				16	16	186	192	167	8				138	F	182	F	182	F
basic		386	3	489	829	351					1669	1669	3	5	34					14	14	196	162	10					123	F	123	F	123	F
basic		500	2	607	1050						1657	1657	3	7						5	5	187	153						170	F	170	F	170	F
basic	Btw Spur Split & Democracy Blvd	1850	4	869	1139	1356	1401				4765	4765	15	20	25	53				28	28	90	81	70	27				67	F	67	F	67	F
merge		717	5	875	1161	1327	1251	143			4757	4757	20	23	26	49	45			33	33	83	79	73	26	3			53	F	34	D	34	D
basic		1170	4	834	1173	1343	769				4118	4118	24	27	29	54				33	33	68	69	64	14				54	F	54	F	54	F
merge		820	4	745	1221	1406	772				4144	4144	30	34	36	54				39	39	54	58	56	14				46	F	56	F	56	F
basic	Democracy Blvd interchange	457	3	1281	1439	760					3479	3479	38	39	54					43	43	56	54	14					41	E	41	E	41	E
merge		887	4	287	1034	1445	770				3535	3535	32	36	38	54				40	40	42	61	56	14				43	F	53	F	53	F
basic		790	3	1174	1365	769					3308	3308	39	39	54					44	44	53	50	14					39	E	39	E	39	E
diverge	Btw Democracy Blvd & I-495	894	4	259	1173	1412	771				3615	3615	52	39	40	55				46	46	5	49	48	14				29	D	34	D	34	D
basic		2479	3	1377	1483	774					3635	3635	39	41	54					45	45	47	45	14					36	E	36	E	36	E
diverge	CD - Btw MD 124 & MD 117	2235	2	1067	1478						2545	2545	42	37						39	39	29	47						38	E	38	E	38	E
weave	CD - Btw MD 117 & I-370	600	3	1041	1379	1449					3869	3869	32	29	28					30	30	34	54	59					49	F	49	F	49	F
basic		4137	2	923	1536						2459	2459	49	38						43	43	19	43						31	D	31	D	31	D
weave		1981	3	1302	1398	1198					3898	3898	16	12	10					13	13	86	124	120					110	F	110	F	110	F
basic	CD - I-370 interchange	1052	2	1117	1438						2555	2555	8	11						10	10	148	130						139	F	139	F	139	F
merge		704	3	583	591	1373					2546	2546	4	3	10					6	6	169	180	136					162	F	162	F	162	F
basic		981	2	605	1237						1843	1843	3	9						6	6	183	141						162	F	162	F	162	F
diverge	CD - Btw I-370 & Shady Grove Rd	483	3	1942	946	1283					4171	4171	26	6	10					14	14	78	154	131					121	F	121	F	121	F
basic		950	3	1531	1249	1343					4123	4123	14	11	14					13	13	113	125	105					114	F	114	F	114	F
diverge		553	3	1349	1309	1459					4118	4118	12	10	14					12	12	120	134	106					120	F	120	F	120	F
merge		303	4	648	735	1139	1533				4054	4054	5	5	8	13				8	8	146	156	147	121				142	F	150	F	150	F
basic	CD - Shady Grove Rd interchange	986	3	737	1078	1478					3292	3292	4	7	12					8	8	173	149	127					150	F	150	F	150	F
weave		352	4	446	556	1009	1251				3262	3262	3	3	9	13				7	7	166	176	121	106				142	F	142	F	142	F
diverge	CD - Btw Shady Grove Rd & MD 28	190	3	405	468	523					1397	1397	32	17	3					17	17	13	32	177					74	F	74	F	74	F
basic		4624	2	898	571						1469	1469	20	5						12	12	52	137						94	F	94	F	94	F
diverge		2601	3	572	696	1101					2369	2369	29	29	29					29	29	40	46	54					47	F	47	F	47	F
weave		177	4	30	731	954	708				2423	2423	27	43	44	44				40	40	7	28	33	28				24	B	24	B	24	B
merge		274	3	189	672	859					1720	1720	36	41	45					40	40	6	27	29					21	C	21	C	21	C
basic	CD - MD 28 interchange	924	2	429	854						1283	1283	44	47						45	45	13	21						17	B	17	B	17	B
weave		258	3	800	854	955					2609	2609	21	29	46					32	32	40	31	21					31	C	31	C	31	C
basic		862	2	1610	905						2515	2515	42	46						44	44	39	20						30	D	30	D	30	D
diverge	CD - Btw MD 28 & MD 189	379	3	732	1490	694					2916	2916	19	21	29					23	23	41	77	26					48	F	48	F	48	F
basic		525	3	1074	1303	563					2940	2940	27	19	27					24	24	42	73	23					46	F	46	F	46	F
weave		710	4	1257	1120	817	860				4053	4053	20	12	8	7				12	12	65	102	112	133				103	F	103	F	103	F
basic		1165	3	1244	1036	1142					3422	3422	19	13	10					14	14	71	92	134					99	F	99	F	99	F
merge		286	3	1017	1179	1187					3384	3384	17	15	12					15	15	68	94	121					94	F	94	F	94	F
basic	CD - MD 189 interchange	810	2	1367	1190						2558	2539	17	13						15	16	96	114						105	F	105	F	102	F
		649	2	1251	1265						2516		17	16						16		92	105						99	F	99	F		
diverge	CD - Btw MD 189 & Montrose Rd	220	3	410	1310	1387					3108	3108	37	19	18					24	24	11	88	101					67	F	67	F	67	F
basic		1046	2	1691	1404						3095	3051	22	18						20	20	93	100						97	F	97	F	96	F
		2216	2	1633	1398						3030		21	19						20		95	96						95	F	95	F		
merge		463	3	1430	1257	295					2981	2981	17	14	12					14	14	103	109	27					79	F	79	F	79	F
basic		950	2	1328	1169						2497	2497	18	16						17	17	93	97						95	F	95	F	95	F
merge		402	3	462	1055	979					2496	2496	10	16	18					15	15	74	93	80					82	F	82	F	82	F
basic	CD - Montrose Rd interchange	1126	2	646	689						1334	1334	28	30						29	29	48	44						46	F	46	F	46	F
weave		342	3	266	733	570					1569	1569	33	38	39					37	37	10	23	17					17	B	17	B	17	B
basic		1121	2	724	481						1204	1204	51	52						51	51	15	10						12	B	12	B	12	B
diverge	CD - Btw Montrose Rd & Spur Split	262	3	358	932	495					1785	1785	50	51	52					51	51	7	19	10					12	B	12	B	12	B
basic		1303	2	1304	482						1786	1786	51	51						51	51	26	10						18	C	18	C	18	C

Arterial Segments - 2027 No-build - 3-4 PM

VISSIM Lookup Data				Volume									Speed									Density									
				Volume Per Lane							Across All Lanes	Overall Volume	Speed Per Lane							Across All Lanes	Overall Speed	Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)							Total Volume	Average Volume (veh/hr)	Speed (mph)							Average Speed	Average Speed (mph)	Combined Density (pcphpl)							Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
diverge	MD 117 Eastbound at I-270	495	3	511	650	560					1721	1721	32	31	31					32	32	16	21	18					18	B	18	B	18	B
weave	I-370 Eastbound at I-270	656	4	353	787	374	274				1788	1788	50	50	50	52				51	51	7	16	8	5				9	A	9	A	9	A
diverge		625	3	461	400	202					1063	1063	50	49	50					50	50	9	8	4					7	A	7	A	7	A
weave		667	5	227	1028	1362	453	226			3297	3297	51	52	52	53	54			52	52	5	20	27	9	4			13	B	13	B	13	B
diverge	I-370 Westbound at I-270	461	4	1108	604	471	1436				3618	3618	49	50	54	53				51	51	23	12	9	28				18	B	15	B	15	B
diverge		1411	3	267	493	1361					2122	2122	54	54	53					54	54	5	9	26					13	B	13	B	13	B
weave		623	3	750	424	703					1877	1877	52	53	53					53	53	15	8	13					12	B	12	B	12	B
diverge	Shady Grove Rd Eastbound at I-270	248	4	326	895	327	335				1882	1882	34	31	35	36				34	34	10	29	10	10				14	B	16	B	16	B
diverge		482	4	543	288	383	439				1653	1653	32	36	37	36				35	35	17	8	11	12				12	B	12	B	12	B
merge		271	4	211	669	401	414				1694	1694	35	37	37	37				36	36	6	19	11	11				12	B	12	B	12	B
diverge	Shady Grove Rd Westbound at I-270	490	4	599	271	143	134				1146	1146	27	28	30	31				29	29	23	10	5	4				10	B	12	B	12	B
weave		615	4	637	155	211	263				1266	1266	35	35	34	34				34	34	19	4	6	8				9	A	9	A	9	A
diverge	MD 28 Eastbound at I-270	1745	3	1023	567	152					1742	1742	26	26	27					27	27	40	22	6					22	C	22	C	22	C
diverge		487	3	94	549	458					1101	1101	27	26	26					27	27	4	21	18					14	B	14	B	14	B
diverge	MD 28 Westbound at I-270	320	3	481	508	94					1083	1083	7	13	7					9	9	89	39	14					47	F	47	F	40	F
		101	3	455	438	172					1065	1065	14	24	23					21	21	45	18	8					24	C	24	C		
		43	3	513	685	181					1378	1378	16	20	27					21	21	40	34	7					27	C	27	C		
weave		489	3	430	1124	497					2051	2051	25	25	26					25	25	17	46	20					28	D	28	D	28	D
merge		235	3	909	692	264					1865	1865	25	26	27					26	26	37	27	10					24	C	24	C	24	C
diverge	MD 189 Eastbound at I-270	249	3	103	260	694					1057	1057	27	27	26					27	27	4	10	27					13	B	13	B	13	B
merge		72	3	381	270	323					974	974	27	28	27					27	27	14	10	12					12	B	12	B	12	B
		334	3	391	277	324					992	992	27	28	27					27	27	14	10	12					12	B	12	B		
diverge	MD 189 Westbound at I-270	361	3	292	340	407					1039	1039	26	26	26					26	26	11	13	16					13	B	13	B	13	B
merge		519	3	78	598	285					960	960	27	26	27					27	27	3	23	11					12	B	12	B	12	B
diverge	Montrose Rd Eastboundat I-270	816	3	242	662	276					1180	1180	38	37	38					38	38	6	18	7					11	B	11	B	11	B
weave		314	3	538	884	398					1820	1820	32	34	37					34	34	17	26	11					18	B	18	B	18	B
merge		1393	3	490	758	662					1909	1909	38	37	37					37	37	13	21	18					17	B	17	B	17	B
diverge	Montrose Rd Westbound at I-270	315	3	1123	728	818					2669	2669	28	34	35					33	33	41	22	24					29	D	29	D	29	D
weave		405	3	658	645	548					1852	1852	32	33	35					34	34	21	20	16					19	B	19	B	19	B
merge		191	3	113	639	595					1347	1347	30	36	37					34	34	4	18	17					13	B	13	B	13	B
diverge	MD 187 Northbound at I-270 East Spur	292	6	456	431	420	366	373	150		2196	2196	9	9	9	8	10	6		8	8	53	50	50	46	40	27		44	F	51	F	51	F
merge		263	5	84	520	504	549	577			2235	2235	32	36	37	37	37			36	36	3	15	14	15	16			12	B	10	B	10	B
diverge	MD 187 Southbound at I-270 East Spur	302	4	331	520	464	584				1899	1899	36	37	37	36				36	36	9	14	13	16				13	B	12	B	12	B
diverge		165	5	479	392	442	483	89			1885	1885	32	33	33	33	36			33	33	15	12	14	15	3			12	B	14	B	14	B
diverge		161	6	504	390	428	406	127	45		1899	1899	24	21	21	22	36	34		26	26	21	19	20	19	4	1		14	B	20	C	20	C
diverge	Democracy Blvd Eastbound at I-270 West Spur	2296	3	630	307	282					1219	1219	40	40	40					40	40	16	8	7					10	B	10	B	10	B
diverge		605	3	405	360	380					1146	1146	32	30	30					31	31	13	12	13					13	B	13	B	13	B
diverge	Democracy Blvd Westbound at I-270 West Spur	857	4	502	469	362	505				1839	1839	41	42	42	42				42	42	12	11	9	12				11	B	11	B	11	B
merge		2127	4	276	438	393	197				1303	1303	41	42	43	43				42	42	7	11	9	5				8	A	9	A	9	A
merge	VA 193 Eastbound at I-270 East Spur	299	3	248	406	29					682	682	26	32	36					31	31	10	13	1					8	A	8	A	8	A
merge	VA 193 Westbound at I-270 East Spur	452	2	404	434						838	838	30	32						31	31	14	14						14	B	14	B	14	B
merge	G.W. Memorial Pkwy Eastbound at I-495	981	3	80	900	912					1892	1892	48	47	48					48	48	2	19	19					13	B	13	B	14	B
		418	3	22	953	927					1902	1902	46	47	48					47	47	0	21	20					14	B	14	B		
diverge	G.W. Memorial Pkwy Westbound at I-495	2359	2	1889	1296						3185	3185	26	28						27	27	79	50						64	F	64	F	64	F
weave	Clara Barton Pkwy Eastbound at I-495	6436	2	180	301						481	481	48	47						48	48	4	6						5	A	5	A	5	A
diverge	Clara Barton Pkwy Westbound at I-495	3047	2	846	61						906	906	47	48						47	47	18	1						10	B	10	B	10	B
merge		3254	2	368	312						680	680	48	47						48	48	8	7						7	A	7	A	7	A
diverge	MD 190 Eastbound at I-495	550	2	752	637						1389	1389	41	41						41	41	19	16						17	B	17	B	17	B
weave		554	4	102	785	439	246				1572	1572	40	42	43	38				41	41	3	19	10	7				10	B	10	B	10	B
merge		582	3	434	795	510					1738	1738	43	42	43					43	43	10	19	12					14	B	14	B	14	B
diverge	MD 190 Westbound at I-495	886	3	729	843	630					2202	2202	14	18	19					17	17	89	90	68					82	F	82	F	82	F
weave		316	3	634	785	520					1939	1939	32	35	37					35	35	20	23	14					19	B	19	B	19	B
diverge	MD 187 Northbound at I-495	790	3	642	661	698					2001	2001	21	21	20					21	21	32	32	35					33	D	33	D	33	D
merge		1654	3	797	808	576					2181	2181	36	37	37					37	37	22	22	16					20	C	20	C	20	C
diverge	MD 187 Southbound at I-495	1642	3	723	471	551					1745	1745	29	27	27					27	27	26	18	21					22	C	22	C	22	C
merge		1471	3	523	577	372					1471	1471	36	37	37					37	37	15	16	10					14	B	14	B	14	B
weave	MD 355 Northbound at I-495	1654	3	486	606	1070					2162	2162	34	33	31					33	33	15	19	35					23	B	23	B	23	B
weave		370	4	271	927	443	309				1949	1949	42	42	43	43				42	42	7	22	11	7				12	A	12	A	12	A
diverge	MD 355 Southbound at I-495	204	4	603	333	451	441				1828	1828	43	43	38	37				40	40	14	8	12	12				12	B	11	B	11	B
merge		781	4	594	583	366	233				1777	1777	27	28	26	24				26	26	22	21	14	10				17	B	19	B	19	B

Arterial Segments - 2027 No-build - 4-5 PM

VISSIM Lookup Data				Volume									Speed								Density							
				Volume Per Lane							Across All Lanes	Overall Volume	Speed Per Lane							Across All Lanes	Overall Speed	Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)							Total Volume	Average Volume (veh/hr)	Speed (mph)							Average Speed	Average Speed (mph)	Combined Density (pcphpl)							Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
diverge	MD 117 Eastbound at I-270	495	3	648	778	601					2027	2027	32	31	31					31	31	21	26	20					22	C	22	C	22	C
weave	I-370 Eastbound	656	4	401	866	447	360				2075	2075	43	42	39	41				41	41	11	23	14	11				15	B	15	B	15	B
diverge		625	3	533	486	303					1322	1322	28	31	33					31	31	31	25	17					24	C	24	C	24	C
weave		667	5	270	1142	1321	499	303			3534	3534	51	52	52	53	54			52	52	5	23	26	10	6			14	B	14	B	14	B
diverge	I-370 Westbound at I-270	461	4	742	510	487	1515				3254	3254	9	6	8	32				14	14	94	99	79	50				81	F	91	F	91	F
diverge		1411	3	275	536	1230					2041	2041	53	53	52					53	53	5	10	24					13	B	13	B	13	B
weave		623	3	725	456	814					1995	1995	52	53	53					53	53	14	9	16					13	B	13	B	13	B
diverge	Shady Grove Rd Eastbound at I-270	248	4	439	864	316	355				1974	1974	33	22	24	32				28	28	14	44	19	13				22	C	26	C	26	C
diverge		482	4	459	270	358	454				1541	1541	15	14	33	36				25	25	46	39	11	13				27	C	32	D	32	D
merge		271	4	182	582	373	418				1555	1555	35	37	37	37				37	37	5	16	10	11				11	B	11	B	11	B
diverge	Shady Grove Rd Westbound at I-270	490	4	539	261	148	141				1089	1089	19	12	10	14				14	14	29	24	18	12				21	C	24	C	24	C
weave		615	4	589	140	187	236				1151	1151	35	35	34	34				34	34	17	4	6	7				9	A	9	A	9	A
diverge	MD 28 Eastbound at I-270	1745	3	1095	554	182					1831	1831	26	27	27					26	26	43	21	7					24	C	24	C	24	C
diverge		487	3	113	539	496					1147	1147	27	26	26					26	26	4	21	19					15	B	15	B	15	B
diverge	MD 28 Westbound at I-270	320	3	429	524	131					1084	1084	3	12	6					7	7	148	44	21					71	F	71	F	60	F
		101	3	396	438	222					1055	1055	6	23	24					18	18	71	19	10					33	D	33	D		
		43	3	455	712	241					1408	1408	8	17	26					17	17	64	44	9					39	E	39	E		
weave		489	3	414	1233	667					2314	2314	24	23	24					24	24	17	53	28					33	D	33	D	33	D
merge		235	3	1043	813	321					2177	2177	25	26	27					26	26	43	32	12					29	D	29	D	29	D
diverge	MD 189 Eastbound at I-270	249	3	97	300	678					1076	1076	27	27	26					27	27	4	11	26					14	B	14	B	14	B
merge		72	3	398	312	356					1066	1066	27	27	27					27	27	15	11	13					13	B	13	B	13	B
		334	3	407	322	357					1085	1085	27	28	27					27	27	15	12	13					13	B	13	B		
diverge	MD 189 Westbound at I-270	361	3	370	433	500					1303	1303	25	25	26					25	25	15	17	20					17	B	17	B	17	B
merge		519	3	97	664	361					1122	1122	27	26	26					26	26	4	26	14					15	B	15	B	15	B
diverge	Montrose Rd Eastboundat I-270	816	3	366	668	312					1346	1346	37	37	38					37	37	10	18	8					12	B	12	B	12	B
weave		314	3	526	839	434					1799	1799	24	31	35					30	30	23	27	13					21	B	21	B	21	B
merge		1393	3	462	725	665					1851	1851	38	37	37					37	37	13	20	18					17	B	17	B	17	B
diverge	Montrose Rd Westbound at I-270	315	3	1144	714	845					2703	2703	26	33	35					32	32	44	22	24					30	D	30	D	30	D
weave		405	3	683	635	546					1863	1863	31	32	35					33	33	22	20	16					19	B	19	B	19	B
merge		191	3	118	629	585					1331	1331	30	36	37					34	34	4	18	16					13	B	13	B	13	B
diverge	MD 187 Northbound at I-270 East Spur	292	6	549	536	488	294	456	276		2599	2599	8	8	8	6	4	3		6	6	72	69	62	50	122	102		80	F	68	F	68	F
merge		263	5	78	563	588	618	642			2489	2489	31	35	37	37	37			35	35	3	16	16	17	18			14	B	12	B	12	B
diverge	MD 187 Southbound at I-270 East Spur	302	4	351	551	495	612				2009	2009	36	36	36	36				36	36	10	16	14	17				14	B	13	B	13	B
diverge		165	5	510	421	459	510	94			1994	1994	31	31	31	31	35			32	32	17	14	15	17	3			13	B	15	B	15	B
diverge		161	6	538	419	441	437	132	42		2010	2010	23	15	15	15	36	32		23	23	24	29	30	29	4	1		19	B	27	C	27	C
diverge	Democracy Blvd Eastbound at I-270 West Spur	2296	3	538	307	273					1118	1118	39	40	39					39	39	14	8	7					10	B	10	B	10	B
diverge		605	3	408	386	398					1192	1192	31	29	29					30	30	14	13	14					14	B	14	B	14	B
diverge	Democracy Blvd Westbound at I-270 West Spur	857	4	597	500	403	578				2077	2077	40	41	42	42				41	41	15	12	10	14				13	B	12	B	12	B
merge		2127	4	324	475	404	201				1404	1404	41	42	43	43				42	42	8	11	10	5				8	A	10	B	10	B
merge	VA 193 Eastbound at I-270 East Spur	299	3	258	380	24					662	662	26	32	36					31	31	10	12	1					8	A	8	A	8	A
merge	VA 193 Westbound at I-270 East Spur	452	2	372	340						713	713	30	32						31	31	13	11						12	B	12	B	12	B
merge	G.W. Memorial Pkwy Eastbound at I-495	981	3	68	831	859					1758	1758	48	47	48					48	48	1	18	18					13	B	13	B	13	B
		418	3	19	872	876					1766	1766	46	47	48					47	47	0	19	19					13	B	13	B		
diverge	G.W. Memorial Pkwy Westbound at I-495	2359	2	1630	1447						3077	3077	15	19						17	17	114	79						96	F	96	F	96	F
weave	Clara Barton Pkwy Eastbound at I-495	6436	2	101	311						412	412	49	47						48	48	2	7						4	A	4	A	4	A
diverge	Clara Barton Pkwy Westbound at I-495	3047	2	1083	165						1248	1248	28	23						25	25	43	10						27	C	27	C	27	C
merge		3254	2	506	391						898	898	48	47						47	47	11	8						10	B	10	B	10	B
diverge	MD 190 Eastbound at I-495	550	2	790	720						1510	1510	41	40						40	40	20	18						19	B	19	B	19	B
weave		554	4	104	778	411	365				1657	1657	40	42	43	37				40	40	3	19	10	10				10	A	10	A	10	A
merge		582	3	407	782	488					1677	1677	43	42	43					43	43	10	19	12					13	B	13	B	13	B
diverge	MD 190 Westbound at I-495	886	3	626	662	627					1916	1916	10	12	14					12	12	136	132	107					125	F	125	F	125	F
weave		316	3	635	885	473					1994	1994	32	34	35					33	33	20	27	14					20	B	20	B	20	B
diverge	MD 187 Northbound at I-495	790	3	786	802	832					2420	2420	19	19	19					19	19	43	43	45					44	F	44	F	44	F
merge		1654	3	956	959	708					2623	2623	36	36	37					36	36	27	27	20					25	C	25	C	25	C
diverge	MD 187 Southbound at I-495	1642	3	728	467	556					1751	1751	29	27	27					28	28	26	18	21					21	C	21	C	21	C
merge		796	3	485	540	352					1377	1377	36	37	37					37	37	14	15	10					13	B	13	B	13	B
weave	MD 355 Northbound at I-495	1654	3	616	709	1158					2483	2483	34	32	30					32	32	19	22	39					27	C	27	C	27	C
weave		370	4	268	976	559	397				2200	2200	42	42	42	43				42	42	6	24	13	10				13	B	13	B	13	B
diverge	MD 355 Southbound at I-495	204	4	655	371	485	445				1956	1956	43	43	38	37				40	40	16	9	13	12				12	B	11	B	11	B
merge		781	4	603	621	400	263				1886	1886	29	29	28	26				28	28	21	22	15	10				17	B	19	B	19	B

Arterial Segments - 2027 No-build - 5-6 PM

VISSIM Lookup Data				Volume									Speed								Density							
				Volume Per Lane							Across All Lanes	Overall Volume	Speed Per Lane							Across All Lanes	Overall Speed	Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)							Total Volume	Average Volume (veh/hr)	Speed (mph)							Average Speed	Average Speed (mph)	Combined Density (pcphpl)							Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
diverge	MD 117 Eastbound at I-270	495	3	749	864	763					2375	2375	31	30	30					30	30	24	30	26					27	C	27	C	27	C
weave	I-370 Eastbound	656	4	383	293	309	484				1468	1468	2	2	2	3				2	2	158	193	188	173				178	F	178	F	178	F
diverge		625	3	263	266	470					998	998	1	2	3					2	2	196	184	148					176	F	176	F	176	F
weave		667	5	272	1139	1172	376	300			3260	3260	51	52	52	53	53			52	52	5	22	23	7	6			13	B	13	B	13	B
diverge	I-370 Westbound at I-270	461	4	485	338	308	1808				2940	2940	3	2	2	29				9	9	159	185	164	64				143	F	169	F	169	F
diverge		1411	3	215	469	1232					1916	1916	52	52	51					51	51	4	9	25					13	B	13	B	13	B
weave		623	3	698	426	820					1944	1944	52	53	53					53	53	14	8	16					12	B	12	B	12	B
diverge	Shady Grove Rd Eastbound at I-270	248	4	356	515	226	351				1448	1448	25	5	3	8				10	10	15	142	125	63				86	F	94	F	94	F
diverge		482	4	269	166	183	444				1062	1062	2	1	9	33				11	11	133	158	43	14				87	F	111	F	111	F
merge		271	4	124	363	174	373				1034	1034	35	37	38	37				37	37	4	10	5	10				7	A	6	A	6	A
diverge	Shady Grove Rd Westbound at I-270	490	4	479	243	170	157				1048	1048	12	5	4	5				6	6	42	46	47	32				42	F	45	F	45	F
weave		615	4	582	120	158	183				1042	1042	34	36	35	34				35	35	17	3	5	5				8	A	8	A	8	A
diverge	MD 28 Eastbound at I-270	1745	3	1228	685	321					2234	2234	26	26	27					26	26	49	27	12					29	D	29	D	29	D
diverge		487	3	92	637	620					1349	1349	27	26	26					26	26	3	25	24					17	B	17	B	17	B
diverge	MD 28 Westbound at I-270	320	3	347	393	96					837	837	2	12	7					7	7	197	34	15					82	F	82	F	69	F
		101	3	324	312	182					817	817	4	21	23					16	16	94	15	8					39	E	39	E		
		43	3	386	579	200					1165	1165	5	13	26					14	14	85	46	8					46	F	46	F		
weave		489	3	295	948	469					1712	1712	25	25	25					25	25	12	39	19					23	B	23	B	23	B
merge		235	3	793	589	232					1614	1614	25	26	27					26	26	32	23	9					21	C	21	C	21	C
diverge	MD 189 Eastbound at I-270	249	3	99	292	665					1056	1056	27	27	25					26	26	4	11	27					14	B	14	B	14	B
merge		72	3	327	322	377					1026	1026	27	27	27					27	27	12	12	14					13	B	13	B	13	B
		334	3	338	329	377					1044	1044	27	28	27					27	27	13	12	14					13	B	13	B		
diverge	MD 189 Westbound at I-270	361	3	293	359	509					1161	1161	11	15	19					15	15	41	37	34					37	E	37	E	37	E
merge		519	3	95	672	315					1082	1082	27	26	26					26	26	4	26	12					14	B	14	B	14	B
diverge	Montrose Rd Eastboundat I-270	816	3	300	595	264					1159	1159	38	37	38					38	38	8	16	7					10	B	10	B	10	B
weave		314	3	489	875	408					1772	1772	25	30	36					30	30	25	32	12					23	B	23	B	23	B
merge		1393	3	357	756	675					1787	1787	38	36	37					37	37	10	21	19					16	B	16	B	16	B
diverge	Montrose Rd Westbound at I-270	315	3	744	566	873					2182	2182	7	20	34					21	21	114	28	26					56	F	56	F	56	F
weave		405	3	447	524	613					1584	1584	32	33	35					34	34	14	16	18					16	B	16	B	16	B
merge		191	3	127	606	630					1364	1364	28	36	36					33	33	5	17	18					13	B	13	B	13	B
diverge	MD 187 Northbound at I-270 East Spur	292	6	579	560	537	417	406	219		2718	2718	7	7	8	6	6	4		6	6	80	77	73	66	79	64		73	F	77	F	77	F
merge		263	5	44	553	643	703	738			2681	2681	31	36	37	37	37			35	35	1	16	18	19	20			15	B	12	B	12	B
diverge	MD 187 Southbound at I-270 East Spur	302	4	291	524	510	636				1961	1961	15	18	20	24				19	19	38	56	46	41				45	F	47	F	47	F
diverge		165	5	418	401	478	568	59			1923	1923	12	13	16	19	34			19	19	64	60	51	43	2			44	F	58	F	58	F
diverge		161	6	438	385	449	543	75	29		1921	1921	9	7	9	12	37	35		18	18	74	73	60	47	2	1		43	F	69	F	69	F
diverge	Democracy Blvd Eastbound at I-270 West Spur	2296	3	529	286	257					1071	1071	38	39	38					38	38	14	8	7					9	A	9	A	9	A
diverge		605	3	415	400	414					1229	1229	30	30	29					30	30	14	14	15					14	B	14	B	14	B
diverge	Democracy Blvd Westbound at I-270 West Spur	857	4	526	412	369	601				1908	1908	16	16	18	24				18	18	62	56	47	39				51	F	55	F	55	F
merge		2127	4	337	430	349	172				1288	1288	41	42	43	43				42	42	8	10	8	4				8	A	9	A	9	A
merge	VA 193 Eastbound at I-270 East Spur	299	3	174	374	45					592	592	27	32	35					31	31	7	12	1					7	A	7	A	7	A
merge	VA 193 Westbound at I-270 East Spur	452	2	385	325						711	711	30	32						31	31	13	10						12	B	12	B	12	B
merge	G.W. Memorial Pkwy Eastbound at I-495	981	3	57	816	850					1722	1722	48	47	48					48	48	1	18	18					12	B	12	B	12	B
		418	3	17	856	857					1730	1730	46	47	48					47	47	0	19	18					12	B	12	B		
diverge	G.W. Memorial Pkwy Westbound at I-495	2359	2	1217	1191						2408	2408	9	12						10	10	147	103						125	F	125	F	125	F
weave	Clara Barton Pkwy Eastbound at I-495	6436	2	44	271						315	315	49	47						48	48	1	6						3	A	3	A	3	A
diverge	Clara Barton Pkwy Westbound at I-495	3047	2	898	287						1185	1185	21	20						20	20	76	50						63	F	63	F	63	F
merge		3254	2	497	375						872	872	48	47						48	48	11	8						9	A	9	A	9	A
diverge	MD 190 Eastbound at I-495	550	2	843	716						1559	1559	35	34						34	34	30	29						30	D	30	D	30	D
weave		554	4	119	787	399	291				1596	1596	29	33	26	15				26	26	6	28	41	54				32	D	32	D	32	D
merge		582	3	306	763	494					1563	1563	43	42	43					43	43	7	18	12					12	B	12	B	12	B
diverge	MD 190 Westbound at I-495	886	3	362	427	573					1362	1362	2	2	4					3	3	196	187	161					181	F	181	F	181	F
weave		316	3	464	728	411					1603	1603	30	32	33					32	32	16	23	13					17	B	17	B	17	B
diverge	MD 187 Northbound at I-495	790	3	748	770	797					2315	2315	21	22	21					21	21	36	36	39					37	E	37	E	37	E
merge		1654	3	853	862	626					2342	2342	36	37	37					36	36	24	24	17					22	C	22	C	22	C
diverge	MD 187 Southbound at I-495	1642	3	804	537	633					1974	1974	28	26	27					27	27	29	21	24					25	C	25	C	25	C
merge		796	3	510	601	400					1511	1511	36	37	37					37	37	14	17	11					14	B	14	B	14	B
weave	MD 355 Northbound at I-495	1654	3	678	503	643					1824	1824	11	6	7					8	8	67	87	102					85	F	85	F	85	F
weave		370	4	213	827	480	262				1781	1781	42	42	42	43				42	42	5	20	12	6				11	A	11	A	11	A
diverge	MD 355 Southbound at I-495	204	4	678	419	520	508				2125	2125	43	42	37	37				40	40	16	10	14	14				14	B	13	B	13	B
merge		781	4	692	668	435	262				2056	2056	30	30	29	27				29	29	23	23	15	10				18	B	20	C	20	C

Arterial Segments - 2027 No-build - 6-7 PM

VISSIM Lookup Data				Volume									Speed								Density							
				Volume Per Lane							Across All Lanes	Overall Volume	Speed Per Lane							Across All Lanes	Overall Speed	Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)							Total Volume	Average Volume (veh/hr)	Speed (mph)							Average Speed	Average Speed (mph)	Combined Density (pcphpl)							Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
diverge	MD 117 Eastbound at I-270	495	3	531	665	613					1809	1809	32	31	31					32	32	17	22	20					19	B	19	B	19	B
weave	I-370 Eastbound	656	4	546	356	398	624				1923	1923	3	2	2	4				3	3	161	199	190	172				181	F	181	F	181	F
diverge		625	3	386	346	557					1289	1289	2	2	4					3	3	193	182	148					174	F	174	F	174	F
weave		667	5	222	1009	1329	440	332			3332	3332	51	52	52	53	53			52	52	4	20	26	8	6			13	B	13	B	13	B
diverge	I-370 Westbound at I-270	461	4	611	462	486	1781				3340	3340	4	3	4	27				9	9	152	169	131	71				131	F	151	F	151	F
diverge		1411	3	269	462	1325					2056	2056	51	51	49					50	50	6	9	27					14	B	14	B	14	B
weave		623	3	846	502	795					2143	2143	52	52	52					52	52	17	10	15					14	B	14	B	14	B
diverge	Shady Grove Rd Eastbound at I-270	248	4	325	593	277	407				1602	1602	25	5	2	6				9	9	14	137	131	69				88	F	94	F	94	F
diverge		482	4	328	231	206	493				1258	1258	3	2	6	34				11	11	131	153	39	15				84	F	108	F	108	F
merge		271	4	126	366	181	423				1096	1096	35	37	38	37				37	37	4	10	5	12				8	A	6	A	6	A
diverge	Shady Grove Rd Westbound at I-270	490	4	562	283	194	171				1211	1211	14	7	5	6				8	8	41	42	44	30				39	E	43	F	43	F
weave		615	4	695	117	136	170				1118	1118	33	36	35	35				35	35	21	3	4	5				8	A	8	A	8	A
diverge	MD 28 Eastbound at I-270	1745	3	1104	512	154					1771	1771	26	27	27					27	27	43	20	6					23	C	23	C	23	C
diverge		487	3	71	542	455					1067	1067	27	26	26					27	27	3	21	18					14	B	14	B	14	B
diverge	MD 28 Westbound at I-270	320	3	373	639	195					1207	1207	2	12	7					7	7	192	56	30					93	F	78	F	F	
		101	3	341	531	303					1175	1175	4	22	24					17	17	92	24	13					43	F				
		43	3	392	784	320					1497	1497	5	15	26					15	15	83	51	12					49	F	49	F		
weave		489	3	440	1182	762					2384	2384	24	22	22					23	23	19	55	35					36	E	36	E	36	E
merge		235	3	1044	856	323					2223	2223	25	26	27					26	26	43	34	12					29	D	29	D	29	D
diverge	MD 189 Eastbound at I-270	249	3	103	262	648					1013	1013	27	27	26					27	27	4	10	25					13	B	13	B	13	B
merge		72	3	427	299	382					1108	1108	27	28	27					27	27	16	11	14					14	B	14	B	14	B
		334	3	432	314	382					1128	1128	27	28	27					27	27	16	12	15					14	B	14	B		
diverge	MD 189 Westbound at I-270	361	3	304	443	506					1253	1253	21	23	23					22	22	17	21	23					21	C	21	C	21	C
merge		519	3	97	676	383					1157	1157	26	26	26					26	26	4	27	15					15	B	15	B	15	B
diverge	Montrose Rd Eastboundat I-270	816	3	213	692	307					1212	1212	38	37	38					38	38	6	19	8					11	B	11	B	11	B
weave		314	3	489	847	523					1859	1859	19	26	34					26	26	32	36	16					28	C	28	C	28	C
merge		1393	3	266	734	707					1707	1707	38	37	37					37	37	7	20	20					16	B	16	B	16	B
diverge	Montrose Rd Westbound at I-270	315	3	947	551	910					2408	2408	13	22	34					23	23	93	27	27					49	F	49	F	49	F
weave		405	3	646	486	489					1621	1621	32	33	35					33	33	21	15	14					17	B	17	B	17	B
merge		191	3	124	522	503					1149	1149	31	36	37					34	34	4	15	14					11	B	11	B	11	B
diverge	MD 187 Northbound at I-270 East Spur	292	6	536	523	518	427	360	170		2535	2535	7	7	7	7	6	4		6	6	74	74	72	66	65	51		67	F	73	F	73	F
merge		263	5	41	543	623	688	712			2606	2606	31	36	37	37	37			36	36	1	15	17	19	20			14	B	11	B	11	B
diverge	MD 187 Southbound at I-270 East Spur	302	4	243	373	383	529				1528	1528	10	9	10	11				10	10	80	123	119	109				108	F	107	F	107	F
diverge		165	5	327	319	350	492	34			1523	1523	8	8	8	10	31			13	13	112	134	131	103	1			96	F	125	F	125	F
diverge		161	6	353	316	330	480	37	15		1532	1532	7	5	5	10	36	35		16	16	119	133	115	73	1	0		73	F	122	F	122	F
diverge	Democracy Blvd Eastbound at I-270 West Spur	2296	3	477	249	208					934	934	40	40	40					40	40	12	6	5					8	A	8	A	8	A
diverge		605	3	357	320	321					998	998	33	31	30					31	31	11	11	11					11	B	11	B	11	B
diverge	Democracy Blvd Westbound at I-270 West Spur	857	4	388	347	353	630				1718	1718	12	11	12	17				13	13	97	97	80	61				84	F	91	F	91	F
merge		2127	4	280	410	372	247				1308	1308	41	42	43	43				42	42	7	10	9	6				8	A	9	A	9	A
merge	VA 193 Eastbound at I-270 East Spur	299	3	124	171	45					340	340	26	31	33					30	30	5	6	1					4	A	4	A	4	A
merge	VA 193 Westbound at I-270 East Spur	452	2	240	217						457	457	30	32						31	31	8	7						8	A	8	A	8	A
merge	G.W. Memorial Pkwy Eastbound at I-495	981	3	46	638	657					1341	1341	48	47	48					48	48	1	14	14					10	B	10	B	10	B
		418	3	14	662	674					1350	1350	46	47	48					47	47	0	14	14					10	B	10	B		
diverge	G.W. Memorial Pkwy Westbound at I-495	2359	2	841	917						1759	1759	5	8						6	6	172	121						146	F	146	F	146	F
weave	Clara Barton Pkwy Eastbound at I-495	6436	2	176	287						463	463	48	47						48	48	4	6						5	A	5	A	5	A
diverge	Clara Barton Pkwy Westbound at I-495	3047	2	898	121						1019	1019	34	30						32	32	35	21						28	D	28	D	28	D
merge		3254	2	416	319						735	735	48	47						48	48	9	7						8	A	8	A	8	A
diverge	MD 190 Eastbound at I-495	550	2	728	614						1342	1342	34	34						34	34	42	42						42	F	42	F	42	F
weave		554	4	126	704	290	240				1360	1360	31	31	19	12				23	23	7	43	73	84				52	F	52	F	52	F
merge		582	3	316	671	405					1392	1392	43	42	43					43	43	8	16	10					11	B	11	B	11	B
diverge	MD 190 Westbound at I-495	886	3	493	434	676					1604	1604	3	2	4					3	3	194	199	171					188	F	188	F	188	F
weave		316	3	589	750	417					1756	1756	31	34	36					34	34	21	23	12					19	B	19	B	19	B
diverge	MD 187 Northbound at I-495	790	3	599	630	671					1899	1899	20	20	19					19	19	31	32	36					33	D	33	D	33	D
merge		1654	3	699	734	446					1880	1880	37	37	37					37	37	19	20	12					17	B	17	B	17	B
diverge	MD 187 Southbound at I-495	1642	3	733	454	529					1716	1716	29	28	27					28	28	25	17	20					20	C	20	C	20	C
merge		796	3	458	507	344					1309	1309	36	37	37					37	37	13	14	9					12	B	12	B	12	B
weave	MD 355 Northbound at I-495	1654	3	627	275	256					1159	1159	6	2	2					3	3	103	131	145					127	F	127	F	127	F
weave		370	4	120	569	324	112				1126	1126	42	42	42	44				43	43	3	14	8	3				7	A	7	A	7	A
diverge	MD 355 Southbound at I-495	204	4	646	362	470	448				1927	1927	43	43	38	37				40	40	15	9	13	12				12	B	11	B	11	B
merge		781	4	644	636	398	260				1938	1938	26	27	25	22				25	25	25	24	16	12				19	B	22	C	22	C

I-495 Inner Loop - 2027 Preferred Alternative - 6-7 AM

VISSIM Lookup Data				Volume								Speed									Density									
				Volume Per Lane						Across All Lanes	Overall Volume	Speed Per Lane							Across All Lanes	Overall Speed	Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)						Total Volume	Average Volume (veh/hr)	Speed (mph)							Average Speed	Average Speed (mph)	Combined Density (pcphpl)							Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Btw VA 267 & VA 193	2183	5	651	1925	1654	1329	1270		6829	6829	58	57	58	59	59			58	58	11	34	29	23	22			24	C	24	C	24	C
diverge		1499	5	630	1946	1618	1368	1267		6828	6828	58	56	55	57	58			57	57	11	35	30	25	22			25	C	25	C	25	C
basic	VA 193 interchange	2217	4	2360	1532	1185	1097			6174	6174	54	56	57	58				56	56	45	28	21	19				28	D	28	D	28	D
merge	Btw VA 193 & GWMP	351	6	26	629	2293	1563	1214	1111	6836	6836	40	47	56	58	59	58		53	53	1	14	42	27	21	19		21	C	19	B	19	B
basic		1019	5	685	2153	1619	1272	1111		6841	6841	55	55	57	58	58			57	57	13	40	29	22	19			25	C	25	C	25	C
diverge		1278	5	933	2192	1518	1215	1030		6887	6887	58	55	57	58	59			57	57	16	41	27	21	18			25	C	26	C	26	C
basic	GWMP interchange	773	4	1542	1455	1254	1077			5328	5326	54	56	58	58				56	57	29	26	22	19				24	C	24	C	24	C
		597	4	1520	1418	1272	1108			5319		55	57	58	58				57		28	25	22	19				24	C	24	C		
		470	4	1512	1408	1280	1131			5332		55	57	58	58				57		28	25	22	20				24	C	24	C		
weave	Btw GWMP & Clara Barton Pkwy	652	5	904	1794	1728	1295	1140		6861	6878	53	55	56	58	59			56	56	18	33	31	22	20			25	C	25	C	25	C
		1764	5	645	1707	1741	1519	1285		6896		57	54	55	57	57			56		11	32	32	27	23			25	C	25	C		
basic	Clara Barton Pkwy interchange	216	4	1613	1673	1538	1344			6168	6205	56	56	57	58				57	57	29	30	27	24				28	D	28	D	28	D
		524	4	1620	1685	1569	1368			6242		56	56	57	58				57		30	30	28	24				28	D	28	D		
merge	Btw Clara Barton Pkwy & MD 190	1414	5	48	1564	1788	1601	1399		6401	6401	54	57	57	58	58			57	57	1	28	32	28	24			23	C	20	C	20	C
basic		697	4	1598	1740	1621	1425			6384	6389	57	56	58	58				57	57	29	31	28	25				28	D	28	D	28	D
		502	4	1589	1727	1629	1436			6382		57	56	58	58				57		29	31	29	25				28	D	28	D		
		851	4	1660	1703	1613	1412			6387		56	56	58	58				57		30	31	28	25				28	D	28	D		
		2266	4	1821	1655	1547	1371			6395		55	56	58	58				57		34	30	27	24				29	D	29	D		
		1266	4	1783	1629	1577	1409			6398		56	56	58	58				57		33	29	28	25				29	D	29	D		
diverge		600	5	410	1382	1594	1591	1430		6407	6400	58	57	56	58	58			57	57	7	25	29	28	25			23	C	20	C	20	C
		499	5	515	1311	1546	1578	1444		6394		58	56	56	57	58			57		9	24	28	28	25			23	C	20	C		
basic	MD 190 interchange	339	4	1316	1537	1578	1464			5895	5885	56	56	57	58				57	57	24	28	28	26				26	D	26	D	26	D
		399	4	1314	1528	1576	1460			5878		56	56	57	58				57		24	27	28	26				26	D	26	D		
		306	4	1320	1526	1571	1464			5881		56	56	57	58				57		24	27	28	26				26	D	26	D		
merge		1267	5	1320	1516	1541	1303	215		5896	5893	56	56	58	58	63			58	58	24	27	27	23	3			21	C	18	B	18	B
		530	5	1310	1494	1513	1268	304		5890		56	56	58	58	63			58		24	27	27	22	5			21	C	18	B		
merge	Btw MD 190 & I-270 West Spur	798	6	80	1496	1587	1511	1262	342	6278	6278	56	57	56	57	58	63		58	58	1	27	29	27	22	5		19	B	19	B	19	B
basic		922	5	1501	1592	1533	1264	386		6275	6267	56	56	57	58	63			58	58	27	29	27	22	6			22	C	22	C	22	C
		1982	5	1316	1615	1620	1323	389		6263		57	56	57	58	63			58		24	29	29	23	6			22	C	22	C		
		728	5	1000	1712	1754	1526	269		6261		58	56	56	58	62			58		18	31	32	27	4			22	C	22	C		
weave		2481	5	1059	1504	2144	1162	392		6261	6261	57	56	55	58	60			57	57	19	27	40	20	7			22	C	22	C	22	C
basic	Btw I-270 West Spur & MD 187	1259	3	1240	1385	1320				3945	3945	52	52	53					52	52	24	27	25					25	C	25	C	25	C
merge		2525	4	1267	1409	1317	653			4647	4647	57	57	58	59				58	58	23	25	23	11				20	C	20	C	20	C
basic		2741	3	1430	1607	1601				4637	4628	57	57	57					57	57	26	29	28					28	D	28	D	28	D
		1173	3	1610	1502	1506				4618		55	57	58					57		30	27	26					28	D	28	D		
diverge		305	4	334	1254	1481	1534			4603	4603	52	52	55	57				54	54	7	25	27	27				21	C	19	B	19	B
basic	MD 187 interchange	2021	3	1112	1425	1536				4072	4072	57	57	58					57	57	20	25	27					24	C	24	C	24	C
merge	Btw MD 187 & I-270 East Spur	440	4	63	1192	1443	1523			4220	4220	47	57	57	58				55	55	1	21	26	27				19	B	16	B	16	B
diverge		659	3	825	1703	1720				4249	4249	57	56	57					56	55	15	31	31					26	C	26	C	27	C
		1113	3	560	1818	1870				4249		56	51	52					53		10	36	37					28	D	28	D		
basic	I-270 East Spur interchange	1519	2	1867	1886					3753	3753	50	50						50	50	38	38						38	E	38	E	38	E
weave		1951	4	1675	1644	1456	1189			5965	5965	56	57	61	63				59	59	31	29	24	19				26	C	26	C	26	C
weave		513	6	41	1590	1611	1603	1532	234	6613	6613	52	58	58	62	63	62		59	59	1	28	28	26	25	4		19	B	19	B	19	B
merge	Btw I-270 East Spur & MD 185	1013	5	1579	1638	1695	1681	47		6639	6643	56	57	60	61	64			59	60	29	29	29	28	1			23	C	19	B	19	B
		1002	5	1535	1640	1730	1729	16		6650		57	57	60	61	65			60		28	29	29	29	0			23	C	19	B		
		521	5	1514	1636	1728	1758	3		6640		58	58	61	63	59			60		27	28	29	28	0			22	C	19	B		
basic		1603	4	1794	1640	1603	1589			6626	6634	55	57	60	62				58	58	33	29	27	26				29	D	29	D	29	D
		252	4	1917	1606	1540	1578			6641		54	57	60	62				58		36	29	26	26				29	D	29	D		
basic	ML - Btw VA 267 & GWMP	2189	2	887	874					1761	1761	64	64						64	64	14	14						14	B	14	B	14	B
		1496	2	886	875					1762		64	64						64		14	14						14	B	14	B		
		2215	2	880	880					1760		64	64						64		14	14						14	B	14	B		
		928	2	789	973					1762		64	63						64		13	16						14	B	14	B		
diverge		812	3	774	778	207				1758	1758	64	64	62					63	63	12	12	3					9	A	9	A	9	A
basic	ML - GWMP interchange	2524	2	765	738					1502	1502	64	64						64	64	12	12						12	B	12	B	12	B
		1327	2	764	738					1502		64	64						64		12	12						12	B	12	B		
merge	ML - Btw GWMP & MD 190	1243	3	837	896	364				2097	2097	63	63	62					63	63	13	14	6					11	B	11	B	11	B
basic		2810	2	985	1118					2103	2101	63	63						63	63	16	18						17	B	17	B	17	B
		207	2	996	1101					2097		63	63						63		16	18						17	B	17	B		
		1459	2	998	1106					2105		63	63						63		16	18						17	B	17	B		
		321	2	996	1104					2100		63	63						63		16	18						17	B	17	B		
		255	2	996	1103					2100		63	63						63		16	18						17	B	17	B		
		162	2	999	1102					2101		63	63						63		16	18						17	B	17	B		
		269	2	1000	1102					2103		63	63						63		16	18						17	B	17	B		
		2593	2	976	1126					2101		63	63						63		16	18						17	B	17	B		
diverge		1051	3	909	979	212				2100	2100	63	63	64					63	63	15	16	3					11	B	11	B	11	B
basic	ML - MD 190 interchange	951	2	901	944					1845	1845	63	63						63	63	14	15						15	B	15	B	15	B
merge		1003	3	120	841	936				1898	1898	66	64	63					64	64	2	13	15					10	B	10	B	10	B
basic		1020	3	155	817	923				1894	1894	67	63	63					65	65	2	13	15					10	A	10	A	10	A
merge	ML - Btw MD 190 & I-270 West Spur	701	4	170	837	953	42			2002	2002	67	63	63	61				64	64	3	13	15	1				8	A	10	B	10	B
basic		337	3	181	842	975				1997	2001	67	63	63					65	64	3	13	16					11	B	11	B	11	B
		3394	3	266	902	836				2004		66	63	63					64		4	14	13					11	B	11	B		
diverge		500	3	375	954	675				2004	2004	64	62	63					63	63	6	16	11					11	B	11	B	11	B
basic	ML - Btw I-270 West Spur & MD 187	2325	1	696						696	695	59							59	58	12							12	B	12	B	12	B
		745	1	694						694		57							57		12							12	B	12	B		

I-495 Inner Loop - 2027 Preferred Alternative - 7-8 AM

VISSIM Lookup Data				Volume								Speed									Density									
				Volume Per Lane						Across All Lanes	Overall Volume	Speed Per Lane							Across All Lanes	Overall Speed	Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)						Total Volume	Average Volume (veh/hr)	Speed (mph)							Average Speed	Average Speed (mph)	Combined Density (pcphpl)							Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Btw VA 267 & VA 193	2183	5	868	2026	1769	1437	1366		7466	7466	58	57	57	58	59			58	58	15	36	31	25	24			26	D	26	D	26	D
diverge		1499	5	937	1954	1692	1484	1393		7460	7460	56	51	51	53	55			53	53	17	39	34	28	26			29	D	30	D	30	D
basic	VA 193 interchange	2217	4	2193	1607	1364	1304			6468	6468	54	55	56	57				56	56	41	30	25	23				30	D	30	D	30	D
merge	Btw VA 193 & GWMP	351	6	71	802	2203	1756	1374	1299	7506	7506	27	36	56	58	58	58		49	49	3	23	40	31	24	23		24	C	22	C	22	C
basic		1019	5	658	2168	1887	1477	1307		7498	7498	51	53	56	58	58			55	55	13	42	34	26	23			28	D	28	D	28	D
diverge		1278	5	811	2197	1775	1474	1270		7527	7527	58	53	56	58	58			57	57	14	42	32	26	22			27	C	29	D	29	D
basic	GWMP interchange	773	4	1786	1706	1522	1344			6358	6344	52	55	57	57				55	56	35	32	27	24				30	D	30	D	29	D
		597	4	1731	1663	1547	1394			6335		54	56	57	58				56		33	30	27	25				29	D	29	D		
		470	4	1720	1647	1557	1413			6338		54	56	57	58				56		32	30	27	25				29	D	29	D		
weave	Btw GWMP & Clara Barton Pkwy	652	5	1061	2072	2044	1591	1420		8188	8207	51	52	54	58	58			55	54	21	40	38	28	25			31	D	31	D	31	D
		1764	5	689	1985	1994	1874	1684		8227		55	50	51	54	55			53		13	41	40	35	31			32	D	32	D		
basic	Clara Barton Pkwy interchange	216	4	1887	1927	1888	1766			7468	7514	54	55	56	57				55	55	36	36	34	32				34	D	34	D	35	E
		524	4	1899	1942	1922	1797			7560		54	55	56	57				55		36	36	35	32				35	E	35	E		
merge	Btw Clara Barton Pkwy & MD 190	1414	5	63	1807	2031	1970	1826		7697	7697	55	56	56	57	58			56	56	1	33	37	35	32			28	D	24	C	24	C
basic		697	4	1876	1965	1994	1859			7695	7685	56	56	57	58				57	56	34	36	35	33				35	E	35	E	35	E
		502	4	1869	1952	1996	1878			7695		56	56	57	58				57		34	36	36	33				35	E	35	E		
		851	4	1968	1944	1951	1837			7701		56	56	57	58				56		36	35	35	32				35	E	35	E		
		2266	4	2177	1902	1847	1753			7680		54	55	57	58				56		41	35	33	31				35	E	35	E		
		1266	4	2106	1884	1877	1789			7656		55	56	57	58				56		39	34	33	32				35	E	35	E		
diverge		600	5	588	1546	1813	1887	1809		7644	7629	57	56	56	57	57			57	56	10	28	33	34	32			27	C	24	C	24	C
		499	5	737	1457	1740	1869	1811		7614		58	55	55	56	57			56		13	27	32	34	32			28	D	24	C		
basic	MD 190 interchange	339	4	1475	1727	1865	1826			6893	6882	56	56	57	57				56	56	27	32	33	32				31	D	31	D	31	D
		399	4	1482	1712	1859	1822			6875		56	56	57	57				56		27	31	33	32				31	D	31	D		
		306	4	1484	1711	1856	1826			6877		56	56	57	57				57		27	31	33	32				31	D	31	D		
merge		1267	5	1495	1690	1816	1624	289		6915	6913	56	56	57	58	62			58	58	27	31	32	28	5			25	C	22	C	22	C
		530	5	1484	1662	1782	1578	404		6910		56	56	57	58	63			58		27	30	32	28	7			25	C	22	C		
merge	Btw MD 190 & I-270 West Spur	798	6	136	1784	1838	1776	1575	451	7560	7560	55	56	55	57	58	62		57	57	3	32	34	32	28	7		23	C	23	C	23	C
basic		922	5	1789	1841	1826	1592	512		7560	7560	55	55	57	58	62			57	57	33	34	33	28	8			27	D	27	D	27	D
		1982	5	1574	1846	1936	1671	536		7563		57	56	57	58	62			58		28	34	35	29	9			27	D	27	D		
		728	5	1213	1946	2075	1908	413		7555		58	54	55	57	61			57		21	36	38	34	7			27	D	27	D		
weave		2481	5	1328	1715	2336	1488	657		7525	7525	57	55	53	56	59			56	56	24	32	45	27	11			28	D	28	D	28	D
basic	Btw I-270 West Spur & MD 187	1259	3	1508	1560	1434				4502	4502	51	51	51					51	51	30	31	29					30	D	30	D	30	D
merge		2525	4	1467	1560	1430	790			5247	5247	50	50	49	49				49	49	31	33	32	19				29	D	28	D	28	D
basic		2741	3	1641	1741	1778				5159	5121	43	44	45					44	41	43	44	43					43	E	43	E	46	F
		1173	3	1811	1621	1651				5083		39	38	40					39		51	48	47					49	F	49	F		
diverge		305	4	438	1363	1566	1668			5034	5034	46	32	34	36				37	37	10	49	53	52				41	E	37	E	37	E
basic	MD 187 interchange	2021	3	1209	1446	1634				4290	4290	26	28	32					29	29	56	59	58					57	F	57	F	57	F
merge	Btw MD 187 & I-270 East Spur	440	4	188	1297	1432	1598			4514	4514	16	23	25	28				23	23	14	63	66	63				52	F	48	F	48	F
diverge		659	3	1083	1653	1773				4509	4486	29	26	28					27	28	41	70	68					60	F	60	F	59	F
		1113	3	705	1800	1958				4463		34	25	28					29		22	76	74					58	F	58	F		
basic	I-270 East Spur interchange	1519	2	1936	1984					3920	3920	28	29						29	29	72	71						71	F	71	F	71	F
weave		1951	4	1786	1802	1764	1641			6993	6993	28	29	29	27				28	28	66	64	64	63				64	F	64	F	64	F
weave		513	6	139	1718	1833	1842	1787	747	8067	8067	32	23	26	25	23	53		30	30	4	77	73	77	79	14		54	F	54	F	54	F
merge	Btw I-270 East Spur & MD 185	1013	5	1842	1897	1903	1851	568		8061	8018	28	29	26	25	33			28	27	68	68	74	78	18			61	F	57	F	57	F
		1002	5	1857	1934	1917	1849	466		8022		28	29	27	25	29			27		69	68	73	77	16			61	F	55	F		
		521	5	1848	1941	1991	1939	254		7972		24	26	26	23	22			24		80	78	80	86	12			67	F	59	F		
basic		1603	4	2070	1921	1936	1998			7925	7930	36	39	43	47				41	47	59	50	46	44				50	F	50	F	44	E
		252	4	2130	1859	1917	2029			7936		49	52	55	57				53		44	37	36	36				38	E	38	E		
basic	ML - Btw VA 267 & GWMP	2189	2	932	921					1854	1856	64	64						64	64	15	15						15	B	15	B	15	B
		1496	2	931	924					1855		64	64						64		15	15						15	B	15	B		
		2215	2	927	930					1857		64	64						64		15	15						15	B	15	B		
		928	2	857	1003					1860		64	63						63		14	16						15	B	15	B		
diverge		812	3	846	850	160				1856	1856	64	63	62					63	63	14	14	3					10	B	10	B	10	B
basic	ML - GWMP interchange	2524	2	840	819					1659	1660	64	64						64	64	13	13						13	B	13	B	13	B
		1327	2	841	819					1660		63	63						63		13	13						13	B	13	B		
merge		1243	3	922	979	396				2296	2296	63	63	62					63	63	15	16	7					12	B	12	B	12	B
basic	ML - Btw GWMP & MD 190	2810	2	1080	1224					2304	2299	63	63						63	63	17	20						19	C	19	C	19	C
		207	2	1090	1202					2293		63	63						63		18	19						18	C	18	C		
		1459	2	1100	1201					2301		63	63						63		18	19						19	C	19	C		
		321	2	1099	1194					2293		63	63						63		18	19						18	C	18	C		
		255	2	1099	1196					2295		63	63						63		18	19						18	C	18	C		
		162	2	1101	1198					2299		63	63						63		18	19						18	C	18	C		
		269	2	1101	1202					2304		63	63						63		18	19						19	C	19	C		
		2593	2	1085	1218					2303		63	63						63		17	20						19	C	19	C		
diverge		1051	3	1035	1105	166				2305	2305	63	63	64					63	63	17	18	3					12	B	12	B	12	B
basic	ML - MD 190 interchange	951	2	1029	1078					2107	2107	63	63						63	63	17	17						17	B	17	B	17	B
merge		1003	3	201	953	1067				2220	2220	66	63	63					64	64	3	15	17					12	B	12	B	12	B
basic		1020	3	245	919	1056				2220	2220	66	63	63					64	64	4	15	17					12	B	12	B	12	B
merge	ML - Btw MD 190 & I-270 West Spur	701	4	264	963	1091	59			2378	2378	66	63	63	60				63	63	4	15	18	1				10	B	11	B	11	B
basic		337	3	288	970	1117				2375	2374	66	63	63					64	64	4	16	18					13	B	13	B	13	B
		3394	3	383	1039	950				2372		65	63	63					64		6	17	15					13	B	13	B		
diverge		500	3	504	1094	772				2370	2370	64	62	63					63	63	8	18	13					13	B	13	B	13	B
basic	ML - Btw I-270 West Spur & MD 187	2325	1	800						800	799	59							59	58	14							14	B	14	B	14	B
		745	1	799						799		57							57		14							14	B	14	B		

I-495 Inner Loop - 2027 Preferred Alternative - 8-9 AM

VISSIM Lookup Data				Volume								Speed									Density									
				Volume Per Lane						Across All Lanes	Overall Volume	Speed Per Lane							Across All Lanes	Overall Speed	Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)						Total Volume	Average Volume (veh/hr)	Speed (mph)							Average Speed	Average Speed (mph)	Combined Density (pcphpl)							Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Btw VA 267 & VA 193	2183	5	631	1848	1551	1244	1181		6455	6455	59	58	58	59	59			58	58	11	33	27	22	20			23	C	23	C	23	C
diverge		1499	5	630	1842	1522	1276	1184		6454	6454	57	56	56	58	58			57	57	11	33	28	23	21			23	C	24	C	24	C
basic	VA 193 interchange	2217	4	2077	1445	1173	1112			5806	5806	56	57	58	58				57	57	38	26	21	20				26	D	26	D	26	D
merge	Btw VA 193 & GWMP	351	6	129	919	2042	1700	1189	1108	7088	7088	19	28	56	58	58	58		46	46	7	33	37	30	21	19		25	C	26	C	26	C
basic		1019	5	632	2107	1889	1342	1134		7104	7104	46	52	56	58	58			54	54	14	41	34	24	20			27	D	27	D	27	D
diverge		1278	5	685	2173	1769	1402	1131		7159	7159	58	52	56	58	58			56	56	12	42	32	25	20			26	C	28	D	28	D
basic	GWMP interchange	773	4	1850	1700	1478	1237			6265	6261	51	54	56	57				55	56	37	32	27	22				29	D	29	D	29	D
		597	4	1778	1653	1510	1311			6252		54	56	57	58				56		34	30	27	23				28	D	28	D		
		470	4	1768	1635	1520	1342			6265		54	56	57	58				56		33	30	27	24				28	D	28	D		
weave	Btw GWMP & Clara Barton Pkwy	652	5	1082	2078	2029	1548	1352		8089	8109	52	52	55	58	59			55	54	22	40	38	27	23			30	D	30	D	31	D
		1764	5	726	1960	1989	1833	1623		8130		56	50	52	54	56			54		13	40	39	34	30			31	D	31	D		
basic	Clara Barton Pkwy interchange	216	4	1861	1895	1844	1724			7324	7368	54	54	56	57				55	55	35	35	33	31				34	D	34	D	34	D
		524	4	1867	1915	1875	1756			7412		54	54	56	57				55		35	36	34	31				34	D	34	D		
merge		1414	5	61	1786	2009	1913	1786		7554	7554	54	56	55	57	58			56	56	1	33	37	34	31			27	C	24	C	24	C
basic	Btw Clara Barton Pkwy & MD 190	697	4	1860	1933	1939	1816			7549	7559	56	55	57	58				56	56	34	35	35	32				34	D	34	D	34	D
		502	4	1857	1910	1946	1832			7545		56	55	57	58				56		34	35	35	32				34	D	34	D		
		851	4	1961	1897	1906	1790			7555		55	55	57	58				56		36	35	34	32				34	D	34	D		
		2266	4	2181	1881	1803	1706			7570		53	55	57	58				56		42	35	32	30				35	E	35	E		
		1266	4	2120	1854	1842	1757			7574		54	55	57	57				56		40	34	33	31				34	D	34	D		
diverge		600	5	678	1484	1779	1852	1784		7576	7569	57	56	55	57	57			56	56	12	27	33	33	31			27	C	24	C	24	C
		499	5	852	1386	1693	1839	1793		7562		57	54	54	56	57			56		15	26	32	33	32			28	D	24	C		
basic	MD 190 interchange	339	4	1404	1677	1832	1812			6725	6712	55	55	56	57				56	56	26	31	33	32				31	D	31	D	30	D
		399	4	1411	1665	1816	1812			6705		56	55	56	57				56		26	31	33	32				30	D	30	D		
		306	4	1425	1651	1817	1813			6705		56	55	56	57				56		26	30	33	32				30	D	30	D		
merge		1267	5	1447	1622	1761	1598	294		6722	6721	56	55	57	58	62			58	58	26	30	31	28	5			24	C	21	C	21	C
		530	5	1450	1595	1704	1554	416		6719		56	55	57	58	62			58		27	29	30	27	7			24	C	21	C		
merge		798	6	204	1907	1835	1709	1549	465	7669	7669	55	55	55	57	58	62		57	57	4	35	34	31	27	8		23	C	24	C	24	C
basic	Btw MD 190 & I-270 West Spur	922	5	1895	1865	1796	1577	532		7666	7666	54	54	56	58	61			57	57	36	35	32	28	9			28	D	28	D	28	D
		1982	5	1609	1881	1926	1666	581		7663		57	55	56	58	61			57		29	35	35	29	10			27	D	27	D		
		728	5	1117	2022	2095	1922	512		7668		58	54	54	57	61			57		20	38	39	34	9			28	D	28	D		
weave		2481	5	1212	1577	2235	1701	954		7679	7679	47	47	46	52	55			49	49	29	36	51	34	18			34	D	34	D	34	D
basic	Btw I-270 West Spur & MD 187	1259	3	1319	1351	1146				3816	3816	36	37	36					36	36	55	54	54					54	F	54	F	54	F
merge		2525	4	1311	1339	1027	875			4552	4552	29	29	26	28				28	28	83	83	98	83				87	F	88	F	88	F
basic		2741	3	1403	1508	1616				4527	4518	14	16	18					16	15	108	102	94					102	F	102	F	111	F
		1173	3	1558	1456	1495				4509		13	12	13					13		119	121	121					120	F	120	F		
diverge		305	4	560	1159	1342	1437			4498	4498	34	9	10	11				16	16	17	125	130	129				100	F	91	F	91	F
basic	MD 187 interchange	2021	3	1140	1261	1425				3827	3827	8	9	11					9	9	149	141	131					140	F	140	F	140	F
merge	Btw MD 187 & I-270 East Spur	440	4	328	1112	1271	1454			4164	4164	8	8	9	12				9	9	44	142	139	127				113	F	108	F	108	F
diverge		659	3	1238	1392	1552				4182	4181	15	11	13					13	16	83	128	122					111	F	111	F	98	F
		1113	3	789	1603	1788				4180		25	14	17					19		32	114	109					85	F	85	F		
basic	I-270 East Spur interchange	1519	2	1791	1900					3691	3691	18	20						19	19	103	99						101	F	101	F	101	F
weave		1951	4	1703	1734	1638	1613			6688	6688	18	19	17	17				18	18	95	93	96	98				95	F	95	F	95	F
weave		513	6	221	1656	1793	1641	1588	1054	7953	7953	29	15	17	15	14	49		23	23	8	111	105	111	115	22		78	F	78	F	78	F
merge	Btw I-270 East Spur & MD 185	1013	5	1842	1878	1695	1610	965		7991	8003	22	22	17	16	30			21	21	87	86	99	104	33			82	F	79	F	78	F
		1002	5	1872	1939	1786	1595	823		8015		22	24	20	16	27			22		85	82	91	102	30			78	F	75	F		
		521	5	1874	1969	1947	1731	483		8003		19	21	20	15	21			19		98	95	100	116	24			87	F	80	F		
basic		1603	4	2076	1945	1960	2009			7990	8000	34	37	40	43				39	46	62	54	50	48				53	F	53	F	46	F
		252	4	2114	1897	1962	2038			8011		51	54	55	56				54		42	36	36	37				38	E	38	E		
basic	ML - Btw VA 267 & GWMP	2189	2	829	816					1646	1647	64	64						64	64	13	13						13	B	13	B	13	B
		1496	2	826	820					1646		64	64						64		13	13						13	B	13	B		
		2215	2	825	822					1647		64	64						64		13	13						13	B	13	B		
		928	2	797	850					1647		64	64						64		13	14						13	B	13	B		
diverge		812	3	793	788	62				1644	1644	64	64	63					63	63	13	13	1					9	A	9	A	9	A
basic	ML - GWMP interchange	2524	2	793	776					1569	1568	64	64						64	64	13	12						13	B	13	B	13	B
		1327	2	792	776					1568		64	63						64		13	12						13	B	13	B		
merge		1243	3	851	916	340				2107	2107	63	63	62					63	63	14	15	6					11	B	11	B	11	B
basic	ML - Btw GWMP & MD 190	2810	2	983	1131					2115	2115	63	63						63	63	16	18						17	B	17	B	17	B
		207	2	995	1113					2108		63	63						63		16	18						17	B	17	B		
		1459	2	999	1116					2116		63	63						63		16	18						17	B	17	B		
		321	2	1001	1112					2112		63	63						63		16	18						17	B	17	B		
		255	2	1003	1110					2113		63	63						63		16	18						17	B	17	B		
		162	2	1004	1111					2115		63	63						63		16	18						17	B	17	B		
		269	2	1006	1113					2119		63	63						63		16	18						17	B	17	B		
		2593	2	997	1124					2121		63	63						63		16	18						17	B	17	B		
diverge		1051	3	957	1056	109				2122	2122	63	63	64					63	63	15	17	2					11	B	11	B	11	B
basic	ML - MD 190 interchange	951	2	951	1038					1989	1989	63	63						63	63	15	17						16	B	16	B	16	B
merge		1003	3	181	876	1034				2091	2091	66	63	63					64	64	3	14	17					11	B	11	B	11	B
basic		1020	3	221	852	1018				2091	2091	66	63	63					64	64	3	14	16					11	B	11	B	11	B
merge	ML - Btw MD 190 & I-270 West Spur	701	4	241	904	1080	69			2293	2293	66	63	63	60				63	63	4	15	17	1				9	A	11	B	11	B
basic		337	3	264	913	1115				2291	2293	66	63	63					64	64	4	15	18					12	B	12	B	12	B
		3394	3	370	998	928				2295		65	63	63					64		6	16	15					12	B	12	B		
diverge		500	3	495	1092	707				2295	2295	64	62	63					63	63	8	18	11					12	B	12	B	12	B
basic	ML - Btw I-270 West Spur & MD 187	2325	1	733						733	734	59							59	53	13							13	B	13	B	15	B
		745	1	735						735		47							47		17							17	B	17	B		

I-495 Inner Loop - 2027 Preferred Alternative - 9-10 AM

VISSIM Lookup Data				Volume								Speed								Density									
				Volume Per Lane						Across All Lanes	Overall Volume	Speed Per Lane						Across All Lanes	Overall Speed	Density Per Lane						Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)						Total Volume	Average Volume (veh/hr)	Speed (mph)						Average Speed	Average Speed (mph)	Combined Density (pcphpl)						Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Btw VA 267 & VA 193	2183	5	579	1787	1465	1165	1116		6111	6111	59	58	58	59	59		58	58	10	31	26	20	19		21	C	21	C	21	C
diverge		1499	5	553	1805	1440	1204	1108		6110	6110	58	57	56	58	58		58	58	10	32	26	21	19		22	C	23	C	23	C
basic	VA 193 interchange	2217	4	2072	1386	1081	1006			5544	5544	56	58	58	58			58	58	37	24	19	18			25	C	25	C	25	C
merge	Btw VA 193 & GWMP	351	6	78	800	2089	1602	1087	1007	6663	6663	29	36	56	58	59	59	49	49	3	23	38	28	19	17	21	C	21	C	21	C
basic		1019	5	552	2110	1770	1223	1008		6663	6663	50	53	56	58	58		55	55	11	40	32	21	18		24	C	24	C	24	C
diverge		1278	5	674	2196	1656	1217	949		6692	6692	58	53	56	58	59		57	57	12	42	30	21	16		24	C	26	C	26	C
basic	GWMP interchange	773	4	1835	1587	1293	1034			5749	5737	52	55	57	58			56	56	36	29	23	18			27	D	27	D	26	D
		597	4	1762	1536	1329	1101			5728		54	56	58	58			57		33	28	23	19			26	D	26	D		
		470	4	1748	1516	1344	1126			5734		54	56	58	58			57		33	27	24	20			26	D	26	D		
weave	Btw GWMP & Clara Barton Pkwy	652	5	1077	1980	1861	1372	1139		7430	7454	53	54	56	58	59		56	55	21	37	34	24	20		27	C	27	C	27	C
		1764	5	779	1854	1858	1636	1351		7479		57	53	54	56	57		55		14	36	35	30	24		28	D	28	D		
basic	Clara Barton Pkwy interchange	216	4	1744	1765	1674	1444			6626	6669	55	55	57	58			56	56	32	32	30	25			30	D	30	D	30	D
		524	4	1753	1774	1705	1481			6712		55	55	57	58			56		32	33	30	26			30	D	30	D		
merge		1414	5	51	1669	1850	1747	1521		6838	6838	55	56	56	57	58		57	57	1	30	34	31	26		24	C	22	C	22	C
basic	Btw Clara Barton Pkwy & MD 190	697	4	1724	1782	1780	1554			6840	6845	56	56	57	58			57	56	31	33	32	27			31	D	31	D	31	D
		502	4	1713	1769	1790	1574			6845		56	56	57	58			57		31	32	32	28			31	D	31	D		
		851	4	1821	1753	1744	1535			6853		55	56	57	58			56		33	32	31	27			31	D	31	D		
		2266	4	2043	1716	1625	1462			6846		54	55	57	58			56		39	31	29	26			31	D	31	D		
		1266	4	1990	1685	1661	1503			6839		55	56	57	58			56		37	31	29	26			31	D	31	D		
diverge		600	5	664	1354	1617	1673	1527		6834	6822	57	56	56	57	58		57	56	12	25	29	30	27		24	C	22	C	22	C
		499	5	836	1242	1541	1654	1538		6811		57	55	55	56	57		56		15	23	28	30	27		25	C	22	C		
basic	MD 190 interchange	339	4	1255	1521	1650	1558			5985	5979	56	55	57	57			56	57	23	28	30	28			27	D	27	D	27	D
		399	4	1263	1507	1647	1555			5973		56	56	57	58			57		23	27	29	27			27	D	27	D		
		306	4	1268	1506	1647	1559			5979		56	56	57	58			57		23	27	29	27			27	D	27	D		
merge		1267	5	1277	1489	1612	1387	259		6024	6028	56	56	57	58	62		58	58	23	27	29	24	4		21	C	19	B	19	B
		530	5	1276	1464	1577	1351	363		6032		56	56	57	58	63		58		23	27	28	24	6		21	C	19	B		
merge		798	6	188	1753	1683	1586	1345	414	6969	6969	55	56	55	57	58	62	57	57	3	32	31	28	23	7	21	C	22	C	22	C
basic	Btw MD 190 & I-270 West Spur	922	5	1751	1722	1663	1366	471		6973	6981	55	55	57	58	62		57	58	32	32	30	24	8		25	C	25	C	25	C
		1982	5	1482	1747	1798	1451	508		6987		57	56	57	58	62		58		26	32	32	25	8		25	C	25	C		
		728	5	1002	1878	1970	1694	438		6983		58	54	55	57	61		57		17	35	36	30	7		25	C	25	C		
weave		2481	5	1034	1444	2228	1537	719		6962	6962	57	55	54	57	59		56	56	18	26	42	28	12		25	C	25	C	25	C
basic	Btw I-270 West Spur & MD 187	1259	3	1155	1241	1062				3458	3458	48	48	47				48	48	26	28	25				26	D	26	D	26	D
merge		2525	4	1189	1244	1062	806			4301	4301	37	37	34	34			35	35	53	54	62	51			55	F	56	F	56	F
basic		2741	3	1354	1470	1547				4372	4393	26	27	29				27	22	79	78	75				77	F	77	F	88	F
		1173	3	1532	1413	1469				4414		17	15	16				16		96	101	99				99	F	99	F		
diverge		305	4	341	1280	1358	1453			4432	4432	36	13	13	15			20	20	10	103	110	107			83	F	74	F	74	F
basic	MD 187 interchange	2021	3	1255	1320	1474				4048	4048	11	11	14				12	12	124	123	115				121	F	121	F	121	F
merge	Btw MD 187 & I-270 East Spur	440	4	245	1256	1327	1513			4341	4341	11	10	11	14			11	11	23	126	127	116			98	F	92	F	92	F
diverge		659	3	1280	1465	1624				4368	4365	17	13	15				15	18	77	119	113				103	F	103	F	91	F
		1113	3	769	1705	1888				4362		27	17	19				21		30	104	100				78	F	78	F		
basic	I-270 East Spur interchange	1519	2	1899	2032					3932	3932	21	24					22	22	93	87					90	F	90	F	90	F
weave		1951	4	1736	1768	1706	1688			6898	6898	20	21	20	20			20	20	90	87	87	87			88	F	88	F	88	F
weave		513	6	184	1687	1805	1728	1685	802	7891	7891	30	16	18	17	16	53	25	25	6	107	103	105	108	16	74	F	74	F	74	F
merge	Btw I-270 East Spur & MD 185	1013	5	1846	1876	1769	1708	749		7948	7963	22	22	19	18	33		23	22	87	86	94	97	23		78	F	71	F	71	F
		1002	5	1858	1911	1844	1712	646		7970		22	23	21	18	30		23		86	83	88	95	22		75	F	68	F		
		521	5	1856	1941	1962	1850	362		7971		19	20	20	17	23		20		99	96	99	110	16		84	F	75	F		
basic		1603	4	2066	1933	1952	2014			7964	7973	34	37	40	43			38	46	62	54	50	47			53	F	53	F	45	F
		252	4	2117	1878	1945	2043			7983		51	53	55	57			54		42	36	36	37			38	E	38	E		
basic	ML - Btw VA 267 & GWMP	2189	2	810	798					1608	1609	64	64					64	64	13	13					13	B	13	B	13	B
		1496	2	814	795					1609		64	64					64		13	13					13	B	13	B		
		2215	2	807	802					1609		64	64					64		13	13					13	B	13	B		
		928	2	794	816					1610		64	64					64		13	13					13	B	13	B		
diverge		812	3	793	788	26				1607	1607	64	64	63				63	63	13	13	0				9	A	9	A	9	A
basic	ML - GWMP interchange	2524	2	791	782					1572	1572	64	64					64	64	13	12					13	B	13	B	13	B
		1327	2	788	784					1572		64	63					63		13	13					13	B	13	B		
merge		1243	3	850	920	338				2108	2108	63	63	62				63	63	14	15	6				11	B	11	B	11	B
basic	ML - Btw GWMP & MD 190	2810	2	984	1133					2117	2111	63	63					63	63	16	18					17	B	17	B	17	B
		207	2	997	1110					2107		63	63					63		16	18					17	B	17	B		
		1459	2	1001	1112					2114		63	63					63		16	18					17	B	17	B		
		321	2	998	1110					2109		63	63					63	63	16	18					17	B	17	B	17	B
		255	2	997	1112					2109		63	63					63		16	18					17	B	17	B		
		162	2	997	1113					2110		63	63					63		16	18					17	B	17	B		
		269	2	999	1114					2112		63	63					63		16	18					17	B	17	B		
		2593	2	983	1130					2113		63	63					63		16	18					17	B	17	B		
diverge		1051	3	929	1035	149				2113	2113	63	63	64				63	63	15	17	2				11	B	11	B	11	B
basic	ML - MD 190 interchange	951	2	926	1013					1939	1939	63	63					63	63	15	16					16	B	16	B	16	B
merge		1003	3	190	858	1003				2051	2051	66	63	63				64	64	3	14	16				11	B	11	B	11	B
basic		1020	3	229	832	990				2051	2051	67	63	63				64	64	3	13	16				11	B	11	B	11	B
merge	ML - Btw MD 190 & I-270 West Spur	701	4	252	951	1137	124			2464	2464	66	63	63	58			62	62	4	15	18	2			10	B	12	B	12	B
basic		337	3	304	967	1188				2458	2457	66	63	63				64	64	5	16	19				13	B	13	B	13	B
		3394	3	418	1050	988				2456		65	63	63				64		7	17	16				13	B	13	B		
diverge		500	3	550	1126	777				2452	2452	63	62	63				63	63	9	18	13				13	B	13	B	13	B
basic	ML - Btw I-270 West Spur & MD 187	2325	1	804						804	804	59						59	56	14						14	B	14	B	15	B
		745	1	804						804		53						53		16						16	B	16	B		

I-495 Outer Loop - 2027 Preferred Alternative - 6-7 AM

VISSIM Lookup Data				Volume									Speed									Density									
				Volume Per Lane							Across All Lanes	Overall Volume	Speed Per Lane							Across All Lanes	Overall Speed	Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)							Total Volume	Average Volume (veh/hr)	Speed (mph)							Average Speed	Average Speed (mph)	Combined Density (pcphpl)							Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Btw VA 267 & VA 193	873	5	383	989	1344	1326	1250			5293	5293	57	53	53	53	53			54	54	7	19	26	25	24			20	C	20	C	20	C
merge		853	6	15	340	989	1365	1329	1260		5298	5298	54	57	54	53	54	54		54	54	0	6	19	26	25	24		17	B	8	A	8	A
merge		1322	5	202	1013	1389	1335	1254			5194	5194	58	53	53	53	53			54	54	4	19	27	25	24			20	C	17	B	17	B
basic	VA 193 interchange & GWMP interchange	786	4	1143	1416	1335	1245				5138	5143	53	53	53	53				53	53	22	27	25	24				25	C	25	C	25	C
		727	4	1140	1422	1341	1245				5147		53	53	53	53				53		22	27	26	24				25	C	25	C		
diverge		591	5	378	1201	1446	1338	1242			5605	5605	54	53	53	53	53			53	53	7	23	28	25	24			21	C	19	B	19	B
basic		1828	4	1582	1477	1330	1240				5629	5629	52	53	53	53				53	53	31	28	25	24				27	D	27	D	27	D
diverge		720	5	1263	1628	1475	1263	1227			6856	6856	47	52	53	53	53			52	52	28	32	28	24	23			27	C	29	D	29	D
basic	Btw GWMP & Clara Barton Pkwy	453	5	1380	1595	1439	1220	1223			6857	6862	53	53	53	54	53			53	53	26	31	28	23	23			26	D	26	D	26	D
		2500	5	1760	1307	1307	1241	1249			6863		52	53	53	54	53			53		34	25	25	24	24			26	D	26	D		
merge		462	6	3	1112	1441	1562	1387	1354		6860	6860	36	50	52	53	53	53		50	50	0	23	28	30	26	26		22	C	20	C	20	C
basic	Clara Barton Pkwy interchange	1131	4	2173	1610	1375	1353				6511	6511	50	53	53	53				52	52	44	31	26	26				32	D	32	D	32	D
diverge		401	5	130	1951	1677	1501	1391			6649	6649	53	52	53	53	53			53	53	2	38	32	29	26			26	C	24	C	24	C
basic	Btw Clara Barton Pkwy & MD 190	1108	4	1664	1717	1696	1632				6709	6703	53	53	53	53				53	53	32	33	32	31				32	D	32	D	32	D
		699	4	1635	1707	1699	1633				6674		53	53	53	53				53		32	33	33	31				32	D	32	D		
		282	4	1641	1713	1706	1635				6695		53	53	53	53				53		32	33	33	31				32	D	32	D		
		1935	4	1653	1716	1704	1635				6708		52	53	53	53				53		32	33	33	31				32	D	32	D		
		740	4	1600	1747	1716	1645				6708		52	52	52	52				52		32	34	33	32				33	D	33	D		
merge		1594	5	207	1378	1749	1698	1671			6703	6703	56	54	53	53	53			54	54	4	26	33	32	32			25	C	21	C	21	C
basic	MD 190 interchange	2499	4	1554	1663	1700	1667				6585	6585	53	53	53	53				53	53	30	32	33	32				32	D	32	D	32	D
diverge		1081	5	893	1556	1667	1698	1658			7473	7473	53	52	52	53	53			53	53	17	30	32	33	32			29	D	27	C	27	C
diverge	Btw MD 190 & I-270 West Spur	407	6	766	904	1544	1680	1682	1650		8227	8233	54	54	53	53	53	53		53	53	14	17	30	32	32	31		26	C	20	C	21	C
		718	6	641	1061	1543	1679	1663	1650		8237		54	54	53	53	54	54		53		12	20	30	32	31	31		26	C	21	C		
basic		501	5	1958	1410	1564	1645	1650			8226	8242	52	53	53	53	53			53	50	38	27	30	31	31			32	D	32	D	34	D
		2892	5	1968	1450	1548	1645	1634			8244		45	48	50	51	52			49		45	31	32	33	32			34	D	34	D		
weave		621	6	861	1594	1841	1570	1301	1077		8245	8236	14	17	31	40	47	50		33	42	62	93	59	40	28	22		51	F	51	F	40	E
		281	6	1704	1560	1556	1197	1155	1061		8232		48	47	50	52	53	53		51		36	34	31	23	22	20		28	D	28	D		
		242	6	1618	1769	1481	1100	1158	1093		8220		53	52	53	53	54	53		53		31	34	28	21	22	21		26	C	26	C		
basic	Btw I-270 West Spur & MD 187	2743	3	1090	1174	1061					3324	3324	52	52	52					52	52	21	23	21					22	C	22	C	22	C
diverge		851	4	1105	1212	1105	524				3946	3946	53	53	53	53				53	53	21	23	21	10				19	B	18	B	18	B
basic		2904	3	1231	1312	1411					3955	3955	53	53	53					53	53	24	25	27					25	C	25	C	25	C
		1128	3	1307	1361	1291					3958		53	53	53					53		25	26	25					25	C	25	C		
		1088	3	1324	1360	1268					3952		53	53	53					53		26	26	24					25	C	25	C		
merge		406	4	168	1236	1306	1221				3931	3931	51	53	53	53				52	52	3	24	25	23				19	B	17	B	17	B
basic	MD 187 interchange	2022	3	990	1197	1225					3411	3411	53	53	53					53	53	19	23	23					22	C	22	C	22	C
diverge	Btw MD 187 & I-270 East Spur	325	4	204	1092	1215	1231				3742	3742	53	53	53	53				53	53	4	21	23	23				18	B	16	B	16	B
basic		1192	3	1293	1220	1228					3741	3744	53	53	53					53	53	25	23	23					24	C	24	C	24	C
		913	3	1295	1219	1233					3746		53	53	53					53		25	23	23					24	C	24	C		
		494	3	1191	1266	1288					3745		53	53	53					53		23	24	25					24	C	24	C		
merge		910	4	990	1351	1362	35				3739	3739	49	49	49	48				49	49	20	28	28	1				19	B	19	B	19	B
basic	I-270 East Spur interchange	288	3	889	1331	1270					3490	3490	53	53	53					53	53	17	25	24					22	C	22	C	22	C
weave		1593	4	1052	2038	1386	1290				5767	5767	54	53	53	53				53	53	20	39	26	25				28	D	28	D	28	D
diverge	Btw I-270 East Spur & MD 185	402	5	674	1240	2117	1393	1276			6701	6701	53	53	52	53	53			53	53	13	24	41	27	24			26	C	26	C	26	C
basic		1045	4	1890	2159	1401	1267				6717	6707	53	52	53	53				53	53	36	42	27	24				32	D	32	D	32	D
		2087	4	1816	2323	1363	1209				6711		52	51	53	53				52		35	46	26	23				33	D	33	D		
		1257	4	1995	1744	1807	1159				6705		51	52	53	54				52		40	34	35	22				33	D	33	D		
		526	4	1451	1936	1876	1410				6674		53	53	53	53				53		28	37	36	27				32	D	32	D		
basic	ML - Btw VA 267 & GWMP	873	2	1249	642						1891	1887	63	64						64	64	20	10						15	B	15	B	15	B
		2286	2	1256	634						1891		63	64						64		20	10						15	B	15	B		
		787	2	1259	621						1880		63	64						64		20	10						15	B	15	B		
		954	2	1271	608						1879		63	64						63		20	10						15	B	15	B		
merge		303	3	1240	556	74					1871	1871	63	62	48					58	58	20	9	2					10	B	10	B	10	B
basic	ML - GWMP interchange through MD 19 interchange	2891	2	1251	441						1693	1693	63	65						64	64	20	7						13	B	13	B	13	B
diverge		697	3	550	1435	296					2281	2281	63	63	63					63	63	9	23	5					12	B	12	B	12	B
basic		572	2	511	1760						2272	2283	63	60						62	63	8	30						19	C	19	C	18	C
		1070	2	578	1706						2284		63	61						62		9	28						19	C	19	C		
		3680	2	1179	1107						2286		63	63						63		19	18						18	C	18	C		
		540	2	1180	1103						2283		63	63						63		19	18						18	C	18	C		
		733	2	1181	1101						2282		63	63						63		19	18						18	C	18	C		
		905	2	1180	1099						2279		63	63						63		19	18						18	C	18	C		
		580	2	1182	1100						2282		63	63						63		19	18						18	C	18	C		
		298	2	1179	1098						2277		63	63						63		19	18						18	C	18	C		
		1376	2	1181	1100						2281		63	63						63		19	18						18	C	18	C		
		627	2	1178	1107						2285		63	63						63		19	18						18	C	18	C		
		404	2	1172	1114						2287		63	63						63		19	18						18	C	18	C		
merge		800	3	1137	1027	122					2286	2286	63	63	60					62	62	18	17	2					12	B	12	B	12	B
basic		935	2	1075	888						1963	1963	63	64						63	63	17	14						16	B	16	B	16	B
diverge		509	3	607	1085	881					2573	2573	63	63	63					63	63	10	17	14					14	B	14	B	14	B
basic		1249	3	557	1154	864					2575	2575	64	63	63					63	63	9	19	14					14	B	14	B	14	B
diverge	ML - Btw MD 190 & I-270 West Spur	589	4	636	1012	990	170				2807	2807	64	63	63	63				63	63	10	16	16	3				11	B	12	B	12	B
basic		3452	3	667	1072	1070					2810	2810	64	63	63					64	64	11	17	17					15	B	15	B	15	B
merge		702	3	653	1119	1029					2801	2801	64	63	63					63	63	10	18	17					15	B	15	B	15	B
basic	ML - Btw I-270 West Spur & MD 187	887	1	627							627	628	63							63	58	10							10	A	10	A	11	B
		1676	1	628							628		56							56		11							11	B	11	B		
		713	1	630							630		58							58		11							11	B	11	B		

I-495 Outer Loop - 2027 Preferred Alternative - 7-8 AM

VISSIM Lookup Data				Volume									Speed									Density									
				Volume Per Lane						Across All Lanes	Overall Volume		Speed Per Lane						Across All Lanes	Overall Speed		Density Per Lane						Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)						Total Volume	Average Volume (veh/hr)		Speed (mph)						Average Speed	Average Speed (mph)		Combined Density (pcphpl)						Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Btw VA 267 & VA 193	873	5	750	1207	1599	1594	1512		6661	6661		54	53	52	53	52		53	53		14	23	31	31	29		26	D	26	D	26	D
merge		853	6	39	699	1192	1620	1602	1518	6671	6671		53	55	53	53	54	54	54	54		1	13	23	31	30	29	21	C	12	B	12	B
merge		1322	5	445	1197	1641	1615	1511		6410	6410		56	53	53	53	53		53	53		8	23	32	31	29		25	C	21	C	21	C
basic	VA 193 interchange & GWMP interchange	786	4	1339	1674	1620	1504			6137	6144		53	53	53	53			53	53		26	32	31	29			29	D	29	D	29	D
		727	4	1330	1690	1628	1503			6151			53	53	53	53			53			25	33	31	29			29	D	29	D		
diverge		591	5	534	1406	1732	1632	1495		6799	6799		53	53	53	53	53		53	53		10	27	33	31	29		26	C	24	C	24	C
basic		1828	4	1945	1796	1624	1474			6839	6839		51	52	52	52			52	52		39	35	31	29			34	D	34	D	34	D
diverge		720	5	1214	2066	1811	1512	1397		8000	8000		47	50	52	53	53		51	51		26	42	35	29	27		32	D	35	E	35	E
basic	Btw GWMP & Clara Barton Pkwy	453	5	1417	2027	1753	1419	1386		8003	8013		53	52	53	53	53		53	53		27	40	34	27	26		31	D	31	D	31	D
		2500	5	1992	1642	1525	1443	1414		8015			51	52	53	53	53		53			40	32	29	27	27		31	D	31	D		
merge		462	6	17	1320	1702	1794	1638	1552	8022	8022		37	47	51	53	53	53	49	49		0	28	34	35	31	30	26	C	24	C	24	C
basic	Clara Barton Pkwy interchange	1131	4	2287	1848	1612	1545			7293	7293		49	52	53	53			52	52		47	36	31	29			36	E	36	E	36	E
diverge	Btw Clara Barton Pkwy & MD 190	401	5	134	2087	1904	1726	1586		7436	7436		53	51	52	53	53		53	53		3	41	37	33	30		29	D	27	C	27	C
basic		1108	4	1864	1933	1891	1813			7501	7499		53	53	53	53			53	52		36	37	36	34			36	E	36	E	37	E
		699	4	1841	1924	1889	1810			7465			52	53	53	53			52			36	37	36	35			36	E	36	E		
		282	4	1853	1930	1889	1814			7486			52	52	53	53			52			36	37	36	35			36	E	36	E		
		1935	4	1873	1931	1890	1812			7507			51	52	52	52			52			37	38	36	35			37	E	37	E		
		740	4	1855	1990	1886	1782			7514			49	50	51	51			50			39	41	37	35			38	E	38	E		
merge		1594	5	501	1529	1933	1789	1769		7521	7521		53	53	53	53	53		53	53		10	29	37	34	34		29	D	25	C	25	C
basic	MD 190 interchange	2499	4	1651	1742	1787	1764			6944	6944		53	53	53	53			53	53		32	33	34	34			33	D	33	D	33	D
diverge		1081	5	547	1643	1757	1784	1758		7488	7488		53	52	52	52	52		52	52		10	32	34	34	34		29	D	26	C	26	C
diverge	Btw MD 190 & I-270 West Spur	407	6	1214	561	1632	1773	1766	1750	8695	8704		53	54	53	53	53	53	53	53		23	11	32	34	34	33	28	D	22	C	22	C
		718	6	1015	797	1614	1789	1744	1749	8709			54	54	53	53	54	54	53			19	15	31	34	33	33	28	D	22	C		
basic		501	5	2066	1497	1664	1725	1747		8699	8710		51	53	53	53	53		53	49		41	29	32	33	33		34	D	34	D	36	E
		2892	5	2048	1554	1634	1735	1741		8711			44	47	49	51	51		48			48	34	34	35	34		37	E	37	E		
weave		621	6	794	1596	1878	1701	1484	1261	8714	8704		12	17	30	39	47	50	33	41		67	94	63	44	32	25	54	F	54	F	43	F
		281	6	1716	1493	1438	1405	1358	1290	8700			45	45	49	52	53	53	50			38	33	30	28	26	25	30	D	30	D		
		242	6	1697	1696	1293	1332	1361	1308	8686			52	52	53	53	53	53	53			33	33	25	25	26	25	28	D	28	D		
basic	Btw I-270 West Spur & MD 187	2743	3	1333	1394	1276				4003	4003		52	52	52				52	52		26	27	25				26	D	26	D	26	D
diverge		851	4	1344	1451	1327	598			4721	4721		53	53	52	53			53	53		26	28	26	11			23	C	22	C	22	C
basic		2904	3	1490	1549	1695				4734	4737		53	53	52				53	53		29	30	33				30	D	30	D	30	D
		1128	3	1575	1606	1562				4743			53	53	53				53			30	31	30				30	D	30	D		
		1088	3	1602	1614	1525				4741			52	52	53				52			31	31	29				31	D	31	D		
merge		406	4	267	1467	1539	1444			4717	4717		50	52	53	53			52	52		5	28	30	28			23	C	21	C	21	C
basic	MD 187 interchange	2022	3	1090	1364	1451				3905	3905		54	53	53				53	53		21	26	28				25	C	25	C	25	C
diverge	Btw MD 187 & I-270 East Spur	325	4	288	1222	1401	1461			4372	4372		52	52	53	53			53	53		6	24	27	28			21	C	19	B	19	B
basic		1192	3	1506	1408	1457				4372	4374		53	53	53				53	53		29	27	28				28	D	28	D	28	D
		913	3	1506	1405	1464				4376			53	53	53				53			29	27	28				28	D	28	D		
		494	3	1364	1464	1550				4378			53	53	53				53			26	28	30				28	D	28	D		
merge		910	4	1022	1597	1676	72			4368	4368		50	49	48	48			49	49		21	33	35	2			23	C	23	C	23	C
basic	I-270 East Spur interchange	288	3	831	1560	1513				3905	3905		53	53	53				53	53		16	30	29				25	C	25	C	25	C
weave		1593	4	1399	2243	1635	1536			6813	6813		54	53	53	53			53	53		27	43	31	29			33	D	33	D	33	D
diverge	Btw I-270 East Spur & MD 185	402	5	700	1576	2339	1639	1524		7778	7778		53	53	52	53	53		53	53		14	30	46	31	29		30	D	30	D	30	D
basic		1045	4	2246	2393	1639	1516			7793	7790		52	52	53	53			53	51		44	47	31	29			38	E	38	E	39	E
		2087	4	2174	2551	1647	1420			7792			50	48	52	53			51			44	54	32	27			39	E	39	E		
		1257	4	2364	2119	2078	1235			7796			47	50	52	53			51			51	43	41	23			39	E	39	E		
		526	4	1929	2276	2080	1476			7761			51	51	53	53			52			39	45	40	28			38	E	38	E		
basic	ML - Btw VA 267 & GWMP	873	2	1008	516					1524	1517		63	64					64	64		16	8					12	B	12	B	12	B
		2286	2	1013	505					1519			63	64					64			16	8					12	B	12	B		
		787	2	1013	499					1512			63	64					64			16	8					12	B	12	B		
		954	2	1017	495					1512			63	64					63			16	8					12	B	12	B		
merge		303	3	974	456	75				1506	1506		63	62	49				58	58		16	8	2				8	A	8	A	8	A
basic	ML - GWMP interchange through MD 19 interchange	2891	2	975	337					1312	1312		63	65					64	64		16	5					10	A	10	A	10	A
diverge		697	3	556	1368	232				2156	2156		64	63	64				63	63		9	22	4				12	B	12	B	12	B
basic		572	2	612	1535					2147	2156		64	61					63	63		10	25					18	C	18	C	17	B
		1070	2	648	1507					2154			64	62					63			10	25					17	B	17	B		
		3680	2	1129	1026					2155			63	63					63			18	16					17	B	17	B		
		540	2	1130	1027					2157			63	63					63			18	16					17	B	17	B		
		733	2	1132	1027					2159			63	63					63			18	16					17	B	17	B		
		905	2	1134	1023					2158			63	63					63			18	16					17	B	17	B		
		580	2	1136	1024					2160			63	63					63			18	16					17	B	17	B		
		298	2	1136	1022					2158			63	63					63			18	16					17	B	17	B		
		1376	2	1138	1020					2158			63	63					63			18	16					17	B	17	B		
		627	2	1136	1018					2154			63	63					63			18	16					17	B	17	B		
		404	2	1135	1020					2154			63	63					63			18	16					17	B	17	B		
merge		800	3	1112	955	85				2152	2152		63	64	61				62	62		18	15	1				11	B	11	B	11	B
basic		935	2	1073	863					1936	1936		63	64					63	63		17	14					15	B	15	B	15	B
diverge		509	3	656	1088	851				2596	2596		63	63	63				63	63		11	18	14				14	B	14	B	14	B
basic		1249	3	606	1166	827				2599	2599		63	63	63				63	63		10	19	13				14	B	14	B	14	B
diverge	ML - Btw MD 190 & I-270 West Spur	589	4	693	1012	984	232			2921	2921		64	63	63	63			63	63		11	16	16	4			12	B	12	B	12	B
basic		3452	3	742	1075	1104				2920	2920		64	63	63				64	64		12	17	18				16	B	16	B	16	B
merge		702	3	744	1115	1053				2911	2911		64	63	63				63	63		12	18	17				15	B	15	B	15	B
basic	ML - Btw I-270 West Spur & MD 187	887	1	725						725	724		63						63	58		12						12	B	12	B	13	B
		1676	1	724						724			56						56			13						13	B	13	B		
		713	1	723						723			58						58			13						13	B	13	B		

I-495 Outer Loop - 2027 Preferred Alternative - 8-9 AM

VISSIM Lookup Data				Volume									Speed									Density									
				Volume Per Lane							Across All Lanes	Overall Volume	Speed Per Lane							Across All Lanes	Overall Speed	Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)							Total Volume	Average Volume (veh/hr)	Speed (mph)							Average Speed	Average Speed (mph)	Combined Density (pcphpl)							Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Btw VA 267 & VA 193	873	5	927	1302	1592	1497	1294			6612	6612	53	53	52	53	53			53	53	18	25	31	29	25			25	C	25	C	25	C
merge		853	6	62	882	1278	1610	1500	1285		6618	6618	53	54	53	53	54	54		53	53	1	17	24	31	28	24		21	C	14	B	14	B
merge		1322	5	581	1246	1629	1503	1279			6239	6239	55	53	53	53	53			53	53	11	24	31	29	24			24	C	22	C	22	C
basic	VA 193 interchange & GWMP interchange	786	4	1337	1654	1504	1267				5762	5765	53	53	53	53				53	53	26	32	29	24				28	D	28	D	28	D
		727	4	1326	1673	1509	1262				5769		53	53	53	53				53		26	32	29	24				28	D	28	D		
diverge		591	5	515	1412	1705	1512	1250			6395	6395	54	53	52	53	53			53	53	10	27	33	29	24			25	C	23	C	23	C
basic		1828	4	1944	1774	1496	1208				6422	6422	51	52	53	53				52	52	39	35	29	23				31	D	31	D	31	D
diverge		720	5	1057	2081	1823	1352	1095			7408	7408	47	50	52	53	53			51	51	23	43	36	26	21			30	D	34	D	34	D
basic	Btw GWMP & Clara Barton Pkwy	453	5	1283	2063	1764	1224	1073			7407	7411	53	51	53	54	53			53	53	25	41	34	23	20			29	D	29	D	29	D
		2500	5	1998	1657	1434	1229	1093			7411		51	52	53	54	53			53		40	32	27	23	21			29	D	29	D		
merge		462	6	51	1462	1704	1625	1362	1199		7403	7403	35	46	50	53	53	53		48	48	1	33	34	31	26	23		25	C	25	C	25	C
basic	Clara Barton Pkwy interchange	1131	4	2034	1640	1336	1192				6202	6202	50	53	53	53				52	52	41	32	25	23				30	D	30	D	30	D
diverge	Btw Clara Barton Pkwy & MD 190	401	5	98	1858	1691	1430	1215			6292	6292	53	52	53	53	53			53	53	2	36	33	27	23			24	C	24	C	24	C
basic		1108	4	1635	1733	1571	1405				6344	6331	53	53	54	54				53	53	32	33	30	27				30	D	30	D	31	D
		699	4	1614	1731	1559	1403				6307		52	53	53	53				53		32	33	30	27				30	D	30	D		
		282	4	1623	1738	1563	1401				6324		52	53	53	53				53		32	33	30	27				30	D	30	D		
		1935	4	1643	1740	1561	1391				6335		52	53	53	53				53		32	34	30	27				31	D	31	D		
		740	4	1645	1790	1545	1348				6329		50	51	52	52				51		33	36	30	26				31	D	31	D		
merge		1594	5	479	1391	1692	1429	1332			6323	6323	53	53	53	54	53			53	53	9	27	32	27	25			24	C	23	C	23	C
basic	MD 190 interchange	2499	4	1477	1495	1416	1317				5704	5704	53	53	53	53				53	53	28	29	27	25				27	D	27	D	27	D
diverge		1081	5	1040	1482	1502	1410	1298			6733	6733	53	52	53	53	53			53	53	20	29	29	27	25			26	C	26	C	26	C
diverge	Btw MD 190 & I-270 West Spur	407	6	763	1048	1492	1509	1390	1284		7486	7489	54	53	53	53	53	53		53	53	14	20	29	29	26	24		24	C	21	C	21	C
		718	6	637	1199	1492	1518	1370	1275		7491		54	54	53	53	54	54		54		12	23	29	29	26	24		24	C	21	C		
basic		501	5	2076	1381	1408	1346	1267			7479	7486	52	53	53	54	53			53	51	41	26	27	25	24			29	D	29	D	30	D
		2892	5	2116	1464	1369	1310	1229			7487		46	50	51	52	53			50		47	30	27	25	24			31	D	31	D		
weave		621	6	510	2025	1685	1206	1059	979		7464	7451	27	33	43	48	51	53		42	47	20	62	40	26	21	19		31	D	31	D	28	D
		281	6	1519	1406	1037	1137	1192	1151		7441		52	52	53	54	54	53		53		30	28	20	22	23	22		24	C	24	C		
		242	6	1477	1433	970	1128	1221	1201		7430		53	53	54	54	54	53		53		28	27	18	21	23	23		24	C	24	C		
basic	Btw I-270 West Spur & MD 187	2743	3	1135	1241	1176					3552	3552	52	52	52					52	52	22	24	23					23	C	23	C	23	C
diverge		851	4	1140	1277	1237	589				4242	4242	53	53	52	53				53	53	22	24	24	11				20	C	20	C	20	C
basic		2904	3	1261	1379	1608					4247	4243	53	53	52					53	53	24	26	31					27	D	27	D	27	D
		1128	3	1334	1421	1487					4242		53	53	53					53		25	27	29					27	D	27	D		
		1088	3	1358	1415	1462					4235		52	53	53					53		26	27	28					27	D	27	D		
merge		406	4	233	1233	1334	1413				4213	4213	51	53	53	53				52	52	5	24	26	27				20	C	18	B	18	B
basic	MD 187 interchange	2022	3	833	1221	1424					3479	3479	54	53	53					53	53	16	23	27					22	C	22	C	22	C
diverge	Btw MD 187 & I-270 East Spur	325	4	309	974	1244	1436				3963	3963	52	53	53	53				53	53	6	19	24	27				19	B	16	B	16	B
basic		1192	3	1280	1244	1434					3958	3960	53	53	53					53	53	24	24	27					25	C	25	C	25	C
		913	3	1282	1244	1435					3962		53	53	53					53		25	24	27					25	C	25	C		
		494	3	1096	1331	1534					3961		54	53	53					53		21	26	30					25	C	25	C		
merge		910	4	628	1445	1802	76				3951	3951	51	49	48	48				49	49	12	30	38	2				20	C	23	C	23	C
basic	I-270 East Spur interchange	288	3	375	1365	1749					3490	3490	54	53	53					53	53	7	26	34					22	C	22	C	22	C
weave		1593	4	1837	2298	1449	1792				7377	7377	53	52	53	53				53	53	35	45	28	34				36	E	36	E	36	E
diverge	Btw I-270 East Spur & MD 185	402	5	683	1916	2439	1469	1802			8309	8309	52	51	50	53	53			52	52	13	38	50	28	34			33	D	34	D	34	D
basic		1045	4	2500	2492	1525	1808				8326	8330	47	47	52	53				50	44	55	54	30	35				43	E	43	E	51	F
		2087	4	2382	2431	1755	1760				8328		41	39	45	51				44		59	63	39	35				49	F	49	F		
		1257	4	2243	2230	2348	1523				8345		31	35	41	48				39		75	66	58	32				58	F	58	F		
		526	4	2023	2376	2266	1651				8315		34	40	44	49				42		62	62	53	35				53	F	53	F		
basic	ML - Btw VA 267 & GWMP	873	2	1240	730						1970	1966	63	64						63	63	20	12						16	B	16	B	16	B
		2286	2	1246	723						1969		63	64						63		20	12						16	B	16	B		
		787	2	1250	709						1959		63	64						63		20	11						16	B	16	B		
		954	2	1259	704						1963		63	63						63		20	11						16	B	16	B		
merge		303	3	1200	646	110					1956	1956	63	61	48					57	57	19	11	2					11	B	11	B	11	B
basic	ML - GWMP interchange through MD 19 interchange	2891	2	1199	491						1690	1690	63	65						64	64	19	8						13	B	13	B	13	B
diverge		697	3	395	1535	339					2270	2270	63	63	63					63	63	6	25	5					12	B	12	B	12	B
basic		572	2	510	1749						2258	2266	63	60						62	63	8	29						19	C	19	C	18	C
		1070	2	573	1695						2269		63	61						62		9	28						19	C	19	C		
		3680	2	1189	1077						2266		63	63						63		19	17						18	C	18	C		
		540	2	1192	1080						2272		63	63						63		19	17						18	C	18	C		
		733	2	1190	1079						2268		63	63						63		19	17						18	C	18	C		
		905	2	1185	1078						2263		63	63						63		19	17						18	C	18	C		
		580	2	1185	1080						2265		63	63						63		19	17						18	C	18	C		
		298	2	1183	1078						2262		63	63						63		19	17						18	C	18	C		
		1376	2	1188	1078						2266		63	63						63		19	17						18	C	18	C		
		627	2	1184	1087						2272		63	63						63		19	18						18	C	18	C		
		404	2	1178	1096						2274		63	63						63		19	18						18	C	18	C		
merge		800	3	1138	1008	128					2274	2274	63	63	59					62	62	18	16	2					12	B	12	B	12	B
basic		935	2	1069	855						1924	1924	63	64						63	63	17	14						15	B	15	B	15	B
diverge		509	3	710	1086	847					2643	2643	63	63	63					63	63	11	18	14					14	B	14	B	14	B
basic		1249	3	653	1163	831					2647	2647	63	63	63					63	63	10	19	13					14	B	14	B	14	B
diverge	ML - Btw MD 190 & I-270 West Spur	589	4	689	1029	996	185				2899	2899	64	63	63	63				63	63	11	16	16	3				12	B	12	B	12	B
basic		3452	3	719	1090	1090					2900	2900	64	63	63					64	64	11	17	17					15	B	15	B	15	B
merge		702	3	716	1127	1053					2896	2896	63	63	63					63	63	11	18	17					15	B	15	B	15	B
basic	ML - Btw I-270 West Spur & MD 187	887	1	703							703	704	63							63	58	11							11	B	11	B	12	B
		1676	1	704							704		56							56		13							13	B	13	B		
		713	1	706							706		58							58		12							12	B	12	B		

I-495 Outer Loop - 2027 Preferred Alternative - 9-10 AM

VISSIM Lookup Data				Volume									Speed									Density											
				Volume Per Lane							Across All Lanes	Overall Volume	Speed Per Lane							Across All Lanes	Overall Speed	Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)							Total Volume	Average Volume (veh/hr)	Speed (mph)							Average Speed	Average Speed (mph)	Combined Density (pcphpl)							Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Btw VA 267 & VA 193	873	5	631	1165	1495	1358	1152			5802	5802	54	53	53	53	53			53	53	12	22	29	26	22			22	C	22	C	22	C
merge		853	6	47	578	1147	1518	1362	1150		5802	5802	53	55	53	53	54	54		54	54	1	11	22	29	26	22		18	B	11	B	11	B
merge		1322	5	255	1154	1540	1368	1143			5459	5459	57	53	53	53	53			54	54	5	22	30	26	22			21	C	19	B	19	B
basic	VA 193 interchange & GWMP interchange	786	4	1282	1568	1369	1132				5351	5356	53	53	53	53				53	53	25	30	26	22				26	D	26	D	26	D
		727	4	1276	1583	1376	1126				5360		53	53	53	53				53		25	30	26	21				26	D	26	D		
diverge		591	5	484	1360	1617	1373	1114			5947	5947	53	53	53	53	53			53	53	9	26	31	26	21			23	C	22	C	22	C
basic		1828	4	1857	1678	1361	1079				5975	5975	51	52	53	53				52	52	37	33	26	21				29	D	29	D	29	D
diverge		720	5	956	1977	1706	1242	987			6868	6868	47	50	52	53	53			51	51	21	40	33	24	19			27	C	31	D	31	D
basic	Btw GWMP & Clara Barton Pkwy	453	5	1165	1932	1663	1133	971			6864	6864	53	52	53	54	54			53	53	22	38	32	21	18			26	D	26	D	26	D
		2500	5	1843	1548	1346	1138	989			6864		52	52	53	54	54			53		36	30	26	21	19			26	D	26	D		
merge		462	6	32	1298	1624	1555	1265	1084		6858	6858	36	47	51	53	53	53		49	49	1	28	32	30	24	21		23	C	23	C	23	C
basic	Clara Barton Pkwy interchange	1131	4	1986	1556	1250	1081				5872	5872	51	53	53	53				53	53	40	30	24	20				28	D	28	D	28	D
diverge		401	5	72	1839	1595	1327	1103			5935	5935	53	52	52	53	53			53	53	1	36	31	25	21			23	C	23	C	23	C
basic	Btw Clara Barton Pkwy & MD 190	1108	4	1621	1659	1449	1258				5987	5979	53	53	54	54				53	53	31	32	27	24				28	D	28	D	29	D
		699	4	1601	1657	1443	1255				5957		52	53	53	53				53		31	32	28	24				29	D	29	D		
		282	4	1611	1662	1446	1254				5973		52	53	53	53				53		31	32	28	24				29	D	29	D		
		1935	4	1626	1677	1438	1242				5983		52	53	53	53				53		32	32	27	24				29	D	29	D		
		740	4	1632	1734	1416	1197				5979		51	52	53	53				52		33	34	27	23				29	D	29	D		
merge		1594	5	350	1456	1673	1319	1182			5980	5980	54	53	53	54	54			53	53	7	28	32	25	22			23	C	22	C	22	C
basic	MD 190 interchange	2499	4	1611	1510	1305	1162				5588	5588	53	53	53	53				53	53	31	29	25	22				27	D	27	D	27	D
diverge		1081	5	632	1633	1538	1282	1124			6210	6210	54	52	53	53	53			53	53	12	32	30	24	21			24	C	24	C	24	C
diverge	Btw MD 190 & I-270 West Spur	407	6	760	644	1658	1561	1239	1095		6958	6963	54	54	53	53	54	53		53	53	14	12	32	30	23	21		22	C	20	C	20	C
		718	6	638	824	1663	1566	1193	1082		6966		54	54	53	53	54	54		54		12	16	32	30	22	20		22	C	20	C		
basic		501	5	1935	1438	1357	1156	1069			6956	6961	52	53	54	54	53			53	52	38	27	26	22	20			27	D	27	D	27	D
		2892	5	2082	1482	1239	1116	1043			6962		49	52	53	53	53			52		43	29	24	21	20			27	D	27	D		
weave		621	6	295	2064	1479	1075	1037	1008		6958	6950	50	49	52	53	54	53		52	53	6	42	29	21	20	19		23	C	23	C	22	C
		281	6	1230	1229	942	1137	1223	1183		6945		53	53	54	54	54	53		54		23	23	18	22	23	22		22	C	22	C		
		242	6	1212	1213	896	1151	1249	1215		6937		53	53	54	54	53	53		54		23	23	17	22	24	23		22	C	22	C		
basic	Btw I-270 West Spur & MD 187	2743	3	1177	1276	1189					3642	3642	52	52	52					52	52	23	25	23					24	C	24	C	24	C
diverge		851	4	1179	1329	1248	584				4340	4340	53	53	52	53				53	53	22	25	24	11				21	C	20	C	20	C
basic		2904	3	1311	1427	1611					4349	4353	53	53	52					53	53	25	27	31					28	D	28	D	28	D
		1128	3	1392	1473	1494					4358		53	53	53					53		27	28	29					28	D	28	D		
		1088	3	1415	1474	1468					4356		52	53	53					53		27	28	28					28	D	28	D		
merge		406	4	228	1295	1398	1413				4334	4334	51	53	53	53				52	52	5	25	27	27				21	C	19	B	19	B
basic	MD 187 interchange	2022	3	940	1266	1421					3627	3627	54	53	53					53	53	18	24	27					23	C	23	C	23	C
diverge	Btw MD 187 & I-270 East Spur	325	4	255	1054	1297	1431				4036	4036	52	53	53	53				53	53	5	20	25	27				19	B	17	B	17	B
basic		1192	3	1305	1298	1431					4034	4035	53	53	53					53	53	25	25	27					26	D	26	D	26	D
		913	3	1306	1290	1440					4036		53	53	53					53		25	25	27					26	D	26	D		
		494	3	1173	1348	1517					4038		53	53	53					53		22	26	29					26	D	26	D		
merge		910	4	795	1487	1682	64				4029	4029	50	49	48	48				49	49	16	31	35	1				21	C	22	C	22	C
basic	I-270 East Spur interchange	288	3	573	1463	1587					3622	3622	54	53	53					53	53	11	28	30					23	C	23	C	23	C
weave		1593	4	1676	2299	1540	1615				7130	7130	53	53	53	53				53	53	32	45	29	31				34	D	34	D	34	D
diverge	Btw I-270 East Spur & MD 185	402	5	656	1806	2402	1547	1610			8021	8021	52	52	52	53	53			53	53	13	35	47	30	31			31	D	32	D	32	D
basic		1045	4	2403	2450	1567	1612				8030	8001	50	51	53	53				52	49	48	49	30	31				40	E	40	E	42	E
		2087	4	2321	2526	1659	1504				8010		46	44	49	52				48		51	58	34	29				43	E	43	E		
		1257	4	2360	2197	2209	1220				7986		43	46	49	52				48		55	48	45	24				43	E	43	E		
		526	4	1970	2362	2161	1447				7939		47	49	51	52				50		43	49	43	28				41	E	41	E		
basic	ML - Btw VA 267 & GWMP	873	2	1313	742						2055	2054	63	64						63	63	21	12						16	B	16	B	16	B
		2286	2	1322	733						2055		63	64						63		21	12						16	B	16	B		
		787	2	1325	723						2047		63	64						63		21	11						16	B	16	B		
		954	2	1338	716						2053		63	63						63		22	12						17	B	17	B		
merge		303	3	1296	672	79					2047	2047	63	62	49					58	58	21	11	2					11	B	11	B	11	B
basic	ML - GWMP interchange through MD 19 interchange	2891	2	1302	549						1851	1851	63	65						64	64	21	9						15	B	15	B	15	B
diverge		697	3	395	1567	387					2348	2348	63	62	62					63	63	6	26	6					13	B	13	B	13	B
basic		572	2	489	1851						2340	2355	63	59						61	63	8	32						20	C	20	C	19	C
		1070	2	575	1780						2356		63	61						62		9	29						19	C	19	C		
		3680	2	1210	1147						2357		63	63						63		19	18						19	C	19	C		
		540	2	1208	1144						2352		63	63						63		19	18						19	C	19	C		
		733	2	1209	1144						2353		63	63						63		19	18						19	C	19	C		
		905	2	1205	1149						2354		63	63						63		19	18						19	C	19	C		
		580	2	1205	1154						2359		63	63						63		19	19						19	C	19	C		
		298	2	1202	1153						2356		63	63						63		19	19						19	C	19	C		
		1376	2	1206	1154						2360		63	63						63		19	19						19	C	19	C		
		627	2	1196	1160						2356		63	63						63		19	19						19	C	19	C		
		404	2	1186	1168						2354		63	62						63		19	19						19	C	19	C		
merge		800	3	1122	1062	169					2352	2352	63	63	59					62	62	18	17	3					13	B	13	B	13	B
basic		935	2	1029	844						1872	1872	63	63						63	63	16	13						15	B	15	B	15	B
diverge		509	3	785	1041	842					2668	2668	63	63	63					63	63	13	17	14					14	B	14	B	14	B
basic		1249	3	716	1124	829					2669	2669	63	63	63					63	63	11	18	13					14	B	14	B	14	B
diverge	ML - Btw MD 190 & I-270 West Spur	589	4	703	1024	1006	166				2898	2898	64	63	63	63				63	63	11	16	16	3				12	B	12	B	12	B
basic		3452	3	729	1076	1095					2900	2900	64	63	63					64	64	12	17	18					15	B	15	B	15	B
merge		702	3	726	1110	1058					2894	2894	64	63	63					63	63	12	18	17					15	B	15	B	15	B
basic	ML - Btw I-270 West Spur & MD 187	887	1	706							706	704	63							63	58	11							11	B	11	B	12	B
		1676	1	704							704		56							56		13							13	B	13	B		
		713	1	704							704		58							58		12							12	B	12	B		

I-270 Southbound - 2027 Preferred Alternative - 6-7 AM

VISSIM Lookup Data				Volume										Speed										Density									
				Volume Per Lane								Across All Lanes	Overall Volume	Speed Per Lane								Across All Lanes	Overall Speed	Density Per Lane								Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)								Total Volume	Average Volume (veh/hr)	Speed (mph)								Average Speed	Average Speed (mph)	Combined Density (pcphpl)								Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Through MD 117 interchange	658	4	1967	2046	2063	2057					8134	8168	24	26	26	26					26	24	83	81	81	80					81	F	81	F	87	F
		3062	4	1947	2015	2078	2136					8175		21	23	24	26					24		93	90	87	84					88	F	88	F		
merge	Btw MD 117 & I-370	1569	5	1387	1988	2047	2150	2285				9857	9857	30	22	23	27	31				27	27	47	93	91	82	74				77	F	77	F	77	F
basic		1152	6	639	788	2086	2020	2052	2296			9881	9888	49	44	38	38	39	39			41	43	13	18	56	54	54	60			42	E	42	E	40	E
		430	6	892	745	1989	1970	2015	2296			9907		53	52	47	48	48	47			49		17	15	43	42	43	49			35	E	35	E		
diverge		928	6	936	751	1938	1940	2029	2292			9887		53	53	43	44	46	46			47	47	18	14	46	46	45	50			37	E	31	D	31	D
		38	6	921	702	1832	1799	1958	2211			9422		53	47	42	47	48	48			48		18	15	45	39	42	46			34	D	29	D		
basic	I-370 interchange	1066	4	1894	1927	2043	2305					8169	8181	51	51	51	51					51	52	38	38	40	46					41	E	41	E	40	E
		1043	4	1907	1934	2050	2297					8188		53	53	52	52					52		37	37	40	45					40	E	40	E		
		884	4	1908	1942	2056	2280					8186		53	53	53	51					52		37	37	40	46					40	E	40	E		
diverge		203	5	1914	1951	2145	1636	533				8179	8179	53	53	52	46	42				49	49	37	38	42	36	13				33	D	30	D	30	D
basic		183	4	1897	1934	2059	1301					7192	7192	53	53	53	52					53	53	37	37	40	25					35	E	35	E	35	E
basic		941	5	241	1699	1928	2037	1359				7263	7263	58	53	53	53	53				54	54	4	33	37	39	26				28	D	28	D	28	D
weave	Btw I-370 & Shady Grove Rd	703	7	227	1374	1032	1578	1776	1884	1318		9188	9188	52	52	53	53	53	53	54		53	53	4	27	20	30	34	36	25		25	C	25	C	25	C
diverge		1673	6	789	1784	1839	1687	1777	1303			9179	9179	51	51	52	53	53	53			52	52	16	35	36	32	34	25			30	D	29	D	29	D
basic	Shady Grove Rd interchange	510	5	1673	1861	1779	1781	1326				8419	8419	52	53	53	53	53				53	53	32	36	34	34	25				32	D	32	D	32	D
merge		1027	6	106	1736	2102	1842	1778	1339			8903	8903	36	50	51	53	53	53			49	49	3	35	41	35	34	25			29	D	27	C	27	C
basic		209	5	1814	2031	1910	1788	1359				8901	8901	50	51	52	52	53				52	52	37	41	37	35	26				35	E	35	E	35	E
merge	Btw Shady Grove Rd & MD 28	504	6	58	1818	2106	1917	1794	1385			9079	9079	37	51	52	53	53	53			50	50	2	36	41	37	34	26			29	D	26	C	26	C
basic		4159	5	2047	2013	1877	1745	1426				9107	9097	51	52	53	53	53				52	52	41	39	36	34	27				36	E	36	E	35	E
		458	5	2068	1993	1864	1741	1456				9122		52	53	53	53	53				53		40	38	36	33	28				35	E	35	E		
		982	5	2048	1981	1853	1734	1456				9072		52	53	53	53	53				53		40	38	36	33	28				35	E	35	E		
		396	5	2033	1967	1842	1723	1453				9018		53	53	53	53	53				53		39	38	35	33	28				35	E	35	E		
diverge	MD 28 interchange	526	6	339	1716	1971	1854	1736	1467			9082	9082	54	53	53	53	53	54			53	53	6	33	38	35	33	28			29	D	26	C	26	C
basic		1448	5	1665	1929	1845	1740	1485				8662	8662	53	52	53	53	53	53			53	53	32	37	36	34	29	33			33	D	33	D	33	D
merge		672	6	289	1538	1902	1832	1738	1498			8797	8797	53	54	53	53	53	54			53	53	6	29	36	35	33	28	6		28	D	24	C	24	C
basic		272	6	361	1481	1896	1832	1741	1503			8813	8814	57	53	52	53	53	53			53	53	6	28	37	35	34	29			28	D	28	D	28	D
		281	6	418	1427	1893	1828	1742	1506			8815		57	53	52	52	52	52			53		7	27	37	36	34	29			28	D	28	D		
merge	Btw MD 28 & MD 189	499	7	268	823	1385	2330	1794	1679	1459		9738	9738	47	51	52	52	53	53	54		52	52	6	16	27	45	34	32	28		27	C	16	B	16	B
basic		405	6	516	1961	2394	1823	1630	1433			9756	9753	52	50	50	53	53	53			52	52	10	40	48	35	31	27			32	D	32	D	32	D
		2028	6	523	2004	2184	1926	1672	1442			9753		53	51	52	53	53	53			53		10	40	43	37	32	28			32	D	32	D		
diverge		487	6	540	2002	2119	1932	1692	1449			9735	9735	54	52	52	53	53	53			53	53	10	39	41	37	32	28			31	D	30	D	30	D
basic	MD 189 interchange	777	5	1980	2085	1927	1713	1465				9170	9195	51	51	52	52	52				52	52	40	41	38	33	28				36	E	36	E	36	E
		2018	5	1973	2048	1927	1754	1505				9205		52	52	53	53	53				53		38	40	37	34	29				36	E	36	E		
merge	Btw MD 189 & Montrose Rd	717	6	242	1854	2324	1955	1773	1536			9684	9684	40	44	47	51	52	53			48	48	7	44	43	50	39	35	30		34	D	34	D	34	D
basic		1028	5	2237	2138	1983	1782	1549				9689	9669	39	43	47	50	51	51			46	49	59	51	43	36	31				44	E	44	E	41	E
		198	5	2258	2042	1911	1773	1585				9569		41	45	49	52	52				48		56	46	39	35	31				41	E	41	E		
		1502	5	2273	2004	1922	1825	1645				9668		46	50	52	52	53				50		50	41	38	35	32				39	E	39	E		
diverge	Montrose Rd interchange	375	6	142	2134	1956	1939	1844	1673			9687	9687	45	51	51	53	53	54			51	51	3	43	39	38	35	32			32	D	28	D	28	D
basic		880	5	2084	1937	1927	1848	1681				9478	9478	52	53	53	53	53				53	53	41	37	37	35	32				36	E	36	E	36	E
weave		644	6	923	1613	2135	1952	1851	1685			10159	10159	45	48	51	53	53	53			51	51	21	34	42	38	35	32			34	D	34	D	34	D
basic		806	5	1597	2049	2026	1876	1700				9248	9248	51	52	53	53	53				52	52	32	40	39	36	33				36	E	36	E	36	E
weave	Btw Montrose Rd & Spur Split	828	6	254	1446	2049	2029	1882	1709			9369	9364	54	53	53	53	53	53			53	52	5	28	40	39	36	33			30	D	30	D	31	D
		1055	6	305	1275	1942	2240	1889	1719			9370		57	53	53	52	53	53			53		6	24	38	43	36	33			30	D	30	D		
		3754	6	368	948	1892	2317	2263	1582			9369		56	53	52	50	48	52			52		7	18	37	48	48	31			31	D	31	D		
		663	6	591	1315	1934	2260	1572	1682			9353		54	52	53	50	46	48	51		50		11	26	39	51	34	33			32	D	32	D		
		605	6	721	1456	1885	2131	1480	1647			9321		55	53	52	50	52	53			52		13	28	37	43	29	32			30	D	30	D		
		416	6	766	1484	1938	2075	1450	1652			9366		55	53	52	51	52	53			53		14	28	37	41	28	32			30	D	30	D		
basic	Spur Split through MD 187 interchange	694	3	902	1389	1487						3778	3786	58	59	59						59	61	16	24	26						22	C	22	C	21	C
		1027	3	926	1417	1449						3792		62	63	63						63		15	23	23						21	C	21	C		
diverge		473	4	394	530	1408	1452					3784	3784	63	63	63	63					63	63	6	8	23	23					15	B	15	B	15	B
basic		2458	2	1399	1448							2847	2847	63	63							63	63	23	23							23	C	23	C	23	C
merge		502	3	17	1392	1460						2868	2868	43	63	63						56	56	0	23	23						15	B	15	B	15	B
basic		550	2	1418	1483							2901	2901	63	63							63	63	23	24							23	C	23	C	23	C
merge	Btw MD 187 & I-495	955	3	88	1330	1576						2994	2994	57	63	63						61	61	2	21	25						16	B	16	B	16	B
basic		1835	2	1422	1574							2996	2996	63	63							63	63	23	25							24	C	24	C	24	C
weave		2007	3	1316	1916	190						3422	3424	63	62	64						63	63	21	31	3						19	B	19	B	18	B
		1491	3	1258	1055	1113						3426		63	63	63						63		20	17	18						18	B	18	B		
basic		1568	2	1214	987							2201	2201	63	64							64	64	19	16							18	C	18	C	18	C
basic	Spur Split to Democracy Blvd	2632	4	1025	1435	1754	1357					5572	5572	54	53	53	53					53	53	19	27	34	26					27	D	27	D	27	D
diverge		1205	4	502	1579	2047	1438					5567	5567	53	53	52	53					53	53	10	31	40	28					27	C	27	C	27	C
merge	Democracy Blvd	1103	4	1676	1930	1484	161					5251	5251	53	53	53	57					54	54	32	37	28	3					25	C	23	C	23	C
basic		1559	3	1570	1851	1883						5304	5304	53	53	52						53	53	30	36	37						34	D	34	D	34	D
diverge		597	4	1564	1732	1533	477					5306	5306	50	48	48	52					50	50	32	37	33	9					28	D	34	D	34	D
basic		473	3	1574	1689	1399						4662	4662	52	51	52						52	52	31	33	28						31	D	31	D	31	D
merge	Democracy Blvd to I-495	705	4	123	1526	1845	1422					4916	4916	53	53	52	53					53	53	2	29	36	27					24	C	22	C	22	C
basic		1692	3	1623	1797	1497						4917	4917	53	53	53						53	53	31	35	29						32	D	32	D	32	D
basic	ML - I-370 interchange	834	1	913								913	913	54								54	58	17								17	B	16	B	16	B
		302	1	913								913		59								59		16								16	B				
		2032	1	913								913		60								60		16								16	B				
merge	ML - Btw I-370 & Gude Dr	703	2	956	1106							2062	2062	62	62							62	62	16	18							17	B	17	B	17	B
basic		2364	2	946	1112							2058	2058	63	63							63	63	15	18							17	B	17	B	17	B
		134	2	926	1133							2059		63	62							63		15	19							17	B	17	B		
diverge		405	3	921	969	161						2051	2051	63	62	61						62	62	15	16	3						11	B	11	B	11	B
basic	ML - Gude Dr interchange	3730	2	909	908							1817	1817	64	63							63	63	15	15							15	B	15	B	15	B
merge	ML - Btw Gude Dr & Wootton Pkwy	363	3	1012	1058	181						2251	2251	63	60	41						55	55	16	18	5						13	B	13	B	13	B
basic		3064	2	1125	1122							2247	2248	63	62							63	63	18	18							18	C	18	C	18	C
		794	2	1118	1118							2236		63	63							63		18	18							18	C	18	C		
		470	2	1124	1120							2245		63	63							63		18	18							18	C	18	C		
		1684	2	1125	1120							2246		63	63							63		18	18							18	C	18	C		
		3871	2	1091	1161							2253		63	63							63		18	19							18	C	18	C		
diverge		293	3	1078	992	181						2251	2251	62	60	54						59	59	18	17	3						13	B	13	B	13	B
basic	ML - Wootton Pkwy interchange	3349	2	1054	907							1961	1961	63	63							63	63	17	15							16	B	16	B	16	B
merge	ML - Btw Wootton Pkwy & Spur Split	875	3	1140	1109	118						2368	2368	63	63	61						62	62	18	18	2						13	B	13	B	13	B
basic		742	2	1192	1181							2373	2376	62	62							62	63	19	19							19	C	19	C	19	C
		1144	2	1202	1171							2372		63	63							63		19	19							19	C	19	C		
		420	2	1200	1172							2372		63	63							63		19	19							19	C	19	C		
		1516	2	1202	1174							2376		63	63							63		19	19							19	C	19	C		
		4115	2	1246	1132							2378		63	63							63		20	18							19	C	19	C		
diverge		1050	3	371	987	1016						2374	2374	64	63	63						63	63	6	16	16						13	B	13	B	13	B
basic	ML - Spur Split through MD 187 interchange	5364	1	438								438	438	64								64	64	7								7	A	7	A	7	A
		1942	1	438								438		63								63		7								7	A	7	A		
		1803	1	438								438		63								63		7								7	A	7	A		
basic	ML - Spur Split to Westlake Ter/ Fernwood Rd	1266	2	829	1112							1941	1941	64	63							63	63	13	18							16	B	16	B	16	B
diverge		709	3	795	822	324						1941	1941	63	63	63						63	63	13	13	5						10	B	10	B	10	B
basic	ML - Westlake Ter/Fernwood Rd interchange	851	2	806	722							1527	1527	63	63							63	63	13	12							12	B	12	B	12	B
		1013	2	814	713							1527		63	64							63		13	11							12	B	12	B		
diverge		276	3	54	740	734						1529	1529	53	62	63						60	60	1	12	12						8	A	8	A	8	A
basic		443	2	712	729							1441	1440	64	64							64	64	11	12							12	B	12	B	12	B
		628	2	714	726							1440		64	64							64		11	12							12	B	12	B		
merge	ML - Westlake Ter/Fernwood Rd to I-495	724	3	732	759	39						1531	1531	64	64	64						64	64	12	12	1						8	A	8	A	8	A
basic		1677	2	746	786							1532	1532	64	63							63	63	12	13							12	B	12	B	12	B
merge		972	3	275	988	914						2178	2178	58	63	63						61	61	5	16	15						12	B	12	B	12	B
basic		2160	2	1153	1023							2176	2176	63	63							63	63	19	16							18	C	18	C	18	C
		322	2	1148	1029							2178		63	63							63		18	17							17	B	17	B		

I-270 Southbound - 2027 Preferred Alternative - 7-8 AM

VISSIM Lookup Data				Volume										Speed										Density											
				Volume Per Lane								Across All Lanes	Overall Volume	Speed Per Lane								Across All Lanes	Overall Speed	Density Per Lane								Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)								Total Volume	Average Volume (veh/hr)	Speed (mph)								Average Speed	Average Speed (mph)	Combined Density (pcphpl)								Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Through MD 117 interchange	658	4	1901	1987	2034	2022					7944	7981	22	23	24	23					23	22	90	88	88	89					89	F	89	F	92	F
		3062	4	1890	1963	2054	2083					7989		20	21	23	24					22		98	94	90	88					92	F	92	F		
merge		1569	5	1513	1918	1976	2106	2241				9754	9754	29	20	21	25	30				25	25	54	97	94	84	77				81	F	82	F	82	F
basic	Btw MD 117 & I-370	1152	6	904	912	1968	1876	1897	2221			9777	9787	49	44	38	38	39	40			41	44	19	21	53	50	49	57			41	E	41	E	39	E
		430	6	1225	967	1803	1775	1819	2223			9813		53	52	49	49	50	49			50		24	19	38	37	37	46			33	D	33	D		
diverge		928	6	1276	1012	1722	1734	1832	2228			9805		53	53	45	46	48	48			49	49	25	20	39	39	39	47			35	E	30	D	30	D
		38	6	1243	973	1599	1610	1781	2146			9352		52	49	42	48	48	49			48		24	20	39	34	38	45			33	D	30	D		
basic	I-370 interchange	1066	4	1673	1720	1848	2231					7472	7485	52	52	52	51					52	52	33	34	36	44					37	E	37	E	36	E
		1043	4	1683	1736	1853	2220					7492		53	53	53	52					53		32	33	36	43					36	E	36	E		
		884	4	1686	1739	1862	2206					7493		53	53	53	51					52		32	33	36	44					36	E	36	E		
diverge		203	5	1688	1757	1959	1435	650				7488	7488	53	53	52	45	43				49	49	32	34	38	32	16				30	D	29	D	29	D
basic		183	4	1673	1744	1873	1026					6315	6315	53	53	53	53					53	53	32	33	36	20					30	D	30	D	30	D
basic		941	5	193	1518	1738	1846	1085				6380	6380	58	53	53	53	54				54	54	3	29	33	35	20				24	C	24	C	24	C
weave	Btw I-370 & Shady Grove Rd	703	7	250	1533	1156	1385	1501	1590	995		8409	8409	52	52	53	53	53	53	54		53	53	5	30	22	27	29	30	19		23	C	23	C	23	C
diverge		1673	6	1222	1880	1582	1328	1438	959			8409	8409	51	51	52	53	53	54			52	52	25	38	31	25	27	18			27	C	31	D	31	D
basic	Shady Grove Rd interchange	510	5	1534	1656	1430	1454	991				7064	7064	52	53	53	53	53				53	53	30	32	27	28	19				27	D	27	D	27	D
merge		1027	6	89	1561	1888	1506	1461	1007			7513	7513	36	51	52	53	53	54			50	50	3	31	37	29	28	19			24	C	23	C	23	C
basic		209	5	1624	1821	1575	1478	1019				7517	7517	52	52	53	53	53				53	53	32	36	30	28	19				29	D	29	D	29	D
merge	Btw Shady Grove Rd & MD 28	504	6	114	1644	1983	1601	1482	1039			7863	7863	36	51	52	53	53	53			50	50	3	33	39	31	28	20			26	C	25	C	25	C
basic		4159	5	1872	1849	1624	1454	1088				7888	7883	51	52	53	53	53				53	53	37	36	31	28	21				30	D	30	D	30	D
		458	5	1889	1826	1617	1449	1125				7907		53	53	53	53	53				53		37	35	31	28	21				30	D	30	D		
		982	5	1880	1813	1608	1445	1128				7873		53	53	53	53	53				53		36	35	31	28	21				30	D	30	D		
		396	5	1867	1798	1596	1443	1130				7834		53	53	53	53	53				53		36	35	30	28	21				30	D	30	D		
diverge	MD 28 interchange	526	6	305	1582	1801	1608	1455	1143			7892	7892	54	53	53	53	54	54			54	54	6	30	34	30	27	22			25	C	23	C	23	C
basic		1448	5	1529	1767	1604	1460	1160				7520	7520	53	53	53	53	53				53	53	29	34	31	28	22				29	D	29	D	29	D
merge		672	6	313	1440	1745	1595	1463	1172			7726	7726	52	53	53	54	54	54			53	53	6	27	33	30	28	22	6		24	C	22	C	22	C
basic		272	6	370	1393	1740	1599	1466	1175			7743	7742	56	53	53	53	53	53			53	53	7	27	34	31	28	23			25	C	25	C	25	C
		281	6	421	1323	1762	1591	1470	1176			7742		56	53	52	52	52	53			53		8	25	34	31	28	23			25	C	25	C		
merge	Btw MD 28 & MD 189	499	7	329	961	1349	2181	1563	1395	1111		8888	8888	47	51	51	52	53	53	54		52	52	7	19	27	42	30	26	21		25	C	18	B	18	B
basic		405	6	659	1987	2254	1596	1337	1075			8908	8914	51	49	50	53	53	54			52	52	13	41	46	31	25	20			29	D	29	D	29	D
		2028	6	735	1931	2058	1707	1391	1093			8915		53	51	52	53	53	53			53		14	38	40	33	26	21			29	D	29	D		
diverge		487	6	781	1896	1981	1726	1416	1108			8908	8908	53	51	52	53	53	53			52	52	15	38	39	33	27	21			29	D	30	D	30	D
basic	MD 189 interchange	777	5	1865	1946	1721	1440	1134				8106	8135	51	52	52	52	53				52	53	37	38	33	28	22				32	D	32	D	31	D
		2018	5	1847	1917	1729	1477	1177				8146		53	53	53	53	53				53		36	37	33	28	22				31	D	31	D		
merge		717	6	344	1927	2382	1774	1496	1201			9125	9125	48	48	50	52	53	53			51	51	7	41	49	34	28	23			30	D	32	D	32	D
basic	Btw MD 189 & Montrose Rd	1028	5	2261	2165	1919	1569	1217				9132	9119	42	45	49	51	52				48	50	55	49	39	31	24				40	E	40	E	38	E
		198	5	2238	2041	1862	1607	1274				9021		44	48	51	52	53				50		51	43	37	31	24				37	E	37	E		
		1502	5	2259	2008	1872	1648	1336				9123		48	51	52	53	53				51		48	40	36	32	26				36	E	36	E		
diverge	Montrose Rd interchange	375	6	114	2133	1980	1888	1667	1362			9144	9144	45	51	52	53	53	54			51	51	3	42	39	36	32	26			30	D	28	D	28	D
basic		880	5	2094	1961	1881	1671	1371				8977	8977	52	53	53	53	53				53	53	41	38	36	32	26				34	D	34	D	34	D
weave		644	6	918	1787	2270	1927	1686	1385			9973	9973	41	44	49	52	53	53			49	49	23	42	47	38	32	26			35	E	35	E	35	E
basic		806	5	1798	2137	2053	1757	1447				9191	9191	49	50	52	53	53				51	51	37	43	40	34	28				36	E	36	E	36	E
weave	Btw Montrose Rd & Spur Split	828	6	556	1728	2259	2066	1781	1471			9861	9783	50	52	52	53	53	53			52	43	11	34	44	40	34	28			32	D	32	D	44	F
		1055	6	587	1586	2083	2300	1794	1508			9857		53	51	48	47	46	46			48		11	32	44	50	40	35			35	E	35	E		
		3754	6	1154	1152	1847	1970	1889	1768			9780		51	47	33	27	24	29			35		23	25	58	76	82	64			55	F	55	F		
		663	6	1519	1437	1299	1801	1734	1924			9716		53	52	49	45	46	49			49		29	28	27	41	39	40			34	D	34	D		
		605	6	1538	1477	1317	1719	1747	1886			9684		53	53	53	51	51	51			52		29	28	25	34	35	38			32	D	32	D		
		416	6	1544	1489	1363	1710	1743	1879			9729		53	53	53	52	51	51			52		30	28	26	33	35	37			32	D	32	D		
basic	Spur Split through MD 187 interchange	694	3	1186	1676	1752						4614	4620	57	58	58						58	60	21	30	31						27	D	27	D	26	D
		1027	3	1208	1694	1722						4624		62	62	62						62		20	28	28						25	C	25	C		
diverge		473	4	532	675	1687	1719					4612	4612	63	63	62	62					62	62	9	11	28	28					19	B	19	B	19	B
basic		2458	2	1680	1714							3394	3394	63	63							63	63	27	28							28	D	28	D	28	D
merge		502	3	73	1625	1821						3520	3520	34	61	62						52	52	2	27	30						20	C	20	C	20	C
basic		550	2	1707	1852							3559	3559	62	61							61	61	28	31							29	D	29	D	29	D
merge	Btw MD 187 & I-495	955	3	201	1591	2049						3841	3841	50	60	61						57	57	4	27	34						22	C	22	C	22	C
basic		1835	2	1807	2035							3842	3842	60	61							61	61	30	34							32	D	32	D	32	D
weave		2007	3	1835	2246	229						4311	4310	61	60	63						62	62	30	38	4						24	C	24	C	24	C
		1491	3	1761	1480	1068						4309		63	63	63						63		29	24	17						23	C	23	C		
basic		1568	2	1688	1451							3138	3138	53	52							53	53	32	28							30	D	30	D	30	D
basic	Spur Split to Democracy Blvd	2632	4	1675	1418	1250	758					5100	5100	53	53	53	54					53	53	32	27	24	14					24	C	24	C	24	C
diverge		1205	4	607	1743	1819	938					5107	5107	52	52	52	54					53	53	12	34	35	18					25	C	27	C	27	C
merge	Democracy Blvd	1103	4	1795	1748	1116	195					4854	4854	53	53	54	58					55	55	35	33	21	3					23	C	19	B	19	B
basic		1559	3	1638	1660	1605						4903	4903	53	53	52						53	53	31	32	31						31	D	31	D	31	D
diverge		597	4	1603	1550	1253	494					4899	4899	52	50	50	53					51	51	31	31	25	9					24	C	29	D	29	D
basic		473	3	1602	1504	1134						4240	4240	52	52	53						52	52	31	29	22						27	D	27	D	27	D
merge	Democracy Blvd to I-495	705	4	177	1625	1749	1165					4716	4716	53	53	53	54					53	53	3	31	34	22					23	C	23	C	23	C
basic		1692	3	1719	1719	1281						4719	4719	53	53	54						53	53	33	33	24						30	D	30	D	30	D
basic	ML - I-370 interchange	834	1	1110								1110	1107	53								53	57	21								21	C	21	C	20	C
		302	1	1110								1110		58								58		19								19	C	19	C		
		2032	1	1106								1106		59								59		19								19	C	19	C		
merge	ML - Btw I-370 & Gude Dr	703	2	1060	980							2040	2040	62	62							62	62	17	16							17	B	17	B	17	B
basic		2364	2	1005	1033							2038	2038	63	63							63	63	16	17							16	B	16	B	16	B
		134	2	974	1067							2041		63	62							63		16	18							17	B	17	B		
diverge		405	3	967	896	169						2032	2032	62	62	61						62	62	16	15	3						11	B	11	B	11	B
basic	ML - Gude Dr interchange	3730	2	957	828							1785	1785	63	63							63	63	15	13							14	B	14	B	14	B
merge	ML - Btw Gude Dr & Wootton Pkwy	363	3	1058	1011	191						2260	2260	62	60	41						54	54	17	17	5						13	B	13	B	13	B
basic		3064	2	1165	1094							2260	2260	62	62							62	63	19	18							18	C	18	C	18	C
		794	2	1158	1097							2255		63	63							63		19	18							18	C	18	C		
		470	2	1161	1101							2263		63	63							63		19	18							18	C	18	C		
		1684	2	1157	1105							2262		63	63							63		19	18							18	C	18	C		
		3871	2	1104	1156							2260		63	63							63		18	19							18	C	18	C		
diverge		293	3	1078	976	202						2256	2256	62	59	54						58	58	18	17	4						13	B	13	B	13	B
basic	ML - Wootton Pkwy interchange	3349	2	1047	882							1929	1929	63	63							63	63	17	14							15	B	15	B	15	B
merge	ML - Btw Wootton Pkwy & Spur Split	875	3	1138	1101	121						2359	2359	63	63	61						62	62	18	18	2						13	B	13	B	13	B
basic		742	2	1188	1175							2362	2357	63	62							62	63	19	19							19	C	19	C	19	C
		1144	2	1198	1160							2358		63	63							63		19	19							19	C	19	C		
		420	2	1204	1155							2359		63	63							63		19	19							19	C	19	C		
		1516	2	1205	1153							2358		63	63							63		19	19							19	C	19	C		
		4115	2	1252	1103							2355		63	63							63		20	18							19	C	19	C		
diverge		1050	3	399	969	985						2353	2353	64	63	63						63	63	6	16	16						13	B	13	B	13	B
basic	ML - Spur Split through MD 187 interchange	5364	1	470								470	470	64								64	64	8								8	A	8	A	8	A
		1942	1	471								471		63								63		8								8	A	8	A		
		1803	1	471								471		63								63		8								8	A	8	A		
basic	ML - Spur Split to Westlake Ter/ Fernwood Rd	1266	2	817	1068							1885	1885	63	63							63	63	13	17							15	B	15	B	15	B
diverge		709	3	784	825	276						1885	1885	63	63	63						63	63	13	13	4						10	B	10	B	10	B
basic	ML - Westlake Ter/Fernwood Rd interchange	851	2	820	713							1533	1532	63	64							63	63	13	11							12	B	12	B	12	B
		1013	2	845	686							1531		63	64							63		14	11							12	B	12	B		
diverge		276	3	114	701	716						1531	1531	53	61	63						59	59	2	12	12						9	A	9	A	9	A
basic		443	2	637	707							1344	1344	63	63							63	64	10	11							11	B	11	B	11	B
		628	2	643	701							1344		64	64							64		10	11							11	B	11	B		
merge	ML - Westlake Ter/Fernwood Rd to I-495	724	3	678	790	71						1538	1538	64	64	64						64	64	11	13	1						8	A	8	A	8	A
basic		1677	2	703	832							1535	1535	64	63							63	63	11	13							12	B	12	B	12	B
merge		972	3	277	972	943						2192	2192	58	63	63						61	61	5	16	15						12	B	12	B	12	B
basic		2160	2	1142	1048							2189	2189	63	63							63	63	18	17							18	C	18	C	18	C
		322	2	1135	1055							2189		63	63							63		18	17							17	B	17	B		

I-270 Southbound - 2027 Preferred Alternative - 8-9 AM

VISSIM Lookup Data				Volume										Speed										Density									
				Volume Per Lane								Across All Lanes	Overall Volume	Speed Per Lane								Across All Lanes	Overall Speed	Density Per Lane								Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)								Total Volume	Average Volume (veh/hr)	Speed (mph)								Average Speed	Average Speed (mph)	Combined Density (pcphpl)								Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Through MD 117 interchange	658	4	1854	1949	2005	1990					7798	7852	20	22	23	22					22	21	92	90	89	90					90	F	90	F	93	F
		3062	4	1848	1940	2024	2051					7864		19	21	23	23					21		100	96	91	90					94	F	94	F		
merge		1569	5	1541	1854	1906	2065	2215				9581	9581	27	19	20	24	29				24	24	58	100	98	86	78				84	F	85	F	85	F
basic	Btw MD 117 & I-370	1152	6	1093	980	1857	1760	1781	2130			9602	9608	48	44	38	38	40	41			42	44	23	23	50	47	46	53			40	E	40	E	38	E
		430	6	1477	1096	1633	1614	1668	2135			9624		52	52	51	51	52	50			51		29	21	33	32	33	43			32	D	32	D		
diverge		928	6	1531	1170	1535	1567	1675	2132			9610	9593	52	53	47	48	50	50			50	50	30	23	33	33	34	43			33	D	30	D	30	D
		38	6	1491	1142	1395	1464	1629	2040			9161		52	51	41	49	49	50			49		29	23	34	30	34	42			32	D	29	D		
basic	I-370 interchange	1066	4	1470	1553	1691	2125					6839	6850	52	52	52	52					52	53	29	30	33	42					33	D	33	D	33	D
		1043	4	1486	1563	1687	2120					6855		53	53	53	53					53		28	30	32	41					33	D	33	D		
		884	4	1490	1565	1696	2108					6859		53	53	53	51					53		29	30	32	42					33	D	33	D		
diverge		203	5	1492	1579	1802	1332	648				6854	6854	53	53	53	45	42				49	49	29	30	35	30	16				28	D	27	C	27	C
basic		183	4	1477	1570	1725	923					5695	5695	53	53	53	53					53	53	28	30	33	18					27	D	27	D	27	D
basic		941	5	158	1355	1568	1703	977				5760	5760	59	53	53	53	54				54	54	3	26	30	33	18				22	C	22	C	22	C
weave	Btw I-370 & Shady Grove Rd	703	7	239	1520	1100	1253	1333	1418	857		7721	7721	52	52	53	53	53	53	54		53	53	5	30	21	24	25	27	16		21	C	21	C	21	C
diverge		1673	6	1324	1818	1392	1127	1249	807			7717	7717	50	51	52	53	53	54			52	52	27	36	27	21	24	15			25	C	30	D	30	D
basic	Shady Grove Rd interchange	510	5	1344	1490	1228	1273	827				6163	6163	53	53	53	53	54				53	53	26	29	23	24	16				24	C	24	C	24	C
merge		1027	6	93	1413	1728	1313	1284	839			6670	6670	35	51	52	53	53	54			50	50	3	28	34	25	24	16			22	C	21	C	21	C
basic		209	5	1452	1681	1381	1301	853				6668	6668	52	52	53	53	54				53	53	28	33	26	25	16				26	D	26	D	26	D
merge	Btw Shady Grove Rd & MD 28	504	6	127	1498	1864	1409	1304	870			7072	7072	36	51	52	53	53	54			50	50	4	30	36	27	25	16			23	C	23	C	23	C
basic		4159	5	1781	1720	1433	1258	888				7081	7071	52	52	53	53	54				53	53	35	33	27	24	17				27	D	27	D	27	D
		458	5	1819	1688	1418	1248	911				7084		52	53	53	53	54				53		35	32	27	24	17				27	D	27	D		
		982	5	1802	1676	1408	1250	911				7048		53	53	53	53	54				53		35	32	27	24	17				27	D	27	D		
		396	5	1788	1664	1400	1247	915				7015		53	53	53	53	54				53		35	32	27	24	17				27	D	27	D		
diverge	MD 28 interchange	526	6	377	1431	1662	1410	1262	924			7066	7066	53	53	53	54	54	54			54	54	7	27	32	27	24	17			22	C	22	C	22	C
basic		1448	5	1355	1627	1409	1268	946				6605	6605	53	53	53	53	53				53	53	26	31	27	24	18				25	C	25	C	25	C
merge		672	6	319	1298	1614	1404	1270	961			6866	6866	51	53	53	54	54	54			53	53	6	25	31	27	24	18	6		22	C	21	C	21	C
basic		272	6	360	1260	1613	1407	1276	962			6878	6878	56	53	53	53	53	53			53	53	7	24	31	27	24	18			22	C	22	C	22	C
		281	6	397	1209	1624	1406	1276	967			6879		56	53	52	53	53	53			53		7	23	31	27	25	18			22	C	22	C		
merge	Btw MD 28 & MD 189	499	7	303	905	1269	1991	1360	1202	909		7939	7939	47	51	52	52	53	54	54		52	52	7	18	25	39	26	23	17		22	C	17	B	17	B
basic		405	6	654	1861	2044	1379	1136	875			7949	7947	52	50	51	53	53	54			52	53	13	38	41	26	22	16			26	D	26	D	26	D
		2028	6	754	1786	1871	1475	1176	885			7946		53	52	52	53	53	54			53		14	35	36	28	22	17			26	D	26	D		
diverge		487	6	804	1741	1803	1489	1199	899			7935	7935	53	51	52	53	53	54			53	53	15	35	35	29	23	17			26	C	29	D	29	D
basic	MD 189 interchange	777	5	1702	1765	1486	1221	930				7104	7124	52	52	52	53	53				52	53	33	35	29	23	18				28	D	28	D	27	D
		2018	5	1684	1738	1493	1250	967				7132		53	53	53	53	54				53		32	34	28	24	18				27	D	27	D		
merge		717	6	353	1883	2218	1543	1256	984			8236	8236	49	49	51	53	53	54			51	51	7	39	45	30	24	18			27	C	30	D	30	D
basic	Btw MD 189 & Montrose Rd	1028	5	2264	2047	1693	1275	961				8240	8231	44	47	51	52	53				49	51	52	44	34	25	18				35	E	35	E	33	D
		198	5	2253	1933	1656	1314	989				8146		46	49	52	53	53				51		50	40	32	25	19				33	D	33	D		
		1502	5	2266	1897	1671	1364	1037				8236		49	51	53	53	54				52		47	38	32	26	20				33	D	33	D		
diverge	Montrose Rd interchange	375	6	109	2153	1852	1688	1397	1056			8256	8256	45	51	52	53	53	54			51	51	2	43	36	32	26	20			27	C	27	C	27	C
basic		880	5	2112	1832	1684	1399	1068				8095	8095	52	53	53	53	54				53	53	41	35	32	27	20				31	D	31	D	31	D
weave		644	6	1035	1667	2097	1742	1410	1078			9029	9029	41	44	50	52	53	54			49	49	26	38	43	34	27	20			31	D	31	D	31	D
basic		806	5	1596	1989	1867	1478	1130				8060	8060	50	51	52	53	53				52	52	33	40	36	28	22				32	D	32	D	32	D
weave	Btw Montrose Rd & Spur Split	828	6	656	1651	2144	1891	1502	1157			9001	9076	50	51	52	53	53	54			52	45	14	33	42	36	29	22			29	D	29	D	38	E
		1055	6	619	1467	1981	2218	1542	1188			9015		54	52	50	50	50	49			51		12	29	40	45	31	25			30	D	30	D		
		3754	6	930	948	1760	1996	1877	1580			9090		52	49	36	32	29	33			38		18	20	51	66	69	51			46	F	46	F		
		663	6	1212	1205	1209	1903	1750	1844			9124		53	52	50	46	47	50			50		23	23	25	42	38	38			32	D	32	D		
		605	6	1237	1265	1235	1826	1722	1813			9097		53	53	53	51	51	52			52		24	24	24	36	34	36			30	D	30	D		
		416	6	1250	1277	1288	1816	1697	1817			9145		53	53	53	52	52	52			53		24	24	25	36	34	36			30	D	30	D		
basic	Spur Split through MD 187 interchange	694	3	1382	1588	1675						4645	4659	57	58	58						58	60	25	28	29						27	D	27	D	26	D
		1027	3	1422	1599	1648						4669		61	62	62						62		24	26	27						26	D	26	D		
diverge		473	4	606	823	1585	1650					4665	4665	63	63	62	62					62	62	10	13	26	27					19	B	19	B	19	B
basic		2458	2	1579	1641							3221	3221	62	63							63	63	26	27							26	D	26	D	26	D
merge		502	3	82	1550	1754						3385	3385	34	60	61						52	52	2	26	29						19	B	19	B	19	B
basic		550	2	1631	1793							3424	3424	61	61							61	61	27	30							29	D	29	D	29	D
merge	Btw MD 187 & I-495	955	3	234	1553	2036						3823	3823	50	60	61						57	57	5	26	34						22	C	22	C	22	C
basic		1835	2	1803	2021							3825	3825	60	61							61	61	30	34							32	D	32	D	32	D
weave		2007	3	1781	2249	237						4267	4268	61	60	63						62	62	29	38	4						24	C	24	C	23	C
		1491	3	1692	1401	1176						4269		63	63	63						63		27	23	19						23	C	23	C		
basic		1568	2	1601	1379							2980	2980	49	47							48	48	34	30							32	D	32	D	32	D
basic	Spur Split to Democracy Blvd	2632	4	1494	1203	1128	663					4488	4488	53	53	54	54					54	54	29	23	21	12					21	C	21	C	21	C
diverge		1205	4	741	1479	1504	766					4491	4491	52	52	53	54					53	53	14	29	29	14					22	C	24	C	24	C
merge	Democracy Blvd	1103	4	1508	1470	880	130					3988	3988	53	53	55	59					55	55	29	28	16	2					19	B	16	B	16	B
basic		1559	3	1322	1354	1356						4032	4032	53	53	53						53	53	25	26	26						26	D	26	D	26	D
diverge		597	4	1281	1241	962	548					4032	4032	53	52	52	53					52	52	25	24	19	11					20	C	23	C	23	C
basic		473	3	1286	1201	822						3309	3309	53	53	54						53	53	25	23	15						21	C	21	C	21	C
merge	Democracy Blvd to I-495	705	4	190	1409	1441	851					3892	3892	53	53	53	55					53	53	4	27	28	16					18	B	19	B	19	B
basic		1692	3	1488	1449	957						3893	3893	53	53	54						53	53	29	28	18						25	C	25	C	25	C
basic	ML - I-370 interchange	834	1	1104								1104	1102	52								52	57	22								22	C	22	C	20	C
		302	1	1101								1101		57								57		20								20	C	20	C		
		2032	1	1101								1101		58								58		19								19	C	19	C		
merge	ML - Btw I-370 & Gude Dr	703	2	1079	1088							2167	2167	62	62							62	62	18	18							18	B	18	B	18	B
basic		2364	2	1039	1130							2170	2170	63	63							63	63	17	18							18	C	18	C	18	C
		134	2	1010	1160							2170		63	62							63		16	19							18	C	18	C		
diverge		405	3	1007	967	186						2160	2160	63	62	60						62	62	16	16	3						12	B	12	B	12	B
basic	ML - Gude Dr interchange	3730	2	991	896							1888	1888	63	63							63	63	16	14							15	B	15	B	15	B
merge	ML - Btw Gude Dr & Wootton Pkwy	363	3	1077	1050	171						2299	2299	63	61	39						54	54	17	18	5						13	B	13	B	13	B
basic		3064	2	1174	1123							2297	2298	63	62							63	63	19	18							19	C	19	C	19	C
		794	2	1171	1121							2293		63	63							63		19	18							18	C	18	C		
		470	2	1174	1127							2301		63	63							63		19	18							18	C	18	C		
		1684	2	1174	1127							2300		63	63							63		19	18							18	C	18	C		
		3871	2	1127	1171							2298		63	63							63		18	19							19	C	19	C		
diverge		293	3	1111	979	211						2301	2301	62	59	53						58	58	18	17	4						13	B	13	B	13	B
basic	ML - Wootton Pkwy interchange	3349	2	1078	887							1966	1966	63	63							63	63	17	14							16	B	16	B	16	B
merge	ML - Btw Wootton Pkwy & Spur Split	875	3	1154	1085	113						2351	2351	63	63	60						62	62	19	18	2						13	B	13	B	13	B
basic		742	2	1196	1160							2355	2355	63	62							62	63	19	19							19	C	19	C	19	C
		1144	2	1204	1148							2352		63	63							63		19	19							19	C	19	C		
		420	2	1209	1144							2353		63	63							63		19	18							19	C	19	C		
		1516	2	1207	1146							2353		63	63							63		19	18							19	C	19	C		
		4115	2	1254	1102							2356		63	63							63		20	18							19	C	19	C		
diverge		1050	3	384	980	992						2356	2356	64	63	63						63	63	6	16	16						13	B	13	B	13	B
basic	ML - Spur Split through MD 187 interchange	5364	1	453								453	452	64								64	64	7								7	A	7	A	7	A
		1942	1	452								452		64								64		7								7	A	7	A		
		1803	1	450								450		63								63		7								7	A	7	A		
basic	ML - Spur Split to Westlake Ter/ Fernwood Rd	1266	2	811	1096							1907	1907	64	63							63	63	13	18							15	B	15	B	15	B
diverge		709	3	772	780	353						1905	1905	63	63	63						63	63	12	13	6						10	B	10	B	10	B
basic	ML - Westlake Ter/Fernwood Rd interchange	851	2	785	666							1451	1450	63	64							64	63	13	11							12	B	12	B	12	B
		1013	2	795	655							1450		63	64							63		13	10							12	B	12	B		
diverge		276	3	76	697	676						1449	1449	53	62	63						59	59	1	11	11						8	A	8	A	8	A
basic		443	2	653	673							1326	1325	64	64							64	64	10	11							11	B	11	B	11	B
		628	2	654	670							1324		64	64							64		10	11							11	B	11	B		
merge	ML - Westlake Ter/Fernwood Rd to I-495	724	3	677	739	56						1472	1472	64	64	64						64	64	11	12	1						8	A	8	A	8	A
basic		1677	2	699	776							1475	1475	64	63							64	64	11	12							12	B	12	B	12	B
merge		972	3	299	990	910						2199	2199	58	63	63						61	61	5	16	15						12	B	12	B	12	B
basic		2160	2	1153	1044							2197	2197	63	63							63	63	19	17							18	C	18	C	18	C
		322	2	1143	1057							2199		63	63							63		18	17							18	C	18	C		

I-270 Southbound - 2027 Preferred Alternative - 9-10 AM

VISSIM Lookup Data				Volume										Speed										Density											
				Volume Per Lane								Across All Lanes	Overall Volume	Speed Per Lane								Across All Lanes	Overall Speed	Density Per Lane								Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)								Total Volume	Average Volume (veh/hr)	Speed (mph)								Average Speed	Average Speed (mph)	Combined Density (pcphpl)								Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Through MD 117 interchange	658	4	1893	2001	1981	1933					7808	7923	33	34	35	34					34	30	59	60	59	58					59	F	59	F	67	F
		3062	4	1918	1992	2021	2017					7947		28	29	30	31					30		71	71	69	67					69	F	69	F		
merge	Btw MD 117 & I-370	1569	5	1311	1976	2022	2069	2154				9533	9533	33	25	25	29	33				29	29	42	84	83	74	67				70	F	70	F	70	F
basic		1152	6	908	931	1946	1830	1824	2149			9589	9598	49	46	40	41	42	43			43	46	19	21	49	46	45	51			38	E	38	E	37	E
		430	6	1287	1038	1726	1656	1726	2184			9620		52	52	51	51	51	50			51		25	20	35	33	34	44			32	D	32	D		
diverge		928	6	1364	1093	1629	1608	1733	2177			9605	9587	52	53	45	46	49	49			49	49	26	21	37	35	36	45			33	D	30	D	30	D
		38	6	1343	1059	1479	1471	1699	2103			9155		52	49	37	46	47	49			47		26	22	41	32	37	44			34	D	30	D		
basic	I-370 interchange	1066	4	1560	1585	1734	2184					7064	7073	52	52	52	51					52	52	31	31	34	43					35	E	35	E	34	D
		1043	4	1574	1604	1730	2173					7080		53	53	53	52					53		30	31	33	42					34	D	34	D		
		884	4	1576	1610	1734	2156					7075		53	53	53	51					52		30	31	33	43					34	D	34	D		
diverge		203	5	1575	1625	1840	1388	635				7062	7062	53	53	53	45	42				49	49	30	31	36	31	15				29	D	27	C	27	C
basic		183	4	1558	1620	1758	982					5917	5917	53	53	53	53					53	53	30	31	34	19					28	D	28	D	28	D
basic		941	5	171	1420	1615	1736	1031				5973	5973	59	53	53	53	54				54	54	3	27	31	33	19				23	C	23	C	23	C
weave	Btw I-370 & Shady Grove Rd	703	7	196	1353	1057	1289	1366	1416	894		7571	7571	52	52	53	53	53	53	54		53	53	4	26	20	25	26	27	17		21	C	21	C	21	C
diverge		1673	6	1302	1768	1333	1107	1228	837			7574	7574	50	51	52	53	53	54			52	52	26	35	26	21	23	16			25	C	29	D	29	D
basic	Shady Grove Rd interchange	510	5	1233	1433	1202	1246	856				5969	5969	53	53	53	53	53				53	53	24	27	23	24	16				23	C	23	C	23	C
merge		1027	6	86	1347	1648	1271	1257	862			6472	6472	36	51	52	53	53	54			50	50	2	27	32	24	24	16			21	C	20	C	20	C
basic		209	5	1387	1613	1329	1270	871				6470	6470	52	52	53	53	53				53	53	27	31	25	24	17				25	C	25	C	25	C
merge	Btw Shady Grove Rd & MD 28	504	6	127	1469	1776	1356	1279	884			6890	6890	37	50	52	53	53	54			50	50	4	30	34	26	24	17			22	C	23	C	23	C
basic		4159	5	1774	1657	1366	1218	893				6908	6903	52	53	53	53	53				53	53	35	32	26	23	17				27	D	27	D	27	D
		458	5	1816	1626	1357	1212	913				6923		52	53	53	53	53				53		35	31	26	23	17				27	D	27	D		
		982	5	1801	1612	1352	1208	918				6892		53	53	53	53	54				53		35	31	26	23	17				26	D	26	D		
		396	5	1785	1599	1345	1202	921				6853		53	53	53	53	54				53		35	31	26	23	17				26	D	26	D		
diverge	MD 28 interchange	526	6	418	1388	1598	1355	1215	929			6903	6903	53	53	53	54	54	54			54	54	8	26	30	26	23	17			22	C	22	C	22	C
basic		1448	5	1301	1564	1358	1217	943				6383	6383	53	53	53	53	53	53			53	53	25	30	26	23	18				24	C	24	C	24	C
merge		672	6	347	1264	1554	1352	1216	953			6685	6685	50	53	53	54	54	54			53	53	7	24	30	26	23	18			21	C	20	C	20	C
basic		272	6	381	1231	1555	1355	1216	958			6696	6696	55	53	53	53	53	53			53	53	7	24	30	26	23	18			21	C	21	C	21	C
		281	6	415	1184	1565	1355	1218	961			6697		55	53	52	53	53	53			53		8	23	30	26	23	18			21	C	21	C		
merge	Btw MD 28 & MD 189	499	7	292	856	1219	1944	1325	1153	910		7699	7699	47	51	52	52	54	54	54		52	52	6	17	24	38	25	22	17		21	C	16	B	16	B
basic		405	6	569	1809	2006	1347	1102	877			7712	7707	52	50	51	53	53	54			52	53	11	37	40	26	21	17			25	C	25	C	25	C
		2028	6	650	1730	1855	1442	1144	886			7706		53	52	52	53	53	54			53		12	34	36	28	22	17			25	C	25	C		
diverge		487	6	693	1693	1795	1457	1162	893			7693	7693	53	52	52	53	53	54			53	53	13	33	35	28	22	17			25	C	27	C	27	C
basic	MD 189 interchange	777	5	1666	1758	1457	1182	911				6975	6999	52	52	53	53	53				52	53	33	34	28	23	17				27	D	27	D	27	D
		2018	5	1659	1729	1468	1210	943				7008		53	53	53	53	53				53		32	33	28	23	18				27	D	27	D		
merge	Btw MD 189 & Montrose Rd	717	6	263	1771	2119	1499	1212	957			7820	7820	51	51	52	54	54	54			53	53	5	35	41	28	23	18			25	C	27	C	27	C
basic		1028	5	2261	1982	1573	1149	862				7826	7810	45	49	52	53	53				50	51	51	41	31	22	16				32	D	32	D	32	D
		198	5	2274	1895	1531	1156	871				7727		45	49	52	53	53				50		52	39	30	22	17				32	D	32	D		
		1502	5	2263	1820	1581	1224	922				7810		48	51	53	53	54				52		48	36	30	23	17				31	D	31	D		
diverge	Montrose Rd interchange	375	6	153	2101	1752	1607	1261	951			7825	7825	45	50	51	53	53	54			51	51	4	42	35	31	24	18			26	C	27	C	27	C
basic		880	5	2041	1729	1587	1271	973				7601	7601	52	53	53	53	54				53	53	40	33	30	24	18				29	D	29	D	29	D
weave		644	6	1111	1510	1927	1633	1286	984			8451	8451	42	45	50	52	53	53			49	49	27	34	39	32	25	19			29	D	29	D	29	D
basic		806	5	1386	1834	1728	1352	1037				7336	7336	51	51	52	53	53				52	52	28	36	33	26	20				29	D	29	D	29	D
weave	Btw Montrose Rd & Spur Split	828	6	531	1452	1953	1746	1366	1057			8105	8128	51	52	52	53	53	54			52	52	11	28	38	33	26	20			26	C	26	C	27	C
		1055	6	488	1272	1810	2068	1397	1074			8108		54	53	52	52	53	53			53		9	25	35	40	27	20			26	C	26	C		
		3754	6	501	716	1616	2064	1977	1261			8135		54	54	52	50	50	52			52		9	13	32	42	40	25			27	C	27	C		
		663	6	564	852	1336	2080	1666	1640			8139		54	53	52	50	50	52			52		11	16	26	43	34	32			27	C	27	C		
		605	6	595	935	1378	1958	1629	1621			8117		54	54	53	52	52	53			53		11	18	26	39	32	31			26	C	26	C		
		416	6	618	957	1443	1917	1594	1633			8160		54	54	53	52	52	53			53		12	18	28	37	31	31			26	C	26	C		
basic	Spur Split through MD 187 interchange	694	3	1117	1458	1514						4089	4098	58	59	59						58	61	20	25	26						24	C	24	C	23	C
		1027	3	1145	1475	1484						4104		62	63	63						63		19	24	24						22	C	22	C		
diverge		473	4	441	705	1465	1485					4096	4096	63	63	63	63					63	63	7	11	24	24					17	B	17	B	17	B
basic		2458	2	1456	1486							2942	2942	63	63							63	63	24	24							24	C	24	C	24	C
merge		502	3	55	1430	1569						3054	3054	37	61	62						53	53	2	24	26						17	B	17	B	17	B
basic		550	2	1483	1609							3092	3092	62	62							62	62	24	26							25	C	25	C	25	C
merge	Btw MD 187 & I-495	955	3	212	1437	1827						3475	3475	50	61	62						57	57	4	24	30						20	C	20	C	20	C
basic		1835	2	1630	1848							3479	3479	61	61							61	61	27	31							29	D	29	D	29	D
weave		2007	3	1664	2068	189						3920	3922	62	61	64						62	63	27	34	3						22	C	22	C	21	C
		1491	3	1600	1422	902						3924		63	63	63						63		26	23	15						21	C	21	C		
basic		1568	2	1537	1397							2933	2933	56	55							56	56	28	26							27	D	27	D	27	D
basic	Spur Split to Democracy Blvd	2632	4	1086	883	1179	907					4056	4056	53	54	53	54					54	54	21	17	22	17					19	C	19	C	19	C
diverge		1205	4	809	1098	1252	898					4057	4057	52	53	53	54					53	53	16	21	24	17					19	B	20	C	20	C
merge	Democracy Blvd	1103	4	1114	1236	935	116					3401	3401	53	53	54	59					55	55	21	23	18	2					16	B	14	B	14	B
basic		1559	3	974	1150	1315						3438	3438	54	53	53						53	53	18	22	25						22	C	22	C	22	C
diverge		597	4	949	1056	925	513					3443	3443	53	52	52	53					52	52	18	21	18	10					17	B	19	B	19	B
basic		473	3	954	1023	787						2764	2764	53	53	54						53	53	18	19	15						18	C	18	C	18	C
merge	Democracy Blvd to I-495	705	4	167	1149	1193	804					3313	3313	53	53	53	54					54	54	3	22	23	15					16	B	16	B	16	B
basic		1692	3	1226	1224	867						3318	3318	53	53	54						53	53	23	23	16						21	C	21	C	21	C
basic	ML - I-370 interchange	834	1	1084								1084	1087	52								52	57	21								21	C	21	C	20	C
		302	1	1086								1086		57								57		19								19	C	19	C		
		2032	1	1088								1088		58								58		19								19	C	19	C		
merge	ML - Btw I-370 & Gude Dr	703	2	1084	1148							2232	2227	62	61							62	62	18	19							18	B	18	B	18	B
basic		2364	2	1049	1178							2227		63	62							63	63	17	19							18	C	18	C	18	C
		134	2	1025	1204							2229		63	62							63		16	20							18	C	18	C		
diverge		405	3	1021	1022	178						2221	2221	63	62	60						62	62	16	17	3						12	B	12	B	12	B
basic	ML - Gude Dr interchange	3730	2	1005	956							1961	1961	63	63							63	63	16	15							16	B	16	B	16	B
merge	ML - Btw Gude Dr & Wootton Pkwy	363	3	1116	1090	175						2381	2381	63	60	38						53	53	18	18	5						14	B	14	B	14	B
basic		3064	2	1216	1163							2379	2377	63	62							63	63	20	19							19	C	19	C	19	C
		794	2	1206	1166							2372		63	63							63		19	19							19	C	19	C		
		470	2	1211	1169							2380		63	63							63		19	19							19	C	19	C		
		1684	2	1210	1167							2377		63	63							63		19	19							19	C	19	C		
		3871	2	1168	1207							2375		63	63							63		19	20							19	C	19	C		
diverge		293	3	1158	1037	181						2376	2376	62	60	54						59	59	19	18	3						13	B	13	B	13	B
basic	ML - Wootton Pkwy interchange	3349	2	1132	953							2085	2085	63	63							63	63	18	15							17	B	17	B	17	B
merge	ML - Btw Wootton Pkwy & Spur Split	875	3	1187	1108	96						2390	2390	63	63	62						63	63	19	18	2						13	B	13	B	13	B
basic		742	2	1219	1176							2395	2396	63	62							63	63	20	19							19	C	19	C	19	C
		1144	2	1222	1173							2395		63	63							63		20	19							19	C	19	C		
		420	2	1223	1172							2395		63	63							63		20	19							19	C	19	C		
		1516	2	1222	1173							2396		63	63							63		20	19							19	C	19	C		
		4115	2	1266	1131							2398		63	63							63		20	18							19	C	19	C		
diverge		1050	3	377	994	1026						2396	2396	64	63	63						63	63	6	16	16						13	B	13	B	13	B
basic	ML - Spur Split through MD 187 interchange	5364	1	440								440	441	64								64	64	7								7	A	7	A	7	A
		1942	1	441								441		64								64		7								7	A	7	A		
		1803	1	443								443		63								63		7								7	A	7	A		
basic	ML - Spur Split to Westlake Ter/ Fernwood Rd	1266	2	827	1123							1951	1951	63	63							63	63	13	18							16	B	16	B	16	B
diverge		709	3	794	812	343						1948	1948	63	63	63						63	63	13	13	6						10	B	10	B	10	B
basic	ML - Westlake Ter/Fernwood Rd interchange	851	2	807	709							1516	1516	63	64							63	63	13	11							12	B	12	B	12	B
		1013	2	816	700							1516		63	64							63		13	11							12	B	12	B		
diverge		276	3	70	722	724						1516	1516	53	62	63						59	59	1	12	12						8	A	8	A	8	A
basic		443	2	680	723							1402	1403	63	64							63	64	11	12							11	B	11	B	11	B
		628	2	684	719							1403		64	64							64		11	11							11	B	11	B		
merge	ML - Westlake Ter/Fernwood Rd to I-495	724	3	702	764	45						1511	1511	63	64	63						64	64	11	12	1						8	A	8	A	8	A
basic		1677	2	714	799							1513	1513	63	63							63	63	11	13							12	B	12	B	12	B
merge		972	3	285	981	929						2195	2195	57	63	63						61	61	5	16	15						12	B	12	B	12	B
basic		2160	2	1140	1052							2192	2192	63	63							63	63	18	17							18	C	18	C	18	C
		322	2	1133	1060							2192		63	63							63		18	17							18	C	18	C		

I-270 Northbound - 2027 Preferred Alternative - 6-7 AM

VISSIM Lookup Data				Volume									Speed									Density									
				Volume Per Lane							Across All Lanes	Overall Volume	Speed Per Lane							Across All Lanes	Overall Speed	Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)							Total Volume	Average Volume (veh/hr)	Speed (mph)							Average Speed	Average Speed (mph)	Combined Density (pcphpl)							Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Btw Watkins Mill Rd & MD 117	7478.56	4	516	584	445	504				2049	2049	61	62	63	54				60	60	9	10	7	9				9	A	9	A	9	A
diverge	Btw MD 117 & I-370	1356.89	5	842	623	575	366	491			2897	2897	58	61	62	63	54			60	60	15	10	9	6	9			10	B	11	B	11	B
basic		842.71	5	621	888	566	331	489			2896	2896	60	60	62	63	54			60	60	11	15	9	5	9			10	A	10	A	10	A
merge		530.91	6	3	458	1193	455	286	486		2880	2880	58	59	59	61	63	54		59	59	0	8	21	8	5	9		8	A	9	A	9	A
basic	I-370 interchange	1977.89	4	862	587	277	496				2223	2223	58	63	63	54				59	59	15	10	4	9				10	A	10	A	10	A
merge		1544.87	4	661	737	308	517				2223	2223	58	63	63	54				59	59	12	12	5	10				10	B	9	A	9	A
basic		1320.59	3	682	623	346					1650	1650	58	63	64					62	62	12	10	5					9	A	9	A	9	A
diverge		478.16	5	84	249	608	602	291			1835	1835	58	56	59	63	64			60	60	1	4	11	10	5			6	A	7	A	7	A
weave	Btw I-370 & Shady Grove Rd	618.58	6	413	491	439	356	378	277		2354	2359	60	56	60	63	64	64		61	61	7	9	7	6	6	4		7	A	7	A	7	A
		1788.66	6	373	535	485	368	322	277		2361		59	56	60	64	64	64		61		6	10	8	6	5	4		7	A	7	A		
basic	Shady Grove Rd interchange	327.4	5	826	489	358	318	274			2265	2265	56	61	64	64	64			62	62	15	8	6	5	4			8	A	8	A	8	A
merge		745.87	6	53	781	485	353	318	273		2264	2264	53	57	61	64	64	64		61	61	1	14	8	6	5	4		6	A	8	A	8	A
basic		858.92	5	754	480	349	318	274			2175	2172	58	61	64	64	64			62	62	13	8	6	5	4			7	A	7	A	7	A
		394.14	5	728	493	350	320	274			2165		58	61	64	64	64			62		13	8	6	5	4			7	A	7	A		
diverge		550.98	7	246	300	665	500	394	338	279	2722	2722	61	61	58	61	64	64	64	62	62	4	5	12	8	6	5	4	6	A	7	A	7	A
basic		427.98	6	545	507	498	464	403	308		2725	2720	60	57	61	64	64	64		62	61	9	9	8	7	6	5		8	A	8	A	8	A
		1160.08	6	483	408	504	491	452	380		2718		60	56	61	64	64	64		61		8	7	8	8	7	6		8	A	8	A		
basic	Btw Shady Grove Rd & MD 28	1897.38	5	879	538	480	445	384			2726	2730	57	61	64	64	64			62	62	16	9	8	7	6			9	A	9	A	9	A
		2067.15	5	727	627	508	473	396			2732		57	61	64	64	64			62		13	10	8	7	6			9	A	9	A		
		504.72	5	464	679	555	549	485			2732		55	61	64	64	64			62		9	11	9	9	8			9	A	9	A		
		483.29	5	471	689	543	547	483			2733		55	61	64	64	64			62		9	12	9	9	8			9	A	9	A		
merge		660.76	6	15	470	693	524	544	480		2727	2727	47	55	61	64	64	64		59	59	0	9	12	8	9	8		8	A	7	A	7	A
basic	MD 28 interchange	842.31	5	437	690	511	539	478			2656	2656	56	61	64	64	64			62	62	8	11	8	9	8			9	A	9	A	9	A
weave		462.38	6	424	598	704	493	533	474		3227	3227	50	55	61	64	64	64		60	60	9	11	12	8	8	8		9	A	9	A	9	A
basic		537.2	5	1011	701	479	529	474			3195	3195	56	62	64	64	64			62	62	18	12	8	8	8			11	B	11	B	11	B
weave	Btw MD 28 & MD 189	532.64	6	75	1022	702	470	523	471		3263	3262	62	57	62	65	64	64		62	62	1	18	12	7	8	7		9	A	9	A	9	A
		460.47	6	76	1025	712	460	520	469		3262		62	57	62	65	64	64		62		1	18	12	7	8	7		9	A	9	A		
		495.54	6	78	1017	725	453	516	466		3255		62	58	62	65	64	64		62		1	18	12	7	8	7		9	A	9	A		
		964.52	6	87	993	760	443	513	467		3264		62	58	62	65	64	64		62		1	17	13	7	8	7		9	A	9	A		
		678.7	6	165	773	792	502	554	476		3262		55	58	62	65	64	64		61		3	14	13	8	9	8		9	A	9	A		
basic	MD 189 interchange	803.94	5	573	810	478	623	573			3056	3053	58	63	65	64	64			63	63	10	13	7	10	9			10	A	10	A	10	A
		152.72	5	584	806	469	619	571			3049		58	63	65	64	64			63		10	13	7	10	9			10	A	10	A		
		222.5	5	588	807	466	617	573			3051		58	63	65	64	64			63		10	13	7	10	9			10	A	10	A		
		154.96	5	592	806	464	614	573			3049		58	63	65	64	64			63		10	13	7	10	9			10	A	10	A		
		193.59	5	594	807	463	612	573			3050		58	63	65	64	64			63		10	13	7	10	9			10	A	10	A		
diverge	Btw MD 189 & Montrose Rd	404.61	6	168	661	818	459	610	572		3288	3288	58	58	62	65	64	64		62	62	3	12	13	7	10	9		9	A	9	A	9	A
basic		2720.43	5	852	817	433	613	579			3295	3296	58	63	66	64	64			63	63	15	13	7	10	9			11	B	11	B	11	B
		530.19	5	924	799	389	606	578			3296		59	63	66	64	64			63		16	13	6	10	9			11	B	11	B		
		1253.48	5	948	795	369	606	578			3298		59	63	66	64	64			63		16	13	6	10	9			11	B	11	B		
merge		514.82	6	95	872	736	340	643	601		3287	3287	49	59	63	66	64	64		61	61	2	15	12	5	10	10		9	A	10	B	10	B
basic	Montrose Rd interchange	232.03	5	710	662	320	651	618			2961	2955	63	64	67	64	64			64	64	11	11	5	10	10			9	A	9	A	9	A
		654.22	5	716	658	315	648	616			2953		63	64	67	64	64			64		12	10	5	10	10			9	A	9	A		
weave		597.4	6	63	739	654	305	646	618		3025	3025	54	63	64	67	64	64		62	62	1	12	10	5	10	10		8	A	8	A	8	A
basic		829.96	5	789	643	296	644	621			2993	2993	63	64	67	64	64			64	64	13	10	5	10	10			10	A	10	A	10	A
weave	Btw Montrose Rd & Spur Split	352.69	6	714	804	645	290	641	623		3717	3723	63	63	63	66	63	64		64	64	11	13	10	4	10	10		10	B	10	B	10	B
		937.22	6	707	821	645	285	640	626		3724		64	64	64	67	63	64		64		11	13	10	4	10	10		10	B	10	B		
		293.96	6	696	835	650	281	640	627		3729		64	64	64	67	64	64		64		11	13	10	4	10	10		10	B	10	B		
		443.89	6	685	842	651	278	640	628		3724		63	64	64	67	64	64		64		11	13	10	4	10	10		10	B	10	B		
		2310.26	6	549	831	696	301	688	659		3724		64	63	64	66	63	64		64		9	13	11	5	11	11		10	B	10	B		
		1029.35	6	348	634	771	320	874	775		3722		65	64	64	66	63	64		64		5	10	12	5	14	12		10	B	10	B		
		1315.82	6	212	646	832	274	940	815		3720		66	64	63	67	63	64		64		3	10	13	4	15	13		10	B	10	B		
basic	Btw Spur Split & MD 187	795.32	3	205	656	871					1731	1725	66	64	63					64	64	3	10	14					9	A	9	A	9	A
		797.42	3	193	653	870					1716		66	64	63					64		3	10	14					9	A	9	A		
		747.35	3	184	661	884					1729		66	64	63					64		3	10	14					9	A	9	A		
merge		532.07	4	1	159	681	887				1729	1729	58	62	64	63				62	62	0	3	11	14				7	A	7	A	7	A
basic	MD 187 interchange	314.19	2	698	891						1589	1588	64	63						64	64	11	14						13	B	13	B	13	B
		1549.95	2	689	898						1588		64	63						64		11	14						13	B	13	B		
diverge		283.71	3	198	783	924					1905	1905	54	60	63					59	59	4	13	15					11	B	11	B	11	B
basic		1094.07	2	1017	887						1904	1904	63	64						63	63	16	14						15	B	15	B	15	B
diverge	Btw MD 187 & I-495	738.75	3	286	1074	898					2258	2258	64	63	64					63	63	5	17	14					12	B	12	B	12	B
basic		3593.39	2	1335	926						2261	2261	63	64						63	63	22	15						18	C	18	C	18	C
diverge		643.51	3	1251	1010	172					2433	2433	63	63	64					63	63	20	16	3					13	B	13	B	13	B
basic		1124.5	3	1151	1101	180					2432	2432	63	63	65					64	64	18	18	3					13	B	13	B	13	B
merge		428.95	4	68	1175	1084	107				2433	2433	49	62	63	66				60	60	1	19	17	2				10	B	13	B	13	B
basic		385.66	3	1107	1036	57					2201	2201	64	63	64					63	63	18	17	1					12	B	12	B	12	B
basic		499.68	2	1102	1100						2202	2202	59	59						59	59	19	19						19	C	19	C	19	C
basic		2096.49	3	217	950	823					1990	1990	66	63	64					64	64	3	15	13					11	B	11	B	11	B
merge	Btw Spur Split & Democracy Blvd	900.76	4	177	958	791	64				1990	1990	66	63	63	59				63	63	3	15	13	1				8	A	10	B	10	B
basic		180.91	3	163	890	663					1717	1717	66	63	64					64	64	3	14	11					9	A	9	A	9	A
merge		1210.89	4	6	153	896	662				1717	1717	37	62	63	64				57	57	0	3	14	11				7	A	6	A	6	A
basic	Democracy Blvd interchange	285.59	3	79	893	662					1635	1635	67	63	64					65	65	1	14	11					9	A	9	A	9	A
merge		938.53	3	63	910	665					1639	1639	61	63	64					63	63	1	15	11					9	A	9	A	9	A
basic		574.54	2	943	667						1610	1610	63	64						64	64	15	11						13	B	13	B	13	B
diverge	Btw Democracy Blvd & I-495	1024.25	3	531	953	662					2146	2146	59	63	64					62	62	9	15	10					12	B	12	B	12	B
basic		561.87	3	527	961	660					2148	2148	63	63	64					63	63	8	15	11					11	B	11	B	11	B
diverge		369.02	4	521	982	706	128				2338	2338	63	63	63	59				62	62	8	16	12	2				9	A	12	B	12	B
basic		1330.91	3	603	955	781					2339	2339	62	62	63					62	62	10	16	13					13	B	13	B	13	B
basic	ML - Btw I-370 & Gude Dr	618.58	1	571							571	571	63							63	63	9							9	A	9	A	9	A
		3066.23	1	570							570		63							63		9							9	A	9	A		
diverge		1040.14	2	567	378						946	946	63	63						63	63	9	6						8	A	8	A	8	A
basic		2258.36	2	532	412						945	944	64	64						64	64	8	7						8	A	8	A	8	A
		175.89	2	508	427						935		64	64						64		8	7						7	A	7	A		
merge		503.67	3	495	399	39					933	933	64	64	61					63	63	8	6	1					5	A	5	A	5	A
basic	ML - Gude Dr interchange	3377.73	2	497	306						803	803	64	64						64	64	8	5						6	A	6	A	6	A
diverge	ML - Btw Gude Dr & Wootton Pkwy	299.5	3	519	495	360					1374	1374	62	56	54					57	57	8	9	7					8	A	8	A	8	A
basic		346.62	2	486	886						1372	1379	63	60						62	63	8	15						11	B	11	B	11	B
		3040.68	2	641	742						1382		63	63						63		10	12						11	B	11	B		
		847.9	2	740	640						1380		63	64						64		12	10						11	B	11	B		
		269.59	2	740	640						1380		63	64						64		12	10						11	B	11	B		
		1819.61	2	737	641						1378		63	64						64		12	10						11	B	11	B		
		3966.45	2	729	649						1378		63	63						63		12	10						11	B	11	B		
merge		503.64	3	681	605	91					1377	1377	63	63	59					62	62	11	10	2					7	A	7	A	7	A
basic	ML - Wootton Pkwy interchange	3248.33	2	653	404						1057	1057	63	64						64	64	10	6						8	A	8	A	8	A
diverge		280.48	3	662	479	150					1291	1291	63	60	53					59	59	11	8	3					7	A	7	A	7	A
basic	ML - Btw Wootton Pkwy & Spur Split	591.81	2	642	661						1303	1304	64	62						63	64	10	11						11	B	11	B	10	A
		615.64	2	640	663						1303		64	64						64		10	11						10	A	10	A		
		1076.03	2	724	578						1303		64	64						64		12	9						10	A	10	A		
		484.57	2	765	538						1303		64	64						64		12	9						10	A	10	A		
		1509.15	2	769	536						1305		64	64						64		12	9						10	A	10	A		
		3570.7	2	786	519						1305		64	64						64		13	8						10	A	10	A		
weave		1150.34	3	246	698	360					1305	1305	64	64	64					64	64	4	11	6					7	A	7	A	7	A
basic	ML - Spur Split through MD 187 interchange	6159.13	1	173							173	173	64							64	64	3							3	A	3	A	3	A
		1685.7	1	172							172		64							64		3							3	A	3	A		
		3677	1	172							172		64							64		3							3	A	3	A		
basic	ML - Spur Split to Westlake Ter/ Fernwood Rd	2180.37	2	446	686						1133	1133	64	63						64	64	7	11						9	A	9	A	9	A
merge		701.68	3	430	662	41					1133	1133	64	64	64					64	64	7	11	1					6	A	6	A	6	A
basic	ML - Westlake Ter/Fernwood Rd interchange	915.83	2	410	596						1006	1006	63	63						63	63	7	10						8	A	8	A	8	A
weave		953.89	3	200	427	656					1283	1284	59	62	63					61	63	3	7	11					7	A	7	A	7	A
		1081.27	3	206	346	732					1284		64	65	63					64		3	5	12					7	A	7	A		
basic	ML - Westlake Ter/Fernwood Rd to I-495	379.36	2	359	733						1092	1092	65	63						64	64	6	12						9	A	9	A	9	A
diverge		655.12	3	361	782	166					1309	1309	65	63	64					64	64	6	13	3					7	A	7	A	7	A
basic		1009.25	2	365	942						1308	1309	65	63						64	64	6	15						10	A	10	A	10	A
		4146.55	2	399	910						1309		65	63						64		6	15						10	A	10	A		

I-270 Northbound - 2027 Preferred Alternative - 7-8 AM

VISSIM Lookup Data				Volume									Speed									Density									
				Volume Per Lane							Across All Lanes	Overall Volume	Speed Per Lane							Across All Lanes	Overall Speed	Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)							Total Volume	Average Volume (veh/hr)	Speed (mph)							Average Speed	Average Speed (mph)	Combined Density (pcphpl)							Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Btw Watkins Mill Rd & MD 117	7478.56	4	647	707	811	556				2722	2722	60	58	62	55				59	59	11	12	13	10				12	B	12	B	12	B
diverge	Btw MD 117 & I-370	1356.89	5	1336	813	759	683	516			4108	4108	54	59	58	62	55			58	58	25	14	13	11	10			15	B	17	B	17	B
basic		842.71	5	1035	1182	770	625	497			4109	4109	57	58	58	62	55			58	58	18	21	13	10	9			14	B	14	B	14	B
merge		530.91	6	6	830	1554	660	550	485		4086	4086	56	58	56	57	62	54		57	57	0	15	28	12	9	9		12	B	14	B	14	B
basic	I-370 interchange	1977.89	4	1319	878	524	486				3207	3207	54	59	63	54				58	58	25	15	8	9				14	B	14	B	14	B
merge		1544.87	4	1001	1123	605	485				3214	3214	55	60	63	55				58	58	19	19	10	9				14	B	13	B	13	B
basic		1320.59	3	976	1047	694					2716	2716	54	60	63					59	59	18	18	11					16	B	16	B	16	B
diverge		478.16	5	27	270	838	1095	522			2752	2752	56	51	55	61	64			57	57	0	5	16	18	8			10	B	10	B	10	B
weave	Btw I-370 & Shady Grove Rd	618.58	6	714	759	518	505	704	459		3659	3672	58	54	55	60	63	64		59	59	13	14	10	9	11	7		11	B	11	B	11	B
		1788.66	6	645	834	605	549	591	452		3677		57	54	55	62	64	64		59		12	16	11	9	9	7		11	B	11	B		
basic		327.4	5	1313	598	541	571	448			3471	3471	53	56	62	64	64			60	60	25	11	9	9	7			12	B	12	B	12	B
merge	Shady Grove Rd interchange	745.87	6	136	1222	583	522	562	447		3473	3473	51	55	56	62	64	64		59	59	3	23	11	9	9	7		10	B	12	B	12	B
basic		858.92	5	1173	529	520	553	448			3223	3220	55	57	62	64	64			60	60	21	9	9	9	7			11	B	11	B	11	B
		394.14	5	1122	563	536	544	447			3212		56	57	62	64	64			60		20	10	9	9	7			11	B	11	B		
diverge		550.98	7	317	478	1022	622	579	557	449	4024	4024	59	59	55	57	62	64	64	60	60	5	8	19	11	9	9	7	10	B	11	B	11	B
basic		427.98	6	791	811	655	690	624	461		4031	4023	57	55	58	62	64	64		60	60	14	15	12	11	10	7		12	B	12	B	11	B
		1160.08	6	700	677	616	737	720	571		4020		57	54	56	62	63	64		60		12	13	11	12	11	9		11	B	11	B		
basic	Btw Shady Grove Rd & MD 28	1897.38	5	1336	687	740	703	569			4036	4041	54	56	62	64	64			60	60	25	12	12	11	9			14	B	14	B	14	B
		2067.15	5	1114	807	819	724	581			4044		55	57	62	64	64			60		21	14	13	12	9			14	B	14	B		
		504.72	5	787	823	926	826	679			4042		54	56	62	63	64			60		15	15	15	13	11			14	B	14	B		
		483.29	5	793	844	924	816	670			4048		54	57	62	63	64			60		15	15	15	13	11			14	B	14	B		
merge		660.76	6	47	778	852	904	804	661		4046	4046	46	54	57	62	63	64		58	58	1	15	15	15	13	11		12	B	10	B	10	B
basic		842.31	5	669	832	896	790	654			3940	3940	54	57	62	63	64			60	60	13	15	15	15	13	10		13	B	13	B	13	B
weave	MD 28 interchange	462.38	6	672	913	876	877	759	638		4734	4734	45	51	56	62	64	64		57	57	15	18	16	14	12	10		14	B	14	B	14	B
basic		537.2	5	1536	876	857	742	635			4645	4645	54	58	63	64	64			60	60	29	15	14	12	10			16	B	16	B	16	B
		532.64	6	188	1537	911	839	730	630		4833		60	54	58	63	64	64		60		3	29	16	14	12	10		14	B	14	B		
		460.47	6	191	1530	940	833	718	624		4836		60	55	58	63	64	64		61		3	28	16	14	11	10		14	B	14	B		
weave	Btw MD 28 & MD 189	495.54	6	195	1501	984	828	706	617		4831	4846	60	55	58	63	64	64		61	60	3	28	17	13	11	10		14	B	14	B	14	B
		964.52	6	224	1439	1065	827	686	612		4853		59	54	58	63	64	64		60		4	27	19	13	11	10		14	B	14	B		
		678.7	6	415	1155	1060	874	735	622		4861		53	55	60	63	64	64		60		8	21	18	14	12	10		14	B	14	B		
		803.94	5	870	958	908	828	741			4304		55	61	63	64	64			61		16	16	15	13	12			14	B	14	B		
basic	MD 189 interchange	152.72	5	871	975	899	818	734			4296	4301	55	61	63	64	64			61	61	16	16	14	13	12			14	B	14	B	14	B
		222.5	5	871	984	898	812	734			4300		55	61	63	64	64			61		16	17	14	13	12			14	B	14	B		
		154.96	5	866	996	893	809	733			4297		55	61	63	64	64			61		16	17	14	13	12			14	B	14	B		
		193.59	5	861	1009	890	807	731			4298		55	61	63	64	64			61		16	17	14	13	12			14	B	14	B		
diverge		404.61	6	333	973	1048	888	799	728		4770	4770	56	55	60	63	64	64		60	60	6	18	18	14	13	12		13	B	14	B	14	B
basic	Btw MD 189 & Montrose Rd	2720.43	5	1286	1118	854	793	738			4788	4795	55	61	64	64	64			61	61	24	19	14	13	12			16	B	16	B	16	B
		530.19	5	1352	1185	774	759	730			4800		56	61	64	64	64			62		25	20	12	12	12			16	B	16	B		
		1253.48	5	1381	1241	728	737	718			4806		56	61	63	64	64			61		25	21	12	12	11			16	B	16	B		
merge		514.82	6	231	1266	1185	603	752	756		4793	4793	46	55	62	64	64	64		59	59	5	23	20	9	12	12		14	B	16	B	16	B
basic	Montrose Rd interchange	232.03	5	921	1015	559	758	784			4037	4031	61	63	65	64	64			63	63	15	16	9	9	12	13		13	B	13	B	13	B
		654.22	5	945	1007	543	751	783			4029		61	63	65	64	64			63		16	16	9	12	13			13	B	13	B		
weave		597.4	6	150	1001	973	506	745	781		4155	4155	50	60	63	65	64	64		61	61	3	17	16	8	12	13		11	B	11	B	11	B
basic		829.96	5	1046	881	491	743	780			3941	3941	63	63	65	64	63			64	64	17	14	8	12	12			13	B	13	B	13	B
		352.69	6	959	1076	891	478	738	776		4919		62	62	63	65	64	64		63		16	18	14	8	12	12		13	B	13	B		
		937.22	6	952	1109	890	466	739	776		4932		63	63	64	65	64	64		64		15	18	14	7	12	12		13	B	13	B		
weave	Btw Montrose Rd & Spur Split	293.96	6	937	1127	899	462	740	780		4945	4953	63	63	64	65	64	64		64	64	15	18	14	7	12	12		13	B	13	B	13	B
		443.89	6	920	1140	907	457	741	781		4946		63	63	64	65	64	64		64		15	18	14	7	12	12		13	B	13	B		
		2310.26	6	831	1125	937	462	784	815		4954		63	63	63	65	64	64		64		13	18	15	7	13	13		13	B	13	B		
		1029.35	6	636	820	1016	542	993	959		4967		64	64	63	65	63	64		64		10	13	16	8	16	15		13	B	13	B		
		1315.82	6	406	808	1130	501	1094	1030		4970		65	64	63	65	63	63		64		6	13	18	8	18	16		13	B	13	B		
basic	Btw Spur Split & MD 187	795.32	3	399	814	1184					2397	2391	65	64	63					64	64	6	13	19					13	B	13	B	13	B
		797.42	3	381	813	1183					2377		65	64	63					64		6	13	19					13	B	13	B		
		747.35	3	366	828	1205					2399		64	63	63					64		6	13	19					13	B	13	B		
merge		532.07	4	11	357	836	1196				2400	2400	53	59	63	63				59	59	0	6	14	19				10	B	10	B	10	B
basic	MD 187 interchange	314.19	2	796	1191						1986	1986	64	63						64	64	13	19						16	B	16	B	16	B
		1549.95	2	777	1209						1985		64	63						64		12	19						16	B	16	B		
diverge		283.71	3	341	932	1257					2530	2530	53	59	63					58	58	7	16	20					14	B	14	B	14	B
basic		1094.07	2	1318	1211						2529	2529	62	63						63	63	21	19						20	C	20	C	20	C
diverge		738.75	3	491	1427	1234					3151	3151	63	63	63					63	63	8	23	20					17	B	17	B	17	B
basic		3593.39	2	1842	1318						3160	3160	62	63						63	63	30	21						26	D	26	D	26	D
diverge		643.51	3	1700	1462	235					3397	3397	62	63	63					63	63	28	24	4					18	B	18	B	18	B
basic	Btw MD 187 & I-495	1124.5	3	1535	1576	289					3400	3400	62	62	64					63	63	25	26	5					19	C	19	C	19	C
merge		428.95	4	193	1537	1509	166				3405	3405	48	61	63	66				59	59	4	26	24	3				14	B	18	B	18	B
basic		385.66	3	1414	1322	85					2821	2821	63	63	64					63	63	23	21	1					15	B	15	B	15	B
basic		499.68	2	1422	1403						2825	2825	59	58						59	59	25	24						24	C	24	C	24	C
basic		2096.49	3	432	1100	1045					2577	2577	65	63	63					64	64	7	18	17					14	B	14	B	14	B
merge	Btw Spur Split & Democracy Blvd	900.76	4	365	1104	1005	102				2576	2576	64	63	63	56				61	61	6	18	16	2				10	B	12	B	12	B
basic		180.91	3	334	966	860					2159	2159	65	63	64					64	64	5	15	14					11	B	11	B	11	B
merge		1210.89	4	18	315	970	856				2159	2159	38	60	63	64				56	56	0	5	16	14				9	A	7	A	7	A
basic		285.59	3	171	944	845					1961	1961	66	63	64					64	64	3	15	13					10	A	10	A	10	A
merge	Democracy Blvd interchange	938.53	3	148	966	850					1964	1964	58	63	64					62	62	3	16	14					11	B	11	B	11	B
basic		574.54	2	1014	845						1859	1859	63	63						63	63	16	14						15	B	15	B	15	B
diverge		1024.25	3	910	1035	843					2788	2788	59	63	63					62	62	16	17	14					15	B	15	B	15	B
basic	Btw Democracy Blvd & I-495	561.87	3	896	1061	836					2793	2793	63	63	64					63	63	15	17	13					15	B	15	B	15	B
diverge		369.02	4	880	1091	884	134				2989	2989	62	62	62	59				62	62	14	18	14	2				12	B	16	B	16	B
basic		1330.91	3	841	1127	1030					2997	2997	61	61	62					62	62	14	19	17					17	B	17	B	17	B
basic		618.58	1	500							500	500	64							64	64	8							8	A	8	A	8	A
		3066.23	1	500							500		64							64		8							8	A	8	A		
basic	ML - Btw I-370 & Gude Dr	1040.14	2	497	399						896	895	64	64						64	64	8	6						7	A	7	A	7	A
		2258.36	2	487	409						896		64	64						64		8	7						7	A	7	A		
		175.89	2	476	411						887		64	64						64		8	7						7	A	7	A		
merge		503.67	3	465	377	43					885	885	64	64	62					63	63	7	6	1					5	A	5	A	5	A
basic	ML - Gude Dr interchange	3377.73	2	469	274						743	743	64	64						64	64	7	4						6	A	6	A	6	A
diverge		299.5	3	496	468	378					1342	1342	62	54	54					57	57	8	9	7					8	A	8	A	8	A
basic	ML - Btw Gude Dr & Wootton Pkwy	346.62	2	464	874						1339	1348	63	60						62	63	7	15						11	B	11	B	11	B
		3040.68	2	624	723						1347		64	63						63		10	12						11	B	11	B		
		847.9	2	724	622						1345		63	64						64		12	10						11	B	11	B		
		269.59	2	725	622						1347		63	64						64		12	10						11	B	11	B		
		1819.61	2	726	622						1348		63	64						64		12	10						11	B	11	B		
		3966.45	2	719	631						1350		63	64						63		11	10						11	B	11	B		
merge		503.64	3	681	591	79					1350	1350	63	63	60					62	62	11	10	1					7	A	7	A	7	A
basic	ML - Wootton Pkwy interchange	3248.33	2	659	419						1077	1077	64	64						64	64	11	7						9	A	9	A	9	A
diverge		280.48	3	674	521	209					1403	1403	63	58	53					58	58	11	9	4					8	A	8	A	8	A
basic	ML - Btw Wootton Pkwy & Spur Split	591.81	2	648	771						1419	1424	64	62						63	64	10	13						12	B	12	B	11	B
		615.64	2	643	777						1420		64	63						63		10	12						11	B	11	B		
		1076.03	2	757	665						1422		64	64						64		12	11						11	B	11	B		
		484.57	2	810	612						1421		64	64						64		13	10						11	B	11	B		
		1509.15	2	811	612						1424		64	64						64		13	10						11	B	11	B		
		3570.7	2	829	598						1427		64	64						64		13	10						11	B	11	B		
weave		1150.34	3	272	727	428					1427	1427	64	64	64					64	64	4	12	7					8	A	8	A	8	A
basic	ML - Spur Split through MD 187 interchange	6159.13	1	220							220	221	64							64	64	3							3	A	3	A	4	A
		1685.7	1	221							221		64							64		4							4	A	4	A		
		3677	1	223							223		64							64		4							4	A	4	A		
basic	ML - Spur Split to Westlake Ter/ Fernwood Rd	2180.37	2	491	719						1210	1209	64	63						64	64	8	11						10	A	10	A	10	A
merge		701.68	3	471	689	49					1209		64	64	63					64		7	11	1					6	A	6	A	6	A
basic	ML - Westlake Ter/Fernwood Rd interchange	915.83	2	443	614						1057	1480	62	63						63	63	7	10						9	A	9	A	9	A
weave		953.89	3	266	513	700					1479		54	60	62					59	62	5	9	11					8	A	8	A	8	A
		1081.27	3	224	452	804					1480		64	65	63					64		4	7	13					8	A	8	A		
basic	ML - Westlake Ter/Fernwood Rd to I-495	379.36	2	474	805						1279	1279	64	63						64	64	7	13						10	A	10	A	10	A
diverge		655.12	3	476	870	214					1561	1561	64	63	63					63	63	8	14	3					8	A	8	A	8	A
basic		1009.25	2	481	1081						1561	1566	65	63						64	64	8	17						13	B	13	B	13	B
		4146.55	2	527	1040						1567		64	63						64		8	17						13	B	13	B		

I-270 Northbound - 2027 Preferred Alternative - 8-9 AM

VISSIM Lookup Data				Volume									Speed									Density									
				Volume Per Lane							Across All Lanes	Overall Volume	Speed Per Lane							Across All Lanes	Overall Speed	Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)							Total Volume	Average Volume (veh/hr)	Speed (mph)							Average Speed	Average Speed (mph)	Combined Density (pcphpl)							Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Btw Watkins Mill Rd & MD 117	7478.56	4	739	811	1006	782				3338	3338	60	57	61	55				58	58	13	14	17	14				15	B	15	B	15	B
diverge	Btw MD 117 & I-370	1356.89	5	1653	913	880	917	726			5088	5088	51	57	57	61	55			56	56	33	16	16	15	14			19	B	22	C	22	C
basic		842.71	5	1291	1352	898	850	706			5096	5096	56	57	57	62	54			57	57	23	24	16	14	13			18	C	18	C	18	C
merge		530.91	6	9	1020	1746	827	785	692		5078	5078	55	57	55	56	62	54		56	56	0	18	33	15	13	13		15	B	16	B	16	B
basic	I-370 interchange	1977.89	4	1630	1094	765	692				4181	4181	53	57	62	54				57	57	31	19	13	13				19	C	19	C	19	C
merge		1544.87	4	1229	1368	901	693				4191	4191	54	58	62	54				57	57	23	24	15	13				19	B	17	B	17	B
basic		1320.59	3	1165	1269	1046					3480	3480	53	58	62					58	58	22	22	17					20	C	20	C	20	C
diverge		478.16	5	169	422	1037	1307	811			3747	3747	54	48	53	60	63			55	55	3	9	20	22	13			13	B	14	B	14	B
weave	Btw I-370 & Shady Grove Rd	618.58	6	895	1015	812	607	868	726		4924	4939	57	54	55	59	63	64		58	59	16	19	15	10	14	12		14	B	14	B	14	B
		1788.66	6	811	1099	919	639	768	708		4945		56	54	55	60	63	64		59		15	21	17	11	12	11		14	B	14	B		
basic		327.4	5	1620	922	622	741	694			4599	4599	52	55	60	63	64			59	59	32	17	10	12	11			16	B	16	B	16	B
merge	Shady Grove Rd interchange	745.87	6	193	1500	894	589	728	689		4592	4592	50	54	56	61	63	64		58	58	4	28	16	10	12	11		14	B	16	B	16	B
basic		858.92	5	1420	829	593	721	687			4251	4246	55	56	61	63	64			60	60	26	15	10	12	11			15	B	15	B	15	B
		394.14	5	1336	863	631	722	685			4236		55	56	60	63	64			60		25	16	11	12	11			15	B	15	B		
diverge		550.98	7	495	765	1193	894	717	767	696	5526	5526	58	58	55	56	61	63	64	59	59	9	13	22	16	12	12	11	14	B	15	B	15	B
basic		427.98	6	1249	925	864	847	901	752		5538	5528	56	55	57	61	63	64		59	59	23	17	15	14	15	12		16	B	16	B	16	B
		1160.08	6	1095	797	831	851	1029	922		5524		56	55	55	60	63	63		59		20	15	15	14	17	15		16	B	16	B		
basic	Btw Shady Grove Rd & MD 28	1897.38	5	1794	968	869	1007	913			5552	5566	53	55	60	63	63			59	59	34	18	15	16	15			19	C	19	C	19	C
		2067.15	5	1445	1098	1029	1062	936			5571		54	56	60	63	63			59	59	27	20	17	17	15			19	C	19	C		
		504.72	5	973	1079	1172	1251	1103			5577		54	55	60	63	63			59		18	20	20	20	18			19	C	19	C		
		483.29	5	973	1101	1186	1232	1091			5584		54	55	60	63	63			59		18	20	20	20	18			19	C	19	C		
merge		660.76	6	70	942	1102	1175	1215	1073		5577	5577	45	53	55	61	63	63		57	57	2	18	20	20	20	17		16	B	13	B	13	B
basic		842.31	5	783	1052	1202	1198	1048			5282	5282	54	55	60	62	63			59	59	15	19	20	20	17			18	C	18	C	18	C
weave	MD 28 interchange	462.38	6	928	1105	1132	1212	1155	1001		6532	6532	38	47	53	60	62	63		54	54	25	24	22	21	19	16		21	C	21	C	21	C
basic		537.2	5	1954	1146	1197	1132	985			6414	6414	53	56	61	63	63			59	59	38	21	20	18	16			22	C	22	C	22	C
		532.64	6	330	1951	1181	1189	1114	973		6738		59	53	56	61	63	63		59		6	37	21	20	18	16		20	C	20	C		
		460.47	6	337	1934	1226	1186	1094	961		6738		59	53	57	61	63	63		60		6	37	22	20	18	15		20	C	20	C		
weave	Btw MD 28 & MD 189	495.54	6	347	1907	1268	1184	1072	944		6723	6745	59	53	57	61	63	63		59	59	6	37	23	20	17	15		20	C	20	C	20	C
		964.52	6	393	1832	1358	1206	1034	930		6753		58	52	57	61	63	64		59		7	35	24	20	17	15		20	C	20	C		
		678.7	6	625	1465	1340	1278	1105	948		6761		52	54	58	62	63	63		59		12	28	23	21	18	15		20	C	20	C		
		803.94	5	1187	1136	1360	1245	1109			6036		55	59	62	63	63			60		22	20	22	20	18			20	C	20	C		
basic	MD 189 interchange	152.72	5	1179	1161	1356	1239	1093			6027	6034	55	59	62	63	63			60	60	22	20	22	20	18			20	C	20	C	20	C
		222.5	5	1172	1177	1357	1236	1091			6033		55	59	62	63	63			60		22	20	22	20	18			20	C	20	C		
		154.96	5	1158	1193	1366	1227	1087			6031		55	59	62	63	63			60		21	21	22	20	18			20	C	20	C		
		193.59	5	1141	1209	1379	1223	1082			6034		55	59	62	63	63			60		21	21	23	20	17			20	C	20	C		
diverge		404.61	6	500	1272	1294	1390	1214	1070		6739	6739	55	54	58	62	63	63		59	59	9	24	23	23	20	17		19	B	19	B	19	B
basic	Btw MD 189 & Montrose Rd	2720.43	5	1684	1424	1399	1196	1063			6767	6776	54	59	62	63	63			60	60	31	25	23	19	17			23	C	23	C	23	C
		530.19	5	1724	1558	1346	1133	1021			6782		54	59	62	63	63			60		32	27	22	18	16			23	C	23	C		
		1253.48	5	1732	1688	1312	1084	975			6791		53	58	61	62	62			59		33	30	22	18	16			24	C	24	C		
merge		514.82	6	391	1581	1746	1090	1017	950		6776	6776	32	48	59	62	63	63		55	55	13	33	30	18	16	15		21	C	25	C	25	C
basic	Montrose Rd interchange	232.03	5	1209	1499	997	1020	972			5696	5689	59	62	64	64	63			62	62	21	24	16	16	16			19	C	19	C	19	C
		654.22	5	1246	1501	969	1006	964			5686		59	62	64	63	63			62		21	25	15	16	16			19	C	19	C		
weave		597.4	6	274	1329	1501	874	986	957		5921	5921	48	59	62	64	64	63		60	60	6	23	24	14	16	15		16	B	16	B	16	B
basic		829.96	5	1497	1324	837	978	957			5593	5593	63	63	64	63	63			63	63	24	21	13	16	15			18	C	18	C	18	C
		352.69	6	1206	1540	1338	828	962	950		6823		61	61	62	64	64	63		62		20	26	22	13	15	15		19	B	19	B		
		937.22	6	1197	1584	1352	806	951	950		6838		63	63	63	65	64	63		63		19	26	22	13	15	15		18	B	18	B		
weave	Btw Montrose Rd & Spur Split	293.96	6	1177	1606	1371	801	947	953		6855	6859	63	63	63	65	64	63		63	63	19	26	22	13	15	15		18	B	18	B	18	B
		443.89	6	1152	1621	1386	797	942	951		6850		63	63	63	65	64	63		63		19	26	22	13	15	15		18	B	18	B		
		2310.26	6	1113	1626	1420	744	972	984		6859		63	62	63	65	64	64		63		18	27	23	12	16	16		18	B	18	B		
		1029.35	6	1010	1222	1474	796	1208	1159		6868		64	63	63	65	63	63		64		16	20	24	13	19	19		18	B	18	B		
		1315.82	6	701	1196	1667	733	1334	1246		6877		64	63	63	65	63	63		64		11	19	27	12	21	20		18	B	18	B		
		795.32	3	683	1211	1753					3647		64	63	63					63		11	19	28					20	C	20	C		
basic	Btw Spur Split & MD 187	797.42	3	656	1209	1757					3623	3642	64	63	63					63	63	10	19	28					19	C	19	C	20	C
		747.35	3	632	1232	1791					3656		62	63	63					63		10	20	29					20	C	20	C		
merge		532.07	4	30	595	1250	1784				3658	3658	46	54	61	63				56	56	1	11	21	29				15	B	15	B	15	B
basic	MD 187 interchange	314.19	2	1194	1771						2966	2963	63	63						63	63	19	29						24	C	24	C	24	C
		1549.95	2	1163	1800						2963		63	63						63		19	29						24	C	24	C		
diverge		283.71	3	467	1328	1911					3706	3706	52	57	62					57	57	9	24	31					21	C	21	C	21	C
basic		1094.07	2	1855	1849						3703	3703	61	62						61	61	31	30						31	D	31	D	31	D
diverge		738.75	3	406	1930	1877					4213	4213	63	60	61					61	61	7	32	31					23	C	23	C	23	C
basic		3593.39	2	2292	1933						4226	4226	59	60						60	60	40	32						36	E	36	E	36	E
diverge		643.51	3	2185	2006	415					4607	4607	54	56	61					57	57	41	37	7					28	D	28	D	28	D
basic	Btw MD 187 & I-495	1124.5	3	1988	2080	535					4602	4602	58	59	62					60	60	35	36	9					27	D	27	D	27	D
merge		428.95	4	299	1943	2062	303				4608	4608	47	59	62	64				58	58	7	33	33	5				20	C	24	C	24	C
basic		385.66	3	1875	1771	151					3797	3797	63	63	63					63	63	30	28	3					20	C	20	C	20	C
basic		499.68	2	1879	1924						3803	3803	58	58						58	58	33	34						33	D	33	D	33	D
basic		2096.49	3	630	1344	1264					3239	3239	64	63	63					63	63	10	22	20					17	B	17	B	17	B
merge	Btw Spur Split & Democracy Blvd	900.76	4	542	1366	1231	101				3241	3241	64	63	63	55				61	61	9	22	20	2				13	B	15	B	15	B
basic		180.91	3	507	1198	1182					2887	2887	64	63	63					64	64	8	19	19					15	B	15	B	15	B
merge		1210.89	4	31	478	1203	1176				2889	2889	38	60	63	63				56	56	1	8	19	19				12	B	9	A	9	A
basic		285.59	3	277	1154	1152					2583	2583	65	63	63					64	64	4	19	18					14	B	14	B	14	B
merge	Democracy Blvd interchange	938.53	3	239	1187	1165					2591	2591	57	63	63					61	61	4	19	19					14	B	14	B	14	B
basic		574.54	2	1266	1167						2433	2433	62	62						62	62	21	19						20	C	20	C	20	C
diverge		1024.25	3	1075	1300	1156					3530	3530	58	61	62					60	60	19	22	19					20	C	20	C	20	C
basic	Btw Democracy Blvd & I-495	561.87	3	1055	1345	1137					3536	3536	61	61	62					61	61	18	22	19					20	C	20	C	20	C
diverge		369.02	4	1044	1397	1206	224				3871	3871	61	59	59	58				59	59	18	24	21	4	17			17	B	21	C	21	C
basic		1330.91	3	1040	1420	1421					3881	3881	58	58	59					58	58	18	25	25					23	C	23	C	23	C
basic		618.58	1	714							714	715	63							63	63	11							11	B	11	B	11	B
		3066.23	1	715							715		63							63		11							11	B	11	B		
basic	ML - Btw I-370 & Gude Dr	1040.14	2	712	530						1241	1242	63	63						63	63	11	9						10	A	10	A	10	A
		2258.36	2	697	546						1243		63	63						63		11	9						10	A	10	A		
		175.89	2	681	551						1232		63	63						63		11	9						10	A	10	A		
merge		503.67	3	665	517	46					1228	1228	63	63	60					62	62	11	8	1					7	A	7	A	7	A
basic	ML - Gude Dr interchange	3377.73	2	672	418						1090	1090	63	64						64	64	11	7						9	A	9	A	9	A
diverge		299.5	3	718	629	430					1777	1777	62	55	54					57	57	12	12	8					11	B	11	B	11	B
basic	ML - Btw Gude Dr & Wootton Pkwy	346.62	2	676	1097						1772	1788	63	60						61	63	11	19						15	B	15	B	14	B
		3040.68	2	839	947						1786		63	63						63		13	15						14	B	14	B		
		847.9	2	947	840						1787		63	63						63		15	13						14	B	14	B		
		269.59	2	949	842						1791		63	63						63		15	13						14	B	14	B		
		1819.61	2	949	838						1788		63	63						63		15	13						14	B	14	B		
		3966.45	2	946	846						1792		63	63						63		15	14						14	B	14	B		
merge		503.64	3	900	796	99					1795	1795	63	63	58					62	62	14	13	2					10	B	10	B	10	B
basic	ML - Wootton Pkwy interchange	3248.33	2	872	595						1467	1467	63	64						64	64	14	9						12	B	12	B	12	B
diverge		280.48	3	899	726	267					1892	1892	63	58	53					58	58	14	13	5					11	B	11	B	11	B
basic	ML - Btw Wootton Pkwy & Spur Split	591.81	2	842	1071						1913	1914	63	61						62	63	13	18						16	B	16	B	15	B
		615.64	2	834	1079						1914		64	63						63		13	17						15	B	15	B		
		1076.03	2	957	954						1912		63	63						63		15	15						15	B	15	B		
		484.57	2	1012	897						1909		63	63						63		16	14						15	B	15	B		
		1509.15	2	1016	897						1913		63	63						63		16	14						15	B	15	B		
		3570.7	2	1029	887						1916		63	63						63		16	14						15	B	15	B		
weave		1150.34	3	364	889	665					1918	1918	64	64	63					64	64	6	14	11					10	B	10	B	10	B
basic	ML - Spur Split through MD 187 interchange	6159.13	1	365							365	368	64							64	64	6							6	A	6	A	6	A
		1685.7	1	369							369		64							64		6							6	A	6	A		
		3677	1	370							370		64							64		6							6	A	6	A		
basic	ML - Spur Split to Westlake Ter/ Fernwood Rd	2180.37	2	655	900						1555	1555	64	63						64	64	10	14						12	B	12	B	12	B
merge		701.68	3	619	855	82					1556	1556	64	63	63					64	64	10	14	1					8	A	8	A	8	A
basic	ML - Westlake Ter/Fernwood Rd interchange	915.83	2	569	734						1303	1303	62	62						62	62	9	12						11	B	11	B	11	B
weave		953.89	3	300	578	785					1664	1665	54	59	62					58	61	6	10	13					9	A	9	A	9	A
		1081.27	3	349	459	858					1666		64	65	63					64		6	7	14					9	A	9	A		
basic		379.36	2	469	858						1327	1327	64	63						64	64	7	14						11	B	11	B	11	B
diverge	ML - Westlake Ter/Fernwood Rd to I-495	655.12	3	472	913	185					1570	1570	64	63	63					64	64	7	15	3					8	A	8	A	8	A
basic		1009.25	2	476	1095						1570	1568	64	63						64	64	7	18						13	B	13	B	13	B
		4146.55	2	517	1049						1567		64	63						64		8	17						13	B	13	B		

I-270 Northbound - 2027 Preferred Alternative - 9-10 AM

VISSIM Lookup Data				Volume									Speed									Density									
				Volume Per Lane							Across All Lanes	Overall Volume	Speed Per Lane							Across All Lanes	Overall Speed	Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)							Total Volume	Average Volume (veh/hr)	Speed (mph)							Average Speed	Average Speed (mph)	Combined Density (pcphpl)							Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Btw Watkins Mill Rd & MD 117	7478.56	4	773	835	1014	763				3385	3385	60	58	62	55				58	58	13	15	17	14				15	B	15	B	15	B
diverge	Btw MD 117 & I-370	1356.89	5	1501	941	908	895	702			4947	4947	53	59	58	62	55			57	57	29	16	16	15	13			18	B	20	C	20	C
basic		842.71	5	1177	1330	935	827	677			4947	4947	57	57	57	62	54			58	58	21	24	17	14	13			17	B	17	B	17	B
merge		530.91	6	9	981	1703	824	742	662		4921	4921	54	57	55	57	62	54		57	57	0	17	31	15	12	12		15	B	16	B	16	B
basic	I-370 interchange	1977.89	4	1500	1046	711	665				3923	3923	54	58	62	54				57	57	28	18	12	12				18	C	18	C	18	C
merge		1544.87	4	1141	1296	818	673				3928	3928	54	59	62	54				58	58	21	22	13	13				17	B	16	B	16	B
basic		1320.59	3	1101	1196	922					3220	3220	54	59	63					59	59	21	21	15					19	C	19	C	19	C
diverge		478.16	5	237	466	975	1236	700			3615	3615	55	50	54	60	63			56	56	4	10	18	21	11			13	B	13	B	13	B
weave	Btw I-370 & Shady Grove Rd	618.58	6	892	1017	816	599	832	621		4777	4793	57	54	55	60	63	64		59	59	16	19	15	10	13	10		14	B	14	B	14	B
		1788.66	6	807	1098	912	628	743	611		4798		57	55	55	61	63	64		59		15	20	17	11	12	10		14	B	14	B		
basic		327.4	5	1626	937	614	717	601			4495	4495	52	55	61	63	64			59	59	32	17	10	11	10			16	B	16	B	16	B
merge	Shady Grove Rd interchange	745.87	6	184	1498	921	590	701	599		4494	4494	50	54	56	61	63	64		58	58	4	28	17	10	11	10		13	B	16	B	16	B
basic		858.92	5	1433	857	597	695	598			4180	4174	55	57	61	63	64			60	60	26	15	10	11	10			14	B	14	B	14	B
		394.14	5	1355	881	634	696	595			4161		55	57	61	63	64			60		25	16	11	11	9			14	B	14	B		
diverge		550.98	7	486	669	1207	883	741	747	605	5338	5338	58	58	54	56	61	63	64	59	59	8	12	22	16	12	12	10	13	B	15	B	15	B
basic		427.98	6	1145	932	830	871	885	679		5343	5326	57	55	57	62	63	64		60	59	21	17	15	14	14	11		15	B	15	B	15	B
		1160.08	6	1004	787	776	887	1032	835		5320		57	55	56	61	63	64		59		18	15	14	15	17	13		15	B	15	B		
basic	Btw Shady Grove Rd & MD 28	1897.38	5	1702	885	908	1006	820			5321	5321	54	56	61	63	64			60	60	32	16	15	16	13			19	C	19	C	18	C
		2067.15	5	1374	1022	1047	1038	844			5324		54	57	61	63	64			60		26	18	17	17	13			18	C	18	C		
		504.72	5	922	1005	1189	1203	995			5313		54	56	61	63	63			59		17	18	20	19	16			18	C	18	C		
		483.29	5	929	1024	1195	1185	982			5315		54	56	61	63	64			59		17	19	20	19	16			18	C	18	C		
merge		660.76	6	73	906	1022	1180	1161	965		5305	5305	45	54	56	61	63	64		57	57	2	17	19	20	19	15		15	B	12	B	12	B
basic		842.31	5	748	970	1189	1144	946			4997	4997	54	56	61	63	63			60	60	14	17	20	18	15			17	B	17	B	17	B
weave	MD 28 interchange	462.38	6	868	1045	1044	1194	1108	918		6177	6177	43	51	55	61	63	64		56	56	21	21	19	20	18	15		19	B	19	B	19	B
basic		537.2	5	1869	1084	1181	1090	904			6128	6128	53	57	62	63	64			60	60	36	19	19	18	14			21	C	21	C	21	C
		532.64	6	318	1860	1127	1170	1069	890		6435		59	53	57	62	63	63		60		5	35	20	19	17	14		19	B	19	B		
weave	Btw MD 28 & MD 189	460.47	6	325	1848	1170	1167	1044	878		6434	6430	60	54	57	62	63	64		60	60	6	35	21	19	17	14		18	B	18	B	19	B
		495.54	6	331	1820	1218	1162	1018	869		6419		60	54	57	62	63	64		60		6	34	22	19	16	14		18	B	18	B		
		964.52	6	374	1746	1316	1149	991	856		6431		59	53	57	62	63	64		60		6	33	23	19	16	14		19	B	19	B		
		678.7	6	571	1399	1309	1217	1059	875		6430		53	54	59	62	63	64		59		11	26	23	20	17	14		18	B	18	B		
		803.94	5	1136	1156	1295	1185	1023			5795		55	60	62	63	64			61		21	20	21	19	16			19	C	19	C		
basic	MD 189 interchange	152.72	5	1125	1185	1290	1169	1011			5780	5789	56	60	62	63	64			61	61	21	20	21	19	16			19	C	19	C	19	C
		222.5	5	1121	1198	1292	1166	1007			5784		56	60	62	63	64			61		20	20	21	19	16			19	C	19	C		
		154.96	5	1114	1210	1292	1164	1000			5780		55	60	62	63	64			61		20	21	21	19	16			19	C	19	C		
		193.59	5	1098	1230	1298	1162	993			5780		55	59	62	63	64			61		20	21	21	19	16			19	C	19	C		
diverge		404.61	6	458	1228	1299	1304	1155	985		6429	6429	55	54	59	62	63	64		60	60	8	23	22	21	19	16		18	B	18	B	18	B
basic	Btw MD 189 & Montrose Rd	2720.43	5	1608	1412	1292	1139	986			6437	6433	55	60	62	63	64			61	61	30	24	21	18	16			22	C	22	C	22	C
		530.19	5	1655	1535	1214	1076	953			6433		55	60	62	63	64			61		31	26	20	17	15			22	C	22	C		
		1253.48	5	1674	1632	1174	1032	914			6426		54	59	62	63	63			60		32	28	19	17	15			22	C	22	C		
merge		514.82	6	323	1526	1643	980	1006	926		6404	6404	40	52	60	63	63	63		57	57	8	30	28	16	15	15		19	B	22	C	22	C
basic	Montrose Rd interchange	232.03	5	1188	1418	912	1010	951			5479	5467	60	62	64	64	63	63		63	63	20	23	14	16	15			18	C	18	C	18	C
		654.22	5	1220	1422	885	993	942			5463		59	62	64	63	63			63		21	23	14	16	15			18	C	18	C		
weave		597.4	6	209	1287	1407	802	973	939		5618	5618	48	59	62	64	64	63		60	60	5	22	23	13	16	15		15	B	15	B	15	B
basic		829.96	5	1398	1244	777	968	938			5324	5324	63	63	64	63	63			63	63	23	20	12	15	15			17	B	17	B	17	B
		352.69	6	1107	1438	1257	767	955	930		6454		62	61	62	64	63	63		63		18	24	20	12	15	15		17	B	17	B		
weave	Btw Montrose Rd & Spur Split	937.22	6	1097	1472	1268	747	948	930		6462	6461	63	63	63	65	64	64		64	63	18	24	20	12	15	15		17	B	17	B	17	B
		293.96	6	1075	1494	1284	739	946	932		6470		63	63	63	65	64	64		64		17	24	21	12	15	15		17	B	17	B		
		443.89	6	1052	1509	1294	732	945	932		6464		63	63	63	65	64	64		64		17	24	21	11	15	15		17	B	17	B		
		2310.26	6	1028	1491	1321	684	970	967		6461		63	62	63	65	64	64		63		17	24	21	11	15	15		17	B	17	B		
		1029.35	6	922	1179	1333	731	1177	1121		6463		64	63	63	65	63	63		64		15	19	21	11	19	18		17	B	17	B		
		1315.82	6	614	1167	1504	681	1293	1197		6457		65	63	63	65	63	63		64		10	19	24	11	21	19		17	B	17	B		
basic	Btw Spur Split & MD 187	795.32	3	593	1182	1591					3365	3355	65	63	63					64	63	9	19	26					18	C	18	C	18	C
		797.42	3	566	1179	1591					3337		64	63	63					64		9	19	26					18	C	18	C		
		747.35	3	544	1200	1619					3363		63	63	63					63		9	19	26					18	C	18	C		
merge		532.07	4	22	509	1224	1611				3366	3366	47	55	62	63				57	57	0	9	20	26				14	B	14	B	14	B
basic	MD 187 interchange	314.19	2	1189	1605						2793	2790	64	63						63	63	19	26						22	C	22	C	22	C
		1549.95	2	1164	1626						2790		63	63						63		19	26						22	C	22	C		
diverge		283.71	3	306	1286	1686					3278	3278	53	59	63					58	58	6	22	27					18	B	18	B	18	B
basic		1094.07	2	1646	1627						3273	3273	62	63						63	63	27	26						27	D	27	D	27	D
diverge		738.75	3	371	1718	1646					3735	3735	63	62	62					62	62	6	28	27					20	C	20	C	20	C
basic		3593.39	2	2040	1693						3733	3733	62	63						62	62	34	28						31	D	31	D	31	D
diverge		643.51	3	1950	1764	351					4066	4066	61	61	62					61	61	33	29	6					23	C	23	C	23	C
basic	Btw MD 187 & I-495	1124.5	3	1794	1846	423					4063	4063	61	61	64					62	62	30	31	7					22	C	22	C	22	C
merge		428.95	4	221	1792	1816	234				4063	4063	48	60	63	65				59	59	5	30	29	4				17	B	21	C	21	C
basic		385.66	3	1718	1591	120					3429	3429	63	63	63					63	63	28	26	2					18	C	18	C	18	C
basic		499.68	2	1714	1717						3431	3431	59	58						58	58	30	30						30	D	30	D	30	D
basic		2096.49	3	582	1305	1204					3091	3091	64	63	63					64	64	9	21	19					16	B	16	B	16	B
merge	Btw Spur Split & Democracy Blvd	900.76	4	505	1326	1156	100				3087	3087	64	63	63	57				62	62	8	21	19	2				12	B	14	B	14	B
basic		180.91	3	474	1172	1079					2724	2724	64	63	64					64	64	8	19	17					15	B	15	B	15	B
merge		1210.89	4	29	450	1173	1068				2721	2721	38	59	63	63				56	56	1	8	19	17				11	B	9	A	9	A
basic	Democracy Blvd interchange	285.59	3	242	1124	1042					2408	2408	65	63	64					64	64	4	18	17					13	B	13	B	13	B
merge		938.53	3	213	1152	1046					2411	2411	56	63	63					61	61	4	19	17					13	B	13	B	13	B
basic		574.54	2	1203	1037						2240	2240	62	63						63	63	20	17						18	C	18	C	18	C
diverge		1024.25	3	1060	1232	1026					3317	3317	58	61	62					61	61	18	20	17					19	B	19	B	19	B
basic	Btw Democracy Blvd & I-495	561.87	3	1041	1262	1017					3320	3320	62	62	63					62	62	17	21	16					18	C	18	C	18	C
diverge		369.02	4	1021	1297	1059	126				3503	3503	62	61	61	58				60	60	17	22	18	2				15	B	19	B	19	B
basic		1330.91	3	1025	1324	1159					3508	3508	60	61	62					61	61	17	22	19					20	C	20	C	20	C
basic		618.58	1	702							702	701	63							63	63	11							11	B	11	B	11	B
		3066.23	1	701							701		63							63		11							11	B	11	B		
basic	ML - Btw I-370 & Gude Dr	1040.14	2	692	456						1148	1149	63	63						63	63	11	7						9	A	9	A	9	A
		2258.36	2	647	503						1150		63	64						64		10	8						9	A	9	A		
		175.89	2	618	520						1138		63	63						63		10	8						9	A	9	A		
merge		503.67	3	607	485	43					1135	1135	64	64	61					63	63	10	8	1					6	A	6	A	6	A
basic	ML - Gude Dr interchange	3377.73	2	611	384						996	996	64	64						64	64	10	6						8	A	8	A	8	A
diverge		299.5	3	650	587	417					1654	1654	62	55	54					57	57	11	11	8					10	B	10	B	10	B
basic	ML - Btw Gude Dr & Wootton Pkwy	346.62	2	608	1043						1651	1654	63	60						62	63	10	18						14	B	14	B	13	B
		3040.68	2	773	885						1659		63	63						63		12	14						13	B	13	B		
		847.9	2	881	768						1649		63	63						63		14	12						13	B	13	B		
		269.59	2	883	768						1651		63	63						63		14	12						13	B	13	B		
		1819.61	2	884	766						1650		63	63						63		14	12						13	B	13	B		
		3966.45	2	877	777						1654		63	63						63		14	12						13	B	13	B		
merge		503.64	3	831	729	92					1653	1653	63	63	59					62	62	13	12	2					9	A	9	A	9	A
basic	ML - Wootton Pkwy interchange	3248.33	2	801	536						1337	1337	63	64						64	64	13	9						11	B	11	B	11	B
diverge		280.48	3	826	668	272					1766	1766	62	57	53					57	57	13	12	5					10	B	10	B	10	B
basic	ML - Btw Wootton Pkwy & Spur Split	591.81	2	776	1008						1784	1783	63	61						62	63	12	17						15	B	15	B	14	B
		615.64	2	763	1020						1783		64	63						63		12	16						14	B	14	B		
		1076.03	2	896	887						1782		63	63						63		14	14						14	B	14	B		
		484.57	2	957	826						1782		63	64						63		15	13						14	B	14	B		
		1509.15	2	962	822						1784		63	64						64		15	13						14	B	14	B		
		3570.7	2	973	810						1783		63	64						63		16	13						14	B	14	B		
weave		1150.34	3	322	856	601					1780	1780	64	64	63					64	64	5	14	10					9	A	9	A	9	A
basic	ML - Spur Split through MD 187 interchange	6159.13	1	337							337	335	64							64	64	5							5	A	5	A	5	A
		1685.7	1	334							334		64							64		5							5	A	5	A		
		3677	1	333							333		64							64		5							5	A	5	A		
basic	ML - Spur Split to Westlake Ter/ Fernwood Rd	2180.37	2	575	867						1443	1443	64	63						64	64	9	14						11	B	11	B	11	B
merge		701.68	3	538	815	90					1443	1443	64	63	64					64	64	9	13	1					8	A	8	A	8	A
basic	ML - Westlake Ter/Fernwood Rd interchange	915.83	2	494	658						1152	1152	63	63						63	63	8	11						9	A	9	A	9	A
weave		953.89	3	247	536	732					1515	1513	55	60	62					59	62	5	9	12					9	A	9	A	8	A
		1081.27	3	220	479	812					1511		65	64	63					64		3	8	13					8	A	8	A		
basic		379.36	2	503	813						1316	1316	64	63						64	64	8	13						11	B	11	B	11	B
diverge	ML - Westlake Ter/Fernwood Rd to I-495	655.12	3	506	886	251					1643	1643	64	63	63					63	63	8	14	4					9	A	9	A	9	A
basic		1009.25	2	511	1133						1644	1649	64	63						64	64	8	18						13	B	13	B	13	B
		4146.55	2	574	1076						1650		64	63						64		9	17						13	B	13	B		

Arterial Segments - 2027 Preferred Alternative - 6-7 AM

VISSIM Lookup Data				Volume									Speed								Density									
				Volume Per Lane							Across All Lanes	Overall Volume	Speed Per Lane							Across All Lanes	Overall Speed	Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)							Total Volume	Average Volume (veh/hr)	Speed (mph)							Average Speed	Average Speed (mph)	Combined Density (pcphpl)							Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
diverge	MD 117 Eastbound at I-270	495	3	564	754	375					1693	1693	32	32	33					32	32	18	24	12					18	B	18	B	18	B
diverge	I-370 Eastbound at I-270	300	4	614	118	120	71				923	923	51	50	47	50				49	49	12	2	3	1				5	A	2	A	2	A
weave		605	4	560	208	78	49				896	896	48	53	53	53				52	52	12	4	1	1				5	A	5	A	5	A
diverge		600	3	170	30	5					205	205	54	53	54					54	54	3	1	0					1	A	1	A	1	A
merge		375	3	116	280	4					400	400	52	52	42					48	48	2	6	0					3	A	3	A	3	A
weave		921	5	339	860	504	392	72			2167	2167	52	52	53	53	56			53	53	7	17	10	8	1			8	A	8	A	8	A
diverge	I-370 Westbound at I-270	460	4	650	319	1111	1106				3186	3186	52	52	53	53				53	53	13	6	21	21				15	B	13	B	13	B
diverge		1407	3	35	952	1316					2302	2302	54	53	53					53	53	1	18	25					15	B	15	B	15	B
weave		655	4	247	61	93	43				444	444	53	54	51	52				52	52	5	1	2	1				2	A	2	A	2	A
diverge	Shady Grove Rd Eastbound at I-270	248	4	107	250	161	128				646	646	37	37	38	38				37	37	3	7	4	3				4	A	5	A	5	A
diverge		482	4	89	152	213	215				669	669	37	37	37	37				37	37	2	4	6	6				5	A	4	A	4	A
merge		271	4	67	317	219	200				803	803	35	37	38	37				37	37	2	9	6	5				5	A	5	A	5	A
diverge	Shady Grove Rd Westbound at I-270	490	4	364	217	128	103				812	812	17	21	20	20				20	20	22	10	6	5				11	B	13	B	13	B
weave		615	4	482	144	194	210				1029	1029	33	36	35	34				35	35	15	4	6	6				8	A	8	A	8	A
diverge	MD 28 Eastbound at I-270	1745	3	917	372	62					1350	1350	26	27	28					27	27	36	14	2					17	B	17	B	17	B
diverge		581	3	32	421	298					751	751	27	27	27					27	27	1	16	11					10	B	10	B	10	B
diverge	MD 28 Westbound at I-270	320	3	37	98	1					136	136	19	17	16					17	17	2	6	0					3	A	3	A	3	A
		112	3	38	92	7					137	137	25	25	22					24	24	2	4	0					2	A	2	A		
		43	3	51	214	9					274	274	24	20	26					23	23	2	11	0					5	A	5	A		
weave		631	3	178	482	118					778	778	23	22	25					24	24	8	22	5					12	A	12	A	12	A
merge		235	3	418	206	66					690	690	22	25	24					24	24	19	9	3					10	B	10	B	10	B
diverge	MD 189 Eastbound at I-270	271	3	138	111	221					470	470	27	27	26					27	27	5	4	9					6	A	6	A	6	A
diverge		223	3	140	175	122					437	437	22	22	22					22	22	6	8	6					7	A	7	A	7	A
diverge	MD 189 Westbound at I-270	382	3	88	114	183					385	385	27	27	25					26	26	3	4	7					5	A	5	A	5	A
diverge		237	3	49	78	240					367	367	22	22	21					22	22	2	4	12					6	A	6	A	6	A
merge		523	3	48	366	46					460	460	28	27	29					28	28	2	14	2					6	A	6	A	6	A
diverge	Montrose Rd Eastboundat I-270	816	3	80	48	2					130	130	38	38	37					38	38	2	1	0					1	A	1	A	1	A
weave		434	3	198	737	44					979	979	37	37	38					37	37	5	20	1					9	A	9	A	9	A
merge		1393	3	476	634	375					1486	1486	37	37	38					37	37	13	17	10					14	B	14	B	14	B
diverge	Montrose Rd Westbound at I-270	300	3	333	524	455					1312	1312	37	33	33					34	34	9	16	14					13	B	13	B	13	B
weave		490	3	134	732	182					1048	1048	36	35	36					36	36	4	21	5					10	A	10	A	10	A
merge		191	3	68	274	188					529	529	32	36	36					35	35	2	8	5					5	A	5	A	5	A
diverge	MD 187 Northbound at I-270 East Spur	284	6	126	98	57	30	4	0		316	316	7	8	8	8	6	0		6	6	17	13	8	4	1	0		7	A	13	B	13	B
merge		263	5	87	299	116	104	80			687	687	35	37	37	38	38			37	37	3	8	3	3	2			4	A	5	A	5	A
diverge	MD 187 Southbound at I-270 East Spur	302	4	165	236	185	230				815	815	37	38	38	38				38	38	4	6	5	6				6	A	5	A	5	A
diverge		165	5	231	169	179	187	43			809	809	35	37	37	37	38			37	37	7	5	5	5	1			4	A	5	A	5	A
diverge		161	6	238	166	179	147	59	26		816	816	29	35	35	34	37	36		34	34	8	5	5	4	2	1		4	A	6	A	6	A
diverge	Democracy Blvd Eastbound at I-270 West Spur	2296	3	232	66	22					320	320	41	39	39					40	40	6	2	1					3	A	3	A	3	A
diverge		605	3	109	125	111					345	345	31	29	31					30	30	4	4	4					4	A	4	A	4	A
diverge	Democracy Blvd Westbound at I-270 West Spur	857	4	84	41	19	37				180	180	43	44	44	43				43	43	2	1	0	1				1	A	1	A	1	A
merge		2121	4	109	82	57	48				296	296	41	43	43	43				42	42	3	2	1	1				2	A	2	A	2	A
merge	VA 193 Eastbound at I-270 East Spur	299	3	437	620	58					1115	1115	25	32	34					30	30	18	20	2					13	B	13	B	13	B
merge	VA 193 Westbound at I-270 East Spur	452	2	251	163						414	414	30	33						31	31	9	5						7	A	7	A	7	A
merge	G.W. Memorial Pkwy Eastbound at I-495	855	2	1084	950						2034	2034	42	43						43	43	26	23						24	C	24	C	24	C
merge		695	3	1059	1266	1068					3393	3393	45	47	47					46	46	24	27	23					25	C	25	C	25	C
diverge	G.W. Memorial Pkwy Westbound at I-495	3002	2	1726	532						2258	2258	46	48						47	47	38	11						25	C	25	C	25	C
diverge		1285	2	371	316						687	687	46	48						47	47	8	7						7	A	7	A	7	A
diverge		741	2	148	166						315	315	45	44						45	45	3	4						4	A	4	A	4	A
weave	Clara Barton Pkwy Eastbound at I-495	6436	2	140	222						363	363	48	48						48	48	3	5						4	A	4	A	4	A
diverge	Clara Barton Pkwy Westbound at I-495	3047	2	178	5						183	183	48	48						48	48	4	0						2	A	2	A	2	A
merge		3435	2	226	116						342	342	48	48						48	48	5	2						4	A	4	A	4	A
diverge	MD 190 Westbound at I-495	542	3	361	203	279					843	843	42	38	40					40	40	9	5	7					7	A	7	A	7	A
diverge	MD 187 Northbound at I-495	790	3	141	98	172					411	411	33	33	22					29	29	4	3	8					5	A	5	A	5	A
merge		1654	3	211	129	41					381	381	38	38	38					38	38	6	3	1					3	A	3	A	3	A
diverge	MD 187 Southbound at I-495	1642	3	580	393	437					1410	1410	31	30	29					30	30	19	13	15					16	B	16	B	16	B
merge		796	3	591	561	403					1555	1555	36	37	37					37	37	17	15	11					14	B	14	B	14	B
weave	MD 355 Northbound at I-495	1654	3	61	63	234					358	358	36	36	34					35	35	2	2	7					3	A	3	A	3	A
weave		370	4	230	692	61	32				1015	1015	43	43	43	43				43	43	5	16	1	1				6	A	6	A	6	A
diverge	MD 355 Southbound at I-495	204	4	807	475	509	329				2119	2119	42	43	40	38				41	41	19	11	13	9				13	B	11	B	11	B
merge		781	4	970	784	593	517				2864	2864	23	22	22	22				22	22	43	36	27	24				33	D	36	E	36	E

Arterial Segments - 2027 Preferred Alternative - 7-8 AM

VISSIM Lookup Data				Volume									Speed									Density							
				Volume Per Lane							Across All Lanes	Overall Volume	Speed Per Lane							Across All Lanes	Overall Speed	Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)							Total Volume	Average Volume (veh/hr)	Speed (mph)							Average Speed	Average Speed (mph)	Combined Density (pcphpl)							Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
diverge	MD 117 Eastbound at I-270	495	3	686	841	522					2049	2049	31	31	31					31	31	22	28	17					23	C	23	C	23	C
diverge	I-370 Eastbound	300	4	807	446	445	87				1785	1785	49	48	48	48				48	48	17	10	10	2				9	A	7	A	7	A
weave		605	4	561	495	392	370				1818	1818	49	53	53	52				52	52	12	9	8	7				9	A	9	A	9	A
diverge		600	3	853	247	54					1155	1155	47	32	44					41	41	18	8	1					9	A	9	A	9	A
merge		375	3	331	798	16					1146	1146	51	52	42					48	48	7	16	0					8	A	8	A	8	A
weave		921	5	455	1097	787	954	263			3556	3556	52	52	52	52	55			53	53	9	22	15	18	5			14	B	14	B	14	B
diverge	I-370 Westbound at I-270	460	4	1168	562	1221	1202				4154	4154	48	49	53	53				51	51	25	12	24	23				21	C	20	C	20	C
diverge		1407	3	128	1116	1309					2552	2552	54	53	53					53	53	2	21	25					16	B	16	B	16	B
weave		655	4	305	174	297	128				904	904	53	54	52	53				53	53	6	3	6	2				4	A	4	A	4	A
diverge	Shady Grove Rd Eastbound at I-270	248	4	224	446	190	186				1046	1046	36	35	36	36				36	36	6	13	5	5				7	A	8	A	8	A
diverge		482	4	254	177	296	335				1063	1063	35	36	36	36				36	36	7	5	8	10				8	A	7	A	7	A
merge		271	4	85	386	302	306				1079	1079	35	37	37	37				36	36	2	11	8	8				7	A	7	A	7	A
diverge	Shady Grove Rd Westbound at I-270	490	4	356	299	273	272				1200	1200	18	21	20	20				20	20	20	15	14	14				16	B	16	B	16	B
weave		615	4	439	323	393	424				1578	1578	34	33	33	33				33	33	13	10	12	13				12	A	12	A	12	A
diverge	MD 28 Eastbound at I-270	1745	3	1141	672	254					2067	2067	26	26	27					26	26	45	26	10					27	C	27	C	27	C
diverge		581	3	92	594	529					1214	1214	27	26	26					27	27	3	23	20					16	B	16	B	16	B
diverge	MD 28 Westbound at I-270	320	3	172	245	23					440	440	11	11	6					10	10	15	22	4					14	B	14	B	12	B
		112	3	145	214	56					415	415	23	24	22					23	23	6	9	3					6	A	6	A		
		43	3	172	388	63					624	624	24	20	27					24	24	7	20	2					10	B	10	B		
weave		631	3	279	728	293					1301	1301	23	22	25					23	23	12	34	12					19	B	19	B	19	B
merge		235	3	585	386	146					1117	1117	22	24	24					23	23	28	16	6					17	B	17	B	17	B
diverge	MD 189 Eastbound at I-270	271	3	343	296	539					1178	1178	27	25	20					24	24	13	12	27					17	B	17	B	17	B
diverge		223	3	313	306	322					941	941	21	21	20					21	21	15	15	17					16	B	16	B	16	B
diverge	MD 189 Westbound at I-270	382	3	218	389	443					1050	1050	27	25	22					25	25	8	16	20					15	B	15	B	15	B
diverge		237	3	319	224	428					971	971	21	20	18					20	20	15	11	24					17	B	17	B	17	B
merge		523	3	88	630	276					995	995	27	26	27					27	27	3	24	11					13	B	13	B	13	B
diverge	Montrose Rd Eastboundat I-270	816	3	478	343	115					936	936	37	38	38					38	38	13	9	3					8	A	8	A	8	A
weave		434	3	328	693	115					1135	1135	36	37	38					37	37	9	19	3					10	A	10	A	10	A
merge		1393	3	507	586	375					1468	1468	37	37	37					37	37	14	16	10					13	B	13	B	13	B
diverge	Montrose Rd Westbound at I-270	300	3	750	689	674					2114	2114	33	33	33					33	33	23	21	21					22	C	22	C	22	C
weave		490	3	260	948	267					1475	1475	35	34	35					35	35	8	28	8					14	B	14	B	14	B
merge		191	3	50	283	259					592	592	32	36	36					35	35	2	8	7					6	A	6	A	6	A
diverge	MD 187 Northbound at I-270 East Spur	284	6	253	210	213	274	139	23		1113	1113	8	7	7	8	7	3		7	7	32	31	32	35	21	8		26	C	32	D	32	D
merge		263	5	130	477	260	257	254			1378	1378	34	36	37	37	37			36	36	4	13	7	7	7			8	A	8	A	8	A
diverge	MD 187 Southbound at I-270 East Spur	302	4	446	664	602	702				2414	2414	35	34	34	34				34	34	13	20	18	21				18	B	17	B	17	B
diverge		165	5	654	504	552	588	96			2394	2394	29	26	27	28	34			29	29	23	20	21	22	3			18	B	21	C	21	C
diverge		161	6	694	488	527	521	130	47		2408	2408	20	10	11	11	35	33		20	20	36	50	51	49	4	1		32	D	46	F	46	F
diverge	Democracy Blvd Eastbound at I-270 West Spur	2296	3	499	220	182					902	902	38	36	36					37	37	13	6	5					8	A	8	A	8	A
diverge		605	3	265	273	279					817	817	24	23	23					23	23	11	12	13					12	B	12	B	12	B
diverge	Democracy Blvd Westbound at I-270 West Spur	857	4	182	81	48	98				408	408	43	43	43	43				43	43	4	2	1	2				2	A	2	A	2	A
merge		2121	4	99	113	107	92				412	412	41	43	43	43				42	42	2	3	3	2				2	A	3	A	3	A
merge	VA 193 Eastbound at I-270 East Spur	299	3	668	899	155					1721	1721	25	31	33					30	30	27	29	5					20	C	20	C	20	C
merge	VA 193 Westbound at I-270 East Spur	452	2	390	435						825	825	30	32						31	31	13	14						14	B	14	B	14	B
merge	G.W. Memorial Pkwy Eastbound at I-495	855	2	1000	868						1868	1868	42	43						43	43	24	20						22	C	22	C	22	C
merge		695	3	760	1078	968					2806	2806	45	47	47					47	47	17	23	21					20	C	20	C	20	C
diverge	G.W. Memorial Pkwy Westbound at I-495	3002	2	1969	721						2690	2690	34	43						38	38	61	18						39	E	39	E	39	E
diverge		1285	2	394	368						762	762	45	47						46	46	9	8						8	A	8	A	8	A
diverge		741	2	186	177						363	363	45	44						45	45	4	4						4	A	4	A	4	A
weave	Clara Barton Pkwy Eastbound at I-495	6436	2	505	559						1063	1063	48	47						48	48	11	12						11	B	11	B	11	B
diverge	Clara Barton Pkwy Westbound at I-495	3047	2	333	16						350	350	48	48						48	48	7	0						4	A	4	A	4	A
merge		3435	2	260	157						418	418	48	47						48	48	6	3						4	A	4	A	4	A
diverge	MD 190 Westbound at I-495	542	3	640	390	427					1457	1457	41	39	40					40	40	16	10	11					12	B	12	B	12	B
diverge	MD 187 Northbound at I-495	790	3	389	376	372					1137	1137	23	21	14					19	19	18	18	33					23	C	23	C	23	C
merge		1654	3	498	400	94					992	992	37	38	39					38	38	14	11	3					9	A	9	A	9	A
diverge	MD 187 Southbound at I-495	1642	3	980	689	741					2410	2410	27	26	26					26	26	37	27	29					31	D	31	D	31	D
merge		796	3	863	885	617					2365	2365	36	37	37					36	36	25	24	17					22	C	22	C	22	C
weave	MD 355 Northbound at I-495	1654	3	265	325	687					1277	1277	35	35	33					34	34	8	10	21					13	B	13	B	13	B
weave		370	4	248	802	301	221				1572	1572	43	42	43	43				43	43	6	19	7	5				9	A	9	A	9	A
diverge	MD 355 Southbound at I-495	204	4	802	576	630	581				2590	2590	42	42	37	36				39	39	19	14	17	17				17	B	16	B	16	B
merge		781	4	965	765	626	514				2872	2872	23	22	22	22				22	22	43	35	29	24				33	D	36	E	36	E

Arterial Segments - 2027 Preferred Alternative - 8-9 AM

VISSIM Lookup Data				Volume									Speed								Density									
				Volume Per Lane							Across All Lanes	Overall Volume	Speed Per Lane							Across All Lanes	Overall Speed	Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)							Total Volume	Average Volume (veh/hr)	Speed (mph)							Average Speed	Average Speed (mph)	Combined Density (pcphpl)							Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
diverge	MD 117 Eastbound at I-270	495	3	676	811	546					2033	2033	32	31	31					31	31	22	26	18					22	C	22	C	22	C
diverge	I-370 Eastbound	300	4	787	413	397	60				1657	1657	48	47	47	48				48	48	17	9	9	1				9	A	6	A	6	A
weave		605	4	551	472	369	346				1737	1737	49	54	53	53				52	52	11	9	7	7				9	A	9	A	9	A
diverge		600	3	806	233	53					1091	1091	48	34	45					42	42	17	7	1					8	A	8	A	8	A
merge		375	3	305	736	14					1055	1055	51	52	42					48	48	6	14	0					7	A	7	A	7	A
weave		921	5	514	1202	916	914	242			3788	3788	51	52	52	52	55			53	53	10	24	18	18	5			15	B	15	B	15	B
diverge	I-370 Westbound at I-270	460	4	1287	728	1287	1424				4727	4727	33	35	46	50				41	41	48	29	30	30				34	D	36	E	36	E
diverge		1407	3	168	1171	1486					2825	2825	53	52	52					53	53	3	23	29					18	B	18	B	18	B
weave		655	4	566	300	423	184				1474	1474	52	53	51	51				52	52	11	6	8	4				7	A	7	A	7	A
diverge	Shady Grove Rd Eastbound at I-270	248	4	266	578	263	256				1363	1363	35	33	35	35				35	35	8	18	8	7				10	B	11	B	11	B
diverge		482	4	343	242	377	425				1387	1387	34	35	35	35				35	35	10	7	11	12				10	B	9	A	9	A
merge		271	4	84	442	388	391				1305	1305	34	36	37	37				36	36	3	12	11	11				9	A	9	A	9	A
diverge	Shady Grove Rd Westbound at I-270	490	4	426	326	307	298				1357	1357	18	20	20	20				19	19	25	17	16	16				18	B	19	B	19	B
weave		615	4	498	429	518	574				2019	2019	34	31	30	30				31	31	15	14	17	20				17	B	17	B	17	B
diverge	MD 28 Eastbound at I-270	1745	3	1050	692	376					2119	2119	26	26	27					26	26	41	27	14					28	D	28	D	28	D
diverge		581	3	115	642	675					1432	1432	27	26	26					27	27	4	25	26					18	B	18	B	18	B
diverge	MD 28 Westbound at I-270	320	3	242	442	89					772	772	9	10	5					8	8	29	46	18					31	D	31	D	25	C
		112	3	223	373	158					754	754	24	24	23					24	24	10	16	7					11	B	11	B		
		43	3	251	582	172					1005	1005	24	21	27					24	24	11	28	7					15	B	15	B		
weave		631	3	380	996	583					1959	1959	22	21	24					22	22	18	48	25					30	C	30	C	30	C
merge		235	3	837	653	273					1763	1763	21	23	25					23	23	40	29	11					27	C	27	C	27	C
diverge	MD 189 Eastbound at I-270	271	3	379	348	685					1412	1412	27	24	18					23	23	14	15	40					23	C	23	C	23	C
diverge		223	3	344	331	439					1115	1115	21	20	18					20	20	17	17	24					19	B	19	B	19	B
diverge	MD 189 Westbound at I-270	382	3	232	400	469					1102	1102	27	25	22					25	25	9	16	22					16	B	16	B	16	B
diverge		237	3	290	227	476					994	994	22	20	18					20	20	14	12	27					18	B	18	B	18	B
merge		523	3	91	649	254					994	994	27	26	27					27	27	3	25	10					13	B	13	B	13	B
diverge	Montrose Rd Eastboundat I-270	816	3	597	589	274					1460	1460	37	37	38					37	37	17	16	7					13	B	13	B	13	B
weave		434	3	474	908	337					1719	1719	36	36	37					36	36	14	25	9					16	B	16	B	16	B
merge		1393	3	614	790	657					2061	2061	37	36	37					37	37	17	22	18					19	B	19	B	19	B
diverge	Montrose Rd Westbound at I-270	300	3	1053	682	747					2481	2481	29	33	34					32	32	37	21	23					27	C	27	C	27	C
weave		490	3	282	994	365					1641	1641	35	34	35					35	35	8	30	11					16	B	16	B	16	B
merge		191	3	41	378	380					799	799	30	36	37					34	34	1	11	11					8	A	8	A	8	A
diverge	MD 187 Northbound at I-270 East Spur	284	6	339	291	288	341	150	26		1435	1435	7	7	6	7	6	3		6	6	47	45	46	48	23	10		37	E	46	F	46	F
merge		263	5	122	521	350	351	351			1695	1695	34	36	36	37	37			36	36	4	15	10	10	10			10	B	9	A	9	A
diverge	MD 187 Southbound at I-270 East Spur	302	4	473	791	740	859				2861	2861	33	28	27	27				29	29	14	29	28	32				26	C	24	C	24	C
diverge		165	5	687	637	670	708	135			2837	2837	27	16	16	17	32			22	22	26	42	42	42	4			31	D	37	E	37	E
diverge		161	6	730	613	641	633	164	63		2845	2845	18	7	8	8	35	31		18	18	41	84	84	83	5	2		50	F	70	F	70	F
diverge	Democracy Blvd Eastbound at I-270 West Spur	2296	3	679	392	374					1446	1446	35	33	33					33	33	20	12	12					15	B	15	B	15	B
diverge		605	3	468	487	510					1466	1466	22	22	21					22	22	21	23	24					23	C	23	C	23	C
diverge	Democracy Blvd Westbound at I-270 West Spur	857	4	266	290	176	253				985	985	43	43	43	43				43	43	6	7	4	6				6	A	6	A	6	A
merge		2121	4	173	267	249	175				864	864	41	43	43	43				42	42	4	6	6	4				5	A	6	A	6	A
merge	VA 193 Eastbound at I-270 East Spur	299	3	424	605	68					1096	1096	25	32	34					30	30	17	19	2					13	B	13	B	13	B
merge	VA 193 Westbound at I-270 East Spur	452	2	390	396						786	786	30	32						31	31	13	12						13	B	13	B	13	B
merge	G.W. Memorial Pkwy Eastbound at I-495	855	2	791	619						1410	1410	42	44						43	43	19	14						17	B	17	B	17	B
merge		695	3	602	845	736					2183	2183	46	47	48					47	47	13	18	16					16	B	16	B	16	B
diverge	G.W. Memorial Pkwy Westbound at I-495	3002	2	2040	908						2947	2947	39	45						42	42	54	20						37	E	37	E	37	E
diverge		1285	2	376	701						1077	1077	46	47						46	46	8	15						12	B	12	B	12	B
diverge		741	2	453	245						698	698	45	44						44	44	10	6						8	A	8	A	8	A
weave	Clara Barton Pkwy Eastbound at I-495	6436	2	434	508						942	942	48	47						48	48	9	11						10	B	10	B	10	B
diverge	Clara Barton Pkwy Westbound at I-495	3047	2	455	28						483	483	47	48						48	48	10	1						5	A	5	A	5	A
merge		3435	2	115	113						228	228	48	47						48	48	2	2						2	A	2	A	2	A
diverge	MD 190 Westbound at I-495	542	3	854	485	538					1877	1877	40	39	40					39	39	22	13	14					16	B	16	B	16	B
diverge	MD 187 Northbound at I-495	790	3	537	423	337					1297	1297	14	12	8					11	11	53	60	89					67	F	67	F	67	F
merge		1654	3	702	470	137					1309	1309	37	38	39					38	38	19	13	4					12	B	12	B	12	B
diverge	MD 187 Southbound at I-495	1642	3	945	698	794					2437	2437	27	26	26					26	26	36	27	31					31	D	31	D	31	D
merge		796	3	901	911	551					2363	2363	36	37	37					36	36	26	25	15					22	C	22	C	22	C
weave	MD 355 Northbound at I-495	1654	3	326	404	821					1551	1551	35	34	33					34	34	10	12	25					16	B	16	B	16	B
weave		370	4	244	812	333	250				1638	1638	42	42	43	43				43	43	6	19	8	6				10	B	10	B	10	B
diverge	MD 355 Southbound at I-495	204	4	919	720	694	649				2980	2980	42	41	36	35				39	39	22	18	20	19				20	C	19	B	19	B
merge		781	4	1045	874	737	616				3272	3272	22	22	22	22				22	22	48	41	34	29				38	E	41	F	41	F

Arterial Segments - 2027 Preferred Alternative - 9-10 AM

VISSIM Lookup Data				Volume									Speed									Density									
				Volume Per Lane							Across All Lanes	Overall Volume	Speed Per Lane							Across All Lanes	Overall Speed	Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)							Total Volume	Average Volume (veh/hr)	Speed (mph)							Average Speed	Average Speed (mph)	Combined Density (pcphpl)							Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
diverge	MD 117 Eastbound at I-270	495	3	565	721	466					1752	1752	32	32	32					32	32	18	23	15					19	B	19	B	19	B
diverge	I-370 Eastbound	300	4	693	325	325	54				1397	1397	49	48	48	48				48	48	14	7	7	1				7	A	5	A	5	A
weave		605	4	512	435	299	281				1527	1527	49	54	53	53				52	52	11	8	6	5				7	A	7	A	7	A
diverge		600	3	715	187	38					940	940	50	39	48					46	46	14	5	1					7	A	7	A	7	A
merge		375	3	257	618	11					885	885	52	52	42					48	48	5	12	0					6	A	6	A	6	A
weave		921	5	457	1105	845	800	198			3404	3404	52	52	52	52	56			53	53	9	22	17	15	4			13	B	13	B	13	B
diverge	I-370 Westbound at I-270	460	4	1189	616	1214	1200				4219	4219	46	48	52	53				50	50	27	13	24	23				22	C	21	C	21	C
diverge		1407	3	166	1063	1350					2579	2579	54	53	53					53	53	3	20	26					16	B	16	B	16	B
weave		655	4	546	277	386	174				1383	1383	53	53	51	52				52	52	10	5	8	3				7	A	7	A	7	A
diverge	Shady Grove Rd Eastbound at I-270	248	4	276	553	249	240				1319	1319	35	33	35	35				35	35	8	17	7	7				10	B	11	B	11	B
diverge		482	4	315	239	364	410				1328	1328	34	35	35	35				35	35	9	7	10	12				10	B	9	A	9	A
merge		271	4	110	490	383	376				1358	1358	34	36	37	37				36	36	3	14	11	10				10	B	9	A	9	A
diverge	Shady Grove Rd Westbound at I-270	490	4	420	283	236	226				1165	1165	18	21	19	20				19	19	24	14	12	12				15	B	17	B	17	B
weave		615	4	501	347	417	456				1721	1721	34	32	32	31				32	32	15	11	13	15				14	B	14	B	14	B
diverge	MD 28 Eastbound at I-270	1745	3	996	544	228					1768	1768	26	27	27					27	27	39	21	9					23	C	23	C	23	C
diverge		581	3	54	598	552					1203	1203	27	26	26					27	27	2	23	21					15	B	15	B	15	B
diverge	MD 28 Westbound at I-270	320	3	278	616	175					1069	1069	9	10	5					8	8	32	63	34					43	F	43	F	34	D
		112	3	253	526	271					1050	1050	24	25	25					24	24	11	22	11					15	B	15	B		
		43	3	274	756	296					1326	1326	25	22	27					24	24	11	35	11					19	B	19	B		
weave		631	3	443	1013	753					2210	2210	21	20	23					22	22	21	50	32					35	E	35	E	35	E
merge		235	3	875	744	331					1950	1950	21	23	25					23	23	42	32	13					29	D	29	D	29	D
diverge	MD 189 Eastbound at I-270	271	3	291	315	619					1225	1225	27	24	19					23	23	11	13	34					19	B	19	B	19	B
diverge		223	3	332	323	392					1047	1047	21	20	19					20	20	16	16	21					18	B	18	B	18	B
diverge	MD 189 Westbound at I-270	382	3	191	376	385					952	952	27	26	23					25	25	7	15	17					13	B	13	B	13	B
diverge		237	3	326	218	357					901	901	21	21	19					21	21	16	11	19					15	B	15	B	15	B
merge		523	3	81	598	277					956	956	27	26	27					27	27	3	23	10					12	B	12	B	12	B
diverge	Montrose Rd Eastboundat I-270	816	3	543	608	315					1466	1466	37	37	38					37	37	15	17	8					13	B	13	B	13	B
weave		434	3	481	1054	433					1967	1967	36	36	37					36	36	14	30	12					18	B	18	B	18	B
merge		1393	3	586	910	778					2274	2274	38	36	37					37	37	16	25	22					21	C	21	C	21	C
diverge	Montrose Rd Westbound at I-270	300	3	897	734	714					2345	2345	32	34	34					34	34	28	22	21					24	C	24	C	24	C
weave		490	3	230	965	400					1596	1596	35	35	36					35	35	7	28	11					15	B	15	B	15	B
merge		191	3	62	415	408					885	885	31	36	37					35	35	2	12	11					8	A	8	A	8	A
diverge	MD 187 Northbound at I-270 East Spur	284	6	347	317	317	360	141	24		1507	1507	8	7	7	8	7	3		6	6	47	45	47	48	22	8		36	E	46	F	46	F
merge		263	5	113	515	383	372	359			1742	1742	33	35	36	37	37			36	36	3	15	11	10	10			10	B	10	B	10	B
diverge	MD 187 Southbound at I-270 East Spur	302	4	363	671	632	745				2412	2412	36	34	34	33				34	34	10	20	19	23				18	B	17	B	17	B
diverge		165	5	532	540	588	620	118			2398	2398	31	25	25	26	33			28	28	17	23	24	24	4			18	B	21	C	21	C
diverge		161	6	567	532	566	551	155	58		2430	2430	23	10	10	10	35	31		20	20	25	57	57	57	5	2		34	D	46	F	46	F
diverge	Democracy Blvd Eastbound at I-270 West Spur	2296	3	599	316	289					1203	1203	35	33	33					34	34	17	10	9					12	B	12	B	12	B
diverge		605	3	420	401	435					1256	1256	22	21	21					22	22	19	19	21					20	C	20	C	20	C
diverge	Democracy Blvd Westbound at I-270 West Spur	857	4	256	211	128	207				802	802	43	43	43	43				43	43	6	5	3	5				5	A	5	A	5	A
merge		2121	4	229	280	222	153				885	885	41	42	43	43				42	42	6	7	5	4				5	A	6	A	6	A
merge	VA 193 Eastbound at I-270 East Spur	299	3	370	607	71					1048	1048	26	32	34					31	31	15	19	2					12	B	12	B	12	B
merge	VA 193 Westbound at I-270 East Spur	452	2	346	318						664	664	30	33						31	31	12	10						11	B	11	B	11	B
merge	G.W. Memorial Pkwy Eastbound at I-495	855	2	704	556						1260	1260	42	44						43	43	17	13						15	B	15	B	15	B
merge		695	3	584	777	668					2029	2029	45	47	48					47	47	13	17	14					15	B	15	B	15	B
diverge	G.W. Memorial Pkwy Westbound at I-495	3002	2	1855	556						2411	2411	44	48						46	46	43	12						27	C	27	C	27	C
diverge		1285	2	361	322						683	683	46	48						47	47	8	7						7	A	7	A	7	A
diverge		741	2	142	180						322	322	46	44						45	45	3	4						4	A	4	A	4	A
weave	Clara Barton Pkwy Eastbound at I-495	6436	2	170	307						476	476	48	47						48	48	4	7						5	A	5	A	5	A
diverge	Clara Barton Pkwy Westbound at I-495	3047	2	379	21						399	399	48	48						48	48	8	0						4	A	4	A	4	A
merge		3435	2	70	67						137	137	48	48						48	48	2	1						1	A	1	A	1	A
diverge	MD 190 Westbound at I-495	542	3	855	453	546					1855	1855	40	38	40					39	39	22	12	14					16	B	16	B	16	B
diverge	MD 187 Northbound at I-495	790	3	508	413	357					1278	1278	15	13	10					13	13	47	54	75					59	F	59	F	59	F
merge		1654	3	636	481	136					1253	1253	37	38	39					38	38	18	13	4					11	B	11	B	11	B
diverge	MD 187 Southbound at I-495	1642	3	781	525	601					1907	1907	29	28	28					28	28	27	19	22					23	C	23	C	23	C
merge		796	3	629	672	432					1733	1733	36	37	37					37	37	18	18	12					16	B	16	B	16	B
weave	MD 355 Northbound at I-495	1654	3	277	333	697					1307	1307	35	35	33					34	34	8	10	21					13	B	13	B	13	B
weave		370	4	233	772	298	233				1536	1536	43	42	43	43				43	43	6	18	7	6				9	A	9	A	9	A
diverge	MD 355 Southbound at I-495	204	4	891	637	635	486				2649	2649	42	42	38	37				40	40	21	15	17	14				17	B	15	B	15	B
merge		781	4	877	787	667	554				2885	2885	23	23	23	22				23	23	39	35	30	25				32	D	34	D	34	D

I-495 Inner Loop - 2027 Preferred Alternative - 3-4 PM

VISSIM Lookup Data				Volume									Speed									Density									
				Volume Per Lane							Across All Lanes	Overall Volume	Speed Per Lane							Across All Lanes	Overall Speed	Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)							Total Volume	Average Volume (veh/hr)	Speed (mph)							Average Speed	Average Speed (mph)	Combined Density (pcphpl)							Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Btw VA 267 & VA 193	2184	5	203	1283	1074	813	761			4134	4134	59	59	58	59	59			59	59	3	22	19	14	13			14	B	14	B	14	B
diverge		1468	5	242	1346	1020	797	732			4138	4138	59	58	58	59	59			58	58	4	24	18	14	13			14	B	15	B	15	B
basic	VA 193 interchange	2206	4	1297	977	811	746				3830	3830	58	59	59	59				59	59	23	17	14	13				17	B	17	B	17	B
merge	Btw VA 193 & GWMP	354	6	85	661	1468	1295	825	748		5083	5083	36	45	56	58	59	59		52	52	3	15	26	23	14	13		16	B	15	B	15	B
basic		1017	5	126	1616	1641	977	746			5106	5106	49	54	57	59	59			55	55	3	31	29	17	13			18	C	18	C	18	C
diverge		1233	5	77	1500	1625	1195	687			5083	5083	59	54	57	58	59			57	57	1	28	29	21	12			18	B	20	C	20	C
basic	GWMP interchange	386	4	1580	1660	1001	711				4952	4986	54	57	59	59				57	57	30	30	17	12				22	C	22	C	23	C
		965	4	1538	1687	1028	742				4996		53	56	58	59				56		30	31	18	13				23	C	23	C		
		527	4	1730	1401	1068	794				4993		53	56	58	59				57		33	25	19	14				23	C	23	C		
weave	Btw GWMP & Clara Barton Pkwy	366	5	1591	1723	1311	1063	815			6503	6511	51	54	57	59	59			56	56	32	33	23	18	14			24	C	24	C	24	C
		2006	5	769	1797	1779	1295	873			6513		56	52	54	58	59			56		14	35	33	23	15			24	C	24	C		
basic	Clara Barton Pkwy interchange	107	4	1661	1657	1433	962				5712	5713	53	54	58	59				56	56	32	31	25	17				26	D	26	D	26	D
		652	4	1653	1621	1450	989				5713		53	54	58	59				56		32	30	26	17				26	D	26	D		
merge	Btw Clara Barton Pkwy & MD 190	1411	5	46	1604	1693	1509	1058			5909	5909	52	53	54	57	59			55	55	1	31	32	27	18			22	C	21	C	21	C
basic		204	4	1622	1625	1552	1115				5915	5914	53	54	57	59				56	55	31	31	28	19				27	D	27	D	27	D
		504	4	1610	1600	1554	1139				5904		53	54	57	58				56		31	30	28	20				27	D	27	D		
		530	4	1583	1546	1531	1161				5821		53	54	57	58				56		30	29	27	20				27	D	27	D		
		4439	4	1692	1464	1511	1260				5926		53	54	57	58				55		33	28	27	22				27	D	27	D		
diverge		1109	5	224	1460	1376	1483	1349			5892	5892	56	53	54	57	58			55	55	4	28	26	27	24			22	C	19	B	19	B
basic	MD 190 interchange	1071	4	1439	1357	1478	1383				5657	5657	53	54	57	58				55	55	28	26	26	24				26	D	26	D	26	D
merge		1281	5	1422	1336	1452	1365	882			6456	6456	53	53	57	58	54			55	55	27	25	26	24	16			24	C	26	C	26	C
basic		552	5	1423	1336	1443	1384	913			6499	6499	53	53	57	58	55			55	55	27	25	26	24	17			24	C	24	C	24	C
merge	Btw MD 190 & I-270 West Spur	806	6	288	1709	1751	1471	1393	930		7542	7542	50	52	53	56	58	54		54	54	6	33	34	26	24	17		24	C	24	C	24	C
basic		908	5	1451	1856	2005	1537	664			7513	7538	52	52	55	57	55			54	54	28	36	37	27	12			28	D	28	D	28	D
		2009	5	1217	1943	2005	1791	588			7544		53	53	54	55	56			54		23	38	37	33	11			28	D	28	D		
		694	5	1224	1773	2216	1676	666			7554		53	53	53	55	56			54		23	34	42	31	12			28	D	28	D		
weave		2475	5	1449	1726	2183	1321	867			7546	7546	54	54	52	55	56			54	54	28	33	43	24	16			29	D	29	D	29	D
basic	Btw I-270 West Spur & MD 187	1210	3	1533	1547	1332					4413	4413	51	51	52					51	51	31	31	26					29	D	29	D	29	D
merge		2526	4	1548	1698	1665	80				4992	4992	53	54	55	59				55	55	29	32	30	1				23	C	21	C	21	C
basic		2754	3	1644	1647	1682					4973	4967	51	52	53					52	50	33	32	32					32	D	32	D	34	D
		1173	3	1801	1591	1559					4951		47	46	46					46		40	36	35					37	E	37	E		
diverge		305	4	316	1485	1551	1556				4908	4908	51	41	40	42				43	43	6	38	42	41				32	D	29	D	29	D
basic	MD 187 interchange	2021	3	1378	1482	1511					4370	4370	36	35	36					36	36	44	50	50					48	F	48	F	48	F
merge	Btw MD 187 & I-270 East Spur	440	4	137	1477	1460	1479				4553	4553	32	31	28	29				30	30	5	55	62	61				46	F	41	E	41	E
diverge		659	3	1044	1624	1866					4534	4500	30	25	27					27	27	40	72	77					63	F	63	F	62	F
		1113	3	562	1882	2037					4480		29	24	26					26		21	82	81					61	F	61	F		
basic	I-270 East Spur interchange	1519	2	1966	2076						4041	4041	31	33						32	32	68	65						66	F	66	F	66	F
weave		1951	4	1875	1807	1730	1610				7022	7022	25	27	33	34				30	30	81	71	57	51				65	F	65	F	65	F
weave		513	6	237	1766	1812	1947	1729	524		8015	8015	23	21	24	29	29	47		29	29	11	91	80	71	63	11		55	F	55	F	55	F
basic	Btw I-270 East Spur & MD 185	1013	5	1986	1881	2037	1810	304			8017	7972	25	28	30	26	32			28	27	84	70	72	73	10			62	F	62	F	64	F
		1002	5	1977	1933	2001	1830	231			7972		24	27	27	24	31			27		84	75	77	79	8			65	F	65	F		
		522	5	1968	1948	2025	1800	143			7883		24	26	26	23	23			24		85	76	80	81	7			66	F	66	F		
basic		1603	4	1990	1953	2024	1907				7873	7874	25	26	28	26				26	26	82	75	75	75				77	F	77	F	77	F
		252	4	2051	1921	1986	1917				7875		27	25	26	25				26		78	77	78	78				78	F	78	F		
basic	ML - Btw VA 267 & GWMP	2189	2	1168	1163						2331	2328	64	64						64	64	19	19						19	C	19	C	19	C
		1496	2	1167	1162						2329		64	64						64		19	19						19	C	19	C		
		2215	2	1162	1164						2326		64	64						64		19	19						19	C	19	C		
		928	2	1114	1210						2324		63	63						63		18	19						19	C	19	C		
diverge		812	3	1109	1083	131					2323	2323	63	64	63					63	63	18	17	2					12	B	12	B	12	B
basic	ML - GWMP interchange	2564	2	1110	1080						2190	2190	63	63						63	63	18	17						18	C	18	C	18	C
		1301	2	1106	1084						2191		63	63						63		18	17						18	C	18	C		
merge	ML - Btw GWMP & MD 190	1240	3	1259	1362	94					2715	2715	63	62	61					62	62	20	22	2					15	B	15	B	15	B
basic		2780	2	1331	1392						2723	2725	63	63						63	63	21	23						22	C	22	C	22	C
		218	2	1335	1377						2712		63	63						63		21	22						22	C	22	C		
		2291	2	1344	1381						2725		63	63						63		22	22						22	C	22	C		
		266	2	1345	1382						2728		63	63						63		22	22						22	C	22	C		
		2591	2	1306	1421						2727		63	63						63		21	23						22	C	22	C		
diverge		1047	3	1184	1187	341					2711	2711	63	63	64					63	63	19	19	5					15	B	15	B	15	B
basic	ML - MD 190 interchange	934	2	1174	1134						2308	2308	63	63						63	63	19	18						19	C	19	C	19	C
merge		1007	3	1089	1188	1149					3426	3431	63	63	63					63	63	18	19	19					18	B	18	B	18	B
		1051	3	1240	1465	729					3434		63	63	63					63		20	24	12					18	B	18	B		
merge	ML - Btw MD 190 & I-270 West Spur	696	4	1356	1574	657	39				3627	3627	63	62	63	58				62	62	22	26	11	1				15	B	12	B	12	B
basic		225	3	1386	1610	598					3594	3621	63	63	63					63	63	22	26	10					19	C	19	C	19	C
		3622	3	1433	1604	585					3623		63	63	64					63		23	26	9					19	C	19	C		
diverge		498	3	1438	1591	580					3609	3609	63	63	64					63	63	23	26	9					19	B	19	B	19	B
basic	ML - Btw I-270 West Spur & MD 187	2205	1	580							580	580	59							59	59	10							10	A	10	A	10	A
		772	1	580							580		58							58		10							10	A	10	A		

I-495 Inner Loop - 2027 Preferred Alternative - 4-5 PM

VISSIM Lookup Data				Volume								Speed									Density									
				Volume Per Lane						Across All Lanes	Overall Volume	Speed Per Lane							Across All Lanes	Overall Speed	Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)						Total Volume	Average Volume (veh/hr)	Speed (mph)							Average Speed	Average Speed (mph)	Combined Density (pcphpl)							Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Btw VA 267 & VA 193	2184	5	223	1294	1086	833	779		4214	4214	59	59	58	59	59			59	59	4	22	19	14	13			15	B	15	B	15	B
diverge		1468	5	285	1352	1022	809	746		4214	4214	59	58	58	59	59			58	58	5	24	18	14	13			15	B	16	B	16	B
basic	VA 193 interchange	2206	4	1299	976	822	762			3858	3858	58	59	59	59				59	59	23	17	14	13				17	B	17	B	17	B
merge	Btw VA 193 & GWMP	354	6	98	701	1492	1292	831	767	5182	5182	35	43	56	58	59	59		52	52	3	17	27	23	14	13		16	B	16	B	16	B
basic		1017	5	131	1641	1695	983	761		5210	5210	47	54	56	59	59			55	55	3	31	30	17	13			19	C	19	C	19	C
diverge		1233	5	72	1546	1686	1249	633		5187	5187	59	54	56	58	59			57	57	1	29	30	22	11			19	B	21	C	21	C
basic	GWMP interchange	386	4	1723	1727	954	658			5062	5095	54	57	58	59				57	56	32	31	17	11				23	C	23	C	23	C
		965	4	1681	1781	958	685			5105		52	55	58	59				56		33	33	17	12				24	C	24	C		
		527	4	1941	1423	1001	735			5100		53	56	58	59				56		37	26	18	13				23	C	23	C		
weave	Btw GWMP & Clara Barton Pkwy	366	5	1742	1893	1272	1003	753		6663	6675	51	54	56	58	59			56	56	35	36	23	17	13			25	C	25	C	25	C
		2006	5	1093	1854	1700	1218	813		6678		56	52	54	58	59			56		20	36	32	21	14			25	C	25	C		
basic	Clara Barton Pkwy interchange	107	4	1634	1603	1355	906			5497	5498	53	54	57	59				56	56	32	30	24	16				25	C	25	C	25	C
		652	4	1627	1569	1363	938			5498		53	54	57	59				56		31	29	24	16				25	C	25	C		
merge		1411	5	39	1571	1625	1411	1014		5660	5660	52	53	54	57	59			55	55	1	30	31	25	18			21	C	21	C	21	C
basic	Btw Clara Barton Pkwy & MD 190	204	4	1582	1569	1440	1074			5665	5620	53	54	57	59				56	53	30	30	26	19				26	D	26	D	27	D
		504	4	1570	1545	1443	1093			5650		53	54	57	58				56		30	29	26	19				26	D	26	D		
		530	4	1542	1493	1422	1108			5565		53	54	57	58				56		30	28	25	19				26	D	26	D		
		4439	4	1627	1414	1392	1189			5621		50	50	53	54				52		33	29	27	22				28	D	28	D		
diverge		1109	5	181	1389	1306	1321	1253		5450	5450	56	40	40	43	45			45	45	3	38	35	34	30			28	D	26	C	26	C
basic	MD 190 interchange	1071	4	1324	1257	1289	1279			5149	5149	33	34	36	40				36	36	46	42	40	36				41	E	41	E	41	E
merge		1281	5	1256	1198	1213	1235	972		5875	5875	27	28	29	32	32			30	30	55	51	49	44	35			47	F	51	F	51	F
basic		552	5	1212	1164	1164	1231	1019		5790	5790	23	23	24	27	28			25	25	64	59	59	52	42			55	F	55	F	55	F
merge	Btw MD 190 & I-270 West Spur	806	6	360	1433	1500	1159	1226	1047	6726	6726	12	22	23	20	24	26		21	21	34	71	73	67	58	45		58	F	59	F	59	F
basic		908	5	1328	1514	1527	1330	856		6554	6403	23	20	20	23	23			22	20	61	80	82	64	40			66	F	66	F	71	F
		2009	5	1165	1466	1441	1492	826		6390		21	17	16	21	27			20		58	93	96	74	33			71	F	71	F		
		694	5	1150	1282	1487	1407	918		6244		17	14	15	20	28			19		71	95	105	74	34			76	F	76	F		
weave		2475	5	1224	1183	1353	1082	1241		6083	6083	14	11	12	20	38			19	19	93	112	118	56	33			82	F	82	F	82	F
basic	Btw I-270 West Spur & MD 187	1210	3	1220	1100	1040				3359	3359	12	9	9					10	10	108	122	116					115	F	115	F	115	F
merge		2526	4	1196	1144	1150	284			3774	3774	10	9	10	24				13	13	122	134	125	13				98	F	90	F	90	F
basic		2754	3	1211	1161	1211				3583	3547	9	9	9					9	9	134	138	134					135	F	135	F	138	F
		1173	3	1406	1037	1020				3463		11	7	7					8		127	155	154					145	F	145	F		
diverge		305	4	325	1160	947	990			3423	3423	34	9	6	6				14	14	10	137	162	157				116	F	103	F	103	F
basic	MD 187 interchange	2021	3	1150	886	966				3002	3002	8	5	6					6	6	146	169	162					159	F	159	F	159	F
merge	Btw MD 187 & I-270 East Spur	440	4	254	1150	871	959			3233	3233	15	8	5	6				9	9	17	144	173	163				124	F	112	F	112	F
diverge		659	3	1261	942	1049				3253	3245	13	6	7					8	9	102	168	161					144	F	144	F	126	F
		1113	3	772	1093	1375				3241		13	8	10					10		61	147	140					116	F	116	F		
basic	I-270 East Spur interchange	1519	2	1400	1585					2985	2985	12	14						13	13	125	117						121	F	121	F	121	F
weave		1951	4	1298	1463	1675	1723			6159	6159	10	12	17	18				14	14	137	125	103	98				116	F	116	F	116	F
weave		513	6	311	1227	1512	1766	1651	696	7164	7164	17	9	12	16	16	44		19	19	20	138	124	114	109	16		87	F	87	F	87	F
basic	Btw I-270 East Spur & MD 185	1013	5	1593	1677	1757	1593	570		7190	7186	14	16	16	14	28			18	18	115	104	109	116	20			93	F	93	F	93	F
		1002	5	1674	1768	1726	1589	441		7198		15	17	16	14	27			18		113	107	110	118	16			93	F	93	F		
		522	5	1706	1797	1811	1554	289		7157		16	17	17	14	19			17		110	105	110	117	15			91	F	91	F		
basic		1603	4	1756	1798	1825	1771			7150	7146	18	18	19	19				18	18	102	100	97	98				99	F	99	F	99	F
		252	4	1834	1739	1783	1767			7122		19	17	18	18				18		99	103	100	98				100	F	100	F		
basic	ML - Btw VA 267 & GWMP	2189	2	1196	1189					2386	2389	64	64						64	64	19	19						19	C	19	C	19	C
		1496	2	1199	1189					2388		64	64						64		19	19						19	C	19	C		
		2215	2	1195	1195					2391		63	63						63		19	19						19	C	19	C		
		928	2	1162	1232					2394		63	63						63		19	20						19	C	19	C		
diverge		812	3	1153	1123	117				2393	2393	63	64	63					63	63	19	18	2					13	B	13	B	13	B
basic	ML - GWMP interchange	2564	2	1150	1127					2277	2275	63	63						63	63	18	18						18	C	18	C	18	C
		1301	2	1145	1127					2272		63	63						63		18	18						18	C	18	C		
merge		1240	3	1288	1386	92				2767	2767	63	62	61					62	62	21	23	2					15	B	15	B	15	B
basic	ML - Btw GWMP & MD 190	2780	2	1352	1424					2777	2776	63	63						63	63	22	23						22	C	22	C	22	C
		218	2	1353	1408					2762		63	63						63		22	23						22	C	22	C		
		2291	2	1361	1416					2777		63	63						63		22	23						22	C	22	C		
		266	2	1364	1415					2779		63	63						63		22	23						22	C	22	C		
		2591	2	1323	1453					2776		63	63						63		21	23						22	C	22	C		
diverge		1047	3	1209	1210	338				2757	2757	63	63	64					63	63	19	20	5					15	B	15	B	15	B
basic	ML - MD 190 interchange	934	2	1195	1157					2352	2352	63	63						63	63	19	19						19	C	19	C	19	C
merge		1007	3	1123	1218	1174				3515	3517	63	63	63					63	63	18	20	19					19	B	19	B	19	B
		1051	3	1289	1503	726				3518		63	63	63					63		21	24	12					19	B	19	B		
merge	ML - Btw MD 190 & I-270 West Spur	696	4	1434	1640	656	53			3783	3783	63	62	63	57				61	61	23	27	11	1				15	B	13	B	13	B
basic		225	3	1467	1708	574				3748	3775	63	62	63					63	63	24	28	9					20	C	20	C	20	C
		3622	3	1522	1702	552				3777		63	63	64					63		25	28	9					20	C	20	C		
diverge		498	3	1529	1684	546				3759	3759	63	63	64					63	63	25	27	9					20	C	20	C	20	C
basic	ML - Btw I-270 West Spur & MD 187	2205	1	549						549	548	59							59	59	9							9	A	9	A	9	A
		772	1	547						547		58							58		10							10	A	10	A		

I-495 Inner Loop - 2027 Preferred Alternative - 5-6 PM

VISSIM Lookup Data				Volume								Speed								Density									
				Volume Per Lane						Across All Lanes	Overall Volume	Speed Per Lane						Across All Lanes	Overall Speed	Density Per Lane						Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)						Total Volume	Average Volume (veh/hr)	Speed (mph)						Average Speed	Average Speed (mph)	Combined Density (pcphpl)						Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Btw VA 267 & VA 193	2184	5	196	1278	1056	800	750		4080	4080	59	56	55	55	55		56	56	3	23	20	15	14		15	B	15	B	15	B
diverge		1468	5	219	1314	996	781	718		4027	4027	59	52	51	51	51		53	53	4	28	22	18	17		18	B	18	B	18	B
basic	VA 193 interchange	2206	4	1208	908	780	761			3658	3658	32	30	32	35			32	32	45	37	31	27			35	E	35	E	35	E
merge	Btw VA 193 & GWMP	354	6	144	653	1224	1099	779	816	4715	4715	7	14	21	20	18	22	17	17	36	57	69	63	49	43	53	F	54	F	54	F
basic		1017	5	240	1297	1366	887	828		4618	4618	11	18	20	17	19		17	17	29	81	76	60	48		59	F	59	F	59	F
diverge		1233	5	151	1148	1284	1096	757		4435	4435	12	14	16	16	18		15	15	24	91	88	73	46		65	F	69	F	69	F
basic	GWMP interchange	386	4	1249	1275	832	818			4175	4146	14	15	13	19			15	15	98	92	69	50			77	F	77	F	77	F
		965	4	1185	1299	820	852			4156		13	15	14	22			16		100	94	63	48			76	F	76	F		
		527	4	1313	1038	870	884			4105		13	12	15	19			15		110	90	63	56			80	F	80	F		
weave	Btw GWMP & Clara Barton Pkwy	366	5	1258	1235	905	896	873		5168	5076	12	12	11	14	15		13	11	112	115	86	72	68		91	F	91	F	100	F
		2006	5	1025	1117	1044	971	902		5059		14	10	10	10	11		11		79	124	117	100	90		102	F	102	F		
basic	Clara Barton Pkwy interchange	107	4	960	932	1006	954			3851	3810	8	8	9	10			8	8	130	134	115	105			121	F	121	F	125	F
		652	4	962	875	1004	962			3804		7	7	9	9			8		136	140	120	108			126	F	126	F		
merge	Btw Clara Barton Pkwy & MD 190	1411	5	249	671	869	993	994		3776	3776	3	5	6	8	9		6	6	71	157	147	129	116		124	F	125	F	125	F
basic		204	4	788	880	980	1011			3659	3337	6	6	8	9			7	6	151	146	135	121			138	F	138	F	159	F
		504	4	773	857	965	1016			3611		5	6	7	9			7		156	149	138	123			142	F	142	F		
		530	4	734	818	937	1007			3496		5	6	7	8			6		159	151	139	125			144	F	144	F		
		4439	4	645	736	861	1030			3272		4	4	6	8			5		182	172	161	143			164	F	164	F		
diverge		1109	5	106	447	650	781	1060		3045	3045	45	2	4	5	8		13	13	2	203	187	176	151		144	F	131	F	131	F
basic	MD 190 interchange	1071	4	419	624	739	1119			2902	2902	2	3	4	8			4	4	208	192	182	152			184	F	184	F	184	F
merge		1281	5	393	597	601	855	1161		3608	3608	2	3	3	5	9		5	5	211	195	195	170	140		182	F	200	F	200	F
basic		552	5	381	594	565	838	1233		3611	3611	2	3	3	5	9		4	4	215	198	200	175	144		186	F	186	F	186	F
merge	Btw MD 190 & I-270 West Spur	806	6	470	478	675	553	821	1260	4256	4256	3	3	4	3	5	9	4	4	142	192	194	201	176	143	175	F	176	F	176	F
basic		908	5	962	665	536	869	1203		4235	4256	7	4	3	5	10		6	7	140	190	202	172	125		166	F	166	F	158	F
		2009	5	1015	633	503	910	1200		4261		9	3	3	6	14		7		122	193	205	169	96		157	F	157	F		
		694	5	979	637	541	930	1183		4269		8	4	3	7	15		7		134	177	191	152	87		148	F	148	F		
weave		2475	5	898	658	515	733	1449		4252	4252	6	4	3	8	25		9	9	166	191	195	120	62		147	F	147	F	147	F
basic	Btw I-270 West Spur & MD 187	1210	3	903	769	737				2409	2409	6	4	4				5	5	169	184	182				178	F	178	F	178	F
merge		2526	4	916	850	791	391			2949	2949	6	5	5	17			8	8	168	180	172	30			137	F	127	F	127	F
basic		2754	3	960	941	1018				2920	2921	6	6	7				6	6	165	167	159				164	F	164	F	164	F
		1173	3	1178	861	885				2924		8	5	5				6		151	175	171				165	F	165	F		
diverge		305	4	323	929	787	866			2904	2904	34	6	5	5			13	13	10	161	180	172			130	F	117	F	117	F
basic	MD 187 interchange	2021	3	912	748	874				2533	2533	6	4	5				5	5	170	185	172				175	F	175	F	175	F
merge	Btw MD 187 & I-270 East Spur	440	4	330	916	766	886			2899	2899	10	6	4	5			6	6	41	159	184	170			139	F	128	F	128	F
diverge		659	3	1121	829	965				2915	2919	10	5	6				7	8	112	179	168				153	F	153	F	137	F
		1113	3	732	952	1237				2921		11	6	9				9		73	160	150				128	F	128	F		
basic	I-270 East Spur interchange	1519	2	1250	1442					2693	2693	10	12					11	11	138	128					133	F	133	F	133	F
weave		1951	4	1093	1248	1516	1589			5446	5446	7	9	15	16			12	12	153	138	108	103			126	F	126	F	126	F
weave		513	6	277	1032	1290	1657	1496	846	6597	6597	13	7	10	14	13	42	16	16	23	153	135	120	120	20	95	F	95	F	95	F
basic	Btw I-270 East Spur & MD 185	1013	5	1411	1493	1622	1392	722		6640	6639	11	14	14	11	24		15	14	129	113	118	130	32		104	F	104	F	104	F
		1002	5	1516	1620	1560	1372	586		6653		12	14	13	11	22		15		125	116	122	134	28		105	F	105	F		
		522	5	1542	1667	1664	1332	404		6609		13	15	14	11	14		13		122	114	119	129	30		103	F	103	F		
basic		1603	4	1615	1652	1700	1666			6633	6636	15	15	17	16			16	16	113	110	105	104			108	F	108	F	108	F
		252	4	1718	1611	1655	1675			6660		17	15	16	16			16		106	111	108	105			108	F	108	F		
basic	ML - Btw VA 267 & GWMP	2189	2	1167	1171					2338	2337	64	64					64	64	19	19					19	C	19	C	19	C
		1496	2	1164	1175					2339		64	64					64		19	19					19	C	19	C		
		2215	2	1162	1173					2335		64	63					64		19	19					19	C	19	C		
		928	2	1122	1212					2334		63	63					63		18	19					19	C	19	C		
diverge		812	3	1114	1100	122				2335	2335	63	64	63				63	63	18	18	2				12	B	12	B	12	B
basic	ML - GWMP interchange	2564	2	1120	1095					2215	2215	63	63					63	63	18	18					18	C	18	C	18	C
		1301	2	1122	1093					2214		63	63					63		18	18					18	C	18	C		
merge		1240	3	1238	1299	77				2615	2615	63	63	61				62	62	20	21	1				14	B	14	B	14	B
basic	ML - Btw GWMP & MD 190	2780	2	1287	1331					2618	2621	63	63					63	63	21	22					21	C	21	C	21	C
		218	2	1286	1322					2608		63	63					63		21	21					21	C	21	C		
		2291	2	1295	1325					2620		63	63					63		21	21					21	C	21	C		
		266	2	1300	1322					2622		63	63					63		21	21					21	C	21	C		
		2591	2	1254	1371					2625		63	63					63		20	22					21	C	21	C		
diverge		1047	3	1110	1104	401				2615	2615	63	63	64				63	63	18	18	6				14	B	14	B	14	B
basic	ML - MD 190 interchange	934	2	1098	1042					2140	2140	63	63					63	63	18	17					17	B	17	B	17	B
merge		1007	3	1091	1131	1071				3293	3297	63	63	63				63	63	18	18	17				18	B	18	B	18	B
		1051	3	1207	1397	697				3300		63	63	63				63		19	23	11				18	B	18	B		
merge		696	4	1346	1516	697	66			3625	3625	63	62	62	55			61	61	22	25	11	1			15	B	12	B	12	B
basic	ML - Btw MD 190 & I-270 West Spur	225	3	1387	1604	602				3593	3624	63	62	62				62	63	22	26	10				19	C	19	C	20	C
		3622	3	1440	1606	580				3626		63	63	63				63		23	26	9				20	C	20	C		
diverge		498	3	1449	1594	571				3614	3614	63	63	63				63	63	23	26	9				19	B	19	B	19	B
basic	ML - Btw I-270 West Spur & MD 187	2205	1	574						574	575	51						51	49	15						15	B	15	B	17	B
		772	1	576						576		46						46		25						25	C	25	C		

I-495 Inner Loop - 2027 Preferred Alternative - 6-7 PM

VISSIM Lookup Data				Volume								Speed										Density									
				Volume Per Lane						Across All Lanes	Overall Volume	Speed Per Lane							Across All Lanes	Overall Speed	Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)						Total Volume	Average Volume (veh/hr)	Speed (mph)							Average Speed	Average Speed (mph)	Combined Density (pcphpl)							Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Btw VA 267 & VA 193	2184	5	230	848	640	603	651		2973	2973	35	30	29	30	31			31	31	38	79	77	67	60			64	F	64	F	64	F
diverge		1468	5	202	772	629	664	742		3009	3009	30	19	18	20	23			22	22	41	106	97	84	74			80	F	81	F	81	F
basic	VA 193 interchange	2206	4	618	620	752	886			2876	2876	7	8	10	14				10	10	142	120	104	91				114	F	114	F	114	F
merge	Btw VA 193 & GWMP	354	6	347	465	461	762	798	994	3827	3827	2	3	4	8	9	13		7	7	157	180	158	142	122	103		144	F	165	F	165	F
basic		1017	5	513	547	859	892	1109		3919	3919	5	4	7	8	12			8	8	116	174	156	134	112			138	F	138	F	138	F
diverge		1233	5	353	538	827	1084	1205		4006	4006	4	4	7	10	15			8	8	98	181	165	137	94			135	F	145	F	145	F
basic	GWMP interchange	386	4	758	830	972	1304			3864	3928	6	8	10	19				11	13	171	153	122	81				132	F	132	F	115	F
		965	4	771	929	963	1268			3933		7	9	13	25				14		157	138	93	63				113	F	113	F		
		527	4	833	859	993	1280			3966		7	9	16	23				14		158	127	80	69				108	F	108	F		
weave	Btw GWMP & Clara Barton Pkwy	366	5	972	805	813	1038	1238		4865	4952	7	6	9	14	17			11	9	165	162	116	89	84			123	F	123	F	134	F
		2006	5	948	825	862	1092	1241		4968		9	6	7	10	12			9		122	162	149	129	120			136	F	136	F		
basic	Clara Barton Pkwy interchange	107	4	802	809	1092	1217			3920	3938	6	5	8	10				7	7	161	170	147	134				153	F	153	F	158	F
		652	4	892	752	1078	1219			3941		6	5	8	10				7		167	179	151	137				158	F	158	F		
merge		1411	5	432	498	823	1116	1256		4125	4125	5	3	5	8	10			6	6	92	193	178	151	137			150	F	154	F	154	F
basic	Btw Clara Barton Pkwy & MD 190	204	4	787	960	1146	1288			4181	4326	5	6	8	10				7	8	175	164	149	136				156	F	156	F	156	F
		504	4	797	952	1150	1294			4192		5	6	8	10				7		176	166	149	135				156	F	156	F		
		530	4	788	940	1145	1291			4163		5	6	8	11				8		174	163	146	132				154	F	154	F		
		4439	4	839	1005	1171	1353			4368		5	7	8	11				8		176	163	150	134				156	F	156	F		
diverge		1109	5	181	701	977	1168	1457		4483	4483	46	4	6	8	12			15	15	4	185	164	150	127			126	F	118	F	118	F
basic	MD 190 interchange	1071	4	676	957	1146	1569			4348	4348	4	6	8	14				8	8	188	167	153	123				158	F	158	F	158	F
merge		1281	5	639	920	998	1244	1425		5227	5227	4	6	6	9	13			8	8	189	168	162	138	116			155	F	173	F	173	F
basic		552	5	620	945	971	1232	1536		5304	5304	3	6	6	9	13			7	7	193	167	166	143	121			158	F	158	F	158	F
merge	Btw MD 190 & I-270 West Spur	806	6	612	712	1069	946	1215	1590	6144	6144	5	4	7	6	9	14		7	7	138	172	162	168	143	119		150	F	157	F	157	F
basic		908	5	1307	1079	933	1268	1545		6133	6185	12	7	6	9	16			10	11	115	157	170	140	100			136	F	136	F	129	F
		2009	5	1367	1050	910	1340	1527		6193		14	7	6	10	21			12		102	159	171	134	73			128	F	128	F		
		694	5	1346	1039	962	1330	1550		6229		12	7	6	12	23			12		115	147	160	118	68			121	F	121	F		
weave		2475	5	1192	1027	1019	1158	1838		6234	6234	9	7	7	17	35			15	15	142	160	153	74	54			117	F	117	F	117	F
basic	Btw I-270 West Spur & MD 187	1210	3	1195	1118	1187				3500	3500	9	7	9					8	8	144	153	145					147	F	147	F	147	F
merge		2526	4	1244	1223	1246	315			4029	4029	9	8	9	25				13	13	141	150	137	13				110	F	100	F	100	F
basic		2754	3	1311	1344	1403				4058	4067	10	10	11					11	11	137	134	128					133	F	133	F	133	F
		1173	3	1633	1279	1175				4088		14	9	8					11		117	140	146					134	F	134	F		
diverge		305	4	511	1284	1162	1124			4082	4082	36	11	8	8				16	16	14	122	147	148				108	F	94	F	94	F
basic	MD 187 interchange	2021	3	1263	1074	1117				3453	3453	9	7	8					8	8	139	156	150					148	F	148	F	148	F
merge	Btw MD 187 & I-270 East Spur	440	4	286	1249	1065	1125			3724	3724	17	9	7	8				10	10	18	137	160	150				116	F	105	F	105	F
diverge		659	3	1318	1165	1244				3727	3711	14	8	9					10	12	95	153	147					132	F	132	F	115	F
		1113	3	822	1318	1562				3702		16	10	13					13		55	134	127					106	F	106	F		
basic	I-270 East Spur interchange	1519	2	1504	1744					3248	3248	14	17						16	16	117	104						111	F	111	F	111	F
weave		1951	4	1213	1403	1618	1688			5922	5922	9	12	17	20				14	14	144	125	94	89				113	F	113	F	113	F
weave		513	6	188	1118	1367	1776	1627	683	6758	6758	17	8	11	16	15	44		18	18	13	149	127	111	110	16		88	F	88	F	88	F
basic	Btw I-270 East Spur & MD 185	1013	5	1421	1533	1741	1512	562		6769	6744	11	14	16	13	26			16	16	129	108	109	121	22			98	F	98	F	98	F
		1002	5	1519	1653	1654	1486	439		6750		13	15	15	12	24			16		124	111	115	125	18			99	F	99	F		
		522	5	1552	1694	1707	1433	298		6684		13	16	15	12	16			14		120	110	116	122	19			98	F	98	F		
basic		1603	4	1633	1689	1711	1671			6704	6706	15	16	17	17				16	16	112	106	104	103				106	F	106	F	106	F
		252	4	1753	1626	1676	1667			6721		17	15	16	16				16		104	110	107	106				107	F	107	F		
basic	ML - Btw VA 267 & GWMP	2189	2	971	956					1927	1931	64	64						64	64	15	15						15	B	15	B	15	B
		1496	2	972	959					1930		64	64						64		15	15						15	B	15	B		
		2215	2	967	966					1934		64	64						64		15	15						15	B	15	B		
		928	2	926	1009					1935		64	63						64		15	16						15	B	15	B		
diverge		812	3	920	902	113				1935	1935	64	64	63					63	63	15	14	2					10	B	10	B	10	B
basic	ML - GWMP interchange	2564	2	921	895					1815	1815	64	63						64	63	15	14						15	B	15	B	15	B
		1301	2	919	895					1815		63	63						63		15	14						14	B	14	B		
merge		1240	3	1030	1131	67				2228	2228	63	63	60					62	62	17	18	1					12	B	12	B	12	B
basic	ML - Btw GWMP & MD 190	2780	2	1085	1140					2225	2219	63	63						63	63	17	18						18	C	18	C	18	C
		218	2	1083	1124					2207		63	63						63		17	18						18	C	18	C		
		2291	2	1089	1129					2218		63	63						63		17	18						18	C	18	C		
		266	2	1088	1127					2215		63	63						63		17	18						18	C	18	C		
		2591	2	1039	1176					2215		63	63						63		17	19						18	C	18	C		
diverge		1047	3	899	914	387				2200	2200	63	63	64					63	63	14	15	6					12	B	12	B	12	B
basic	ML - MD 190 interchange	934	2	888	854					1742	1742	63	63						63	63	14	14						14	B	14	B	14	B
merge		1007	3	1056	960	886				2903	2903	63	63	63					63	63	17	16	14					16	B	16	B	16	B
		1051	3	1102	1211	589				2903		63	63	63					63		18	20	9					16	B	16	B		
merge	ML - Btw MD 190 & I-270 West Spur	696	4	1197	1304	582	46			3129	3129	63	63	63	57				61	61	19	21	9	1				13	B	10	B	10	B
basic		225	3	1221	1362	519				3101	3121	63	63	63					63	63	20	22	8					17	B	17	B	17	B
		3622	3	1251	1363	509				3123		63	63	64					63		20	22	8					17	B	17	B		
diverge		498	3	1259	1344	505				3107	3107	63	63	64					63	63	20	22	8					17	B	17	B	17	B
basic	ML - Btw I-270 West Spur & MD 187	2205	1	506						506	506	59							59	59	9							9	A	9	A	9	A
		772	1	506						506		58							58		9							9	A	9	A		

I-495 Outer Loop - 2027 Preferred Alternative - 3-4 PM

VISSIM Lookup Data				Volume								Speed								Density									
				Volume Per Lane						Across All Lanes	Overall Volume	Speed Per Lane						Across All Lanes	Overall Speed	Density Per Lane						Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)						Total Volume	Average Volume (veh/hr)	Speed (mph)						Average Speed	Average Speed (mph)	Combined Density (pcphpl)						Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Btw VA 267 & VA 193	613	5	1369	1462	1625	1537	1415		7408	7370	53	53	53	53	53		53	53	26	28	31	29	27		28	D	28	D	28	D
		345	5	1356	1442	1593	1517	1394		7302		52	52	53	53	53		53		27	28	31	29	27		28	D	28	D		
merge		842	6	95	1326	1435	1598	1536	1413	7403	7403	52	53	53	53	54	53	53	53	2	26	28	31	29	27	24	C	18	B	18	B
merge	VA 193 interchange & GWMP interchange	1316	5	971	1312	1614	1544	1408		6850	6850	54	54	53	54	54		54	54	18	25	31	29	27		26	C	25	C	25	C
basic		728	4	1361	1635	1544	1397			5937	5955	53	53	53	53			53	53	26	31	29	27			28	D	28	D	28	D
		755	4	1344	1668	1561	1400			5973		53	53	53	53			53		26	32	30	27			29	D	29	D		
diverge		593	5	597	1414	1719	1563	1384		6676	6676	54	53	53	53	53		53	53	11	27	33	30	26		26	C	24	C	24	C
basic		1851	4	1999	1799	1554	1342			6694	6694	51	52	53	53			52	52	40	35	30	26			33	D	33	D	33	D
diverge		717	5	1279	2152	1799	1420	1252		7902	7902	47	49	52	54	54		51	51	28	45	35	27	24		32	D	36	E	36	E
basic	Btw GWMP & Clara Barton Pkwy	490	5	1544	2109	1701	1306	1232		7893	7910	52	52	53	54	54		53	53	30	42	32	25	23		30	D	30	D	31	D
		2472	5	2147	1724	1433	1337	1272		7914		50	52	54	54	54		53		43	33	27	25	24		31	D	31	D		
merge		459	6	85	1616	1589	1631	1537	1410	7868	7868	36	47	52	54	54	54	49	49	2	35	31	31	29	26	26	C	23	C	23	C
basic	Clara Barton Pkwy interchange	1073	4	2181	1749	1505	1380			6816	6816	47	52	53	53			51	51	47	35	29	26			34	D	34	D	34	D
diverge	Btw Clara Barton Pkwy & MD 190	405	5	41	2124	1755	1525	1379		6824	6824	54	50	53	53	53		53	53	1	43	34	29	26		27	C	26	C	26	C
basic		1881	4	1741	1786	1719	1613			6859	6856	52	53	53	53			53	53	34	34	33	31			33	D	33	D	33	D
		230	4	1726	1797	1722	1615			6859		52	53	53	53			53		33	35	33	31			33	D	33	D		
		2242	4	1754	1788	1713	1595			6850		52	53	53	53			53		34	34	33	31			33	D	33	D		
		457	4	1778	1810	1716	1571			6875		51	52	53	53			52		35	35	33	30			33	D	33	D		
merge		1597	5	160	1724	1813	1640	1534		6870	6870	53	52	52	53	53		53	53	3	34	35	31	29		27	C	24	C	24	C
basic	MD 190 interchange	2456	4	1598	1593	1563	1500			6254	6254	54	53	53	53			53	53	30	30	30	29			30	D	30	D	30	D
diverge		1092	5	162	1633	1594	1541	1461		6391	6391	55	53	53	53	53		53	53	3	31	31	29	28		24	C	22	C	22	C
diverge	Btw MD 190 & I-270 West Spur	138	6	672	166	1664	1570	1537	1441	7049	7105	53	42	50	48	51	52	49	53	13	4	34	33	31	28	24	C	17	B	16	B
		1000	6	572	226	1728	1637	1528	1422	7112		54	55	53	53	53	53	53		11	4	33	31	29	27	23	C	16	B		
basic		490	5	676	1815	1682	1521	1403		7097	7119	54	53	53	53	53		53	53	13	35	32	29	27		27	D	27	D	27	D
		2914	5	724	1692	1723	1537	1446		7123		55	53	53	53	53		53		13	32	33	29	28		27	D	27	D		
weave		620	6	222	1386	1278	1307	1472	1467	7132	7111	54	55	55	53	53	53	54	54	4	25	23	25	28	28	22	C	22	C	22	C
		279	6	965	993	890	1285	1472	1469	7074		55	58	56	53	53	52	54		18	18	16	25	28	29	22	C	22	C		
		239	6	979	1004	792	1360	1487	1476	7099		55	58	56	53	53	53	55		18	18	14	26	29	28	22	C	22	C		
basic	Btw I-270 West Spur & MD 187	2789	3	1400	1530	1466				4397	4397	52	52	52				52	52	27	30	29				29	D	29	D	29	D
diverge		852	4	1378	1579	1465	369			4790	4790	53	53	53	54			53	53	26	30	28	7			23	C	22	C	22	C
basic		4047	3	1426	1599	1780				4805	4801	53	53	52				53	53	27	31	34				31	D	31	D	31	D
		1079	3	1488	1636	1663				4787		52	53	53				52		29	32	32				31	D	31	D		
merge		406	4	201	1373	1587	1620			4781	4781	50	53	53	53			52	52	4	27	30	31			23	C	20	C	20	C
basic	MD 187 interchange	2022	3	1092	1452	1627				4171	4171	54	53	53				53	53	21	28	31				27	D	27	D	27	D
diverge	Btw MD 187 & I-270 East Spur	325	4	237	1197	1476	1642			4553	4553	53	53	53	53			53	53	5	23	28	31			22	C	19	B	19	B
basic		1192	3	1428	1478	1644				4550	4553	53	53	53				53	53	27	28	31				29	D	29	D	29	D
		913	3	1429	1474	1652				4555		53	53	53				53		27	28	32				29	D	29	D		
		494	3	1290	1534	1733				4557		54	53	53				53		25	29	33				29	D	29	D		
merge		910	4	875	1633	1939	98			4546	4546	50	49	48	48			49	49	18	34	41	2			24	C	26	C	26	C
basic	I-270 East Spur interchange	288	3	630	1495	1863				3988	3988	54	53	53				53	53	12	29	36				25	C	25	C	25	C
weave		1593	4	1544	2247	1579	1904			7274	7274	53	53	53	53			53	53	29	43	30	36			35	E	35	E	35	E
diverge	Btw I-270 East Spur & MD 185	402	5	767	1714	2344	1588	1911		8324	8324	52	52	52	53	53		52	52	15	34	46	30	37		32	D	32	D	32	D
basic		1045	4	2437	2378	1597	1923			8336	8319	49	51	53	53			51	43	51	48	31	37			42	E	42	E	52	F
		2087	4	2353	2309	1751	1909			8322		40	41	46	51			45		59	58	39	38			48	F	48	F		
		1257	4	2205	2195	2244	1672			8316		28	33	41	48			37		82	68	56	36			61	F	61	F		
		526	4	2035	2240	2148	1854			8277		28	34	40	45			37		78	70	58	43			62	F	62	F		
basic	ML - Btw VA 267 & GWMP	873	2	763	772					1535	1534	64	63					64	63	12	12					12	B	12	B	12	B
		2286	2	765	771					1536		64	63					63		12	12					12	B	12	B		
		787	2	754	774					1528		63	63					63		12	13					12	B	12	B		
		954	2	752	778					1530		62	62					62		12	13					13	B	13	B		
merge		303	3	499	810	215				1523	1523	63	58	47				56	56	8	14	5				9	A	9	A	9	A
basic	ML - GWMP interchange to MD 190 interchange	2900	2	423	547					971	971	64	64					64	64	7	9					8	A	8	A	8	A
diverge		694	3	433	962	579				1974	1974	64	63	64				64	64	7	15	9				11	B	11	B	11	B
basic		603	2	1373	607					1980	1990	62	64					63	63	22	10					16	B	16	B	16	B
		1042	2	1362	621					1983		62	64					63		22	10					16	B	16	B		
		3677	2	1009	981					1990		63	63					63		16	16					16	B	16	B		
		510	2	1009	982					1991		63	63					63		16	16					16	B	16	B		
		2288	2	1008	985					1993		63	63					63		16	16					16	B	16	B		
		1730	2	1009	983					1991		63	63					63		16	16					16	B	16	B		
		1098	2	1010	987					1996		63	63					63		16	16					16	B	16	B		
merge		800	3	973	954	71				1999	1999	63	63	57				61	61	16	15	1				11	B	11	B	11	B
basic	ML - MD 190 interchange	905	2	876	717					1593	1593	64	64					64	64	14	11					13	B	13	B	13	B
diverge		509	3	262	878	709				1849	1849	64	64	64				64	64	4	14	11				10	B	10	B	10	B
basic		1241	3	273	887	696				1856	1856	64	64	63				64	64	4	14	11				10	A	10	A	10	A
diverge	ML - Btw MD 190 & I-270 West Spur	583	4	576	667	702	268			2213	2213	64	64	63	63			63	63	9	11	11	4			9	A	9	A	9	A
basic		287	3	613	659	954				2225	2225	64	64	63				64	64	10	10	15				12	B	12	B	12	B
		3232	3	557	749	920				2225		64	64	63				64		9	12	15				12	B	12	B		
merge		708	3	440	880	893				2212	2212	64	64	64				64	64	7	14	14				12	B	12	B	12	B
basic	ML - Btw I-270 West Spur & MD 187	809	1	411						411	411	63						63	59	7						7	A	7	A	7	A
		1619	1	410						410		56						56		7						7	A	7	A		
		832	1	410						410		60						60		7						7	A	7	A		

I-495 Outer Loop - 2027 Preferred Alternative - 4-5 PM

VISSIM Lookup Data				Volume								Speed									Density											
				Volume Per Lane						Across All Lanes	Overall Volume	Speed Per Lane							Across All Lanes	Overall Speed	Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/In)						Total Volume	Average Volume (veh/hr)	Speed (mph)							Average Speed	Average Speed (mph)	Combined Density (pcphpl)							Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Btw VA 267 & VA 193	613	5	1389	1507	1664	1549	1407		7515	7477	53	53	53	53	53			53	53	27	29	32	29	27			29	D	29	D	29	D
		345	5	1377	1482	1643	1523	1383		7409		52	52	53	53	53			53		27	29	32	29	26			29	D	29	D		
merge		842	6	99	1348	1484	1642	1541	1402	7516	7516	52	53	53	53	54	54		53	53	2	26	29	31	29	27		24	C	19	B	19	B
merge	VA 193 interchange & GWMP interchange	1316	5	1017	1340	1649	1547	1398		6951	6951	54	54	53	54	54			54	54	19	25	31	29	26			26	C	25	C	25	C
basic		728	4	1398	1663	1549	1391			6002	6021	53	53	53	53				53	53	27	32	29	26				29	D	29	D	29	D
		755	4	1386	1688	1571	1394			6039		53	53	53	53				53		27	32	30	26				29	D	29	D		
diverge		593	5	572	1452	1743	1577	1373		6717	6717	54	53	53	53	53			53	53	11	28	33	30	26			26	C	24	C	24	C
basic		1851	4	2018	1830	1570	1322			6741	6741	51	52	53	53				52	52	40	36	30	25				33	D	33	D	33	D
diverge		717	5	1350	2184	1847	1422	1215		8017	8017	46	49	52	54	54			51	51	30	46	36	27	23			32	D	37	E	37	E
basic	Btw GWMP & Clara Barton Pkwy	490	5	1616	2144	1766	1298	1188		8012	8048	52	51	53	54	54			53	53	31	42	34	24	22			31	D	31	D	31	D
		2472	5	2242	1812	1464	1313	1224		8056		49	52	54	54	54			53		46	35	28	25	23			31	D	31	D		
merge		459	6	109	1768	1716	1588	1481	1350	8012	8012	36	45	51	54	54	54		49	49	3	40	34	30	28	25		27	C	26	C	26	C
basic	Clara Barton Pkwy interchange	1073	4	2176	1719	1444	1314			6653	6653	47	51	53	54				51	51	47	34	27	25				33	D	33	D	33	D
diverge	Btw Clara Barton Pkwy & MD 190	405	5	27	2113	1731	1456	1320		6647	6647	55	50	53	53	54			53	53	1	43	33	28	25			26	C	26	C	26	C
basic		1881	4	1708	1752	1652	1572			6684	6680	52	53	53	53				53	53	33	34	32	30				32	D	32	D	32	D
		230	4	1702	1759	1661	1568			6691		53	53	53	53				53		33	34	32	30				32	D	32	D		
		2242	4	1722	1760	1653	1540			6675		52	53	53	53				53		33	34	32	29				32	D	32	D		
		457	4	1742	1787	1649	1509			6687		52	53	53	53				53		34	35	32	29				32	D	32	D		
merge		1597	5	145	1694	1794	1576	1464		6673	6673	53	52	52	53	53			53	53	3	33	35	30	28			26	C	24	C	24	C
basic	MD 190 interchange	2456	4	1608	1580	1500	1431			6120	6120	54	53	53	53				53	53	30	30	29	27				29	D	29	D	29	D
diverge		1092	5	173	1647	1581	1477	1388		6265	6265	55	54	53	53	53			54	54	3	31	30	28	26			24	C	22	C	22	C
diverge	Btw MD 190 & I-270 West Spur	138	6	620	176	1678	1564	1463	1362	6864	6918	53	44	52	50	52	53		51	53	12	4	33	32	28	26		22	C	16	B	16	B
		1000	6	530	226	1745	1618	1459	1346	6925		55	55	54	53	53	53		54		10	4	33	31	28	26		22	C	16	B		
basic		490	5	641	1828	1657	1459	1323		6907	6929	54	53	53	53	53			54	53	12	35	32	28	25			26	D	26	D	26	D
		2914	5	745	1701	1682	1468	1338		6933		55	53	53	53	53			53		14	32	32	28	26			26	D	26	D		
weave		620	6	244	1453	1297	1226	1383	1339	6942	6922	55	56	56	53	53	53		54	54	5	27	24	23	26	26		22	C	22	C	22	C
		279	6	1032	1053	889	1197	1384	1333	6887		55	58	56	53	53	52		54		19	19	16	23	27	26		22	C	22	C		
		239	6	1046	1070	814	1247	1394	1337	6910		56	58	56	53	53	53		55		19	19	15	24	27	26		21	C	21	C		
basic	Btw I-270 West Spur & MD 187	2789	3	1293	1417	1320				4029	4029	52	52	52					52	52	25	28	26					26	D	26	D	26	D
diverge		852	4	1292	1451	1314	358			4415	4415	53	53	53	54				53	53	25	28	25	7				21	C	20	C	20	C
basic		4047	3	1351	1479	1595				4424	4420	53	53	53					53	53	26	28	31					28	D	28	D	28	D
		1079	3	1422	1510	1470				4402		52	53	53					53		28	29	28					28	D	28	D		
merge		406	4	209	1311	1447	1429			4396	4396	51	53	53	53				52	52	4	25	28	27				21	C	19	B	19	B
basic	MD 187 interchange	2022	3	999	1306	1439				3744	3744	54	53	53					53	53	19	25	27					24	C	24	C	24	C
diverge		325	4	270	1127	1336	1443			4175	4175	52	52	53	53				53	53	5	22	26	28				20	C	18	B	18	B
basic	Btw MD 187 & I-270 East Spur	1192	3	1395	1343	1435				4173	4174	53	53	53					53	53	27	26	27					27	D	27	D	27	D
		913	3	1392	1342	1441				4175		53	53	53					53		27	26	27					27	D	27	D		
		494	3	1242	1402	1530				4174		53	53	53					53		24	27	29					27	D	27	D		
merge		910	4	880	1528	1687	68			4163	4163	50	49	49	49				49	49	18	32	35	1				22	C	23	C	23	C
basic	I-270 East Spur interchange	288	3	689	1467	1575				3732	3732	54	53	53					53	53	13	28	30					24	C	24	C	24	C
weave		1593	4	1562	2261	1538	1605			6966	6966	53	53	53	53				53	53	30	44	29	31				33	D	33	D	33	D
diverge	Btw I-270 East Spur & MD 185	402	5	746	1732	2354	1548	1603		7984	7984	52	52	52	53	53			52	52	15	34	46	30	31			31	D	32	D	32	D
basic		1045	4	2441	2393	1561	1602			7996	7971	49	51	53	53				52	47	50	48	30	31				40	E	40	E	45	F
		2087	4	2372	2416	1657	1541			7985		44	45	49	52				48		55	55	34	30				43	E	43	E		
		1257	4	2340	2207	2100	1308			7955		37	41	47	51				44		67	56	47	27				49	F	49	F		
		526	4	2080	2250	1989	1582			7900		40	43	46	49				44		58	56	46	34				49	F	49	F		
basic	ML - Btw VA 267 & GWMP	873	2	741	797					1538	1537	64	63						63	63	12	13						12	B	12	B	12	B
		2286	2	740	798					1538		63	63						63		12	13						12	B	12	B		
		787	2	736	797					1533		63	63						63		12	13						12	B	12	B		
		954	2	736	799					1535		62	62						62		12	13						13	B	13	B		
merge		303	3	497	820	211				1528	1528	63	58	47					56	56	8	14	5					9	A	9	A	9	A
basic	ML - GWMP interchange to MD 190 interchange	2900	2	419	564					983	983	64	64						64	64	7	9						8	A	8	A	8	A
diverge		694	3	392	987	599				1979	1979	64	63	64					64	64	6	16	10					11	B	11	B	11	B
basic		603	2	1360	626					1986	1986	62	64						63	63	22	10						16	B	16	B	16	B
		1042	2	1348	640					1989		62	64						63		22	10						16	B	16	B		
		3677	2	989	999					1988		63	63						63		16	16						16	B	16	B		
		510	2	992	998					1990		63	63						63		16	16						16	B	16	B		
		2288	2	985	1001					1986		63	63						63		16	16						16	B	16	B		
		1730	2	980	1001					1982		63	63						63		16	16						16	B	16	B		
		1098	2	976	1003					1979		63	63						63		16	16						16	B	16	B		
merge		800	3	935	971	71				1977	1977	63	63	57					61	61	15	16	1					11	B	11	B	11	B
basic	ML - MD 190 interchange	905	2	841	733					1575	1575	64	64						64	64	13	12						13	B	13	B	13	B
diverge		509	3	337	845	724				1907	1907	64	64	64					64	64	5	14	12					10	B	10	B	10	B
basic		1241	3	348	859	707				1913	1913	64	64	64					64	64	6	14	11					10	A	10	A	10	A
diverge	ML - Btw MD 190 & I-270 West Spur	583	4	633	653	729	313			2327	2327	64	64	63	63				64	64	10	10	12	5				9	A	9	A	9	A
basic		287	3	666	647	1027				2340	2340	64	64	63					64	64	11	10	16					12	B	12	B	12	B
		3232	3	588	756	997				2340		64	64	63					64		9	12	16					12	B	12	B		
merge		708	3	434	915	981				2330	2330	64	64	63					64	64	7	15	16					12	B	12	B	12	B
basic	ML - Btw I-270 West Spur & MD 187	809	1	400						400	400	63							63	59	6							6	A	6	A	7	A
		1619	1	400						400		56							56		7							7	A	7	A		
		832	1	400						400		60							60		7							7	A	7	A		

I-495 Outer Loop - 2027 Preferred Alternative - 5-6 PM

VISSIM Lookup Data				Volume								Speed									Density											
				Volume Per Lane						Across All Lanes	Overall Volume	Speed Per Lane							Across All Lanes	Overall Speed	Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/In)						Total Volume	Average Volume (veh/hr)	Speed (mph)							Average Speed	Average Speed (mph)	Combined Density (pcphpl)							Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Btw VA 267 & VA 193	613	5	1214	1376	1576	1462	1332		6961	6924	53	53	53	53	53			53	53	23	26	30	28	25			27	D	27	D	26	D
		345	5	1197	1354	1559	1435	1312		6857		52	53	53	53	53			53		23	26	30	27	25			26	D	26	D		
merge		842	6	89	1168	1340	1566	1457	1330	6950	6950	52	53	53	53	54	54		53	53	2	22	26	30	28	25		22	C	17	B	17	B
merge	VA 193 interchange & GWMP interchange	1316	5	794	1236	1578	1463	1326		6397	6397	54	54	53	54	54			54	54	15	23	30	27	25			24	C	23	C	23	C
basic		728	4	1298	1600	1465	1313			5677	5694	53	53	54	54				53	53	25	31	28	25				27	D	27	D	27	D
		755	4	1285	1634	1482	1308			5710		53	53	54	54				53		24	31	28	25				27	D	27	D		
diverge		593	5	664	1377	1683	1484	1291		6499	6499	54	53	53	54	54			54	54	12	26	32	28	24			25	C	24	C	24	C
basic		1851	4	2040	1763	1479	1239			6521	6521	51	52	53	53				53	53	41	34	28	24				32	D	32	D	32	D
diverge		717	5	1264	2196	1782	1331	1130		7703	7703	48	49	52	54	54			51	51	27	46	35	25	21			31	D	36	E	36	E
basic	Btw GWMP & Clara Barton Pkwy	490	5	1556	2160	1675	1201	1103		7696	7714	52	51	53	54	54			53	53	30	43	32	22	21			30	D	30	D	30	D
		2472	5	2195	1780	1383	1221	1139		7718		50	52	54	54	54			53		45	35	26	23	21			30	D	30	D		
merge		459	6	99	1679	1647	1533	1424	1286	7667	7667	36	47	52	54	54	54		50	50	3	37	33	29	26	24		25	C	24	C	24	C
basic	Clara Barton Pkwy interchange	1073	4	2097	1627	1390	1264			6378	6378	48	52	54	54				52	52	44	32	26	24				32	D	32	D	32	D
diverge	Btw Clara Barton Pkwy & MD 190	405	5	22	2032	1626	1420	1263		6364	6364	54	51	53	54	54			53	53	0	41	31	27	24			25	C	24	C	24	C
basic		1881	4	1630	1672	1604	1497			6403	6399	52	53	53	53				53	53	32	32	31	29				31	D	31	D	31	D
		230	4	1628	1677	1610	1495			6409		53	53	53	53				53		31	32	31	29				31	D	31	D		
		2242	4	1643	1677	1602	1473			6395		53	53	53	53				53		32	32	31	28				31	D	31	D		
		457	4	1662	1697	1593	1450			6401		52	53	53	53				53		32	33	30	28				31	D	31	D		
merge		1597	5	120	1615	1705	1540	1413		6394	6394	54	53	53	53	53			53	53	2	31	33	29	27			25	C	22	C	22	C
basic	MD 190 interchange	2456	4	1561	1537	1481	1366			5945	5945	54	53	53	53				53	53	30	29	28	26				28	D	28	D	28	D
diverge		1092	5	201	1610	1542	1448	1327		6127	6127	54	54	53	53	53			53	53	4	31	29	28	25			23	C	21	C	21	C
diverge	Btw MD 190 & I-270 West Spur	138	6	698	204	1646	1520	1440	1303	6810	6863	53	45	50	48	51	52		50	53	13	5	33	32	29	26		23	C	17	B	16	B
		1000	6	592	263	1715	1589	1434	1277	6870		54	55	53	53	53	53		54		11	5	33	31	27	24		22	C	16	B		
basic		490	5	717	1811	1636	1435	1249		6848	6872	54	53	53	53	53			54	53	13	34	31	27	24			26	D	26	D	26	D
		2914	5	766	1693	1671	1454	1292		6876		55	53	53	53	53			53		14	32	32	28	25			26	D	26	D		
weave		620	6	241	1434	1310	1226	1370	1306	6886	6868	54	55	55	53	53	53		54	54	5	26	24	23	26	25		22	C	22	C	21	C
		279	6	1018	1027	917	1201	1369	1302	6834		55	57	55	53	53	52		54		19	18	17	23	26	25		21	C	21	C		
		239	6	1032	1040	849	1253	1378	1308	6861		55	58	55	53	53	53		55		19	18	16	24	26	25		21	C	21	C		
basic	Btw I-270 West Spur & MD 187	2789	3	1291	1399	1301				3990	3990	52	52	52					52	52	25	27	25					26	D	26	D	26	D
diverge		852	4	1280	1427	1289	262			4258	4258	53	53	53	54				53	53	25	27	25	5				20	C	19	B	19	B
basic		4047	3	1331	1442	1498				4271	4266	53	53	53					53	53	26	28	29					27	D	27	D	27	D
		1079	3	1394	1460	1396				4250		52	53	53					53		27	28	27					27	D	27	D		
merge		406	4	220	1282	1388	1354			4244	4244	51	53	53	53				52	52	4	25	27	26				20	C	19	B	19	B
basic	MD 187 interchange	2022	3	940	1261	1359				3559	3559	54	53	53					53	53	18	24	26					23	C	23	C	23	C
diverge	Btw MD 187 & I-270 East Spur	325	4	301	1085	1293	1364			4043	4043	52	52	53	53				53	53	6	21	25	26				19	B	17	B	17	B
basic		1192	3	1385	1292	1362				4039	4039	53	53	53					53	53	27	25	26					26	D	26	D	26	D
		913	3	1381	1289	1369				4040		53	53	53					53		27	24	26					26	D	26	D		
		494	3	1228	1354	1457				4040		53	53	53					53		23	26	28					26	D	26	D		
merge		910	4	874	1497	1601	60			4032	4032	50	49	49	49				49	49	18	31	33	1				21	C	22	C	22	C
basic	I-270 East Spur interchange	288	3	684	1492	1481				3657	3657	53	53	53					53	53	13	28	28					23	C	23	C	23	C
weave		1593	4	1555	2262	1566	1508			6891	6891	53	53	53	53				53	53	30	44	30	29				33	D	33	D	33	D
diverge	Btw I-270 East Spur & MD 185	402	5	753	1728	2363	1576	1504		7924	7924	52	52	52	53	53			52	52	15	34	46	30	29			31	D	32	D	32	D
basic		1045	4	2446	2409	1579	1503			7938	7929	49	51	53	53				52	49	51	48	30	29				40	E	40	E	42	E
		2087	4	2396	2466	1652	1416			7930		45	46	50	53				49		54	54	33	27				42	E	42	E		
		1257	4	2438	2249	2094	1153			7933		41	46	50	53				48		60	50	43	22				44	E	44	E		
		526	4	2159	2308	1985	1446			7898		47	50	52	53				50		47	47	39	28				40	E	40	E		
basic	ML - Btw VA 267 & GWMP	873	2	585	628					1213	1205	64	64						64	63	9	10						10	A	10	A	10	A
		2286	2	581	627					1208		64	64						64		9	10						10	A	10	A		
		787	2	574	623					1197		63	63						63		9	10						10	A	10	A		
		954	2	571	626					1197		63	62						63		9	10						10	A	10	A		
merge		303	3	414	639	137				1191	1191	63	60	48					57	57	7	11	3					7	A	7	A	7	A
basic	ML - GWMP interchange to MD 190 interchange	2900	2	368	465					833	833	64	64						64	64	6	7						7	A	7	A	7	A
diverge		694	3	385	834	490				1709	1709	64	63	64					64	64	6	13	8					9	A	9	A	9	A
basic		603	2	1198	516					1713	1713	62	64						63	63	20	8						14	B	14	B	14	B
		1042	2	1187	529					1717		63	64						63		19	8						14	B	14	B		
		3677	2	852	866					1717		63	63						63		14	14						14	B	14	B		
		510	2	850	862					1712		64	63						63		14	14						14	B	14	B		
		2288	2	851	860					1711		64	63						63		14	14						14	B	14	B		
		1730	2	854	856					1710		64	63						63		14	14						14	B	14	B		
		1098	2	850	859					1709		64	63						63		14	14						14	B	14	B		
merge		800	3	819	835	55				1709	1709	64	63	58					62	62	13	13	1					9	A	9	A	9	A
basic	ML - MD 190 interchange	905	2	755	635					1390	1390	64	64						64	64	12	10						11	B	11	B	11	B
diverge		509	3	280	759	627				1666	1666	64	64	64					64	64	4	12	10					9	A	9	A	9	A
basic		1241	3	285	771	613				1670	1670	64	64	64					64	64	5	12	10					9	A	9	A	9	A
diverge	ML - Btw MD 190 & I-270 West Spur	583	4	516	594	641	274			2025	2027	64	64	63	63				64	64	8	9	10	4				8	A	8	A	8	A
basic		287	3	542	588	906				2035		64	64	63					64	64	9	9	15					11	B	11	B	11	B
		3232	3	467	683	877				2026		64	64	63					64		7	11	14					11	B	11	B		
merge		708	3	320	828	865				2013	2013	64	64	64					64	64	5	13	14					11	B	11	B	11	B
basic	ML - Btw I-270 West Spur & MD 187	809	1	284						284	283	63							63	59	5							5	A	5	A	5	A
		1619	1	283						283		56							56		5							5	A	5	A		
		832	1	283						283		60							60		5							5	A	5	A		

I-495 Outer Loop - 2027 Preferred Alternative - 6-7 PM

VISSIM Lookup Data				Volume								Speed									Density											
				Volume Per Lane						Across All Lanes	Overall Volume	Speed Per Lane						Across All Lanes	Overall Speed	Density Per Lane						Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)						Total Volume	Average Volume (veh/hr)	Speed (mph)						Average Speed	Average Speed (mph)	Combined Density (pcphpl)						Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Btw VA 267 & VA 193	613	5	916	1220	1467	1369	1222		6194	6164	54	53	53	54	53		53	53	17	23	28	26	23		24	C	24	C	23	C
		345	5	894	1194	1468	1345	1211		6111		54	53	53	53	53		53		17	23	28	26	23		23	C	23	C		
merge		842	6	41	871	1200	1493	1367	1226	6198	6198	53	54	53	53	54	54	53	53	1	16	23	29	26	23	20	C	13	B	13	B
merge	VA 193 interchange & GWMP interchange	1316	5	656	1178	1521	1373	1219		5946	5946	55	54	53	54	54		54	54	12	22	29	26	23		22	C	21	C	21	C
basic		728	4	1265	1542	1373	1212			5392	5406	53	53	54	54			53	53	24	30	26	23			26	D	26	D	26	D
		755	4	1254	1569	1391	1207			5420		53	53	54	54			53		24	30	26	23			26	D	26	D		
diverge		593	5	638	1345	1613	1395	1187		6179	6179	54	53	53	54	54		54	54	12	26	31	26	22		23	C	23	C	23	C
basic		1851	4	1975	1702	1382	1138			6197	6197	51	53	54	54			53	53	39	33	26	22			30	D	30	D	30	D
diverge		717	5	1158	2119	1713	1248	1042		7280	7280	48	49	53	54	54		52	52	25	44	33	23	20		29	D	34	D	34	D
basic	Btw GWMP & Clara Barton Pkwy	490	5	1422	2081	1616	1132	1020		7272	7290	53	52	53	54	54		53	53	27	41	31	21	19		28	D	28	D	28	D
		2472	5	2063	1679	1332	1159	1062		7294		51	52	54	54	54		53		41	33	25	22	20		28	D	28	D		
merge		459	6	89	1577	1546	1488	1338	1208	7246	7246	37	47	52	54	55	54	50	50	2	34	31	28	25	23	24	C	22	C	22	C
basic	Clara Barton Pkwy interchange	1073	4	2006	1577	1310	1193			6086	6086	49	52	54	54			52	52	42	31	25	23			30	D	30	D	30	D
diverge		405	5	44	1929	1586	1349	1197		6105	6105	54	51	53	54	54		53	53	1	38	30	25	23		24	C	23	C	23	C
basic	Btw Clara Barton Pkwy & MD 190	1881	4	1597	1624	1518	1402			6141	6133	52	53	53	53			53	53	31	31	29	27			29	D	29	D	29	D
		230	4	1601	1632	1516	1390			6139		52	53	53	53			53		31	31	29	27			29	D	29	D		
		2242	4	1621	1636	1505	1363			6126		52	53	53	53			53		31	31	29	26			29	D	29	D		
		457	4	1641	1655	1504	1336			6136		52	53	53	53			53		32	32	29	25			29	D	29	D		
merge		1597	5	160	1601	1651	1430	1287		6130	6130	52	52	53	53	53		53	53	3	31	32	27	25		24	C	22	C	22	C
basic	MD 190 interchange	2456	4	1417	1412	1338	1240			5408	5408	54	54	54	53			54	54	27	27	25	24			26	D	26	D	26	D
diverge		1092	5	132	1461	1421	1307	1194		5515	5515	55	54	54	53	53		54	54	2	28	27	25	23		21	C	19	B	19	B
diverge	Btw MD 190 & I-270 West Spur	138	6	554	136	1490	1404	1296	1170	6052	6096	54	45	52	50	52	52	51	54	11	3	29	28	25	23	20	C	14	B	14	B
		1000	6	474	187	1554	1448	1291	1148	6102		55	55	54	53	54	53	54		9	3	29	28	24	22	19	B	14	B		
basic		490	5	568	1633	1476	1280	1128		6085	6094	55	54	54	54	53		54	54	11	31	28	24	21		23	C	23	C	23	C
		2914	5	661	1531	1496	1265	1143		6095		55	54	53	53	53		54		12	29	29	24	22		23	C	23	C		
weave		620	6	208	1319	1174	1074	1172	1150	6097	6077	55	56	55	54	53	53	54	54	4	24	22	20	22	22	19	B	19	B	19	B
		279	6	870	968	846	1049	1168	1144	6044		56	58	55	53	53	53	55		16	17	16	20	22	22	19	B	19	B		
		239	6	879	981	802	1078	1175	1148	6063		56	58	55	53	53	53	55		16	17	15	20	22	22	19	B	19	B		
basic	Btw I-270 West Spur & MD 187	2789	3	1106	1187	1141				3433	3433	52	52	52				52	52	22	23	22				22	C	22	C	22	C
diverge		852	4	1111	1199	1145	300			3755	3755	53	53	53	54			53	53	21	23	22	6			18	B	17	B	17	B
basic		4047	3	1166	1218	1371				3754	3749	53	53	53				53	53	22	23	26				24	C	24	C	24	C
		1079	3	1240	1222	1266				3728		53	53	53				53		24	23	24				24	C	24	C		
merge		406	4	228	1115	1146	1230			3720	3720	51	53	53	53			53	53	5	21	22	24			18	B	16	B	16	B
basic	MD 187 interchange	2022	3	687	1046	1227				2959	2959	54	53	53				54	54	13	20	23				19	C	19	C	19	C
diverge		325	4	243	799	1062	1232			3336	3336	53	53	53	53			53	53	5	15	20	24			16	B	13	B	13	B
basic	Btw MD 187 & I-270 East Spur	1192	3	1035	1065	1230				3330	3328	53	54	53				53	53	20	20	23				21	C	21	C	21	C
		913	3	1025	1063	1239				3328		53	54	53				53		20	20	24				21	C	21	C		
		494	3	865	1139	1318				3322		54	53	53				53		16	22	25				21	C	21	C		
merge		910	4	511	1173	1571	53			3307	3307	51	50	49	48			49	49	10	24	33	1			17	B	19	B	19	B
basic	I-270 East Spur interchange	288	3	321	1054	1614				2989	2989	53	52	52				52	52	6	20	31				19	C	19	C	19	C
weave		1593	4	1408	1870	1153	1680			6111	6111	23	28	41	51			36	36	84	82	29	33			57	F	57	F	57	F
diverge		402	5	561	1545	1936	1191	1676		6910	6910	48	26	29	41	51		39	39	12	79	80	31	33		47	F	57	F	57	F
basic	Btw I-270 East Spur & MD 185	1045	4	2052	1998	1242	1672			6965	7056	29	31	41	49			37	32	86	79	33	35			58	F	58	F	66	F
		2087	4	2005	1950	1458	1628			7041		26	27	35	44			33		91	83	46	39			65	F	65	F		
		1257	4	1893	1903	1982	1348			7125		21	24	31	38			28		100	88	69	38			74	F	74	F		
		526	4	1736	2004	1855	1534			7129		23	28	32	37			30		87	81	64	45			69	F	69	F		
basic	ML - Btw VA 267 & GWMP	873	2	527	580					1107	1109	64	64					64	64	8	9					9	A	9	A	9	A
		2286	2	528	582					1110		64	64					64		8	9					9	A	9	A		
		787	2	526	581					1106		64	64					64		8	9					9	A	9	A		
		954	2	527	581					1109		63	63					63		8	9					9	A	9	A		
merge		303	3	449	584	73				1105	1105	64	62	48				58	58	7	10	2				6	A	6	A	6	A
basic	ML - GWMP interchange to MD 190 interchange	2900	2	423	500					923	923	64	64					64	64	7	8					7	A	7	A	7	A
diverge		694	3	315	860	526				1701	1701	64	63	64				64	64	5	14	8				9	A	9	A	9	A
basic		603	2	1160	548					1708	1716	63	64					63	63	19	9					14	B	14	B	14	B
		1042	2	1148	562					1710		63	64					63		19	9					14	B	14	B		
		3677	2	863	855					1718		63	63					63		14	14					14	B	14	B		
		510	2	864	854					1718		63	63					63		14	14					14	B	14	B		
		2288	2	861	855					1717		64	63					63		14	14					14	B	14	B		
		1730	2	862	855					1717		64	63					64		14	14					14	B	14	B		
		1098	2	861	859					1720		63	63					63		14	14					14	B	14	B		
merge		800	3	827	833	63				1723	1723	64	63	57				61	61	13	13	1				9	A	9	A	9	A
basic	ML - MD 190 interchange	905	2	747	611					1358	1358	64	64					64	64	12	10					11	B	11	B	11	B
diverge		509	3	193	751	604				1548	1548	64	64	64				64	64	3	12	10				8	A	8	A	8	A
basic		1241	3	199	761	592				1553	1553	64	64	64				64	64	3	12	9				8	A	8	A	8	A
diverge	ML - Btw MD 190 & I-270 West Spur	583	4	445	575	611	249			1879	1879	64	64	63	63			64	64	7	9	10	4			7	A	8	A	8	A
basic		287	3	472	566	852				1890	1885	64	64	63				64	64	7	9	14				10	A	10	A	10	A
		3232	3	434	644	806				1885		64	64	63				64		7	10	13				10	A	10	A		
merge		708	3	360	756	758				1874	1874	64	64	64				64	64	6	12	12				10	B	10	B	10	B
basic	ML - Btw I-270 West Spur & MD 187	809	1	343						343	342	63						63	59	6						6	A	6	A	6	A
		1619	1	342						342		56						56		6						6	A	6	A		
		832	1	341						341		60						60		6						6	A	6	A		

I-270 Southbound - 2027 Preferred Alternative - 3-4 PM

VISSIM Lookup Data				Volume									Speed										Density									
				Volume Per Lane							Across All Lanes	Overall Volume	Speed Per Lane								Across All Lanes	Overall Speed	Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)							Total Volume	Average Volume (veh/hr)	Speed (mph)								Average Speed	Average Speed (mph)	Combined Density (pcphpl)							Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Through MD 117 interchange	658	4	1277	1622	1273	880				5051	5076	61	62	63	64					63	63	21	26	20	14					21	C	21	C	20	C
		3062	4	1260	1593	1290	938				5081		63	63	63	64					63		21	26	21	15					20	C	20	C		
merge		1569	5	604	1665	1842	1343	946			6400	6400	57	60	62	63	64				61	61	11	28	30	22	15				21	C	23	C	23	C
basic	Btw MD 117 & I-370	1152	6	493	952	1641	1238	954	1142		6420	6423	63	63	62	63	64	63			63	63	8	15	27	20	15	18			17	B	17	B	17	B
		411	6	783	1072	1374	1056	898	1250		6432		63	63	63	63	64	63			63		13	17	22	17	14	20			17	B	17	B		
diverge		892	6	874	1094	1289	1031	916	1238		6442	6437	63	63	62	63	64	63			63	63	14	18	21	17	15	20			17	B	18	B	18	B
		76	6	941	1081	1173	1019	934	1231		6379		63	62	56	58	62	62			61		15	18	21	18	15	20			18	B	18	B		
basic	I-370 interchange	1039	4	1152	1023	954	1248				4376	4378	63	63	64	63					63	63	19	16	15	20					18	C	18	C	18	C
		1983	4	1148	1027	964	1240				4379		63	64	64	62					63		18	16	15	20					18	C	18	C		
diverge		201	5	1145	1038	1125	729	338			4375	4375	63	64	63	51	45				57	57	18	17	18	15	8				15	B	13	B	13	B
basic		168	4	1147	1050	1097	483				3777	3777	63	64	64	62					63	63	18	17	17	8					15	B	15	B	15	B
basic		943	5	73	1079	1043	1066	513			3775	3775	69	63	64	64	64				65	65	1	17	17	17	8				12	B	12	B	12	B
merge	Btw I-370 & Shady Grove Rd	705	7	193	1085	663	1023	959	964	490	5377	5377	53	54	58	63	64	64	65		60	60	4	21	12	16	15	15	8		13	B	13	B	13	B
diverge		1678	6	646	1243	1181	936	893	479		5377		55	54	60	63	64	65			60		12	23	20	15	14	8			15	B	18	B		
basic	Shady Grove Rd interchange	507	5	1070	1140	1069	913	500			4691	4691	53	59	63	63	64				60	60	20	20	17	15	8				16	B	16	B	16	B
merge		1022	6	97	1282	1329	1180	946	529		5364	5364	41	52	57	63	64	65			57	57	2	25	24	19	15	8			16	B	17	B	17	B
basic		222	5	1277	1275	1264	982	539			5338	5338	53	56	62	64	64				60	60	24	23	21	16	9				18	C	18	C	18	C
merge		503	6	139	1397	1398	1300	1011	549		5794	5794	41	51	55	62	64	65			56	56	3	28	26	21	16	9			17	B	19	B	19	B
basic	Btw Shady Grove Rd & MD 28	1473	5	1506	1349	1343	1078	584			5861	5862	53	55	61	63	64				59	59	29	25	22	17	9				21	C	21	C	21	C
		603	5	1715	1263	1214	1068	606			5867		53	55	61	63	64				59		33	23	20	17	10				21	C	21	C		
		1534	5	1728	1194	1179	1113	643			5857		53	55	61	63	64				59		33	22	20	18	10				21	C	21	C		
		2441	5	1692	1111	1132	1209	720			5864		53	54	60	63	64				59		33	21	19	19	11				21	C	21	C		
diverge		527	6	524	1151	1059	1081	1266	772		5853	5853	57	54	54	60	63	64			59	59	9	22	20	18	20	12			17	B	17	B	17	B
basic	MD 28 interchange	1448	5	1020	1026	1048	1295	810			5200	5200	53	54	60	63	64				59	59	19	19	18	21	13				18	C	18	C	18	C
merge		670	6	288	1003	1016	997	1309	859		5472	5472	50	53	54	60	63	64			58	58	6	19	19	17	21	14			16	B	15	B	15	B
basic		292	6	310	981	1017	981	1324	866		5479	5479	56	53	54	60	63	64			58	58	6	19	19	17	21	14			16	B	16	B	16	B
		288	6	330	946	1027	968	1331	877		5479		56	53	54	59	62	63			58		6	18	19	17	22	14			16	B	16	B		
merge		500	7	300	798	948	1337	966	1250	830	6429	6429	50	53	53	54	60	63	64		57	57	6	15	18	25	16	20	13		16	B	13	B	13	B
basic	Btw MD 28 & MD 189	316	6	503	1528	1476	991	1197	805		6501	6501	53	52	53	59	63	64			57	58	10	30	28	17	19	13			19	C	19	C	19	C
		774	6	517	1532	1431	997	1202	824		6502		54	52	53	58	63	64			57		10	30	27	17	19	13			19	C	19	C		
		603	6	612	1502	1356	963	1220	847		6500		56	53	54	58	63	64			58		11	29	26	17	20	13			19	C	19	C		
		720	6	703	1455	1307	933	1240	864		6501		56	53	54	58	63	64			58		13	28	25	16	20	14			19	C	19	C		
diverge		486	6	744	1416	1286	920	1262	879	63	6506	6506	55	52	53	58	58	63	64		58	58	14	27	24	16	20	14			19	B	22	C	22	C
basic	MD 189 interchange	931	5	1359	1270	923	1272	910			5733	5736	53	53	57	62	63				58	58	26	24	16	21	15				20	C	20	C	20	C
		1886	5	1334	1245	892	1290	975			5737		53	53	57	62	64				58		26	24	16	21	16				20	C	20	C		
merge		722	6	193	1378	1500	875	1303	1020		6269	6269	53	53	53	57	63	64			57	57	4	26	29	16	21	16			19	B	20	C	20	C
basic	Btw MD 189 & Montrose Rd	978	5	1711	1447	986	1191	955			6290	6282	51	53	57	62	63				57	57	34	28	18	19	15				23	C	23	C	23	C
		196	5	1940	1456	918	1072	903			6289		51	53	57	62	64				58		38	28	16	17	14				23	C	23	C		
		413	5	1992	1446	885	1057	906			6287		51	53	57	62	64				57		40	27	16	17	15				23	C	23	C		
		1105	5	2040	1406	852	1054	918			6271		51	53	56	62	63				57		41	27	15	17	15				23	C	23	C		
diverge		381	6	217	1813	1326	865	1068	936		6225	6225	44	51	51	55	62	63			54	54	5	36	26	16	17	15			19	B	23	C	23	C
basic	Montrose Rd interchange	847	5	1730	1291	864	1092	971			5947	5947	53	53	56	62	64				58	58	33	24	16	18	16				21	C	21	C	21	C
weave		646	6	820	1396	1555	893	1100	988		6753	6753	45	49	52	55	62	63			54	54	19	29	30	16	18	16			21	C	21	C	21	C
basic		828	5	1233	1524	1018	1144	1029			5948	5948	53	53	55	61	63				57	57	24	29	19	19	17				21	C	21	C	21	C
weave	Btw Montrose Rd & Spur Split	795	6	291	1132	1573	1024	1159	1068		6247	6247	57	55	53	55	61	63			58	57	5	21	30	19	19	17			19	B	19	B	19	B
		1095	6	273	908	1409	1373	1185	1105		6252		59	55	54	54	61	63			58		5	17	27	26	20	18			19	B	19	B		
		3722	6	271	425	1147	1486	1607	1317		6253		60	56	54	54	57	60			57		5	8	21	28	29	22			19	B	19	B		
		694	6	285	476	894	1527	1536	1518		6237		60	57	57	55	55	57			57		5	8	16	28	29	27			19	B	19	B		
		386	6	303	535	933	1448	1516	1486		6219		60	58	57	55	55	57			57		5	9	17	27	28	27			19	B	19	B		
		570	6	322	569	941	1408	1519	1477		6236		60	58	57	55	55	56			57		5	10	17	26	28	27			19	B	19	B		
basic	Spur Split through MD 187 interchange	715	3	797	1370	1433					3600	3600	58	58	58						58	58	14	24	25						21	C	21	C	21	C
		1098	3	825	1355	1426					3606	3606	58	58	58						58		14	24	25						21	C	21	C		
diverge		474	4	285	550	1343	1417				3595	3595	59	59	58	58					59	59	5	9	23	25					16	B	13	B	13	B
basic		2372	2	1353	1424						2778	2778	58	58							58	58	24	25							24	C	24	C	24	C
merge		507	3	121	1438	1561					3120	3120	42	55	57						51	51	3	26	28						19	B	19	B	19	B
basic		752	2	1499	1634						3134	3134	57	57							57	57	27	29							28	D	28	D	28	D
merge	Btw MD 187 & I-495	957	3	82	1664	1804					3551	3551	44	59	60						54	54	2	29	31						21	C	21	C	21	C
basic		1892	2	1730	1820						3550	3550	61	62							62	62	29	30							29	D	29	D	29	D
merge		1955	3	1641	1648	595					3884	3884	62	63	64						63	63	27	27	10						21	C	21	C	21	C
diverge		1491	3	1578	1488	825					3891	3891	63	63	63						63	63	25	24	13						21	C	21	C	21	C
basic		1568	2	1540	1517						3057	3057	58	59							58	58	27	26							27	D	27	D	27	D
basic	Spur Split to Democracy Blvd	2663	4	777	530	694	623				2625	2625	59	59	59	59					59	59	13	9	12	11					11	B	11	B	11	B
diverge		1139	4	618	682	730	593				2623	2623	57	59	59	59					59	59	11	12	13	10					11	B	12	B	12	B
merge	Democracy Blvd to I-495	1019	4	596	814	1153	100				2664	2664	59	59	56	57					58	58	10	14	21	2					12	B	12	B	12	B
basic		647	3	534	777	1360					2672	2665	59	59	56						58	58	9	13	25						16	B	16	B	16	B
		491	3	550	767	1331					2648		59	59	56						58		9	13	24						16	B	16	B		
		437	3	565	778	1329					2672		59	59	56						58		10	13	24						16	B	16	B		
diverge		603	4	573	765	840	480				2658	2658	59	58	55	58					58	58	10	13	15	8					12	B	12	B	12	B
basic		453	3	584	753	696					2032	2032	59	59	55						58	58	10	13	13						12	B	12	B	12	B
merge		695	4	132	1024	876	699				2730	2730	53	56	58	55					56	56	3	19	15	13					12	B	12	B	12	B
basic		1707	3	1013	986	730					2729	2729	55	58	55						56	56	19	17	13						16	B	16	B	16	B
basic	ML - I-370 interchange	284	1	600							600	601	53								53	60	12								12	B	12	B	10	A
		331	1	600							600		59								59		10								10	A	10	A		
		2052	1	602							602		61								61		10								10	A	10	A		
merge	ML - Btw I-370 & Gude Dr	1091	2	665	863						1528	1528	63	63							63	63	11	14							12	B	12	B	12	B
basic		2505	2	637	895						1531	1531	64	63							63	63	10	14							12	B	12	B	12	B
diverge		81	2	594	904	0					1498	1511	64	62	0						42	58	10	15	0						8	A	8	A	8	A
		314	3	597	670	247					1515		64	63	62						63		10	11	4						8	A	8	A		
basic	ML - Gude Dr interchange	3713	2	594	652						1246	1246	64	64							64	64	10	10							10	A	10	A	10	A
merge	ML - Btw Gude Dr & Wootton Pkwy	451	3	699	1013	208					1920	1920	63	62	59						61	61	11	17	4						10	B	10	B	10	B
basic		2928	2	847	1085						1932	1935	63	63							63	63	14	18							16	B	16	B	16	B
		849	2	862	1064						1926		64	63							63		14	17							15	B	15	B		
		449	2	866	1067						1933		64	63							63		14	17							16	B	16	B		
		1667	2	873	1066						1939		64	63							63		14	17							16	B	16	B		
		3774	2	835	1104						1939		64	63							63		13	18							16	B	16	B		
diverge		410	3	764	920	248					1932	1932	63	62	62						62	62	12	15	4						10	B	10	B	10	B
basic	ML - Wootton Pkwy interchange	3372	2	748	812						1559	1559	64	63							63	63	12	13							12	B	12	B	12	B
merge	ML - Btw Wootton Pkwy & Spur Split	876	3	910	1163	164					2237	2247	63	62	59						61	61	15	19	3						12	B	12	B	12	B
basic		746	2	1014	1226						2240		63	62							62	63	17	20							18	C	18	C	18	C
		1132	2	1035	1211						2245		63	63							63		17	20							18	C	18	C		
		420	2	1041	1204						2245		63	63							63		17	20							18	C	18	C		
		1519	2	1048	1202						2250		63	63							63		17	19							18	C	18	C		
		4212	2	1093	1154						2247		63	63							63		18	19							18	C	18	C		
diverge		1049	3	293	903	1045					2241	2241	64	63	63						63	63	5	15	17						12	B	12	B	12	B
basic	ML - Spur Split through MD 187 interchange	5712	1	345							345	346	64								64	64	6								6	A	6	A	6	A
		1961	1	347							347		64								64		6								6	A	6	A		
		1845	1	347							347		64								64		6								6	A	6	A		
basic	ML - Spur Split to Westlake Ter/ Fernwood Rd	1604	2	825	1069						1893	1893	64	63							63	63	13	17							15	B	15	B	15	B
diverge		705	3	994	662	245					1901	1901	63	63	63						63	63	16	11	4						10	B	10	B	10	B
basic	ML - Westlake Ter/Fernwood Rd interchange	1888	2	1004	575						1579	1579	62	64							63	63	16	9							13	B	13	B	13	B
diverge		275	3	395	540	645					1580	1580	53	54	62						56	56	8	10	11						9	A	9	A	9	A
basic	ML - Westlake Ter/Fernwood Rd to I-495	1045	2	322	620						942	942	64	64							64	64	5	10							8	A	8	A	8	A
merge		721	3	371	742	56					1169	1169	64	63	62						63	63	6	12	1						6	A	6	A	6	A
basic		1116	2	413	771						1184	1185	64	63							64	64	7	12							9	A	9	A	9	A
		589	2	425	762						1187		64	63							64		7	12							9	A	9	A		
merge		971	3	101	867	841					1808	1808	60	63	63						62	62	2	14	13						10	B	10	B	10	B
basic		1600	2	921	889						1810	1809	63	63							63	63	15	14							14	B	14	B	14	B
		802	2	912	896						1807		64	64							64		15	14							14	B	14	B		

I-270 Southbound - 2027 Preferred Alternative - 4-5 PM

VISSIM Lookup Data				Volume										Speed										Density													
				Volume Per Lane								Across All Lanes	Overall Volume	Speed Per Lane								Across All Lanes	Overall Speed	Density Per Lane								Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)								Total Volume	Average Volume (veh/hr)	Speed (mph)								Average Speed	Average Speed (mph)	Combined Density (pcphpl)								Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Through MD 117 interchange	658	4	1332	1705	1408	992					5437	5473	61	62	63	64					62	63	22	28	23	16					22	C	22	C	22	C
		3062	4	1315	1668	1429	1068					5481		62	63	63	64					63		22	27	23	17					22	C	22	C		
merge	Btw MD 117 & I-370	1569	5	768	1758	1983	1512	1077				7099	7099	56	59	61	63	64				61	61	14	30	33	24	17				24	C	26	C	26	C
basic		1152	6	630	1108	1749	1328	1041	1260			7116	7118	63	63	61	62	63	63			62	63	10	18	29	22	17	20			19	C	19	C	19	C
		411	6	999	1267	1416	1085	974	1385			7125		62	63	62	63	64	62			63		16	20	23	17	15	23			19	C	19	C		
diverge		892	6	1111	1298	1309	1053	990	1373			7132	7127	63	63	62	63	64	63			63	62	18	21	21	17	16	22			19	B	20	C	20	C
		76	6	1190	1279	1182	1040	1009	1363			7063		62	61	53	57	61	62			59		19	21	23	19	17	22			20	C	21	C		
basic	I-370 interchange	1039	4	1167	1046	1024	1382					4619	4620	63	63	64	63					63	63	19	17	16	22					19	C	19	C	19	C
		1983	4	1162	1051	1036	1372					4621		63	64	64	62					63		19	17	16	23					19	C	19	C		
diverge		201	5	1163	1062	1200	803	388				4615	4615	63	63	62	50	45				57	57	19	17	20	16	9				16	B	15	B	15	B
basic		168	4	1165	1077	1167	525					3934	3934	63	63	63	62					63	63	19	17	19	9					16	B	16	B	16	B
basic		943	5	77	1097	1069	1130	562				3935	3935	69	63	64	64	64				65	65	1	18	17	18	9				13	B	13	B	13	B
merge	Btw I-370 & Shady Grove Rd	705	7	207	1145	699	1064	989	1015	537		5655	5655	53	53	57	63	64	64	65		60	60	4	22	12	17	16	16	8		14	B	14	B	14	B
diverge		1678	6	679	1298	1240	967	944	525			5653	5653	54	54	60	63	64	65			60	60	13	24	21	16	15	8			16	B	19	B	19	B
basic	Shady Grove Rd interchange	507	5	1111	1194	1109	971	546				4932	4932	53	58	63	63	64				60	60	21	21	18	16	9				17	B	17	B	17	B
merge		1022	6	101	1309	1388	1229	1004	574			5605	5605	40	52	57	63	64	65			57	57	3	26	25	20	16	9			16	B	18	B	18	B
basic		222	5	1306	1329	1315	1041	584				5575	5575	53	56	62	64	64				60	60	25	24	22	17	9				19	C	19	C	19	C
merge	Btw Shady Grove Rd & MD 28	503	6	185	1460	1504	1359	1071	597			6177	6177	40	51	55	62	64	65			56	56	5	29	28	22	17	9			18	B	21	C	21	C
basic		1473	5	1573	1445	1423	1158	636				6235	6225	52	54	61	63	64				59	59	31	27	24	19	10				22	C	22	C	22	C
		603	5	1771	1355	1286	1157	667				6236		52	55	61	63	64				59		34	25	22	19	11				22	C	22	C		
		1534	5	1777	1286	1238	1210	711				6221		53	54	60	63	64				59		34	24	21	19	11				22	C	22	C		
		2441	5	1736	1202	1172	1307	803				6218		53	54	60	63	64				59		33	23	20	21	13				22	C	22	C		
diverge		527	6	499	1223	1145	1106	1358	866			6197	6197	57	54	54	60	63	64			59	59	9	23	21	19	22	14			18	B	18	B	18	B
basic	MD 28 interchange	1448	5	1097	1118	1059	1387	910				5571	5571	53	54	59	63	64				59	59	21	21	18	22	15				19	C	19	C	19	C
merge		670	6	259	1056	1097	1015	1406	952			5783	5783	51	53	54	60	63	64			57	57	5	20	21	17	23	15			17	B	15	B	15	B
basic		292	6	285	1032	1093	996	1423	960			5788	5790	57	53	53	59	63	64			58	58	5	20	21	17	23	15			17	B	17	B	17	B
		288	6	303	996	1106	985	1426	974			5791		56	53	53	59	62	63			58		5	19	21	17	23	16			17	B	17	B		
merge		500	7	315	825	979	1429	995	1330	923		6797	6797	50	52	53	53	60	63	64		56	56	6	16	19	27	17	21	15		17	B	14	B	14	B
basic	Btw MD 28 & MD 189	316	6	520	1593	1560	1036	1274	896			6878	6879	53	52	53	59	63	64			57	57	10	31	30	18	21	14			21	C	21	C	21	C
		774	6	526	1608	1502	1049	1285	910			6880		54	52	53	58	62	64			57		10	32	29	18	21	15			21	C	21	C		
		603	6	628	1579	1431	1000	1300	937			6875		55	53	54	58	63	64			58		11	30	27	18	21	15			20	C	20	C		
		720	6	731	1537	1382	963	1315	953			6881		56	53	54	58	63	64			58		13	29	26	17	21	15			20	C	20	C		
diverge		486	6	781	1493	1353	953	1325	978			6882	6882	55	52	53	57	62	64			57	57	14	29	26	17	22	16			21	C	23	C	23	C
basic	MD 189 interchange	931	5	1443	1327	950	1331	1018				6070	6072	53	53	57	62	63				57	58	28	25	17	22	16				22	C	22	C	22	C
		1886	5	1417	1299	927	1334	1096				6073		53	53	57	62	63				58		27	25	17	22	18				22	C	22	C		
merge	Btw MD 189 & Montrose Rd	722	6	199	1453	1570	920	1339	1140			6621	6621	53	53	53	57	62	64			57	57	4	28	30	16	22	18			20	C	21	C	21	C
basic		978	5	1781	1511	1050	1236	1064				6642	6637	51	53	57	62	63				57	57	35	29	19	20	17				24	C	24	C	24	C
		196	5	1999	1522	999	1115	1007				6641		51	53	57	62	64				57		40	29	18	18	16				24	C	24	C		
		413	5	2054	1519	951	1104	1012				6640		51	53	56	62	63				57		41	29	17	18	16				24	C	24	C		
		1105	5	2096	1491	916	1102	1025				6630		51	53	56	62	63				57		42	28	17	18	16				24	C	24	C		
diverge		381	6	229	1850	1404	940	1109	1050			6583	6583	44	50	50	54	61	63			54	54	5	38	29	18	18	17			21	C	24	C	24	C
basic	Montrose Rd interchange	847	5	1754	1370	934	1137	1098				6291	6291	53	53	55	61	63				57	57	34	26	17	19	18				23	C	23	C	23	C
weave		646	6	806	1441	1629	956	1141	1122			7094	7094	44	49	52	55	61	63			54	54	19	30	32	18	19	18			22	C	22	C	22	C
basic		828	5	1302	1586	1081	1169	1170				6307	6307	53	53	55	61	63				57	57	25	31	20	20	19				23	C	23	C	23	C
weave	Btw Montrose Rd & Spur Split	795	6	354	1216	1646	1092	1176	1215			6699	6690	56	55	53	55	61	63			57	57	6	23	31	20	20	20			20	C	20	C	20	C
		1095	6	328	981	1489	1451	1197	1256			6703		59	55	54	54	54	60	63		58		6	18	28	27	20	20			20	C	20	C		
		3722	6	324	476	1232	1602	1668	1391			6693		59	56	54	54	56	60			57		6	9	23	30	30	23			20	C	20	C		
		694	6	346	554	1020	1658	1576	1517			6671		60	57	56	54	54	57			56		6	10	18	31	30	27			20	C	20	C		
		386	6	373	627	1056	1564	1547	1490			6657		60	58	56	55	55	57			57		6	11	19	29	29	27			20	C	20	C		
		570	6	403	660	1061	1515	1559	1476			6674		60	58	56	55	55	56			57		7	12	19	28	29	27			20	C	20	C		
basic	Spur Split through MD 187 interchange	715	3	881	1368	1429						3678	3678	57	58	58						58	58	16	24	25						22	C	22	C	21	C
		1098	3	922	1345	1420						3687		58	58	58						58		16	23	25						21	C	21	C		
diverge		474	4	321	613	1331	1406					3671	3671	59	59	58	58					58	58	6	11	23	25					16	B	13	B	13	B
basic		2372	2	1343	1416							2759	2759	58	58							58	58	23	25							24	C	24	C	24	C
merge		507	3	154	1448	1601						3202	3202	41	54	56						50	50	4	27	29						20	C	20	C	20	C
basic		752	2	1529	1684							3214	3214	56	56							56	56	28	31							29	D	29	D	29	D
merge	Btw MD 187 & I-495	957	3	85	1693	1848						3626	3626	45	58	59						54	54	2	30	32						21	C	21	C	21	C
basic		1892	2	1759	1871							3630	3630	61	61							61	61	29	31							30	D	30	D	30	D
merge		1955	3	1705	1708	566						3980	3980	61	62	64						62	62	28	28	9						22	C	22	C	22	C
diverge		1491	3	1626	1581	769						3976	3976	52	53	63						56	56	33	31	12						26	C	26	C	26	C
basic		1568	2	1568	1619							3187	3187	35	38							36	36	47	44							46	F	46	F	46	F
basic	Spur Split to Democracy Blvd	2663	4	962	611	750	662					2985	2985	58	59	59	59					59	59	17	11	13	11					13	B	13	B	13	B
diverge		1139	4	786	788	782	627					2982	2982	57	59	59	59					58	58	14	14	13	11					13	B	14	B	14	B
merge	Democracy Blvd to I-495	1019	4	707	879	1148	102					2836	2836	59	59	56	57					58	58	12	15	21	2					13	B	13	B	13	B
basic		647	3	645	849	1349						2843	2834	59	59	56						58	58	11	15	25						17	B	17	B	17	B
		491	3	653	845	1319						2817		59	59	56						58		11	15	24						17	B	17	B		
		437	3	671	855	1315						2842		59	59	56						58		12	15	24						17	B	17	B		
diverge		603	4	679	843	858	445					2826	2826	59	58	55	58					57	57	12	15	16	8					13	B	13	B	13	B
basic		453	3	691	831	723						2245	2245	59	58	55						58	58	12	14	13						13	B	13	B	13	B
merge		695	4	125	1088	959	728					2900	2900	53	56	58	56					56	56	2	20	17	13					13	B	13	B	13	B
basic		1707	3	1081	1058	761						2900	2900	55	58	56						56	56	20	19	14						17	B	17	B	17	B
basic	ML - I-370 interchange	284	1	683								683	682	52								52	60	13								13	B	13	B	12	B
		331	1	683								683		59								59		12								12	B	12	B		
		2052	1	681								681		61								61		11								11	B	11	B		
merge	ML - Btw I-370 & Gude Dr	1091	2	719	859							1578	1578	63	63							63	63	12	14							13	B	13	B	13	B
basic		2505	2	688	893							1581	1581	64	63							63	63	11	14							13	B	13	B	13	B
diverge		81	2	643	899	0						1542	1557	64	61	0						42	58	10	15	0						8	A	8	A	8	A
		314	3	646	670	245						1561		64	63	61						63		10	11	4						8	A	8	A		
basic	ML - Gude Dr interchange	3713	2	640	653							1293	1293	64	64							64	64	10	10							10	A	10	A	10	A
merge	ML - Btw Gude Dr & Wootton Pkwy	451	3	745	1036	218						1999	1999	63	62	59						61	61	12	17	4						11	B	11	B	11	B
basic		2928	2	896	1116							2012	2014	63	63							63	63	14	18							16	B	16	B	16	B
		849	2	914	1099							2013		63	63							63		15	18							16	B	16	B		
		449	2	918	1100							2018		63	63							63		15	18							16	B	16	B		
		1667	2	922	1097							2019		63	63							63		15	18							16	B	16	B		
		3774	2	887	1127							2014		63	63							63		14	18							16	B	16	B		
diverge		410	3	830	963	213						2006	2006	63	62	62						62	62	13	16	4						11	B	11	B	11	B
basic	ML - Wootton Pkwy interchange	3372	2	818	876							1695	1695	63	63							63	63	13	14							14	B	14	B	14	B
merge	ML - Btw Wootton Pkwy & Spur Split	876	3	993	1227	178						2398	2398	63	62	59						61	61	16	20	3						13	B	13	B	13	B
basic		746	2	1093	1306							2399	2390	62	61							62	63	18	22							20	C	20	C	19	C
		1132	2	1110	1288							2398		63	62							63		18	21							19	C	19	C		
		420	2	1116	1277							2393		63	63							63		18	21							19	C	19	C		
		1519	2	1121	1272							2393		63	63							63		18	21							19	C	19	C		
		4212	2	1157	1229							2385		63	63							63		19	20							19	C	19	C		
diverge		1049	3	311	948	1132						2391	2391	64	63	63						63	63	5	15	18						13	B	13	B	13	B
basic	ML - Spur Split through MD 187 interchange	5712	1	363								363	362	64								64	64	6								6	A	6	A	6	A
		1961	1	361								361		64								64		6								6	A	6	A		
		1845	1	360								360		64								64		6								6	A	6	A		
basic	ML - Spur Split to Westlake Ter/ Fernwood Rd	1604	2	867	1157							2023	2023	63	63							63	63	14	19							16	B	16	B	16	B
diverge		705	3	1023	718	286						2026	2026	63	63	63						63	63	17	12	5						11	B	11	B	11	B
basic	ML - Westlake Ter/Fernwood Rd interchange	1888	2	1026	620							1646	1646	62	64							63	63	17	10							13	B	13	B	13	B
diverge		275	3	377	577	687						1641	1641	52	55	63						57	57	7	11	11						10	B	10	B	10	B
basic		1045	2	369	658							1027	1027	64	64							64	64	6	10							8	A	8	A	8	A
merge	ML - Westlake Ter/Fernwood Rd to I-495	721	3	435	831	78						1344	1344	64	63	62						63	63	7	13	1						7	A	7	A	7	A
basic		1116	2	494	867							1360	1361	64	63							64	64	8	14							11	B	11	B	11	B
		589	2	505	858							1362		64	63							64		8	14							11	B	11	B		
merge		971	3	95	907	937						1939	1939	59	63	63						62	62	2	15	15						10	B	10	B	10	B
basic		1600	2	959	981							1940	1939	63	63							63	63	15	16							16	B	16	B	16	B
		802	2	952	984							1936		63	63							63		15	16							16	B	16	B		

I-270 Southbound - 2027 Preferred Alternative - 5-6 PM

VISSIM Lookup Data				Volume										Speed										Density									
				Volume Per Lane								Across All Lanes	Overall Volume	Speed Per Lane								Across All Lanes	Overall Speed	Density Per Lane								Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)								Total Volume	Average Volume (veh/hr)	Speed (mph)								Average Speed	Average Speed (mph)	Combined Density (pcphpl)								Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Through MD 117 interchange	658	4	1351	1737	1472	1098					5657	5693	61	62	63	63					62	63	23	29	24	18					23	C	23	C	23	C
		3062	4	1345	1683	1496	1176					5700		62	63	63	64					63		22	27	24	19					23	C	23	C		
merge	Btw MD 117 & I-370	1569	5	807	1801	2019	1586	1178				7391	7391	55	59	61	63	64				60	60	15	31	33	26	19				25	C	27	C	27	C
basic		1152	6	705	1110	1841	1383	1090	1275			7405	7408	62	63	61	62	63	63			62	63	12	18	31	23	18	21			20	C	20	C	20	C
		411	6	1128	1251	1504	1128	1010	1394			7415		62	63	62	63	64	62			63		18	20	25	18	16	23			20	C	20	C		
diverge		892	6	1242	1298	1381	1090	1032	1379			7424	7418	62	63	61	62	63	63			62	62	20	21	23	18	17	23			20	C	21	C	21	C
		76	6	1324	1281	1237	1077	1055	1376			7349		61	61	52	56	61	62			59		22	21	24	20	18	23			21	C	23	C		
basic	I-370 interchange	1039	4	1212	1082	1073	1396					4764	4765	63	63	63	63					63	63	20	17	17	23					19	C	19	C	19	C
		1983	4	1209	1085	1086	1386					4766		63	64	64	62					63		19	17	17	23					19	C	19	C		
diverge		201	5	1206	1102	1260	839	357				4763	4763	63	64	63	51	45				57	57	19	18	20	17	8				16	B	15	B	15	B
basic		168	4	1207	1118	1231	581					4136	4136	63	64	63	62					63	63	19	18	20	10					17	B	17	B	17	B
basic	Btw I-370 & Shady Grove Rd	943	5	74	1143	1108	1198	610				4133	4133	69	63	64	64	64				65	65	1	18	18	19	10				13	B	13	B	13	B
merge		705	7	184	1039	662	1095	1022	1083	581		5667	5667	53	53	58	63	64	64	64		60	60	4	20	12	18	16	17	9		14	B	13	B	13	B
diverge		1678	6	649	1229	1226	988	1003	569			5664	5664	55	55	60	63	64	64			60	60	12	23	21	16	16	9			16	B	19	B	19	B
basic	Shady Grove Rd interchange	507	5	1039	1172	1113	1028	599				4950	4950	54	59	62	63	64				60	60	20	20	18	17	10				17	B	17	B	17	B
merge		1022	6	122	1312	1426	1242	1053	631			5786	5786	40	52	57	63	64	64			57	57	3	26	26	20	17	10			17	B	18	B	18	B
basic		222	5	1304	1374	1345	1095	640				5758	5758	52	56	62	63	64				59	59	25	25	22	18	10				20	C	20	C	20	C
merge	Btw Shady Grove Rd & MD 28	503	6	236	1543	1602	1383	1135	650			6550	6550	40	50	54	61	64	64			56	56	6	32	30	23	18	10			20	C	23	C	23	C
basic		1473	5	1660	1533	1469	1242	709				6613	6603	52	54	60	63	64				59	58	33	29	25	20	11				24	C	24	C	23	C
		603	5	1849	1440	1338	1232	754				6612		52	54	60	63	64				59		36	27	23	20	12				24	C	24	C		
		1534	5	1854	1374	1281	1280	808				6597		52	54	60	63	64				59		36	26	22	21	13				23	C	23	C		
		2441	5	1807	1299	1204	1371	917				6599		53	54	59	63	64				58		35	24	21	22	15				23	C	23	C		
diverge		527	6	557	1230	1243	1134	1423	987			6573	6573	56	54	54	59	63	64			58	58	10	23	23	19	23	16			19	B	19	B	19	B
basic	MD 28 interchange	1448	5	1101	1203	1082	1449	1037				5872	5872	53	54	59	62	63				58	58	21	23	19	24	17				21	C	21	C	21	C
merge		670	6	237	1048	1179	1036	1460	1086			6046	6046	52	53	54	59	63	64			57	57	5	20	22	18	24	17			18	B	16	B	16	B
basic		292	6	274	1018	1176	1012	1480	1096			6055	6054	57	53	53	58	62	63			58	58	5	19	22	18	24	18			18	C	18	C	18	C
		288	6	296	980	1184	1005	1478	1111			6053		57	53	53	58	62	63			58		5	19	23	18	24	18			18	C	18	C		
merge	Btw MD 28 & MD 189	500	7	352	924	1026	1464	1028	1362	1043		7200	7200	50	52	53	53	59	63	64		56	56	7	18	20	28	18	22	17		18	B	15	B	15	B
basic		316	6	627	1711	1600	1062	1275	1006			7281	7281	53	51	53	58	63	64			57	57	12	34	31	19	21	16			22	C	22	C	22	C
		774	6	650	1707	1569	1062	1282	1012			7282		54	52	53	57	62	63			57		12	34	30	19	21	16			22	C	22	C		
		603	6	773	1669	1485	1026	1290	1038			7280		55	53	54	57	63	64			58		14	32	28	18	21	17			22	C	22	C		
		720	6	893	1616	1424	987	1302	1056			7280		55	53	54	57	62	64			58		16	31	27	18	21	17			22	C	22	C		
diverge		486	6	955	1554	1392	979	1323	1076			7278	7278	54	52	53	57	62	64			57	57	18	30	27	18	22	17			22	C	25	C	25	C
basic	MD 189 interchange	931	5	1489	1363	981	1333	1118				6283	6287	53	53	56	62	63				57	57	29	26	18	22	18				23	C	23	C	22	C
		1886	5	1462	1339	958	1343	1186				6289		53	53	56	62	63				57		28	25	17	22	19				22	C	22	C		
merge	Btw MD 189 & Montrose Rd	722	6	212	1502	1613	954	1347	1230			6857	6857	53	53	53	56	62	64			57	57	4	29	31	17	22	20			20	C	21	C	21	C
basic		978	5	1871	1560	1081	1235	1129				6876	6872	51	53	56	62	63				57	57	37	30	20	20	18				25	C	25	C	25	C
		196	5	2116	1595	1029	1087	1049				6875		50	53	56	62	63				57		43	30	19	18	17				25	C	25	C		
		413	5	2182	1584	990	1067	1051				6875		50	53	56	62	63				57		44	30	18	18	17				25	C	25	C		
		1105	5	2220	1545	975	1064	1062				6866		50	53	56	62	63				57		45	30	18	17	17				25	C	25	C		
diverge	Montrose Rd interchange	381	6	268	1939	1422	1014	1093	1085			6821	6821	44	49	49	53	61	63			53	53	6	40	30	19	18	18			22	C	25	C	25	C
basic		847	5	1839	1368	1002	1128	1136				6474	6474	53	53	55	61	63				57	57	35	26	19	19	18				23	C	23	C	23	C
weave		646	6	913	1337	1544	1022	1125	1158			7100	7100	45	49	52	55	61	63			54	54	21	28	30	19	19	19			22	C	22	C	22	C
basic		828	5	1166	1498	1113	1156	1195				6128	6128	53	53	55	60	63				57	57	22	29	21	19	19				22	C	22	C	22	C
weave	Btw Montrose Rd & Spur Split	795	6	368	1114	1569	1120	1157	1235			6564	6572	57	55	53	55	60	63			57	57	7	21	30	21	19	20			20	C	20	C	20	C
		1095	6	331	924	1425	1439	1181	1271			6571		59	55	54	54	60	62			57		6	17	27	27	20	21			20	C	20	C		
		3722	6	332	476	1190	1583	1637	1360			6578		60	56	54	54	56	60			57		6	9	22	30	30	23			20	C	20	C		
		694	6	356	560	1047	1691	1485	1428			6567		60	57	56	54	55	57			57		6	10	19	32	28	25			20	C	20	C		
		386	6	384	641	1074	1600	1457	1393			6549		60	58	56	55	55	57			57		7	11	19	30	27	25			20	C	20	C		
		570	6	412	687	1080	1546	1458	1384			6567		60	58	56	55	55	57			57		7	12	20	29	27	25			20	C	20	C		
basic	Spur Split through MD 187 interchange	715	3	899	1278	1343						3520	3520	57	58	58						58	58	16	23	24						21	C	21	C	21	C
		1098	3	943	1254	1332						3529	3529	58	57	57						58		16	22	24						21	C	21	C		
diverge		474	4	365	589	1243	1320					3518	3518	59	59	53	54					56	56	6	10	25	26					17	B	14	B	14	B
basic		2372	2	1257	1327							2584	2584	51	52							51	51	30	30							30	D	30	D	30	D
merge		507	3	119	1324	1444						2887	2887	38	48	50						46	46	5	36	35						25	C	25	C	25	C
basic		752	2	1394	1504							2898	2898	50	50							50	50	35	37							36	E	36	E	36	E
merge	Btw MD 187 & I-495	957	3	86	1517	1653						3256	3256	41	51	52						48	48	3	39	39						27	C	27	C	27	C
basic		1892	2	1564	1703							3267	3267	53	54							54	54	40	39							39	E	39	E	39	E
merge		1955	3	1383	1473	777						3634	3634	52	52	55						53	53	47	44	20						37	E	37	E	37	E
diverge		1491	3	1354	1326	972						3652	3652	52	53	57						54	54	46	42	19						36	E	36	E	36	E
basic		1568	2	1299	1400							2699	2699	33	38							35	35	55	47							51	F	51	F	51	F
basic	Spur Split to Democracy Blvd	2663	4	1100	618	694	633					3045	3045	58	59	59	59					59	59	19	11	12	11					13	B	13	B	13	B
diverge		1139	4	1027	765	689	571					3052	3052	57	59	59	59					58	58	18	13	12	10					13	B	14	B	14	B
merge	Democracy Blvd to I-495	1019	4	656	844	1196	126					2822	2822	59	58	56	56					57	57	11	15	22	2					13	B	13	B	13	B
basic		647	3	597	829	1403						2829	2822	59	58	55						58	58	10	14	26						17	B	17	B	17	B
		491	3	618	821	1365						2803		59	59	55						58		11	14	25						17	B	17	B		
		437	3	640	825	1367						2832		59	59	55						58		11	14	25						17	B	17	B		
diverge		603	4	652	811	907	450					2820	2820	59	58	55	58					57	57	11	14	17	8					13	B	13	B	13	B
basic		453	3	666	809	762						2237	2237	59	58	55						57	57	11	14	14						13	B	13	B	13	B
merge		695	4	125	1067	934	768					2894	2894	54	56	58	55					56	56	2	19	16	14					13	B	13	B	13	B
basic		1707	3	1060	1026	807						2893	2893	55	58	55						56	56	19	18	15						17	B	17	B	17	B
basic	ML - I-370 interchange	284	1	630								630	630	52								52	60	12								12	B	12	B	11	B
		331	1	629								629		59								59		11								11	B	11	B		
		2052	1	630								630		61								61		11								11	B	11	B		
merge	ML - Btw I-370 & Gude Dr	1091	2	695	898							1593	1593	63	62							63	63	11	15							13	B	13	B	13	B
basic		2505	2	672	922							1593		64	63							63		11	15							13	B	13	B	13	B
diverge		81	2	634	923	0						1557	1571	64	61	0						42	58	10	15	0						8	A	8	A	8	A
		314	3	639	715	220						1574		64	63	61						63		10	12	4						8	A	8	A		
basic	ML - Gude Dr interchange	3713	2	633	702							1335	1335	64	63							64	64	10	11							11	B	11	B	11	B
merge	ML - Btw Gude Dr & Wootton Pkwy	451	3	748	1049	207						2004	2004	63	62	58						61	61	12	17	4						11	B	11	B	11	B
basic		2928	2	906	1116							2022	2020	63	62							63	63	15	18							16	B	16	B	16	B
		849	2	924	1095							2019		63	63							63		15	18							16	B	16	B		
		449	2	927	1094							2021		63	63							63		15	18							16	B	16	B		
		1667	2	933	1084							2018		63	63							63		15	17							16	B	16	B		
		3774	2	899	1120							2019		63	63							63		14	18							16	B	16	B		
diverge		410	3	842	958	222						2022	2022	63	62	62						63	63	14	16	4						11	B	11	B	11	B
basic	ML - Wootton Pkwy interchange	3372	2	829	868							1697	1697	64	63							63	63	13	14							14	B	14	B	14	B
merge	ML - Btw Wootton Pkwy & Spur Split	876	3	990	1194	165						2349	2349	63	62	60						61	61	16	20	3						13	B	13	B	13	B
basic		746	2	1077	1273							2351	2353	62	62							62	63	18	21							19	C	19	C	19	C
		1132	2	1091	1260							2351		63	62							63		18	20							19	C	19	C		
		420	2	1093	1255							2347		63	63							63		18	20							19	C	19	C		
		1519	2	1097	1250							2347		63	63							63		18	20							19	C	19	C		
		4212	2	1152	1205							2358		63	63							63		19	19							19	C	19	C		
diverge		1049	3	312	945	1105						2361	2361	64	63	63						63	63	5	15	18						13	B	13	B	13	B
basic	ML - Spur Split through MD 187 interchange	5712	1	362								362	363	64								64	64	6								6	A	6	A	6	A
		1961	1	364								364		64								64		6								6	A	6	A		
		1845	1	364								364		63								63		6								6	A	6	A		
basic	ML - Spur Split to Westlake Ter/ Fernwood Rd	1604	2	867	1124							1991	1991	64	63							63	63	14	18							16	B	16	B	16	B
diverge		705	3	1097	657	240						1994	1994	63	63	63						63	63	18	11	4						11	B	11	B	11	B
basic	ML - Westlake Ter/Fernwood Rd interchange	1888	2	1111	563							1675	1675	62	64							63	63	18	9							14	B	14	B	14	B
diverge		275	3	481	562	627						1670	1670	52	52	62						55	55	10	11	10						10	B	10	B	10	B
basic	ML - Westlake Ter/Fernwood Rd to I-495	1045	2	299	591							890	890	64	64							64	64	5	9							7	A	7	A	7	A
merge		721	3	348	720	57						1126	1126	64	63	63						63	63	6	12	1						6	A	6	A	6	A
basic		1116	2	392	749							1141	1142	64	63							64	64	6	12							9	A	9	A	9	A
		589	2	402	741							1144		64	64							64		6	12							9	A	9	A		
merge		971	3	92	820	818						1730	1730	60	63	63						62	62	2	13	13						9	A	9	A	9	A
basic		1600	2	869	866							1735	1735	63	63							63	63	14	14							14	B	14	B	14	B
		802	2	864	869							1734		64	64							64		14	14							14	B	14	B		

I-270 Southbound - 2027 Preferred Alternative - 6-7 PM

| VISSIM Lookup Data | | | | Volume | | | | | | | | | | Speed | | | | | | | | | | Density | | | | | | | | | |

I-270 Northbound - 2027 Preferred Alternative - 3-4 PM

VISSIM Lookup Data				Volume									Speed									Density									
				Volume Per Lane							Across All Lanes	Overall Volume	Speed Per Lane							Across All Lanes	Overall Speed	Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)							Total Volume	Average Volume (veh/hr)	Speed (mph)							Average Speed	Average Speed (mph)	Combined Density (pcphpl)							Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Btw Watkins Mill Rd & MD 117	7479	4	1305	1463	1574	1815				6157	6157	13	17	20	50				25	25	101	89	81	36				77	F	77	F	77	F
diverge		1357	5	1133	1465	1550	1567	1740			7455	7455	44	18	19	20	46			30	30	26	86	84	80	38			63	F	65	F	65	F
basic	Btw MD 117 & I-370	843	5	1026	1669	1670	1606	1551			7522	7522	32	23	22	23	39			28	28	33	75	80	73	40			60	F	60	F	60	F
merge		531	6	83	1084	1892	1573	1412	1466		7510	7510	31	25	25	20	21	42		27	27	3	46	80	81	69	35		52	F	53	F	53	F
basic		393	4	1678	1280	1395	1533				5886	5950	22	20	23	47				28	31	78	69	62	33				60	F	60	F	56	F
	I-370 interchange	1580	4	1567	1421	1470	1508				5966		23	25	28	50				31		72	61	54	31				54	F	54	F		
merge		1532	4	1471	1484	1349	1782				6087	6087	29	30	33	41				33	33	56	53	44	44				49	F	47	F	47	F
basic		1312	3	1416	1450	1651					4517	4517	38	39	41					39	39	40	39	42					41	E	41	E	41	E
diverge		473	5	841	1394	1698	1592	1244			6770	6770	54	52	43	43	41			47	47	16	27	41	40	33			31	D	31	D	31	D
weave	Btw I-370 & Shady Grove Rd	477	6	1113	1232	1448	1721	1639	1195		8348	8372	53	53	52	46	45	45		49	50	21	23	28	40	38	29		30	D	30	D	29	D
		785	6	907	1403	1523	1725	1646	1159		8364		54	53	52	47	47	47		50		17	27	30	38	37	27		29	D	29	D		
		484	6	545	1774	1678	1648	1639	1102		8386		54	52	52	49	49	49		51		10	35	33	35	35	24		29	D	29	D		
		467	6	576	1952	1616	1638	1551	1063		8397		51	52	52	49	50	50		51		12	38	32	34	32	22		28	D	28	D		
basic		413	5	2001	1552	1630	1554	1001			7739	7739	48	50	50	50	51			50	50	42	32	33	31	20			32	D	32	D	32	D
merge	Shady Grove Rd interchange	745	6	302	1915	1497	1571	1487	940		7712	7712	47	49	51	51	52	53		51	51	7	40	30	31	29	18		26	C	25	C	25	C
basic		884	5	1706	1476	1652	1429	851			7114	7114	51	52	52	53	54			52	52	34	29	32	27	16			28	D	28	D	28	D
		347	5	1839	1543	1384	1249	1098			7114		52	53	53	53	53			53		36	30	26	24	21			27	D	27	D		
diverge		554	7	793	464	1164	1642	1584	1397	1272	8315	8315	54	54	53	53	53	53	53	53	53	15	9	22	31	30	27	24	23	C	19	B	19	B
basic		436	6	1262	1025	1688	1648	1452	1306		8380	8375	53	54	53	53	53	53		53	53	24	20	32	31	28	25		27	D	27	D	27	D
		1154	6	1130	1105	1731	1655	1451	1301		8373		53	54	53	53	54	54		54		22	21	33	31	27	25		26	D	26	D		
basic	Btw Shady Grove Rd & MD 28	1827	5	2185	1803	1648	1441	1291			8368	8378	50	52	53	53	53			52	52	45	35	31	27	25			33	D	33	D	33	D
		2124	5	2085	1853	1665	1472	1309			8383		48	51	53	53	53			52		44	37	32	28	25			33	D	33	D		
		521	5	1422	1867	1912	1700	1483			8383		52	52	52	52	52			52		28	37	37	33	29			33	D	33	D		
		458	5	1395	1908	1920	1683	1477			8382		52	52	53	53	53			53		28	37	37	32	28			32	D	32	D		
merge		662	6	139	1270	1924	1873	1676	1464		8346	8346	38	50	52	53	53	53		50	50	4	26	37	36	32	28		27	C	22	C	22	C
basic		840	5	1022	1740	1880	1681	1463			7786	7786	53	53	53	53	53			53	53	20	34	36	32	28			30	D	30	D	30	D
weave	MD 28 interchange	462	6	960	1215	1817	1895	1683	1448		9017	9017	43	50	52	53	53	53		51	51	23	25	36	36	32	28		30	D	30	D	30	D
basic		566	5	2067	1864	1902	1663	1417			8913	8913	42	47	50	51	51			48	48	50	41	39	33	28			38	E	38	E	38	E
weave	Btw MD 28 & MD 189	533	6	497	2176	1998	1884	1502	1251		9308	9313	29	25	34	44	49	51		39	48	19	91	61	44	31	25		45	F	45	F	35	F
		460	6	694	2229	2139	1737	1335	1173		9308		46	33	47	51	53	53		47		16	70	46	34	26	23		36	E	36	E		
		494	6	647	2468	2048	1672	1310	1178		9323		53	42	50	52	53	53		51		12	61	42	32	25	23		33	D	33	D		
		942	6	851	2593	2057	1590	1268	1159		9319		52	43	50	52	53	53		51		13	63	42	31	24	22		33	D	33	D		
		681	6	699	2416	2075	1643	1311	1164		9306		47	48	51	53	54	54		51		15	52	41	31	25	22		31	D	31	D		
basic	MD 189 interchange	764	5	1863	2045	1770	1448	1318			8444	8437	52	53	53	53	53			53	53	36	39	34	28	25			32	D	32	D	32	D
		160	5	1849	2048	1772	1445	1315			8428		52	53	53	53	53			53		36	39	34	28	25			32	D	32	D		
		286	5	1849	2053	1781	1449	1315			8448		52	53	53	53	53			53		36	39	34	28	25			32	D	32	D		
		142	5	1828	2049	1779	1442	1308			8406		53	53	53	53	53			53		35	39	34	28	25			32	D	32	D		
		161	5	1804	2065	1791	1454	1309			8424		53	53	53	53	53			53		35	40	34	28	25			32	D	32	D		
diverge		403	6	428	1878	2112	1820	1469	1320		9026	9026	53	53	53	53	53	53		53	53	8	36	41	35	28	25		29	D	28	D	28	D
basic	Btw MD 189 & Montrose Rd	2735	5	2281	2140	1836	1466	1311			9034	9032	52	53	53	53	53			53	52	45	41	35	28	25			35	E	35	E	35	E
		530	5	2297	2147	1829	1441	1287			9001		50	52	53	53	53			52		47	42	35	27	25			35	E	35	E		
		1264	5	2306	2223	1826	1415	1271			9040		47	50	53	53	53			51		50	45	35	27	24			36	E	36	E		
merge		517	6	460	2016	2297	1611	1358	1287		9028	9028	37	42	49	52	53	53		48	48	13	49	47	31	26	25		32	D	36	E	36	E
basic	Montrose Rd interchange	215	5	1662	1881	1544	1362	1304			7753	7752	52	53	53	53	53			53	53	32	36	29	26	25			30	D	30	D	30	D
		380	5	1665	1892	1541	1352	1302			7752		53	53	53	53	53			53		32	36	29	26	25			30	D	30	D		
		264	5	1652	1935	1520	1342	1301			7750		52	52	53	53	53			53		32	38	29	26	25			30	D	30	D		
weave		601	6	373	1638	1951	1457	1331	1295		8044	8044	47	52	53	54	53	53		52	52	8	32	38	28	25	25		26	C	26	C	26	C
basic		821	5	1860	1706	1444	1329	1295			7633	7633	53	53	54	54	54			54	54	35	32	27	25	25			29	D	29	D	29	D
weave	Btw Montrose Rd & Spur Split	352	6	951	1868	1710	1446	1316	1283		8575	8579	53	51	51	52	53	53		52	53	18	37	34	28	25	25		28	D	28	D	28	D
		569	6	951	1877	1712	1430	1299	1268		8537		53	52	53	53	53	53		53		18	36	33	27	25	24		27	C	27	C		
		321	6	945	1892	1715	1431	1291	1267		8541		53	52	53	53	53	53		53		18	37	33	27	25	24		27	C	27	C		
		764	6	926	1923	1728	1426	1286	1266		8555		53	52	53	53	53	53		53		18	38	33	27	25	24		27	C	27	C		
		1125	6	878	2020	1795	1390	1252	1259		8594		53	50	52	53	53	53		52		17	41	35	26	24	24		28	D	28	D		
		1203	6	1171	1878	1721	1235	1279	1311		8595		52	51	52	53	53	53		53		23	37	33	23	24	25		28	D	28	D		
		966	6	1262	1568	1613	1268	1428	1446		8586		53	53	53	53	53	53		53		24	30	31	24	27	28		28	D	28	D		
		1314	6	1060	1594	1715	1218	1497	1505		8590		54	53	53	54	53	53		53		20	30	33	23	28	29		27	C	27	C		
basic		825	3	1021	1609	1793					4422		56	56	56					56		18	29	33					27	D	27	D		
	Btw Spur Split & MD 187	721	3	989	1638	1812					4440	4432	58	58	58					58	57	17	29	32					26	D	26	D	26	D
		851	3	959	1659	1817					4434		56	57	58					57		17	29	32					26	D	26	D		
merge		529	4	76	936	1672	1752				4436	4436	34	42	55	58				47	47	2	23	31	31				22	C	19	B	19	B
basic	MD 187 interchange	235	2	1599	1689						3288	3287	57	57						57	58	28	30						29	D	29	D	29	D
		1636	2	1583	1703						3286		58	58						58		28	30						29	D	29	D		
diverge		553	3	170	1582	1721					3473	3473	59	59	59					59	59	3	27	30					20	C	20	C	20	C
basic		798	2	1740	1760						3500	3500	56	56						56	56	31	32						32	D	32	D	32	D
diverge		728	3	337	1783	1798					3919	3919	58	58	58					58	58	6	31	32					23	C	23	C	23	C
basic		3652	2	2067	1862						3929	3929	57	57						57	57	37	33						35	E	35	E	35	E
diverge	Btw MD 187 & I-495	620	3	2049	1853	487					4390	4390	56	57	54					55	55	37	33	9					27	C	27	C	27	C
basic		1136	3	2025	1817	546					4388	4388	55	56	58					57	57	37	33	10					27	D	27	D	27	D
merge		429	4	440	1893	1828	220				4381	4381	48	55	57	61				55	55	9	35	32	4				20	C	26	C	26	C
basic		386	3	1572	1543	80					3194	3194	58	58	63					60	60	27	27	1					19	C	19	C	19	C
basic		500	2	1564	1633						3197	3197	56	56						56	56	28	30						29	D	29	D	29	D
basic	Btw Spur Split & Democracy Blvd	1490	3	1136	1505	1516					4157	4157	54	53	53					53	53	21	29	29					26	D	26	D	26	D
		672	3	1062	1526	1568					4155		54	53	52					53		20	29	31					27	D	27	D		
merge		808	4	921	1549	1456	224				4150	4150	54	53	54	57				55	55	17	30	28	4				20	C	20	C	20	C
basic		239	3	875	1292	1162					3329	3329	54	54	54					54	54	16	24	22					21	C	21	C	21	C
merge		1210	4	62	823	1292	1144				3321	3321	35	52	54	55				49	49	2	16	25	21				16	B	14	B	14	B
basic		256	3	424	1147	1127					2698	2698	56	54	55					55	55	8	22	21					17	B	17	B	17	B
merge	Democracy Blvd interchange	920	3	366	1179	1144					2690	2690	53	54	55					54	54	7	22	21					17	B	17	B	17	B
basic		609	2	1274	1148						2422	2422	54	55						54	54	24	21						23	C	23	C	23	C
diverge	Btw Democracy Blvd & I-495	1048	3	481	1288	1133					2903	2904	54	54	55					54	54	9	24	21					18	B	18	B	18	B
		442	3	483	1299	1124					2906		55	54	54					54		9	25	21					18	B	18	B		
diverge		366	4	482	1318	1176	159				3135	3135	55	53	53	54				54	54	9	26	22	3				15	B	19	B	19	B
basic		1401	3	683	1220	1237					3139	3139	54	54	55					54	54	13	23	23					20	C	20	C	20	C
basic	ML - Btw I-370 & Gude Dr	562	1	1677							1677	1698	45							45	53	39							39	E	39	E	33	D
		3178	1	1701							1701		55							55		32							32	D	32	D		
diverge		193	2	1709	1067						2776	2776	61	62						61	61	29	17						23	C	23	C	23	C
basic		758	2	1704	1071						2776	2776	59	63						61	62	29	17						23	C	23	C	23	C
		2263	2	1610	1168						2778		61	62						62		27	19						23	C	23	C		
		226	2	1514	1245						2759		63	63						63		24	20						22	C	22	C		
merge		505	3	1503	1205	71					2779	2779	63	63	60					62	62	24	19	1					15	B	15	B	15	B
basic	ML - Gude Dr interchange	3340	2	1469	1085						2554	2554	63	63						63	63	24	17						21	C	21	C	21	C
diverge		351	3	1519	1240	429					3188	3188	63	60	59					60	60	25	21	7					18	B	18	B	18	B
basic	ML - Btw Gude Dr & Wootton Pkwy	346	2	1501	1701						3202	3218	63	61						62	63	24	28						26	D	26	D	26	D
		3038	2	1587	1630						3217		63	62						63		26	27						26	D	26	D		
		828	2	1713	1504						3217		63	63						63		28	24						26	D	26	D		
		291	2	1713	1503						3216		63	63						63		28	24						26	D	26	D		
		1864	2	1717	1502						3219		63	63						63		28	24						26	D	26	D		
		3945	2	1729	1490						3220		63	63						63		28	24						26	D	26	D		
merge		506	3	1713	1416	90					3220	3220	63	63	59					62	62	28	23	2					17	B	17	B	17	B
basic	ML - Wootton Pkwy interchange	3242	2	1653	1273						2926	2926	63	63						63	63	27	20						24	C	24	C	24	C
diverge		366	3	1712	1368	315					3395	3395	63	62	61					62	62	28	22	5					18	B	18	B	18	B
basic	ML - Btw Wootton Pkwy & Spur Split	1145	2	1704	1697						3401	3401	63	63						63	63	27	28						27	D	27	D	28	D
		1064	2	1702	1700						3402		63	63						63		27	28						27	D	27	D		
		484	2	1697	1698						3395		63	63						63		27	28						27	D	27	D		
		1518	2	1685	1716						3401		63	62						63		27	28						28	D	28	D		
		3551	2	1836	1565						3401		63	63						63		30	25						28	D	28	D		
weave		1152	3	276	1752	1356					3383	3383	63	63	62					63	63	4	28	22					18	B	18	B	18	B
basic	ML - Spur Split through MD 187 interchange	6147	1	459							459	460	64							64	63	7							7	A	7	A	7	A
		5440	1	461							461		63							63		7							7	A	7	A		
basic	ML - Spur Split to Westlake Ter/ Fernwood Rd	2145	2	1412	1521						2934	2934	63	62						62	62	23	25						24	C	24	C	24	C
merge		697	3	1305	1445	192					2942	2942	63	62	55					60	60	21	24	4					16	B	16	B	16	B
basic	ML - Westlake Ter/Fernwood Rd interchange	986	2	1111	1179						2290	2290	63	63						63	63	18	19						18	C	18	C	18	C
weave		2067	3	796	1137	1187					3119	3119	63	63	63					63	63	13	18	19					17	B	17	B	17	B
basic		340	2	1689	1183						2873	2873	62	63						62	62	28	19						23	C	23	C	23	C
diverge	ML - Westlake Ter/Fernwood Rd to I-495	652	3	1558	1356	127					3040	3040	62	63	63					63	63	25	22	2					16	B	16	B	16	B
basic		1096	2	1431	1615						3046	3044	63	63						63	63	23	26						25	C	25	C	25	C
		4032	2	1452	1591						3044		63	63						63		23	26						25	C	25	C		

I-270 Northbound - 2027 Preferred Alternative - 4-5 PM

| VISSIM Lookup Data | | | | Volume | | | | | | | | | Speed | | | | | | | | | Density | | | | | | | | |

I-270 Northbound - 2027 Preferred Alternative - 5-6 PM

VISSIM Lookup Data				Volume								Speed								Density													
				Volume Per Lane							Across All Lanes	Overall Volume	Speed Per Lane							Across All Lanes	Overall Speed	Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)							Total Volume	Average Volume (veh/hr)	Speed (mph)							Average Speed	Average Speed (mph)	Combined Density (pcphpl)							Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Btw Watkins Mill Rd & MD 117	7479	4	917	1184	1357	1723				5182	5182	7	10	13	51				20	20	146	122	107	34				102	F	102	F	102	F
diverge		1357	5	808	985	1184	1281	1695			5953	5953	20	6	8	10	41			17	17	55	156	144	136	42			107	F	119	F	119	F
basic	Btw MD 117 & I-370	843	5	966	1013	1116	1286	1576			5957	5957	15	7	8	10	26			13	13	75	146	150	136	60			114	F	114	F	114	F
merge		531	6	150	1184	936	952	1190	1511		5922	5922	20	11	6	6	9	30		14	14	8	109	154	164	142	51		105	F	109	F	109	F
basic		393	4	924	929	1229	1471				4552	4566	6	6	9	38				15	16	166	161	139	40				126	F	126	F	124	F
	I-370 interchange	1580	4	775	975	1423	1396				4569		4	6	11	41				16		178	154	127	35				123	F	123	F		
merge		1532	4	728	954	1244	1656				4582	4582	4	6	10	18				10	10	181	163	130	92				142	F	128	F	128	F
basic		1312	3	820	1035	1331					3186	3186	5	8	11					8	8	158	139	118					138	F	138	F	138	F
diverge		473	5	1317	587	976	1053	1023			4956	4956	34	15	6	7	7			14	14	54	47	156	158	159			115	F	104	F	104	F
		477	6	1222	1424	668	948	990	1011		6263		46	35	17	6	6	6		19		28	52	45	158	165	158		101	F	101	F		
weave	Btw I-370 & Shady Grove Rd	785	6	1198	1546	851	805	878	1014		6293	6296	44	31	15	5	5	6		18	18	28	55	60	168	175	159		108	F	108	F	109	F
		484	6	1224	1684	967	679	746	1010		6310		42	29	14	4	4	6		17		30	60	71	179	186	159		114	F	114	F		
		467	6	1237	1727	1009	651	691	1005		6320		42	30	14	4	4	6		17		30	58	72	183	191	160		116	F	116	F		
basic		413	5	1921	1235	646	652	1001			5454	5454	25	13	4	3	6			10	10	79	94	186	194	160			142	F	142	F	142	F
merge		745	6	938	1315	995	584	621	998		5451	5451	20	13	9	3	3	6		9	9	49	102	111	188	193	157		133	F	87	F	87	F
basic	Shady Grove Rd interchange	884	5	1514	995	680	676	960			4826	4831	18	10	4	4	7			9	8	87	104	163	164	131			130	F	130	F	133	F
		347	5	1215	962	812	810	1044			4843		9	7	5	5	8			7		130	137	152	154	136			142	F	142	F		
diverge		554	7	531	315	873	879	908	978	1165	5650	5650	53	54	5	5	6	6	8	20	20	10	6	166	164	162	156	141	115	F	86	F	86	F
basic		436	6	851	847	888	925	1016	1191		5718	5733	51	5	5	6	7	8		14	13	17	169	167	165	157	143		136	F	136	F	131	F
		1154	6	801	875	925	949	1015	1173		5739		46	6	6	6	7	9		13		18	154	159	158	151	137		129	F	129	F		
basic	Btw Shady Grove Rd & MD 28	1827	5	1447	1152	1031	1041	1164			5835	5937	14	9	8	8	10			10	10	106	124	134	131	118			123	F	123	F	118	F
		2124	5	1199	1162	1178	1188	1244			5970		10	10	11	11	12			11		122	114	113	112	104			113	F	113	F		
		521	5	865	1088	1276	1370	1438			6037		7	9	11	13	15			11		136	129	118	108	99			118	F	118	F		
		458	5	871	1116	1288	1370	1430			6075		7	9	11	12	14			10		138	135	126	115	107			124	F	124	F		
merge		662	6	363	604	1074	1300	1368	1415		6124	6124	4	4	8	11	13	14		9	9	104	153	139	121	111	103		122	F	132	F	132	F
basic		840	5	641	1028	1327	1377	1393			5765	5765	5	8	12	14	15			11	11	146	137	117	107	99			121	F	121	F	121	F
weave	MD 28 interchange	462	6	831	748	1136	1365	1382	1368		6830	6830	15	6	10	13	14	15		12	12	59	132	127	111	101	94		104	F	104	F	104	F
basic		566	5	1397	1229	1427	1387	1342			6781	6781	12	12	15	15	16			14	14	116	111	102	96	89			103	F	103	F	103	F
		533	6	464	1247	1241	1514	1369	1290		7125		6	8	11	17	16	16		12		84	155	112	93	88	84		103	F	103	F		
		460	6	614	1225	1243	1435	1365	1308		7189		11	9	12	18	18	18		14		62	152	110	83	77	75		93	F	93	F		
weave	Btw MD 28 & MD 189	494	6	595	1321	1196	1379	1416	1356		7262	7290	10	10	12	19	21	20		15	16	67	149	109	75	67	68		89	F	89	F	89	F
		942	6	627	1414	1202	1248	1409	1444		7344		12	10	11	18	25	26		17		56	147	114	71	56	56		84	F	84	F		
		681	6	671	1362	1249	1267	1387	1495		7431		17	11	12	16	24	30		18		46	133	115	85	60	51		82	F	82	F		
		764	5	1078	1301	1363	1450	1567			6759		10	13	16	23	30			18		117	112	93	67	54			89	F	89	F		
basic	MD 189 interchange	160	5	1098	1350	1403	1444	1516			6811	6808	11	14	17	23	29			19	19	113	108	89	65	54			85	F	85	F	86	F
		286	5	1112	1381	1430	1443	1492			6859		11	14	18	24	29			19		110	105	86	64	53			83	F	83	F		
		142	5	1118	1405	1449	1429	1458			6859		12	15	19	24	28			20		105	102	82	62	53			81	F	81	F		
		161	5	1125	1435	1462	1428	1450			6899		12	16	19	24	28			20		103	100	81	62	53			80	F	80	F		
diverge		403	6	407	1227	1493	1498	1416	1442		7483	7483	47	13	17	20	24	29		25	25	9	101	97	80	61	51		67	F	69	F	69	F
basic	Btw MD 189 & Montrose Rd	2735	5	1729	1648	1570	1381	1355			7683	7794	21	22	25	28	31			25	28	91	85	69	54	47			69	F	69	F	65	F
		530	5	1868	1773	1611	1337	1280			7868		27	28	31	32	34			31		80	72	59	47	41			60	F	60	F		
		1264	5	1904	1859	1648	1332	1260			8003		27	30	33	34	35			32		80	70	55	43	39			58	F	58	F		
merge		517	6	509	1644	1965	1446	1245	1275		8084	8084	12	21	29	31	35	38		28	28	50	82	74	52	40	36		56	F	69	F	69	F
basic		215	5	1391	1628	1359	1231	1282			6891	6925	26	30	33	36	39			33	34	62	62	48	38	36			49	F	49	F	47	F
		380	5	1424	1646	1360	1221	1272			6923		29	32	34	37	40			34		58	59	46	37	34			47	F	47	F		
	Montrose Rd interchange	264	5	1429	1701	1354	1214	1259			6956		30	33	35	38	40			35		56	58	44	36	33			46	F	46	F		
weave		601	6	346	1455	1734	1311	1210	1242		7298	7298	27	33	36	38	41	42		36	36	23	53	55	40	33	32		39	E	39	E	39	E
basic		821	5	1719	1596	1313	1195	1229			7051	7051	39	40	42	44	45			42	42	53	47	37	31	29			39	E	39	E	39	E
		352	6	849	1744	1617	1317	1186	1211		7923		45	40	41	43	45	46		43		21	52	46	35	29	28		35	E	35	E		
		569	6	856	1757	1631	1311	1169	1199		7923		45	41	42	44	46	46		44		20	50	45	34	28	27		34	D	34	D		
		321	6	857	1781	1650	1315	1158	1192		7953		46	41	42	44	46	46		44		20	49	43	33	27	27		33	D	33	D		
weave	Btw Montrose Rd & Spur Split	764	6	851	1826	1676	1318	1147	1183		8001	8092	46	42	43	45	46	47		45	49	20	48	43	32	26	26		33	D	33	D	30	D
		1125	6	826	1959	1758	1277	1096	1171		8087		46	42	44	46	48	48		46		19	49	42	29	24	25		31	D	31	D		
		1203	6	1173	1893	1712	1085	1088	1198		8149		49	47	48	50	51	51		50		24	41	36	23	22	24		28	D	28	D		
		966	6	1357	1619	1623	1083	1181	1318		8181		52	52	52	53	53	53		52		27	32	31	21	23	25		26	C	26	C		
		1314	6	1188	1668	1738	999	1207	1385		8185		54	53	53	54	54	53		53		22	32	33	19	23	26		26	C	26	C		
basic		825	3	1150	1689	1867					4706	4716	56	55	55					56	56	21	31	34					29	D	29	D	28	D
	Btw Spur Split & MD 187	721	3	1130	1707	1888					4724		58	58	58					58		20	30	33					28	D	28	D		
		851	3	1101	1723	1894					4718		55	56	57					56		20	31	34					28	D	28	D		
merge		529	4	128	1087	1719	1786				4720	4720	33	39	53	58				46	46	4	28	33	32				24	C	22	C	22	C
basic		235	2	1612	1705						3317	3316	57	57						57	57	29	30						29	D	29	D	29	D
	MD 187 interchange	1636	2	1594	1721						3316		58	57						57		28	30						29	D	29	D		
diverge		553	3	196	1597	1742					3536	3536	59	58	58					58	58	3	28	30					20	C	20	C	20	C
basic		798	2	1795	1769						3563	3563	56	56						56	56	33	32						32	D	32	D	32	D
diverge		728	3	244	1828	1790					3862	3862	59	58	58					58	58	4	32	31					23	C	23	C	23	C
basic		3652	2	2051	1822						3873	3873	57	57						57	57	37	32						34	D	34	D	34	D
diverge		620	3	2030	1820	489					4340	4340	56	57	58					57	57	37	33	9					26	C	26	C	26	C
basic	Btw MD 187 & I-495	1136	3	2025	1787	531					4343	4343	56	57	58					57	57	37	32	9					26	D	26	D	26	D
merge		429	4	434	1901	1790	219				4343	4343	49	56	58	61				56	56	9	35	31	4				20	C	25	C	25	C
basic		386	3	1550	1519	81					3150	3150	58	58	58	63				60	60	27	26	1					18	C	18	C	18	C
basic		500	2	1555	1598						3153	3153	56	56						56	56	28	29						29	D	29	D	29	D
basic		1490	3	857	1212	1397					3466	3467	54	54	53					53	53	16	23	27					22	C	22	C	22	C
	Btw Spur Split & Democracy Blvd	672	3	792	1233	1443					3468		54	53	52					53		15	23	28					22	C	22	C		
merge		808	4	690	1183	1351	240				3464	3464	54	54	53	57				54	54	13	22	26	4				16	B	17	B	17	B
basic		239	3	660	917	843					2421	2421	54	54	54					54	54	12	17	16					15	B	15	B	15	B
merge		1210	4	64	667	879	806				2416	2416	33	50	54	54				48	48	2	14	17	15				12	B	11	B	11	B
basic		256	3	212	618	759					1589	1589	56	55	54					55	55	4	11	14					10	A	10	A	10	A
merge	Democracy Blvd interchange	920	3	201	627	758					1586	1586	51	55	54					53	53	4	12	14					10	B	10	B	10	B
basic		609	2	601	743						1344	1344	56	54						55	55	11	14						12	B	12	B	12	B
diverge		1048	3	348	598	745					1691	1691	54	56	54					55	55	7	11	14					10	B	10	B	10	B
	Btw Democracy Blvd & I-495	442	3	347	594	751					1691		55	55	54					55		6	11	14					10	B	10	B		
diverge		366	4	346	596	780	75				1796	1796	55	55	54	54				54	54	6	11	15	1				8	A	11	B	11	B
basic		1401	3	293	586	921					1800	1800	53	53	53					53	53	6	11	18					12	B	12	B	12	B
basic		562	1	1404							1404	1402	11							11	11	128							128	F	128	F	127	F
		3178	1	1402							1402		11							11		127							127	F	127	F		
diverge		193	2	1372	828						2200	2200	11	35						23	23	132	26						79	F	79	F	79	F
basic	ML - Btw I-370 & Gude Dr	758	2	1298	904						2203	2222	9	29						19	12	140	33						86	F	86	F	116	F
		2263	2	1030	1197						2227		7	13						10		155	93						124	F	124	F		
		226	2	1031	1202						2234		7	10						9		146	126						136	F	136	F		
merge		505	3	1004	1071	181					2255	2255	7	8	17					11	11	149	135	11					99	F	99	F	99	F
basic	ML - Gude Dr interchange	3340	2	1047	1060						2107	2107	10	11						10	10	124	113						118	F	118	F	118	F
diverge		351	3	1171	1128	408					2708	2708	18	19	44					27	27	95	84	10					63	F	63	F	63	F
basic		346	2	1216	1518						2734	2904	21	26						23	40	90	77						84	F	84	F	50	F
		3038	2	1373	1431						2804		27	29						28		70	67						69	F	69	F		
	ML - Btw Gude Dr & Wootton Pkwy	828	2	1523	1354						2877		35	33						34		54	53						54	F	54	F		
		291	2	1542	1355						2897		39	38						38		49	48						49	F	49	F		
		1864	2	1567	1365						2933		45	43						44		44	43						43	E	43	E		
		3945	2	1603	1385						2988		52	50						51		36	34						35	E	35	E		
merge		506	3	1584	1327	107					3018	3018	56	55	52					54	54	31	29	3					21	C	21	C	21	C
basic	ML - Wootton Pkwy interchange	3242	2	1534	1182						2716	2716	59	57						58	58	27	22						25	C	25	C	25	C
diverge		366	3	1597	1294	324					3216	3216	63	62	61					62	62	26	21	5					18	B	18	B	18	B
basic		1145	2	1589	1630						3219	3221	63	63						63	63	26	27						26	D	26	D	26	D
		1064	2	1589	1632						3222		63	63						63		26	26						26	D	26	D		
	ML - Btw Wootton Pkwy & Spur Split	484	2	1589	1627						3215		63	63						63		26	26						26	D	26	D		
		1518	2	1578	1640						3218		63	62						63		25	27						26	D	26	D		
		3551	2	1746	1479						3224		63	63						63		28	24						26	D	26	D		
weave		1152	3	255	1677	1276					3208	3208	63	63	62					63	63	4	27	21					17	B	17	B	17	B
basic	ML - Spur Split through MD 187 interchange	6147	1	471							471	470	64							64	63	8							8	A	8	A	8	A
		5440	1	469							469		63							63		8							8	A	8	A		
basic	ML - Spur Split to Westlake Ter/ Fernwood Rd	2145	2	1267	1479						2746	2746	63	62						62	62	20	24						22	C	22	C	22	C
merge		697	3	1117	1412	223					2753	2753	63	62	57					60	60	18	23	4					15	B	15	B	15	B
basic	ML - Westlake Ter/Fernwood Rd interchange	986	2	893	1063						1956	1956	63	63						63	63	14	17						16	B	16	B	16	B
weave		2067	3	969	962	1071					3002	3002	62	63	63					63	63	16	15	17					16	B	16	B	16	B
basic		340	2	1769	1122						2891	2891	61	63						62	62	29	18						24	C	24	C	24	C
diverge		652	3	1617	1317	134					3068	3068	62	63	64					63	63	26	21	2					17	B	17	B	17	B
basic	ML - Westlake Ter/Fernwood Rd to I-495	1096	2	1443	1631						3074	3068	63	63						63	63	24	26						25	C	25	C	25	C
		4032	2	1466	1600						3067		63	63						63		24	26						25	C	25	C		

I-270 Northbound - 2027 Preferred Alternative - 6-7 PM

VISSIM Lookup Data				Volume									Speed									Density									
				Volume Per Lane							Across All Lanes	Overall Volume	Speed Per Lane							Across All Lanes	Overall Speed	Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)							Total Volume	Average Volume (veh/hr)	Speed (mph)							Average Speed	Average Speed (mph)	Combined Density (pcphpl)							Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Btw Watkins Mill Rd & MD 117	7479	4	1109	1332	1470	1748				5659	5659	10	14	17	50				23	23	118	103	92	35				87	F	87	F	87	F
diverge		1357	5	873	1138	1311	1459	1712			6493	6493	27	9	13	16	43			22	22	47	134	120	113	40			91	F	100	F	100	F
basic	Btw MD 117 & I-370	843	5	974	1178	1260	1464	1597			6473	6473	17	9	11	15	31			17	17	69	129	130	116	54			100	F	100	F	100	F
merge		531	6	111	1184	1142	1091	1334	1541		6402	6402	22	14	9	9	13	35		17	17	10	92	135	143	122	46		91	F	95	F	95	F
basic		393	4	1133	1040	1367	1506				5046	5045	8	8	14	41				18	18	140	139	118	38				109	F	109	F	108	F
	I-370 interchange	1580	4	956	1137	1502	1450				5044		7	9	15	42				18		150	133	112	36				108	F	108	F		
merge		1532	4	872	1100	1349	1686				5007	5007	6	9	13	21				12	12	152	139	112	83				122	F	112	F	112	F
basic		1312	3	931	1156	1451					3537	3537	8	11	15					11	11	129	115	104					116	F	116	F	116	F
diverge		473	5	1254	657	1095	1157	1178			5342	5342	38	23	9	10	10			18	18	59	47	128	133	138			101	F	92	F	92	F
		477	6	1212	1381	712	1076	1115	1166		6661		44	40	25	9	9	10		23		37	59	48	128	137	136		91	F	91	F		
weave	Btw I-370 & Shady Grove Rd	785	6	1176	1460	835	972	1018	1159		6620	6611	43	35	19	8	9	10		21	20	36	63	60	136	144	135		96	F	96	F	97	F
		484	6	1118	1599	959	868	893	1146		6583		41	32	17	7	8	11		19		37	69	70	145	151	134		101	F	101	F		
		467	6	1039	1672	1029	840	846	1145		6572		39	31	17	6	8	11		19		38	70	74	148	153	134		103	F	103	F		
basic		413	5	1817	1215	824	812	1139			5806	5806	24	14	6	8	11			13	13	90	93	154	157	134			126	F	126	F	126	F
merge		745	6	731	1323	1017	775	788	1120		5754	5754	20	15	11	6	7	11		12	12	61	107	101	154	156	131		118	F	89	F	89	F
basic	Shady Grove Rd interchange	884	5	1402	1008	848	881	1107			5246	5242	18	11	6	8	12			11	10	100	104	141	134	109			118	F	118	F	122	F
		347	5	1123	954	902	1000	1251			5230		9	7	7	8	11			8		141	140	139	131	117			134	F	134	F		
diverge		554	7	411	195	838	878	955	1120	1375	5772	5772	52	53	5	6	6	8	11	20	20	8	4	172	166	159	146	129	112	F	87	F	87	F
basic		436	6	610	810	880	967	1143	1379		5788	5752	50	5	5	6	8	11		14	13	12	176	171	163	148	131		134	F	134	F	132	F
		1154	6	566	828	899	975	1133	1337		5738		41	5	6	6	8	11		13		14	167	166	160	147	130		131	F	131	F		
		1827	5	1197	1040	1022	1131	1288			5678		10	8	8	9	11			9		128	139	140	130	117			131	F	131	F		
basic	Btw Shady Grove Rd & MD 28	2124	5	1004	1019	1093	1202	1324			5643	5649	7	8	9	10	12			9	9	144	135	127	119	111			127	F	127	F	132	F
		521	5	797	951	1116	1301	1458			5622		5	7	8	11	13			9		162	153	138	124	114			138	F	138	F		
		458	5	787	959	1114	1298	1440			5597		5	6	8	10	12			8		169	163	150	135	125			148	F	148	F		
merge		662	6	427	456	865	1098	1281	1419		5546	5546	3	2	5	8	10	12		7	7	139	194	172	149	134	124		152	F	168	F	168	F
basic		840	5	546	771	1091	1276	1413			5096	5096	3	5	8	10	12			7	7	186	171	146	133	124			152	F	152	F	152	F
weave	MD 28 interchange	462	6	819	820	782	1091	1314	1462		6088	6088	11	4	6	9	12	13		9	9	83	155	147	130	122	115		125	F	125	F	125	F
basic		566	5	1152	812	1077	1371	1579			5990	5990	11	8	12	14	16			12	12	126	116	110	109	108			114	F	114	F	114	F
		533	6	549	655	693	1129	1499	1711		6237		4	4	5	11	15	17		9		131	193	152	109	106	106		133	F	133	F		
		460	6	692	441	643	1083	1567	1790		6217		6	2	4	12	18	20		11		127	213	156	101	94	94		131	F	131	F		
weave	Btw MD 28 & MD 189	494	6	664	388	582	1016	1625	1923		6198	6198	5	2	4	13	22	24		12	11	146	218	164	95	81	84		131	F	131	F	134	F
		942	6	673	316	486	947	1674	2088		6184		6	1	3	10	23	29		12		125	223	187	108	76	75		132	F	132	F		
		681	6	691	288	451	999	1632	2111		6173		7	1	2	8	17	28		11		115	223	195	143	98	78		142	F	142	F		
		764	5	266	470	1008	1646	2082			5471		1	2	7	15	24			10		225	204	162	118	91			160	F	160	F		
		160	5	271	514	1041	1644	1982			5451		1	3	7	15	21			9		222	201	158	117	96			159	F	159	F		
basic	MD 189 interchange	286	5	282	537	1049	1644	1949			5462	5462	1	3	7	15	21			9	10	223	197	157	118	98			159	F	159	F	159	F
		142	5	294	549	1059	1622	1913			5437		1	3	7	15	20			9		222	195	154	117	98			157	F	157	F		
		161	5	305	562	1068	1618	1894			5447		1	3	7	14	20			9		223	196	155	118	100			158	F	158	F		
diverge		403	6	384	352	598	1084	1597	1874		5890	5890	31	2	3	7	14	19		13	13	13	212	195	157	120	102		133	F	140	F	140	F
		2735	5	636	742	1161	1573	1759			5870		3	4	8	14	17			9		194	183	150	120	106			151	F	151	F		
basic	Btw MD 189 & Montrose Rd	530	5	570	778	1216	1561	1673			5799	5846	3	5	9	14	16			9	9	197	171	142	118	108			147	F	147	F	148	F
		1264	5	547	780	1208	1566	1711			5813		3	5	9	14	17			10		199	165	135	114	105			144	F	144	F		
merge		517	6	261	370	710	1138	1546	1786		5811	5811	1	2	4	8	14	18		8	8	195	202	185	148	119	103		159	F	194	F	194	F
		215	5	378	657	1120	1545	1783			5484		2	4	8	13	18			9		215	192	153	121	103			157	F	157	F		
basic		380	5	393	677	1125	1541	1757			5494	5494	2	4	8	14	17			9	9	214	189	152	119	104			156	F	156	F	156	F
	Montrose Rd interchange	264	5	409	696	1134	1529	1733			5502		2	4	8	13	17			9		211	187	150	119	104			154	F	154	F		
weave		601	6	326	296	701	1128	1511	1700		5662	5662	2	1	4	8	13	17		8	8	161	214	187	149	120	105		156	F	156	F	156	F
basic		821	5	384	734	1136	1502	1659			5414	5414	2	4	8	13	16			9	9	214	182	146	117	104			153	F	153	F	153	F
		352	6	606	398	784	1143	1462	1624		6017		6	2	5	9	15	18		9		106	207	171	133	105	92		136	F	136	F		
		569	6	629	418	793	1152	1441	1592		6025		6	2	5	10	15	18		9		122	204	165	129	103	90		136	F	136	F		
		321	6	648	449	803	1212	1430	1566		6068		7	2	5	10	15	18		10		116	202	163	127	102	90		133	F	133	F		
weave	Btw Montrose Rd & Spur Split	764	6	663	498	802	1203	1418	1535		6120	6319	7	3	6	11	15	17		10	10	118	196	160	121	101	91		131	F	131	F	128	F
		1125	6	686	618	796	1190	1427	1514		6232		7	4	6	11	16	18		10		117	187	157	117	97	90		127	F	127	F		
		1203	6	833	725	826	1053	1363	1544		6345		8	5	6	10	16	20		11		127	172	155	119	94	83		125	F	125	F		
		966	6	769	792	925	1052	1334	1594		6466		6	6	7	10	15	21		11		158	158	145	122	98	83		127	F	127	F		
		1314	6	723	902	1066	1062	1326	1566		6644		5	7	9	11	15	20		11		155	152	139	116	97	84		124	F	124	F		
basic		825	3	789	1055	1334					3178		7	9	13					10		142	139	122					134	F	134	F		
	Btw Spur Split & MD 187	721	3	818	1110	1332					3260	3257	7	10	13					10	10	136	134	121					130	F	130	F	130	F
		851	3	825	1151	1354					3330		8	11	14					11		130	127	117					125	F	125	F		
merge		529	4	201	663	1184	1352				3399	3399	5	6	12	15				10	10	64	132	125	112				108	F	107	F	107	F
basic		235	2	1144	1334						2477	2522	12	16						14	15	121	106						114	F	114	F	110	F
	MD 187 interchange	1636	2	1171	1358						2529		14	17						15		116	103						110	F	110	F		
diverge		2709	3	124	1192	1393					2709	2709	50	16	19					29	29	3	111	102					72	F	72	F	72	F
basic		798	2	1326	1436						2762	2762	18	20						19	19	106	99						102	F	102	F	102	F
diverge		728	3	228	1353	1485					3066	3066	52	20	22					32	32	4	102	95					67	F	67	F	67	F
basic		3652	2	1600	1566						3165	3165	23	24						24	24	96	90						93	F	93	F	93	F
diverge		620	3	1611	1470	550					3631	3631	22	22	22					22	22	101	98	46					82	F	82	F	82	F
basic	Btw MD 187 & I-495	1136	3	1554	1423	714					3691	3691	22	21	23					22	22	100	99	50					83	F	83	F	83	F
merge		429	4	380	1353	1453	569				3754	3754	13	20	22	20				19	19	77	101	96	66				85	F	92	F	92	F
basic		386	3	1267	1346	351					2964	2964	21	24	19					21	21	97	83	51					77	F	77	F	77	F
basic		500	2	1348	1647						2994	2994	22	29						26	26	90	72						81	F	81	F	81	F
basic		1490	3	940	1263	1433					3636	3646	25	31	34					30	32	59	55	52					55	F	55	F	52	F
	Btw Spur Split & Democracy Blvd	672	3	910	1298	1459					3668		36	39	40					38		43	46	45					45	F	45	F		
merge		808	4	807	1316	1314	246				3683	3683	41	43	42	42				42	42	33	41	42	13				32	D	32	D	32	D
basic		239	3	759	1079	1110					2948	2948	45	46	46					46	46	27	31	34					31	D	31	D	31	D
merge		1210	4	68	723	1074	1100				2965	2965	28	43	47	46				41	41	8	26	30	32				24	C	21	C	21	C
basic		256	3	366	913	1095					2374	2374	47	47	46					47	47	17	26	30					24	C	24	C	24	C
merge	Democracy Blvd interchange	920	3	313	944	1123					2381	2381	44	48	47					46	46	14	25	29					23	C	23	C	23	C
basic		609	2	1026	1148						2174	2174	49	48						48	48	25	28						27	D	27	D	27	D
diverge		1048	3	350	1026	1159					2536	2542	49	49	49					49	49	8	24	27					20	C	20	C	19	B
	Btw Democracy Blvd & I-495	442	3	357	1025	1173					2555		52	49	49					50		7	23	26					19	B	19	B		
diverge		366	4	366	1027	1219	111				2722	2722	51	49	49	53				50	50	8	23	27	2				15	B	19	B	19	B
basic		1401	3	416	961	1370					2746	2746	49	49	49					49	49	9	21	29					20	C	20	C	20	C
basic		562	1	1432							1432	1426	14							14	14	114							114	F	114	F	112	F
	ML - Btw I-370 & Gude Dr	3178	1	1425							1425		14							14		111							111	F	111	F		
diverge		193	2	1409	907						2315	2315	13	35						24	24	118	48						83	F	83	F	83	F
basic		758	2	1362	951						2313	2307	11	27						19	12	126	54						90	F	90	F	119	F
		2263	2	1120	1188						2308		8	12						10		149	105						127	F	127	F		
		226	2	1084	1196						2279		7	9						8		149	136						143	F	143	F		
merge		505	3	1035	1048	212					2295	2295	7	7	16					10	10	158	151	13					107	F	107	F	107	F
basic	ML - Gude Dr interchange	3340	2	993	1074						2067	2067	6	7						7	7	159	152						156	F	156	F	156	F
diverge		351	3	1018	1101	458					2577	2577	7	8	35					17	17	154	141	13					103	F	103	F	103	F
basic		346	2	1097	1490						2587	2626	7	12						10	15	150	124						137	F	137	F	117	F
		3038	2	1281	1327						2608		10	10						10		133	132						132	F	132	F		
	ML - Btw Gude Dr & Wootton Pkwy	828	2	1362	1246						2608		11	10						10		126	133						129	F	129	F		
		291	2	1357	1251						2608		11	10						11		125	132						128	F	128	F		
		1864	2	1356	1260						2616		12	11						12		119	125						122	F	122	F		
		3945	2	1389	1264						2653		23	22						22		97	99						98	F	98	F		
merge		506	3	1359	1132	194					2685	2685	23	21	22					22	22	92	98	17					69	F	69	F	69	F
basic	ML - Wootton Pkwy interchange	3242	2	1356	1093						2449	2449	30	27						29	29	71	71						71	F	71	F	71	F
diverge		366	3	1442	1154	232					2828	2828	44	42	54					46	46	54	52	5					37	E	37	E	37	E
basic		1145	2	1460	1386						2846	2887	45	45						45	50	52	50						51	F	51	F	39	E
		1064	2	1468	1393						2861		46	45						46		49	48						48	F	48	F		
	ML - Btw Wootton Pkwy & Spur Split	484	2	1473	1393						2866		47	46						46		47	46						47	F	47	F		
		1518	2	1481	1406						2886		48	47						48		44	43						44	E	44	E		
		3551	2	1617	1293						2910		55	54						55		33	28						30	D	30	D		
weave		1152	3	247	1554	1113					2914	2914	58	59	58					58	58	5	27	20					17	B	17	B	17	B
basic	ML - Spur Split through MD 187 interchange	6147	1	381							381	379	64							64	63	6							6	A	6	A	6	A
		5440	1	378							378		62							62		6							6	A	6	A		
basic	ML - Spur Split to Westlake Ter/ Fernwood Rd	2145	2	1210	1335						2545	2545	63	62						63	63	20	22						21	C	21	C	21	C
merge		697	3	1094	1276	184					2554	2554	63	62	56					60	60	18	21	3					14	B	14	B	14	B
basic	ML - Westlake Ter/Fernwood Rd interchange	986	2	897	954						1851	1851	63	63						63	63	14	15						15	B	15	B	15	B
weave		2067	3	714	940	965					2619	2619	55	62	63					60	60	16	16	16					16	B	16	B	16	B
basic		340	2	1470	985						2454	2454	62	63						63	63	24	16						20	C	20	C	20	C
diverge	ML - Westlake Ter/Fernwood Rd to I-495	652	3	1361	1130	119					2610	2611	62	63	64					63	63	22	18	2					14	B	14	B	14	B
basic		1096	2	1241	1371						2612		63	63						63	63	20	22						21	C	21	C	21	C
		4032	2	1266	1344						2610		63	63						63		20	22						21	C	21	C		

Arterial Segments - 2027 Preferred Alternative - 3-4 PM

VISSIM Lookup Data				Volume									Speed									Density									
				Volume Per Lane							Across All Lanes	Overall Volume	Speed Per Lane							Across All Lanes	Overall Speed	Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)							Total Volume	Average Volume (veh/hr)	Speed (mph)							Average Speed	Average Speed (mph)	Combined Density (pcphpl)							Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
diverge	MD 117 Eastbound at I-270	495	3	513	657	560					1730	1730	32	31	32					32	32	16	21	18					19	B	19	B	19	B
diverge	I-370 Eastbound at I-270	301	4	821	428	385	51				1685	1685	49	48	49	48				49	49	17	9	8	1				9	A	6	A	6	A
weave		648	4	717	634	387	357				2094	2094	47	52	52	53				51	51	15	12	8	7				11	B	11	B	11	B
diverge		557	3	550	489	255					1294	1294	46	47	50					48	48	12	11	5					9	A	9	A	9	A
merge		376	3	253	835	341					1429	1429	48	52	53					51	51	5	17	7					10	B	10	B	10	B
weave		922	5	402	1027	982	982	538			3931	3931	52	52	52	52	54			52	52	8	20	19	19	10			15	B	15	B	15	B
diverge	I-370 Westbound at I-270	455	4	1164	664	1175	1147				4150	4150	47	49	53	53				51	51	25	14	22	22				21	C	20	C	20	C
diverge		1555	3	294	923	1336					2553	2553	54	54	53					54	54	6	17	26					16	B	16	B	16	B
weave		652	4	588	444	642	232				1906	1906	52	54	52	52				52	52	11	8	13	5				9	A	9	A	9	A
diverge	Shady Grove Rd Eastbound at I-270	248	4	319	919	308	308				1854	1854	36	34	37	38				36	36	9	28	8	8				13	B	15	B	15	B
diverge		478	4	626	201	364	409				1600	1600	34	37	37	37				36	36	19	6	10	11				11	B	11	B	11	B
merge		271	4	200	639	393	381				1613	1613	35	37	37	37				36	36	6	18	11	10				11	B	11	B	11	B
diverge	Shady Grove Rd Westbound at I-270	490	4	592	295	154	136				1177	1177	28	29	29	30				29	29	22	10	5	5				11	B	13	B	13	B
weave		616	4	647	134	203	243				1225	1225	36	36	35	35				36	36	18	4	6	7				9	A	9	A	9	A
diverge	MD 28 Eastbound at I-270	1745	3	1008	573	149					1730	1730	26	27	28					27	27	39	22	5					22	C	22	C	22	C
diverge		576	3	96	559	464					1119	1119	27	27	27					27	27	4	21	18					14	B	14	B	14	B
diverge	MD 28 Westbound at I-270	320	3	473	545	69					1087	1087	10	13	5					9	9	48	43	13					35	E	35	E	32	D
		115	3	447	438	180					1065	1065	13	12	9					12	12	35	36	20					30	D	30	D		
		43	3	494	669	205					1369	1369	24	20	27					24	24	21	34	8					21	C	21	C		
weave		634	3	388	1118	527					2033	2033	25	25	26					25	25	16	45	20					27	C	27	C	27	C
merge		235	3	981	656	271					1908	1908	25	26	27					26	26	39	25	10					25	C	25	C	25	C
diverge	MD 189 Eastbound at I-270	249	3	97	259	691					1046	1046	27	27	22					25	25	4	10	32					15	B	15	B	15	B
diverge		214	3	388	335	442					1165	1165	22	22	19					21	21	18	16	24					19	B	19	B	19	B
diverge	MD 189 Westbound at I-270	378	3	306	352	400					1058	1058	27	26	26					26	26	12	14	15					14	B	14	B	14	B
diverge		242	3	319	252	355					927	927	22	22	20					21	21	14	12	18					15	B	15	B	15	B
merge		543	3	83	622	296					1000	1000	27	26	26					26	26	3	24	12					13	B	13	B	13	B
diverge	Montrose Rd Eastboundat I-270	816	3	172	700	248					1120	1120	38	37	38					38	38	5	19	7					10	B	10	B	10	B
weave		433	3	523	970	322					1814	1814	36	37	38					37	37	15	27	9					17	B	17	B	17	B
merge		1393	3	489	804	628					1921	1921	38	36	37					37	37	13	22	17					18	B	18	B	18	B
diverge	Montrose Rd Westbound at I-270	288	3	1081	840	866					2787	2787	32	32	34					32	32	35	27	26					29	D	29	D	29	D
weave		493	3	703	734	563					2000	2000	35	36	36					36	36	21	21	16					19	B	19	B	19	B
merge		191	3	122	721	611					1454	1454	30	36	36					34	34	4	20	17					14	B	14	B	14	B
diverge	MD 187 Northbound at I-270 East Spur	292	6	499	439	429	414	355	80		2217	2217	6	6	5	5	10	4		6	6	84	82	82	82	37	21		65	F	83	F	83	F
merge		263	5	81	578	543	543	570			2315	2315	27	34	35	36	35			34	34	3	17	16	15	16			14	B	12	B	12	B
diverge	MD 187 Southbound at I-270 East Spur	303	4	333	521	453	575				1882	1882	37	37	38	37				37	37	9	14	12	16				13	B	12	B	12	B
diverge		166	5	482	390	417	493	85			1866	1866	36	37	37	37	38			37	37	14	11	11	14	2			10	B	12	B	12	B
diverge		161	6	510	381	411	412	136	38		1889	1889	31	16	16	17	37	36		25	25	17	24	26	25	4	1		16	B	22	C	22	C
diverge	Democracy Blvd Eastbound at I-270 West Spur	2296	3	636	305	275					1217	1217	34	33	33					33	33	19	9	9					12	B	12	B	12	B
diverge		605	3	400	361	370					1131	1131	38	37	37					38	38	11	10	10					10	B	10	B	10	B
diverge	Democracy Blvd Westbound at I-270 West Spur	857	4	487	485	370	511				1853	1853	42	42	43	42				42	42	12	12	9	12				11	B	11	B	11	B
merge		2127	4	285	451	378	289				1403	1403	42	42	43	43				42	42	7	11	9	7				8	A	9	A	9	A
merge	VA 193 Eastbound at I-270 East Spur	299	3	225	420	28					673	673	26	32	36					31	31	9	13	1					8	A	8	A	8	A
merge	VA 193 Westbound at I-270 East Spur	452	2	436	462						897	897	30	32						31	31	15	15						15	B	15	B	15	B
merge	G.W. Memorial Pkwy Eastbound at I-495	504	2	1081	828						1908	1908	40	41						40	40	28	21						24	C	24	C	24	C
merge		673	3	115	874	973					1962	1962	49	47	47					48	48	2	19	21					14	B	14	B	14	B
diverge	G.W. Memorial Pkwy Westbound at I-495	2326	2	1942	1188						3130	3130	44	39						41	41	45	31						38	E	38	E	38	E
diverge		1323	2	488	1119						1607	1607	44	46						45	45	11	25						18	B	18	B	18	B
diverge		811	2	630	496						1126	1126	44	43						44	44	14	12						13	B	13	B	13	B
weave	Clara Barton Pkwy Eastbound at I-495	6436	2	198	280						479	479	48	48						48	48	4	6						5	A	5	A	5	A
diverge	Clara Barton Pkwy Westbound at I-495	2920	2	792	54						846	846	47	48						48	48	17	1						9	A	9	A	9	A
merge		3456	2	407	261						668	668	46	42						44	44	9	6						8	A	8	A	8	A
diverge	MD 190 Westbound at I-495	617	3	1018	620	690					2328	2328	41	41	42					41	41	25	15	17					19	B	19	B	19	B
diverge	MD 187 Northbound at I-495	790	3	664	650	719					2033	2033	24	24	23					24	24	28	28	32					29	D	29	D	29	D
merge		1654	3	858	820	535					2212	2212	37	37	37					37	37	24	22	15					20	C	20	C	20	C
diverge	MD 187 Southbound at I-495	1642	3	722	488	581					1791	1791	30	28	28					29	29	24	18	21					21	C	21	C	21	C
merge		796	3	580	622	333					1535	1535	36	37	37					37	37	16	17	9					14	B	14	B	14	B
weave	MD 355 Northbound at I-495	1654	3	504	554	1083					2140	2140	34	31	31					32	32	15	18	35					23	B	23	B	23	B
weave		370	4	287	951	456	306				2000	2000	42	42	43	43				42	42	7	23	11	7				12	B	12	B	12	B
diverge	MD 355 Southbound at I-495	204	4	584	292	490	446				1812	1812	43	42	38	38				40	40	14	7	13	12				11	B	11	B	11	B
merge		781	4	749	626	339	238				1952	1952	26	26	24	25				25	25	29	25	14	10				20	C	23	C	23	C

Arterial Segments - 2027 Preferred Alternative - 4-5 PM

VISSIM Lookup Data				Volume									Speed								Density									
				Volume Per Lane							Across All Lanes	Overall Volume	Speed Per Lane							Across All Lanes	Overall Speed	Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)							Total Volume	Average Volume (veh/hr)	Speed (mph)							Average Speed	Average Speed (mph)	Combined Density (pcphpl)							Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
diverge	MD 117 Eastbound at I-270	495	3	632	797	610					2038	2038	32	31	31					31	31	20	26	20					22	C	22	C	22	C
diverge	I-370 Eastbound	301	4	885	529	479	41				1934	1934	49	49	50	50				49	49	19	11	10	1				10	B	7	A	7	A
weave		648	4	787	758	483	466				2494	2494	47	52	52	52				51	51	17	15	9	9				13	B	13	B	13	B
diverge		557	3	674	608	354					1636	1636	44	44	46					44	44	16	14	8					13	B	13	B	13	B
merge		376	3	263	906	455					1624	1624	48	52	53					51	51	6	18	9					11	B	11	B	11	B
weave		922	5	501	1209	1217	1072	658			4658	4658	52	52	52	52	53			52	52	10	24	24	21	13			18	B	18	B	18	B
diverge	I-370 Westbound at I-270	455	4	1099	751	1310	1290				4450	4450	48	49	53	53				51	51	23	16	25	25				22	C	21	C	21	C
diverge		1555	3	423	1082	1431					2936	2936	54	53	53					53	53	8	21	28					19	B	19	B	19	B
weave		652	4	705	588	773	282				2348	2348	52	53	51	52				52	52	14	11	15	6				11	B	11	B	11	B
diverge	Shady Grove Rd Eastbound at I-270	248	4	413	943	305	317				1978	1978	36	34	36	38				36	36	12	28	9	9				14	B	16	B	16	B
diverge		478	4	610	191	366	411				1578	1578	34	37	37	37				36	36	18	5	10	11				11	B	11	B	11	B
merge		271	4	180	601	385	386				1553	1553	35	37	37	38				37	37	5	17	10	11				11	B	11	B	11	B
diverge	Shady Grove Rd Westbound at I-270	490	4	622	308	153	142				1226	1226	27	27	28	31				28	28	23	11	6	5				11	B	13	B	13	B
weave		616	4	653	117	184	230				1184	1184	36	36	36	36				36	36	18	3	5	7				8	A	8	A	8	A
diverge	MD 28 Eastbound at I-270	1745	3	1068	572	180					1819	1819	26	27	28					27	27	42	22	7					23	C	23	C	23	C
diverge		576	3	116	542	507					1166	1166	27	27	27					27	27	4	21	19					15	B	15	B	15	B
diverge	MD 28 Westbound at I-270	320	3	457	591	124					1172	1172	7	10	4					7	7	82	60	28					57	F	57	F	50	F
		115	3	416	445	270					1131	1131	9	11	10					10	10	49	40	28					39	E	39	E		
		43	3	469	735	305					1509	1509	17	17	26					20	20	37	44	12					31	D	31	D		
weave		634	3	384	1313	737					2434	2434	24	24	24					24	24	16	56	31					34	D	34	D	34	D
merge		235	3	1153	817	364					2334	2334	25	26	27					26	26	47	32	14					31	D	31	D	31	D
diverge	MD 189 Eastbound at I-270	249	3	85	294	662					1042	1042	27	26	23					25	25	3	11	30					15	B	15	B	15	B
diverge		214	3	423	358	389					1169	1169	22	22	20					21	21	19	16	20					19	B	19	B	19	B
diverge	MD 189 Westbound at I-270	378	3	378	442	488					1307	1307	26	26	26					26	26	15	18	19					17	B	17	B	17	B
diverge		242	3	393	305	383					1081	1081	22	22	20					21	21	18	14	20					17	B	17	B	17	B
merge		543	3	94	697	369					1160	1160	26	26	25					26	26	4	28	15					15	B	15	B	15	B
diverge	Montrose Rd Eastboundat I-270	816	3	244	701	270					1215	1215	38	37	38					38	38	7	19	7					11	B	11	B	11	B
weave		433	3	524	942	330					1796	1796	36	37	38					37	37	15	26	9					17	B	17	B	17	B
merge		1393	3	466	770	622					1858	1858	38	36	37					37	37	13	21	17					17	B	17	B	17	B
diverge	Montrose Rd Westbound at I-270	288	3	1094	773	864					2731	2731	21	31	34					29	29	58	26	26					37	E	37	E	37	E
weave		493	3	696	695	546					1938	1938	35	36	36					36	36	20	20	15					19	B	19	B	19	B
merge		191	3	123	690	588					1401	1401	30	36	36					34	34	4	20	17					13	B	13	B	13	B
diverge	MD 187 Northbound at I-270 East Spur	292	6	538	501	459	344	446	211		2499	2499	4	4	4	3	4	2		4	4	128	124	116	105	117	96		114	F	123	F	123	F
merge		263	5	76	567	551	597	643			2434	2434	29	35	35	36	36			34	34	3	17	16	17	18			14	B	12	B	12	B
diverge	MD 187 Southbound at I-270 East Spur	303	4	364	557	478	622				2020	2020	37	37	38	37				37	37	10	15	13	17				14	B	13	B	13	B
diverge		166	5	521	418	445	529	88			2001	2001	35	35	36	36	37			36	36	15	12	13	15	2			11	B	13	B	13	B
diverge		161	6	552	408	439	445	135	43		2024	2024	27	12	13	13	37	36		23	23	21	34	35	35	4	1		22	C	30	D	30	D
diverge	Democracy Blvd Eastbound at I-270 West Spur	2296	3	556	295	264					1115	1115	33	32	32					32	32	17	9	9					12	B	12	B	12	B
diverge		605	3	401	375	387					1164	1164	38	37	36					37	37	11	10	11					11	B	11	B	11	B
diverge	Democracy Blvd Westbound at I-270 West Spur	857	4	577	521	404	553				2055	2055	42	42	42	42				42	42	14	13	10	13				12	B	12	B	12	B
merge		2127	4	333	471	375	275				1454	1454	41	42	43	42				42	42	8	11	9	7				9	A	9	A	9	A
merge	VA 193 Eastbound at I-270 East Spur	299	3	255	412	28					694	694	27	32	36					31	31	10	13	1					8	A	8	A	8	A
merge	VA 193 Westbound at I-270 East Spur	452	2	395	395						790	790	30	32						31	31	13	12						13	B	13	B	13	B
merge	G.W. Memorial Pkwy Eastbound at I-495	504	2	1118	789						1906	1906	40	41						40	40	29	20						24	C	24	C	24	C
merge		673	3	107	875	975					1957	1957	49	47	48					48	48	2	19	21					14	B	14	B	14	B
diverge	G.W. Memorial Pkwy Westbound at I-495	2326	2	1962	1190						3152	3152	43	40						41	41	47	31						39	E	39	E	39	E
diverge		1323	2	453	1111						1564	1564	45	46						45	45	10	25						18	B	18	B	18	B
diverge		811	2	638	484						1122	1122	44	43						44	44	15	11						13	B	13	B	13	B
weave	Clara Barton Pkwy Eastbound at I-495	6436	2	131	280						411	411	48	47						48	48	3	6						4	A	4	A	4	A
diverge	Clara Barton Pkwy Westbound at I-495	2920	2	1108	98						1206	1206	47	47						47	47	24	2						13	B	13	B	13	B
merge		3456	2	575	357						932	932	46	43						44	44	13	9						11	B	11	B	11	B
diverge	MD 190 Westbound at I-495	617	3	977	579	676					2232	2232	27	26	31					28	28	40	27	24					30	D	30	D	30	D
diverge	MD 187 Northbound at I-495	790	3	787	769	825					2381	2381	23	23	22					23	23	35	35	38					36	E	36	E	36	E
merge		1654	3	981	961	664					2606	2606	36	37	37					37	37	27	27	18					24	C	24	C	24	C
diverge	MD 187 Southbound at I-495	1642	3	750	492	568					1811	1811	30	29	28					29	29	25	17	21					21	C	21	C	21	C
merge		796	3	509	575	354					1438	1438	36	37	37					37	37	14	16	10					13	B	13	B	13	B
weave	MD 355 Northbound at I-495	1654	3	633	657	1146					2436	2436	34	30	31					32	32	19	22	37					26	C	26	C	26	C
weave		370	4	288	1020	582	403				2293	2293	42	42	42	43				42	42	7	25	14	10				14	B	14	B	14	B
diverge	MD 355 Southbound at I-495	204	4	626	329	489	431				1875	1875	43	42	38	38				40	40	15	8	13	12				12	B	11	B	11	B
merge		781	4	709	641	361	245				1955	1955	28	28	27	27				28	28	26	23	13	9				18	B	21	C	21	C

Arterial Segments - 2027 Preferred Alternative - 5-6 PM

VISSIM Lookup Data				Volume									Speed								Density									
				Volume Per Lane							Across All Lanes	Overall Volume	Speed Per Lane							Across All Lanes	Overall Speed	Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)							Total Volume	Average Volume (veh/hr)	Speed (mph)							Average Speed	Average Speed (mph)	Combined Density (pcphpl)							Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
diverge	MD 117 Eastbound at I-270	495	3	733	881	766					2381	2381	30	29	29					30	30	25	31	27					27	C	27	C	27	C
diverge	I-370 Eastbound	301	4	1004	741	752	38				2534	2534	30	30	33	47				35	35	45	35	31	1				28	D	22	C	22	C
weave		648	4	815	896	710	759				3180	3180	23	20	19	21				21	21	46	60	56	50				53	F	53	F	53	F
diverge		557	3	789	756	769					2314	2314	8	8	11					9	9	102	99	77					93	F	93	F	93	F
merge		376	3	208	919	719					1847	1847	42	50	51					48	48	5	19	14					13	B	13	B	13	B
weave		922	5	491	1170	1044	1033	852			4591	4591	52	52	52	52	52			52	52	10	23	20	20	17			18	B	18	B	18	B
diverge	I-370 Westbound at I-270	455	4	1017	735	1242	1420				4414	4414	32	32	37	49				37	37	45	44	45	30				41	E	45	F	45	F
diverge		1555	3	450	1053	1477					2980	2980	54	53	52					53	53	9	20	29					19	B	19	B	19	B
weave		652	4	687	631	802	271				2390	2390	52	53	51	52				52	52	13	12	16	5				12	B	12	B	12	B
diverge	Shady Grove Rd Eastbound at I-270	248	4	538	1012	292	280				2122	2122	35	33	35	38				35	35	16	31	8	8				16	B	18	B	18	B
diverge		478	4	663	173	325	388				1548	1548	34	36	37	37				36	36	20	5	9	11				11	B	11	B	11	B
merge		271	4	134	484	343	363				1325	1325	35	37	37	38				37	37	4	13	9	10				9	A	9	A	9	A
diverge	Shady Grove Rd Westbound at I-270	490	4	735	355	201	195				1486	1486	26	24	24	31				26	26	29	15	9	6				15	B	18	B	18	B
weave		616	4	803	128	196	263				1390	1390	35	36	36	36				36	36	23	4	6	7				10	B	10	B	10	B
diverge	MD 28 Eastbound at I-270	1745	3	1207	718	298					2222	2222	26	26	28					27	27	48	28	11					29	D	29	D	29	D
diverge		576	3	94	706	660					1460	1460	27	26	27					27	27	4	27	25					19	B	19	B	19	B
diverge	MD 28 Westbound at I-270	320	3	366	439	96					901	901	2	8	3					5	5	175	55	29					86	F	86	F	74	F
		115	3	335	311	229					875	875	4	8	9					7	7	84	37	27					49	F	49	F		
		43	3	396	598	269					1262	1262	5	11	25					13	13	85	56	11					51	F	51	F		
weave		634	3	275	953	538					1766	1766	25	25	25					25	25	11	39	22					24	C	24	C	24	C
merge		235	3	874	606	253					1733	1733	25	25	27					26	26	36	24	10					23	C	23	C	23	C
diverge	MD 189 Eastbound at I-270	249	3	83	292	652					1027	1027	27	27	23					25	25	3	11	30					15	B	15	B	15	B
diverge		214	3	463	380	373					1216	1216	22	17	15					18	18	21	25	29					25	C	25	C	25	C
diverge	MD 189 Westbound at I-270	378	3	322	387	474					1183	1183	22	23	25					23	23	19	18	20					19	B	19	B	19	B
diverge		242	3	355	280	408					1043	1043	22	22	19					21	21	16	13	21					17	B	17	B	17	B
merge		543	3	111	755	355					1221	1221	27	26	25					26	26	4	30	14					16	B	16	B	16	B
diverge	Montrose Rd Eastboundat I-270	816	3	204	630	238					1072	1072	38	37	38					38	38	5	17	6					10	B	10	B	10	B
weave		433	3	490	1046	338					1874	1874	33	35	37					35	35	17	30	10					19	B	19	B	19	B
merge		1393	3	478	868	702					2049	2049	38	36	37					37	37	13	24	19					19	B	19	B	19	B
diverge	Montrose Rd Westbound at I-270	288	3	859	678	1126					2662	2662	7	18	31					19	19	121	41	37					66	F	66	F	66	F
weave		493	3	568	697	749					2014	2014	35	36	36					36	36	16	20	21					19	B	19	B	19	B
merge		191	3	149	777	786					1712	1712	28	36	36					33	33	5	22	22					17	B	17	B	17	B
diverge	MD 187 Northbound at I-270 East Spur	292	6	596	583	540	418	447	181		2766	2766	5	5	4	4	5	3		4	4	135	133	127	116	90	73		113	F	132	F	132	F
merge		263	5	72	622	619	654	720			2686	2686	31	35	36	36	36			35	35	2	18	18	18	20			15	B	13	B	13	B
diverge	MD 187 Southbound at I-270 East Spur	303	4	358	643	564	636				2201	2201	37	36	37	37				37	37	10	18	16	18				15	B	14	B	14	B
diverge		166	5	526	502	523	568	61			2180	2180	35	27	28	28	37			31	31	15	22	23	24	2			17	B	20	C	20	C
diverge		161	6	569	483	510	515	94	26		2197	2197	28	8	9	9	37	36		21	21	21	64	65	66	3	1		37	E	50	F	50	F
diverge	Democracy Blvd Eastbound at I-270 West Spur	2296	3	546	277	245					1068	1068	32	30	30					31	31	17	9	8					12	B	12	B	12	B
diverge		605	3	415	396	424					1235	1235	34	33	33					33	33	13	12	13					13	B	13	B	13	B
diverge	Democracy Blvd Westbound at I-270 West Spur	857	4	600	502	393	539				2034	2034	41	41	42	43				42	42	15	12	9	13				12	B	12	B	12	B
merge		2127	4	381	490	353	248				1472	1472	41	42	43	42				42	42	9	12	8	6				9	A	10	B	10	B
merge	VA 193 Eastbound at I-270 East Spur	299	3	187	440	34					661	661	27	32	36					32	32	7	14	1					7	A	7	A	7	A
merge	VA 193 Westbound at I-270 East Spur	452	2	421	393						814	814	30	32						31	31	14	12						13	B	13	B	13	B
merge	G.W. Memorial Pkwy Eastbound at I-495	504	2	1050	768						1818	1818	40	41						40	40	27	19						23	C	23	C	23	C
merge		673	3	96	830	932					1858	1858	49	47	48					48	48	2	18	20					13	B	13	B	13	B
diverge	G.W. Memorial Pkwy Westbound at I-495	2326	2	1363	932						2295	2295	14	13						13	13	108	79						94	F	94	F	94	F
diverge		1323	2	312	783						1095	1095	45	45						45	45	7	18						12	B	12	B	12	B
diverge		811	2	469	316						785	785	44	43						44	44	11	7						9	A	9	A	9	A
weave	Clara Barton Pkwy Eastbound at I-495	6436	2	34	215						249	249	49	47						48	48	1	5						3	A	3	A	3	A
diverge	Clara Barton Pkwy Westbound at I-495	2920	2	1054	88						1141	1141	47	48						47	47	23	2						12	B	12	B	12	B
merge		3456	2	572	345						916	916	45	43						44	44	13	8						10	B	10	B	10	B
diverge	MD 190 Westbound at I-495	617	3	370	430	684					1483	1483	2	2	4					3	3	213	202	176					197	F	197	F	197	F
diverge	MD 187 Northbound at I-495	790	3	763	735	799					2297	2297	23	22	22					22	22	34	34	38					35	E	35	E	35	E
merge		1654	3	958	898	602					2458	2458	36	37	37					37	37	27	25	16					23	C	23	C	23	C
diverge	MD 187 Southbound at I-495	1642	3	801	542	631					1974	1974	29	27	27					28	28	28	20	24					24	C	24	C	24	C
merge		796	3	590	635	345					1570	1570	36	37	37					37	37	17	17	9					14	B	14	B	14	B
weave	MD 355 Northbound at I-495	1654	3	742	763	1199					2704	2704	34	31	31					32	32	22	25	39					29	C	29	C	29	C
weave		370	4	304	1112	696	502				2614	2614	41	42	42	42				42	42	7	27	17	12				16	B	16	B	16	B
diverge	MD 355 Southbound at I-495	204	4	609	358	550	518				2035	2035	43	42	38	38				40	40	15	9	15	14				13	B	12	B	12	B
merge		781	4	852	661	385	259				2156	2156	29	28	27	27				28	28	30	24	14	10				19	B	23	C	23	C

Arterial Segments - 2027 Preferred Alternative - 6-7 PM

VISSIM Lookup Data				Volume									Speed									Density							
				Volume Per Lane							Across All Lanes	Overall Volume	Speed Per Lane							Across All Lanes	Overall Speed	Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)							Total Volume	Average Volume (veh/hr)	Speed (mph)							Average Speed	Average Speed (mph)	Combined Density (pcphpl)							Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
diverge	MD 117 Eastbound at I-270	495	3	526	674	613					1813	1813	32	31	31					31	31	17	22	20					20	C	20	C	20	C
diverge	I-370 Eastbound	301	4	719	500	571	51				1840	1840	30	30	33	45				35	35	70	52	46	1				42	E	33	D	33	D
weave		648	4	753	661	469	559				2442	2442	26	23	21	24				23	23	56	73	69	61				65	F	65	F	65	F
diverge		557	3	653	550	484					1687	1687	15	14	15					15	15	80	76	58					71	F	71	F	71	F
merge		376	3	229	835	462					1526	1526	46	51	52					50	50	5	17	9					10	B	10	B	10	B
weave		922	5	390	987	865	940	624			3806	3806	52	52	52	52	53			52	52	8	19	17	18	12			15	B	15	B	15	B
diverge	I-370 Westbound at I-270	455	4	944	655	1068	1403				4070	4070	31	31	35	43				35	35	69	68	63	41				60	F	67	F	67	F
diverge		1555	3	338	917	1349					2604	2604	53	52	51					52	52	7	18	27					17	B	17	B	17	B
weave		652	4	650	485	654	239				2028	2028	52	53	51	52				52	52	13	9	13	5				10	B	10	B	10	B
diverge	Shady Grove Rd Eastbound at I-270	248	4	312	721	195	219				1446	1446	35	30	30	32				32	32	9	37	20	11				19	B	22	C	22	C
diverge		478	4	482	144	250	297				1174	1174	29	30	34	37				33	33	33	21	8	8				17	B	21	C	21	C
merge		271	4	107	378	263	276				1024	1024	35	37	38	38				37	37	3	10	7	7				7	A	7	A	7	A
diverge	Shady Grove Rd Westbound at I-270	490	4	636	294	146	134				1209	1209	28	28	30	31				29	29	23	11	5	4				11	B	13	B	13	B
weave		616	4	687	78	132	172				1069	1069	36	36	36	37				36	36	19	2	4	5				7	A	7	A	7	A
diverge	MD 28 Eastbound at I-270	1745	3	1075	534	141					1750	1750	26	27	28					27	27	42	20	5					23	C	23	C	23	C
diverge		576	3	75	564	465					1103	1103	27	26	27					27	27	3	22	18					14	B	14	B	14	B
diverge	MD 28 Westbound at I-270	320	3	379	646	184					1209	1209	2	9	4					5	5	188	74	44					102	F	102	F	88	F
		115	3	342	477	357					1175	1175	4	11	12					9	9	99	41	30					57	F	57	F		
		43	3	378	690	400					1468	1468	4	12	25					14	14	107	62	16					62	F	62	F		
weave		634	3	358	1002	703					2062	2062	22	22	22					22	22	17	48	33					32	D	32	D	32	D
merge		235	3	944	706	292					1942	1942	25	25	27					26	26	39	28	11					26	C	26	C	26	C
diverge	MD 189 Eastbound at I-270	249	3	85	265	566					916	916	27	22	17					22	22	3	32	61					32	D	32	D	32	D
diverge		214	3	469	308	317					1094	1094	21	8	6					12	12	22	75	64					54	F	54	F	54	F
diverge	MD 189 Westbound at I-270	378	3	248	348	512					1108	1108	9	11	14					11	11	90	82	68					80	F	80	F	80	F
diverge		242	3	353	280	356					989	989	22	21	19					21	21	16	13	19					16	B	16	B	16	B
merge		543	3	94	657	336					1087	1087	26	26	25					26	26	4	26	14					15	B	15	B	15	B
diverge	Montrose Rd Eastboundat I-270	816	3	159	632	312					1103	1103	21	20	27					22	22	22	47	24					31	D	31	D	31	D
weave		433	3	344	625	764					1733	1733	3	9	27					13	13	149	72	29					83	F	83	F	83	F
merge		1393	3	267	617	777					1661	1661	38	37	37					37	37	7	17	22					15	B	15	B	15	B
diverge	Montrose Rd Westbound at I-270	288	3	168	146	467					781	781	1	3	27					10	10	210	74	17					100	F	100	F	100	F
weave		493	3	289	217	217					723	723	34	36	35					35	35	8	6	6					7	A	7	A	7	A
merge		191	3	134	370	250					754	754	32	36	35					34	34	4	10	7					7	A	7	A	7	A
diverge	MD 187 Northbound at I-270 East Spur	292	6	597	555	526	457	385	110		2630	2630	6	5	5	5	7	3		5	5	111	110	105	100	62	45		89	F	109	F	109	F
merge		263	5	65	636	643	659	699			2702	2702	29	35	36	36	36			34	34	2	18	18	18	20			15	B	13	B	13	B
diverge	MD 187 Southbound at I-270 East Spur	303	4	260	503	451	528				1743	1743	24	24	25	26				25	25	28	43	38	34				36	E	36	E	36	E
diverge		166	5	373	382	436	490	31			1713	1713	23	21	23	24	37			25	25	51	49	40	32	1			35	E	47	F	47	F
diverge		161	6	396	371	424	479	47	15		1732	1732	19	7	8	9	37	37		20	20	56	70	62	55	1	0		41	F	63	F	63	F
diverge	Democracy Blvd Eastbound at I-270 West Spur	2296	3	480	247	206					933	933	34	34	34					34	34	14	7	6					9	A	9	A	9	A
diverge		605	3	348	319	318					986	986	39	37	37					38	38	9	9	9					9	A	9	A	9	A
diverge	Democracy Blvd Westbound at I-270 West Spur	857	4	480	492	364	452				1788	1788	34	37	40	43				38	38	16	14	9	11				13	B	13	B	13	B
merge		2127	4	290	448	370	291				1399	1399	42	42	43	43				42	42	7	11	9	7				8	A	9	A	9	A
merge	VA 193 Eastbound at I-270 East Spur	299	3	133	366	22					521	521	26	32	36					31	31	5	12	1					6	A	6	A	6	A
merge	VA 193 Westbound at I-270 East Spur	452	2	391	335						726	726	30	32						31	31	13	11						12	B	12	B	12	B
merge	G.W. Memorial Pkwy Eastbound at I-495	504	2	952	670						1622	1622	40	41						40	40	24	17						21	C	21	C	21	C
merge		673	3	83	764	823					1670	1670	49	47	48					48	48	2	16	18					12	B	12	B	12	B
diverge	G.W. Memorial Pkwy Westbound at I-495	2326	2	754	846						1600	1600	5	7						6	6	188	142						165	F	165	F	165	F
diverge		1323	2	283	477						760	760	43	45						44	44	7	11						9	A	9	A	9	A
diverge		811	2	303	168						471	471	44	44						44	44	7	4						5	A	5	A	5	A
weave	Clara Barton Pkwy Eastbound at I-495	6436	2	196	287						483	483	48	47						48	48	4	6						5	A	5	A	5	A
diverge	Clara Barton Pkwy Westbound at I-495	2920	2	870	63						933	933	47	48						47	47	19	1						10	B	10	B	10	B
merge		3456	2	516	330						846	846	45	42						44	44	12	8						10	B	10	B	10	B
diverge	MD 190 Westbound at I-495	617	3	559	656	915					2130	2130	3	4	6					4	4	200	186	163					183	F	183	F	183	F
diverge	MD 187 Northbound at I-495	790	3	624	601	693					1917	1917	22	21	20					21	21	29	29	35					31	D	31	D	31	D
merge		1654	3	869	810	411					2090	2090	37	37	38					37	37	24	22	11					19	B	19	B	19	B
diverge	MD 187 Southbound at I-495	1642	3	735	479	538					1751	1751	30	27	27					28	28	25	18	21					21	C	21	C	21	C
merge		796	3	519	584	397					1501	1501	36	37	37					37	37	15	16	11					14	B	14	B	14	B
weave	MD 355 Northbound at I-495	1654	3	746	631	904					2281	2281	19	14	15					16	16	47	58	74					60	F	60	F	60	F
weave		370	4	223	921	616	405				2166	2166	41	42	42	42				42	42	5	22	15	10				13	B	13	B	13	B
diverge	MD 355 Southbound at I-495	204	4	623	317	486	419				1844	1844	43	42	39	38				40	40	15	8	13	11				12	B	11	B	11	B
merge		781	4	712	655	362	256				1985	1985	25	25	23	23				24	24	29	26	16	11				21	C	24	C	24	C

I-495 Inner Loop - 2045 No-build - 6-7 AM

VISSIM Lookup Data				Volume									Speed									Density									
				Volume Per Lane							Across All Lanes	Overall Volume	Speed Per Lane							Across All Lanes	Overall Speed	Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Link Length	Combined Volume (veh/hr/ln)							Total Volume	Average Volume (veh/hr)	Speed (mph)							Average Speed	Average Speed (mph)	Combined Density (pcphpl)							Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Btw VA 267 & VA 193	2183	5	715	2053	1809	1461	1381			7418	7418	58	57	57	58	59			58	58	12	37	32	25	24			26	D	26	D	26	D
diverge		1499	5	692	2016	1760	1528	1418			7415	7415	58	54	54	56	57			56	56	12	38	33	28	25			27	C	28	D	28	D
basic	VA 193 interchange	2217	4	2346	1681	1383	1283				6693	6693	54	56	57	58				56	56	44	31	25	23				31	D	31	D	31	D
merge	Btw VA 193 & GWMP	351	6	39	1070	1866	1738	1392	1290		7394	7394	33	48	55	58	58	58		52	52	1	23	34	31	24	22			23	C	19	B	19	B
basic		1019	5	1310	1559	1772	1467	1321			7429	7429	55	53	56	58	58			56	56	24	30	32	26	23			27	D	27	D	27	D
diverge		1536	5	1342	1463	1722	1548	1385			7461	7461	58	55	57	58	58			57	57	24	27	31	27	24			27	C	27	C	27	C
basic	GWMP interchange	673	4	1422	1698	1576	1422				6118	6118	54	56	57	57				56	56	27	31	28	25				28	D	28	D	28	D
		677	4	1413	1652	1591	1461				6117		55	56	57	57				57		26	30	28	26				27	D	27	D		
		490	4	1481	1633	1570	1435				6119		51	54	55	55				54		29	31	29	26				29	D	29	D		
weave	Btw GWMP & Clara Barton Pkwy	672	6	1026	2135	1981	1682	1643	219		8685	8685	45	40	44	47	47	48		45	45	24	54	46	37	36	5		34	D	34	D	34	D
diverge		1295	5	866	1934	1952	1963	1986			8702	8702	37	34	37	41	44			38	38	24	59	54	49	46			47	F	46	F	46	F
basic	Clara Barton Pkwy interchange	500	4	1804	1905	2007	2073				7789	7808	46	48	50	51				49	51	40	40	41	42				41	E	41	E	39	E
		706	4	1836	1917	2005	2062				7821		53	53	54	54				53		35	37	38	39				37	E	37	E		
merge	Btw Clara Barton Pkwy & MD 190	1511	5	91	1825	1949	2000	2058			7923	7923	56	54	55	56	56			55	56	2	34	36	36	37			29	D	24	C	24	C
		777	5	12	1913	1968	1996	2034			7923		54	56	57	58	58			57		0	35	35	35	35			28	D	23	C		
basic		3461	4	2193	1935	1877	1894				7899	7901	54	56	57	58				56	56	41	35	33	33				36	E	36	E	36	E
		1064	4	2144	1916	1922	1928				7910		55	56	57	58				57		40	34	34	34				36	E	36	E		
diverge		400	5	544	1597	1879	1936	1938			7894	7894	56	55	55	57	57			56	56	10	30	34	35	34			29	D	25	C	25	C
basic	MD 190 interchange	1947	4	1461	1797	1916	1950				7124	7124	57	56	57	57				57	57	26	32	34	34				32	D	32	D	32	D
merge		1495	5	405	1301	1717	1900	1956			7279	7279	62	57	57	57	57			58	58	7	23	31	34	34			26	C	20	C	20	C
basic		621	5	530	1246	1660	1869	1948			7253	7253	62	57	57	57	57			58	58	9	22	30	33	34			26	D	26	D	26	D
merge	Btw MD 190 & I-270 West Spur	1123	6	59	909	1284	1637	1855	1953		7697	7697	60	61	57	57	57	57		58	58	1	15	23	29	33	34		23	C	13	B	13	B
basic		398	5	805	1134	2040	2088	1470			7537	7635	61	58	56	57	58			58	57	13	20	37	37	26			27	D	27	D	28	D
		1764	5	694	1100	2274	2387	1202			7658		61	57	54	54	58			57		12	19	43	45	21			28	D	28	D		
weave		732	6	786	1282	2117	2087	1382	21		7676	7702	61	58	56	56	58	61		58	58	13	23	38	38	24	0		23	C	23	C	23	C
		2506	6	996	1471	1839	1691	1634	79		7710		60	57	57	56	57	61		58		17	26	33	31	29	1		23	C	23	C		
basic	Btw I-270 West Spur & MD 187	6678	3	1396	1406	1496					4298	4297	57	56	56					56	56	25	25	27					26	D	26	D	26	D
		1173	3	1460	1399	1433					4292		57	57	57					57		26	25	26					26	D	26	D		
diverge		305	4	182	1419	1316	1371				4288	4288	45	42	44	51				46	46	4	34	30	27				24	C	23	C	23	C
basic	MD 187 interchange	2021	3	1194	1262	1384					3840	3840	57	56	56					56	56	21	23	25					23	C	23	C	23	C
merge	Btw MD 187 & I-270 East Spur	440	4	68	1280	1308	1353				4009	4009	49	58	57	57				55	55	1	22	23	24				18	B	16	B	16	B
basic		659	3	830	1647	1538					4015	4015	58	57	56					57	57	15	30	28					24	C	24	C	24	C
diverge		1113	3	540	1779	1712					4030	4030	57	54	54					55	55	10	34	32					25	C	25	C	25	C
basic	I-270 East Spur interchange	1519	2	1801	1756						3558	3558	51	51						51	51	36	35						35	E	35	E	35	E
weave		1951	4	1628	1557	1389	1126				5700	5700	56	57	61	63				59	59	29	28	23	18				25	C	25	C	25	C
weave		513	6	39	1566	1506	1545	1458	236		6351	6351	52	58	58	62	63	62		59	59	1	27	26	25	23	4		18	B	18	B	18	B
basic		1013	5	1557	1525	1636	1610	47			6374	6376	57	57	60	61	64			60	60	28	27	28	27	1			22	C	22	C	22	C
		1002	5	1516	1520	1661	1665	15			6377		57	57	60	61	65			60		27	27	28	28	0			22	C	22	C		
merge	Btw I-270 East Spur & MD 185	521	5	1504	1503	1663	1693	3			6365	6365	59	58	62	63	60			60	60	26	26	27	27	0			21	C	18	B	18	B
basic		1603	4	1774	1520	1526	1535				6354	6357	55	57	60	62				59	59	32	27	26	25				28	D	28	D	28	D
		252	4	1884	1480	1481	1528				6373		55	57	60	62				59		35	26	25	25				28	D	28	D		
basic	ML - Btw VA 193 & GWMP	2189	2	655	632						1287	1288	64	64						64	64	10	10						10	A	10	A	10	A
		1496	2	653	634						1287		64	64						64		10	10						10	A	10	A		
		2215	2	640	647						1288		64	64						64		10	10						10	A	10	A		
		928	2	427	861						1289		64	63						64		7	14						10	A	10	A		
diverge	ML - GWMP interchange	812	3	406	434	448					1289	1289	64	64	63					63	63	6	7	7					7	A	7	A	7	A
merge		1860	2	484	257						741	741	64	64						64	64	8	4						6	A	6	A	6	A
basic		1146	1	741							741	741	59							59	59	13							13	B	13	B	13	B

I-495 Inner Loop - 2045 No-build - 7-8 AM

VISSIM Lookup Data				Volume									Speed									Density									
				Volume Per Lane							Across All Lanes	Overall Volume	Speed Per Lane							Across All Lanes	Overall Speed	Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Link Length	Combined Volume (veh/hr/ln)							Total Volume	Average Volume (veh/hr)	Speed (mph)							Average Speed	Average Speed (mph)	Combined Density (pcphpl)							Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Btw VA 267 & VA 193	2183	5	974	1999	1821	1542	1507			7843	7843	49	40	40	41	43			42	42	21	52	47	39	36			39	E	39	E	39	E
diverge		1499	5	1019	1786	1697	1599	1594			7694	7694	38	27	28	30	33			31	31	28	69	62	54	49			53	F	53	F	53	F
basic	VA 193 interchange	2217	4	1845	1590	1546	1558				6539	6539	24	25	26	27				26	26	78	66	60	58				66	F	66	F	66	F
merge	Btw VA 193 & GWMP	351	6	186	1124	1519	1595	1541	1549		7514	7514	10	18	20	20	22	23		19	19	20	63	79	81	72	70		64	F	54	F	54	F
basic		1019	5	1230	1407	1643	1605	1594			7480	7480	24	15	19	21	22			20	20	52	94	88	78	74			77	F	77	F	77	F
diverge		1536	5	1029	1425	1619	1665	1663			7402	7402	36	15	18	20	21			22	22	29	99	92	85	81			77	F	73	F	73	F
basic	GWMP interchange	673	4	1409	1588	1671	1691				6359	6316	15	18	20	22				19	18	96	90	84	79				87	F	87	F	88	F
		677	4	1374	1556	1679	1698				6307		15	18	21	22				19		97	90	82	79				87	F	87	F		
		490	4	1390	1545	1665	1668				6268		14	17	20	20				18		103	94	85	83				91	F	91	F		
weave	Btw GWMP & Clara Barton Pkwy	672	6	1422	1722	1862	1832	1409	876		9123	9123	22	16	20	20	13	17		18	18	65	108	97	92	114	54		88	F	88	F	88	F
diverge		1295	5	997	1956	2029	2113	2048			9142	9142	29	29	33	38	38			33	33	35	69	63	56	56			56	F	56	F	56	F
basic	Clara Barton Pkwy interchange	500	4	1954	2042	2152	2157				8304	8323	43	45	48	48				46	50	46	46	45	46				46	F	46	F	43	E
		706	4	1991	2049	2141	2155				8337		51	51	53	52				52		40	41	41	42				41	E	41	E		
merge	Btw Clara Barton Pkwy & MD 190	1511	5	115	1966	2067	2138	2148			8435	8436	56	53	54	55	55			55	55	2	38	39	39	40			32	D	26	C	26	C
		777	5	19	2080	2082	2124	2133			8437		54	56	56	58	58			56		0	38	38	37	37			30	D	25	C		
basic		3461	4	2344	2064	2008	1990				8406	8409	54	56	57	58				56	56	45	38	36	35				38	E	38	E	38	E
		1064	4	2267	2045	2061	2044				8418		54	56	57	57				56		42	37	37	36				38	E	38	E		
diverge		400	5	625	1651	1991	2071	2058			8396	8396	55	54	55	56	57			56	56	12	31	37	37	37			31	D	27	C	27	C
basic	MD 190 interchange	1947	4	1532	1857	2044	2067				7501	7501	56	56	57	57				57	57	28	34	36	37				34	D	34	D	34	D
merge		1495	5	615	1366	1765	2013	2076			7835	7835	62	57	56	57	57			58	58	10	24	32	36	37			28	D	22	C	22	C
basic		621	5	764	1316	1693	1969	2070			7812	7812	62	57	56	57	57			58	58	13	24	31	35	37			28	D	28	D	28	D
merge	Btw MD 190 & I-270 West Spur	1123	6	107	1311	1426	1677	1948	2069		8538	8538	59	60	57	56	57	57		58	58	2	22	26	30	35	37		25	C	17	B	17	B
basic		398	5	1130	1311	2134	2198	1598			8371	8483	61	58	55	56	58			57	56	19	23	39	40	28			30	D	30	D	31	D
		1764	5	931	1241	2406	2506	1425			8509		61	57	52	52	57			56		16	22	47	48	25			32	D	32	D		
weave		732	6	1019	1344	2232	2237	1653	27		8512	8513	60	58	55	55	57	61		58	58	17	24	41	41	29	0		25	C	25	C	25	C
		2506	6	1198	1525	1812	1934	1936	108		8513		60	57	56	55	56	61		57		20	27	33	36	35	2		25	C	25	C		
basic	Btw I-270 West Spur & MD 187	6678	3	1495	1488	1519					4502	4502	57	56	56					56	56	26	27	28					27	D	27	D	27	D
		1173	3	1564	1486	1451					4501		57	56	56					57		28	27	26					27	D	27	D		
diverge		305	4	222	1488	1379	1410				4499	4499	43	40	42	49				44	44	5	38	33	29				26	C	25	C	25	C
basic	MD 187 interchange	2021	3	1244	1321	1401					3966	3966	57	56	56					56	56	22	24	25					24	C	24	C	24	C
merge	Btw MD 187 & I-270 East Spur	440	4	116	1374	1403	1354				4247	4247	46	58	57	57				54	54	3	24	25	24				19	B	17	B	17	B
basic		659	3	900	1747	1604					4252	4252	57	56	56					57	57	16	31	29					25	C	25	C	25	C
diverge		1113	3	569	1888	1800					4257	4257	57	54	53					55	55	10	36	34					27	C	27	C	27	C
basic	I-270 East Spur interchange	1519	2	1907	1842						3749	3749	51	51						51	51	38	37						37	E	37	E	37	E
weave		1951	4	1764	1708	1822	1575				6869	6869	53	53	57	56				55	55	35	33	33	29				32	D	32	D	32	D
weave		513	6	76	1736	1703	2002	1919	530		7967	7967	45	48	48	51	50	59		50	50	2	40	39	43	43	9		30	D	30	D	30	D
basic		1013	5	1800	1818	2067	2059	242			7986	7979	45	45	46	44	49			46	44	44	44	49	51	6			39	E	39	E	40	E
		1002	5	1836	1876	2045	2048	167			7973		41	42	43	43	46			43		48	48	51	52	5			41	E	41	E		
merge	Btw I-270 East Spur & MD 185	521	5	1841	1864	2059	2089	77			7930	7930	36	37	40	40	36			38	38	57	56	57	58	3			46	F	39	E	39	E
basic		1603	4	2086	1892	1939	1974				7891	7892	42	44	49	52				47	48	51	44	41	39				44	E	44	E	43	E
		252	4	2170	1842	1896	1988				7895		49	51	55	58				53		45	36	35	35				38	E	38	E		
basic	ML - Btw VA 193 & GWMP	2189	2	680	658						1338	1336	64	64						64	64	11	10						11	B	11	B	11	B
		1496	2	679	658						1337		64	64						64		11	10						11	B	11	B		
		2215	2	673	663						1335		64	64						64		11	11						11	B	11	B		
		928	2	570	764						1334		64	64						64		9	12						11	B	11	B		
diverge	ML - GWMP interchange	812	3	559	557	219					1335	1335	64	64	63					63	63	9	9	4					7	A	7	A	7	A
merge		1860	2	682	389						1071	1071	63	63						63	63	11	6						9	A	9	A	9	A
basic		1146	1	1069							1069	1069	57							57	57	19							19	C	19	C	19	C

I-495 Inner Loop - 2045 No-build - 8-9 AM

VISSIM Lookup Data				Volume									Speed								Density											
				Volume Per Lane							Across All Lanes	Overall Volume	Speed Per Lane							Across All Lanes	Overall Speed	Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Link Length	Combined Volume (veh/hr/ln)							Total Volume	Average Volume (veh/hr)	Speed (mph)							Average Speed	Average Speed (mph)	Combined Density (pcphpl)							Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Btw VA 267 & VA 193	2183	5	986	1070	1217	1437	1648			6358	6358	16	7	9	12	15			12	12	61	150	140	125	114			118	F	118	F	118	F
diverge		1499	5	880	953	1268	1520	1720			6342	6342	11	6	9	12	15			11	11	79	162	142	126	113			124	F	127	F	127	F
basic	VA 193 interchange	2217	4	1171	1297	1542	1650				5660	5660	8	11	14	15				12	12	143	124	112	109				122	F	122	F	122	F
merge	Btw VA 193 & GWMP	351	6	473	1017	1030	1296	1570	1611		6996	6996	4	8	8	10	13	14		9	9	112	132	138	135	119	117		126	F	128	F	128	F
basic		1019	5	1392	1001	1379	1598	1651			7022	7022	15	7	11	14	15			12	12	92	152	131	118	115			122	F	122	F	122	F
diverge		1536	5	988	1201	1482	1639	1715			7025	7025	21	8	12	14	16			14	14	48	146	126	116	111			109	F	106	F	106	F
basic	GWMP interchange	673	4	1345	1505	1654	1749				6253	6244	11	14	16	18				15	15	121	111	103	97				108	F	108	F	105	F
		677	4	1319	1486	1672	1762				6239		11	14	18	20				16		118	107	96	91				103	F	103	F		
		490	4	1347	1493	1664	1736				6240		12	14	18	19				16		117	106	96	91				102	F	102	F		
weave	Btw GWMP & Clara Barton Pkwy	672	6	1455	1677	1839	1817	1375	959		9123	9123	21	15	18	19	12	17		17	17	71	115	102	98	121	58		94	F	94	F	94	F
diverge		1295	5	999	1961	2041	2115	2039			9155	9155	29	30	34	38	38			34	34	35	67	61	56	55			55	F	54	F	54	F
basic	Clara Barton Pkwy interchange	500	4	1937	2044	2152	2155				8289	8307	44	46	48	48				47	50	45	45	45	45				45	F	45	F	43	E
		706	4	1971	2050	2151	2149				8321		51	52	53	52				52		39	40	41	42				41	E	41	E		
merge	Btw Clara Barton Pkwy & MD 190	1511	5	113	1947	2058	2146	2141			8405	8404	56	53	54	55	55			55	55	2	37	39	39	39			31	D	26	C	26	C
		777	5	19	2062	2081	2121	2121			8404		56	56	56	57	58			57		0	38	38	37	37			30	D	25	C		
basic		3461	4	2351	2051	2008	1986				8395	8399	53	55	57	58				56	56	45	38	36	35				38	E	38	E	38	E
		1064	4	2278	2013	2068	2051				8409		54	55	57	57				56		43	37	37	36				38	E	38	E		
diverge		400	5	668	1622	1949	2080	2067			8387	8387	55	54	54	56	57			55	55	12	31	36	37	37			31	D	26	C	26	C
basic	MD 190 interchange	1947	4	1506	1804	2048	2082				7440	7440	56	55	56	57				56	56	28	33	37	37				34	D	34	D	34	D
merge		1495	5	786	1360	1672	1979	2071			7868	7868	47	48	48	49	51			48	48	18	29	36	42	42			33	D	28	D	28	D
basic		621	5	977	1347	1570	1868	2011			7774	7774	35	38	38	39	42			38	38	32	38	44	50	49			43	E	43	E	43	E
merge	Btw MD 190 & I-270 West Spur	1123	6	325	1592	1556	1526	1728	1983		8710	8710	37	31	32	27	28	35		32	32	9	55	52	59	66	59		50	F	39	E	39	E
basic		398	5	1635	1594	1741	1755	1742			8466	8523	37	29	23	22	29			28	27	46	56	78	84	63			65	F	65	F	69	F
		1764	5	1527	1506	1923	1844	1735			8536		39	30	22	19	26			27		40	51	90	99	70			70	F	70	F		
weave		732	6	1673	1448	1790	1712	1715	141		8480	8423	41	30	22	18	20	44		29	34	42	49	85	98	89	3		61	F	61	F	55	F
		2506	6	1751	1452	1194	1751	1996	262		8406		50	42	28	17	23	56		36		36	36	45	105	90	5		53	F	53	F		
basic	Btw I-270 West Spur & MD 187	6678	3	1292	1273	1197					3763	3764	56	56	57					57	57	23	23	21					23	C	23	C	22	C
		1173	3	1228	1300	1242					3770		57	57	58					57		22	23	22					22	C	22	C		
diverge		305	4	211	1198	1187	1176				3772	3772	45	44	48	53				48	48	5	28	25	22				20	C	19	B	19	B
basic	MD 187 interchange	2021	3	947	1138	1195					3280	3280	57	57	57					57	57	17	20	21					19	C	19	C	19	C
merge	Btw MD 187 & I-270 East Spur	440	4	71	1045	1185	1171				3472	3472	52	57	58	58				56	56	1	18	21	21				15	B	14	B	14	B
basic		659	3	659	1475	1341					3474	3474	58	57	57					57	57	12	26	24					20	C	20	C	20	C
diverge		1113	3	429	1561	1491					3481	3481	58	56	56					57	57	7	28	27					21	C	21	C	21	C
basic	I-270 East Spur interchange	1519	2	1559	1531						3090	3090	52	52						52	52	31	30						30	D	30	D	30	D
weave		1951	4	1454	1482	1709	1449				6095	6095	51	52	55	55				53	53	30	30	32	28				30	D	30	D	30	D
weave		513	6	92	1494	1534	1933	1817	538		7407	7407	46	47	48	51	51	58		50	50	2	35	35	41	39	10		27	C	27	C	27	C
basic		1013	5	1559	1663	2029	2007	208			7466	7489	46	47	48	47	49			47	47	36	38	45	46	6			34	D	34	D	35	E
		1002	5	1618	1753	1999	1996	145			7512		45	46	47	46	45			46		38	40	45	47	5			35	E	35	E		
merge	Btw I-270 East Spur & MD 185	521	5	1642	1766	2025	2032	73			7538	7538	42	43	46	45	34			42	42	43	44	48	50	4			38	E	34	D	34	D
basic		1603	4	1898	1797	1916	1944				7554	7558	48	50	54	56				52	53	41	37	37	35				37	E	37	E	37	E
		252	4	1999	1770	1861	1949				7579		53	56	59	60				57		38	32	32	33				34	D	34	D		
basic	ML - Btw VA 193 & GWMP	2189	2	592	570						1162	1164	64	64						64	64	9	9						9	A	9	A	9	A
		1496	2	594	570						1164		64	64						64		9	9						9	A	9	A		
		2215	2	590	576						1166		64	64						64		9	9						9	A	9	A		
		928	2	553	614						1167		64	64						64		9	10						9	A	9	A		
diverge	ML - GWMP interchange	812	3	551	540	75					1166	1166	64	64	63					64	64	9	9	1					6	A	6	A	6	A
merge		1860	2	681	400						1080	1080	63	63						63	63	11	6						9	A	9	A	9	A
basic		1146	1	1082							1082	1082	57							57	57	19							19	C	19	C	19	C

I-495 Inner Loop - 2045 No-build - 9-10 AM

VISSIM Lookup Data				Volume								Speed									Density									
				Volume Per Lane						Across All Lanes	Overall Volume	Speed Per Lane							Across All Lanes	Overall Speed	Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Link Length	Combined Volume (veh/hr/ln)						Total Volume	Average Volume (veh/hr)	Speed (mph)							Average Speed	Average Speed (mph)	Combined Density (pcphpl)							Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Btw VA 267 & VA 193	2183	5	986	1100	1242	1462	1667			6457	6457	16	8	9	12	15			12	12	61	149	140	124	113			117	F	117	F	117	F
diverge		1499	5	854	992	1305	1539	1751			6441	6441	12	6	9	12	16			11	11	75	160	140	125	111			122	F	125	F	125	F
basic	VA 193 interchange	2217	4	1292	1342	1527	1660				5822	5822	10	11	14	16				13	13	135	121	112	107				119	F	119	F	119	F
merge	Btw VA 193 & GWMP	351	6	343	1099	1074	1295	1512	1605		6927	6927	6	10	8	10	13	14		10	10	56	111	133	135	123	118		112	F	100	F	100	F
basic		1019	5	1408	1013	1348	1546	1635			6950	6950	16	7	10	13	14			12	12	90	153	134	121	116			123	F	123	F	123	F
diverge		1536	5	1052	1187	1439	1596	1685			6959	6959	22	8	11	14	15			14	14	49	146	128	118	113			111	F	108	F	108	F
basic	GWMP interchange	673	4	1299	1466	1617	1710				6093	6088	11	13	16	17				14	15	124	114	105	99				111	F	111	F	107	F
		677	4	1279	1459	1623	1725				6087		11	14	17	19				15		121	109	99	93				106	F	106	F		
		490	4	1316	1460	1612	1696				6084		11	14	17	19				15		120	108	98	93				105	F	105	F		
weave	Btw GWMP & Clara Barton Pkwy	672	6	1443	1622	1788	1775	1347	953		8928	8928	20	14	17	18	11	16		16	16	72	117	105	100	122	62		96	F	96	F	96	F
diverge		1295	5	1053	1865	1964	2066	1990			8938	8938	26	25	29	34	33			29	29	41	77	69	62	62			62	F	62	F	62	F
basic	Clara Barton Pkwy interchange	500	4	1891	1973	2081	2077				8022	8032	36	37	39	39				38	39	54	55	55	55				54	F	54	F	53	F
		706	4	1952	1958	2060	2069				8040		41	38	40	40				40		49	53	53	53				52	F	52	F		
merge	Btw Clara Barton Pkwy & MD 190	1511	5	377	1712	1879	2031	2071			8071	8053	29	28	31	37	40			33	31	14	63	62	56	54			50	F	46	F	51	F
		777	5	219	1728	1910	2048	2113			8018		8	24	28	34	39			27		31	75	71	62	56			59	F	59	F		
basic		3461	4	2058	1952	1950	1946				7906	7886	28	29	29	29				29	28	75	69	69	69				70	F	70	F	73	F
		1064	4	2147	1962	1866	1845				7820		30	26	22	22				25		74	79	86	85				81	F	81	F		
diverge		400	5	644	1723	1844	1775	1781			7767	7767	43	25	23	20	20			26	26	15	71	83	94	92			71	F	56	F	56	F
basic	MD 190 interchange	1947	4	1854	1706	1610	1715				6885	6885	23	18	15	17				18	18	84	98	108	101				98	F	98	F	98	F
merge		1495	5	1266	1445	1441	1376	1654			7182	7182	11	13	12	11	15			12	12	115	115	123	130	112			119	F	118	F	118	F
basic		621	5	1293	1483	1378	1298	1671			7123	7123	10	12	11	10	15			12	12	133	123	131	137	113			127	F	127	F	127	F
merge	Btw MD 190 & I-270 West Spur	1123	6	860	1356	1614	1346	1239	1731		8146	8146	26	10	14	10	9	16		14	14	34	132	117	133	140	110		111	F	95	F	95	F
basic		398	5	1881	1769	1398	1229	1707			7984	8091	26	19	11	9	17			16	18	74	97	128	139	105	11		108	F	108	F	102	F
		1764	5	1933	1708	1487	1282	1704			8115		32	22	12	10	17			19		61	79	123	137	100			100	F	100	F		
weave		732	6	2009	1660	1505	1317	1482	150		8123	8136	34	23	14	11	13	41		22	28	61	73	112	127	118	4		82	F	82	F	69	F
		2506	6	1969	1513	1154	1424	1834	247		8140		45	34	19	11	18	54		30		44	45	63	130	106	5		66	F	66	F		
basic	Btw I-270 West Spur & MD 187	6678	3	1251	1218	1130					3600	3600	56	57	58					57	57	23	22	20					22	C	22	C	21	C
		1173	3	1137	1251	1212					3600		56	58	58					57		20	22	21					21	C	21	C		
diverge		305	4	152	1128	1157	1162				3599	3599	47	46	50	55				50	50	3	25	24	21				18	B	17	B	17	B
basic	MD 187 interchange	2021	3	920	1124	1179					3224	3224	57	57	58					57	57	17	20	21					19	C	19	C	19	C
merge	Btw MD 187 & I-270 East Spur	440	4	78	1020	1166	1169				3433	3433	51	57	58	58				56	56	2	18	20	20				15	B	13	B	13	B
basic		659	3	621	1451	1365					3438	3438	58	57	58					57	57	11	26	24					20	C	20	C	20	C
diverge		1113	3	388	1544	1514					3445	3445	58	56	57					57	57	7	28	27					21	C	21	C	21	C
basic	I-270 East Spur interchange	1519	2	1536	1548						3084	3084	52	52						52	52	30	30						30	D	30	D	30	D
weave		1951	4	1422	1494	1672	1468				6056	6056	56	58	62	62				60	60	26	26	28	24				26	C	26	C	26	C
weave		513	6	64	1437	1514	1891	1788	358		7052	7052	52	58	59	63	63	61		59	59	1	25	26	31	29	6		20	C	20	C	20	C
basic		1013	5	1449	1605	1987	1965	80			7086	7093	56	57	60	60	63			59	59	26	28	34	33	1			25	C	25	C	25	C
		1002	5	1467	1659	1973	1970	29			7100		57	57	60	60	63			59		26	29	33	34	0			25	C	25	C		
merge	Btw I-270 East Spur & MD 185	521	5	1476	1651	1976	1984	5			7092	7092	58	59	62	63	59			60	60	26	28	32	32	0			24	C	22	C	22	C
basic		1603	4	1777	1679	1822	1808				7086	7089	55	57	61	62				59	59	33	30	31	30				31	D	31	D	31	D
		252	4	1919	1635	1751	1801				7104		54	57	61	62				59		36	29	29	29				31	D	31	D		
basic	ML - Btw VA 193 & GWMP	2189	2	575	549						1124	1123	64	64						64	64	9	9						9	A	9	A	9	A
		1496	2	574	551						1125		64	64						64		9	9						9	A	9	A		
		2215	2	571	550						1121		64	64						64		9	9						9	A	9	A		
		928	2	556	564						1121		64	64						64		9	9						9	A	9	A		
diverge	ML - GWMP interchange	812	3	555	529	37					1121	1121	64	64	63					64	64	9	8	1					6	A	6	A	6	A
merge		1860	2	685	398						1083	1083	63	63						63	63	11	6						9	A	9	A	9	A
basic		1146	1	1084							1084	1084	57							57	57	19							19	C	19	C	19	C

I-495 Outer Loop - 2045 No-build - 6-7 AM

VISSIM Lookup Data				Volume								Speed									Density											
				Volume Per Lane						Across All Lanes	Overall Volume	Speed Per Lane							Across All Lanes	Overall Speed	Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Link Length	Combined Volume (veh/hr/ln)						Total Volume	Average Volume (veh/hr)	Speed (mph)							Average Speed	Average Speed (mph)	Combined Density (pcphpl)							Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Btw VA 267 & VA 193	873	5	657	1038	1457	1638	1569		6359	6342	55	53	53	52	52			53	53	12	20	28	32	30			24	C	24	C	24	C
		73	5	614	992	1424	1593	1515		6138		55	53	53	53	53			53		11	19	27	31	29			23	C	23	C		
merge		853	6	29	609	1023	1478	1650	1574	6363	6363	53	55	54	53	53	54		54	54	1	11	19	28	31	30		20	C	10	B	10	B
merge	VA 193 interchange & GWMP interchange	1322	5	407	1028	1496	1659	1571		6161	6161	55	54	53	53	53			54	54	7	19	29	32	30			24	C	19	B	19	B
basic		786	4	1132	1519	1668	1563			5882	5886	53	53	53	53				53	53	22	29	32	30				28	D	28	D	28	D
		727	4	1115	1532	1681	1562			5890		53	53	53	53				53		21	29	32	30				28	D	28	D		
diverge		591	5	393	1168	1565	1691	1558		6375	6375	54	53	53	53	53			53	53	7	22	30	32	30			24	C	20	C	20	C
basic		1853	4	1533	1596	1703	1556			6388	6384	53	53	53	53				53	53	29	31	33	30				31	D	31	D	31	D
		1408	4	1524	1599	1714	1541			6379		53	53	53	53				53		29	31	33	29				31	D	31	D		
diverge		603	5	1510	1614	1761	1626	559		7069	7069	52	52	52	52	53			52	52	30	31	34	32	11			27	C	21	C	21	C
basic		284	4	1489	1586	1790	2163			7029	7029	51	52	52	52				52	52	29	31	35	42				34	D	34	D	34	D
weave	Btw GWMP & Clara Barton Pkwy	1522	5	1462	1374	1652	1872	2237		8597	8597	53	52	53	53	53			53	53	28	27	32	36	43			33	D	33	D	33	D
basic	Clara Barton Pkwy interchange	1713	4	2013	1774	2003	2358			8148	8148	53	53	53	52				53	53	39	34	38	46				39	E	39	E	39	E
diverge		922	5	167	2006	1783	2007	2356		8320	8320	54	53	53	53	52			53	53	3	38	34	38	46			32	D	25	C	25	C
basic	Btw Clara Barton Pkwy & MD 190	521	4	2125	1764	2002	2308			8199	8306	51	53	52	50				51	47	42	34	39	47				41	E	41	E	45	F
		3149	4	2172	1930	2079	2144			8324		43	47	49	49				47		52	42	43	44				45	F	45	F		
merge		1788	5	379	1941	2011	1953	2052		8336	8336	35	26	30	38	44			34	34	12	80	71	54	49			53	F	54	F	54	F
basic	MD 190 interchange	2663	4	1724	1929	2022	2062			7737	7737	47	46	47	48				47	47	40	46	46	45				44	E	44	E	44	E
diverge		1585	5	645	2032	2032	2044	2038		8790	8790	53	49	48	49	50			50	50	12	43	43	43	42			37	E	35	E	35	E
diverge		1032	6	1068	780	2067	2141	1959	2024	10039	10039	53	53	52	52	53	53		53	53	20	15	40	42	37	38		32	D	25	C	25	C
basic	Btw MD 190 & I-270 West Spur	446	5	2172	1993	1817	1906	1990		9877	10023	50	52	52	53	53			52	42	45	39	35	37	38			39	E	39	E	52	F
		2659	5	2161	2017	1863	1955	2051		10047		39	42	45	48	49			45		56	49	42	42	42			46	F	46	F		
		936	5	1850	1927	1998	2096	2154		10026		19	23	28	34	39			28		100	88	75	64	56			77	F	77	F		
weave		551	6	20	1723	1878	2075	2191	2139	10026	10026	34	22	26	31	35	38		31	31	1	90	80	74	67	58		62	F	62	F	62	F
basic	Btw I-270 West Spur & MD 187	7657	3	860	1459	1442				3761	3763	46	36	38					40	41	21	47	43					37	E	37	E	35	E
		1085	3	1310	1281	1185				3776		52	53	53					53		25	25	23					24	C	24	C		
merge		406	4	197	1229	1213	1142			3781	3781	51	53	53	53				53	53	4	24	23	22				18	B	17	B	17	B
basic	MD 187 interchange	2022	3	906	1097	1133				3137	3137	54	53	53					53	53	17	21	22					20	C	20	C	20	C
diverge		325	4	196	1002	1123	1134			3455	3455	52	53	53	53				53	53	4	19	21	22				17	B	15	B	15	B
basic	Btw MD 187 & I-270 East Spur	1192	3	1196	1120	1138				3455	3457	53	54	53					53	53	23	21	22					22	C	22	C	22	C
		913	3	1192	1119	1147				3458		53	54	53					53		23	21	22					22	C	22	C		
		494	3	1096	1164	1198				3457		53	53	53					53		21	22	23					22	C	22	C		
merge		910	4	916	1260	1242	32			3450	3450	49	49	49	48				49	49	19	26	26	1				18	B	17	B	17	B
basic	I-270 East Spur interchange	288	3	817	1259	1127				3202	3202	53	53	53					53	53	16	24	22					20	C	20	C	20	C
diverge		1593	4	1106	2035	1308	1144			5593	5593	54	53	53	53				53	53	21	39	25	22				27	C	27	C	27	C
diverge		402	5	632	1284	2107	1310	1134		6468	6468	53	53	53	53	53			53	53	12	24	41	25	22			25	C	26	C	26	C
basic	Btw I-270 East Spur & MD 185	1045	4	1894	2142	1316	1128			6480	6466	53	52	54	53				53	53	36	42	25	21				31	D	31	D	31	D
		2087	4	1818	2305	1269	1077			6469		52	51	53	53				53		35	46	24	20				31	D	31	D		
		1257	4	1941	1714	1764	1045			6464		51	53	53	54				52		39	33	34	20				31	D	31	D		
		526	4	1407	1901	1819	1300			6427		53	53	53	53				53		27	37	35	25				31	D	31	D		
basic	ML - Btw VA 267 & VA 193	873	2	594	182					776	775	63	66						65	65	9	3						6	A	6	A	6	A
		2286	2	601	174					776		64	66						65		10	3						6	A	6	A		
		787	2	607	166					773		64	66						65		10	3						6	A	6	A		
		954	2	613	161					774		64	65						64		10	3						6	A	6	A		
merge	ML - VA 193 interchange & GWMP interchange	303	3	605	134	34				773	773	64	62	50					59	59	10	2	1					4	A	4	A	4	A
basic		1881	2	624	61					685	685	64	67						65	65	10	1						5	A	5	A	5	A
basic		1422	1	684						684	684	58							58	58	12							12	B	12	B	12	B

I-495 Outer Loop - 2045 No-build - 7-8 AM

VISSIM Lookup Data				Volume									Speed									Density									
				Volume Per Lane							Across All Lanes	Overall Volume	Speed Per Lane							Across All Lanes	Overall Speed	Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Link Length	Combined Volume (veh/hr/ln)							Total Volume	Average Volume (veh/hr)	Speed (mph)							Average Speed	Average Speed (mph)	Combined Density (pcphpl)							Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Btw VA 267 & VA 193	873	5	781	1226	1561	1699	1607			6875	6856	54	53	52	52	52			53	53	15	24	30	33	31			27	D	27	D	26	D
		73	5	742	1170	1525	1653	1547			6637		54	53	53	53	53			53		14	23	29	32	30			25	C	25	C		
merge		853	6	55	737	1195	1577	1714	1603		6882	6882	52	54	53	53	53	53		53	53	1	14	23	30	33	30		22	C	13	B	13	B
merge	VA 193 interchange & GWMP interchange	1322	5	412	1182	1605	1714	1603			6516	6516	56	53	53	53	53			53	53	8	23	31	33	31			25	C	20	C	20	C
basic		786	4	1313	1636	1725	1591				6265	6271	53	53	53	53				53	53	25	32	33	30				30	D	30	D	30	D
		727	4	1296	1654	1737	1590				6277		53	53	53	53				53		25	32	33	30				30	D	30	D		
diverge		591	5	519	1370	1699	1746	1581			6915	6915	53	53	53	53	53			53	53	10	26	33	34	30			27	C	23	C	23	C
basic		1853	4	1862	1749	1750	1572				6932	6928	52	53	53	53				53	53	36	34	34	30				33	D	33	D	33	D
		1408	4	1870	1764	1748	1541				6923		52	53	53	53				53		37	34	34	29				33	D	33	D		
diverge		603	5	1884	1800	1777	1599	566			7625	7625	49	51	52	52	53			52	52	39	36	35	31	11			30	D	21	C	21	C
basic		284	4	1911	1779	1787	2103				7580	7580	48	51	52	52				51	51	40	35	35	41				38	E	38	E	38	E
weave	Btw GWMP & Clara Barton Pkwy	1522	5	1315	1787	1807	1837	2178			8925	8925	52	51	52	53	53			52	52	26	36	35	35	42			35	E	35	E	35	E
basic	Clara Barton Pkwy interchange	1713	4	1916	1765	1945	2311				7937	7937	53	53	53	52				53	53	37	34	37	45				38	E	38	E	38	E
diverge	Btw Clara Barton Pkwy & MD 190	922	5	162	1916	1772	1944	2306			8100	8100	54	53	53	53	52			53	53	3	37	34	37	45			31	D	24	C	24	C
basic		521	4	2041	1748	1942	2251				7981	8082	52	52	52	50				51	48	40	34	38	46				40	E	40	E	43	E
		3149	4	2121	1910	2000	2067				8098		44	47	49	49				47		49	41	42	43				44	E	44	E		
merge		1788	5	462	1820	1865	1875	2057			8079	8079	31	24	27	34	40			31	31	16	79	73	57	52			55	F	56	F	56	F
basic	MD 190 interchange	2663	4	1399	1705	1907	2032				7044	7044	41	41	44	47				43	43	36	44	45	45				42	E	42	E	42	E
diverge		1585	5	527	1650	1794	1959	2054			7984	7984	52	51	51	51	51			51	51	10	33	36	39	41			32	D	30	D	30	D
diverge	Btw MD 190 & I-270 West Spur	1032	6	886	734	1679	1898	1984	2106		9287	9287	13	16	30	43	48	50		33	33	98	75	63	45	42	42		61	F	79	F	79	F
basic		446	5	1783	1716	1718	1916	2041			9174	9360	27	33	43	48	50			40	34	80	59	41	41	41			52	F	52	F	63	F
		2659	5	1843	1804	1748	1922	2063			9380		26	31	38	43	47			37		83	65	48	45	45			57	F	57	F		
		936	5	1620	1742	1858	2012	2162			9394		15	18	23	30	36			24		117	101	82	70	60			86	F	86	F		
weave		551	6	141	1479	1743	1933	2064	2062		9423	9423	12	13	18	24	30	35		22	22	27	122	102	85	71	61		78	F	78	F	78	F
basic	Btw I-270 West Spur & MD 187	7657	3	1261	1244	1340					3844	3880	18	12	14					15	16	78	115	108					100	F	100	F	97	F
		1085	3	1496	1365	1268					4129		25	22	21					23		70	77	76					74	F	74	F		
merge		406	4	381	1246	1326	1248				4202	4202	13	23	26	24				22	22	52	72	68	68				65	F	64	F	64	F
basic	MD 187 interchange	2022	3	926	1193	1280					3399	3399	31	33	33					33	33	51	54	55					53	F	53	F	53	F
diverge	Btw MD 187 & I-270 East Spur	325	4	245	1039	1242	1311				3836	3836	48	37	38	38				40	40	5	44	47	48				36	E	32	D	32	D
		1192	3	1287	1255	1320					3862	3891	39	39	39					39	40	42	42	43					42	E	42	E	40	E
basic		913	3	1298	1265	1342					3905		41	41	41					41		37	37	39					38	E	38	E		
		494	3	1183	1326	1425					3934		42	42	42					42		34	36	38					36	E	36	E		
merge		910	4	882	1444	1542	86				3953	3953	39	40	41	36				39	39	27	39	41	4				28	D	28	D	28	D
basic	I-270 East Spur interchange	288	3	701	1422	1399					3523	3523	41	45	44					43	43	20	34	34					30	D	30	D	30	D
diverge		1593	4	1556	2216	1510	1441				6723	6723	51	48	47	46				48	48	31	47	34	33				36	E	36	E	36	E
diverge	Btw I-270 East Spur & MD 185	402	5	651	1692	2334	1527	1449			7653	7653	52	51	50	50	50			51	51	13	34	47	31	30			31	D	31	D	31	D
basic		1045	4	2299	2392	1542	1456				7690	7710	51	50	52	51				51	50	46	48	30	29				38	E	38	E	39	E
		2087	4	2221	2539	1590	1362				7712		49	47	51	53				50		46	55	32	26				40	E	40	E		
		1257	4	2339	2131	2119	1139				7728		47	50	52	53				50		51	43	42	22				39	E	39	E		
		526	4	1921	2302	2101	1372				7696		51	52	53	53				52		39	45	40	26				38	E	38	E		
basic	ML - Btw VA 267 & VA 193	873	2	604	181						784	783	63	66						65	65	10	3						6	A	6	A	6	A
		2286	2	609	175						784		64	66						65		10	3						6	A	6	A		
		787	2	614	167						781		64	66						65		10	3						6	A	6	A		
		954	2	620	163						782		64	65						64		10	3						6	A	6	A		
merge	ML - VA 193 interchange & GWMP interchange	303	3	607	139	33					779	779	64	62	50					59	59	10	2	1					4	A	4	A	4	A
basic		1881	2	627	65						692	692	64	67						65	65	10	1						6	A	6	A	6	A
basic		1422	1	693							693	693	58							58	58	12							12	B	12	B	12	B

I-495 Outer Loop - 2045 No-build - 8-9 AM

VISSIM Lookup Data				Volume									Speed									Density									
				Volume Per Lane							Across All Lanes	Overall Volume	Speed Per Lane							Across All Lanes	Overall Speed	Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Link Length	Combined Volume (veh/hr/ln)							Total Volume	Average Volume (veh/hr)	Speed (mph)							Average Speed	Average Speed (mph)	Combined Density (pcphpl)							Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Btw VA 267 & VA 193	873	5	985	1382	1609	1662	1550			7189	7170	53	52	52	52	52			52	52	19	27	31	32	30			28	D	28	D	28	D
		73	5	948	1334	1562	1605	1493			6942		53	53	53	53	53			53		18	26	30	31	29			27	D	27	D		
merge		853	6	72	947	1358	1613	1663	1547		7200	7200	53	54	53	53	53	54		53	53	1	18	26	31	31	29			23	C	15	B	15	B
merge	VA 193 interchange & GWMP interchange	1322	5	593	1302	1632	1669	1541			6737	6737	54	53	53	53	53			53	53	11	25	31	32	30			26	C	22	C	22	C
basic		786	4	1398	1664	1675	1529				6266	6272	53	53	53	53				53	53	27	32	32	29				30	D	30	D	30	D
		727	4	1383	1683	1686	1527				6279		53	53	53	53				53		27	32	32	29				30	D	30	D		
diverge		591	5	497	1456	1723	1692	1522			6890	6890	53	53	53	53	53			53	53	9	28	33	32	29			26	C	24	C	24	C
basic		1853	4	1931	1769	1696	1511				6906	6904	52	53	53	53				53	53	38	34	32	29				33	D	33	D	33	D
		1408	4	1952	1781	1694	1473				6900		52	52	53	53				52		38	34	33	28				33	D	33	D		
diverge		603	5	1990	1829	1715	1490	533			7556	7556	48	50	51	52	53			51	51	42	37	34	29	10			30	D	20	C	20	C
basic		284	4	2062	1826	1708	1917				7513	7513	45	49	50	50				48	48	47	38	35	39				40	E	40	E	40	E
weave	Btw GWMP & Clara Barton Pkwy	1522	5	1138	2002	1820	1680	1953			8594	8594	51	48	51	52	52			51	51	23	42	36	33	38			34	D	34	D	34	D
basic	Clara Barton Pkwy interchange	1713	4	1788	1531	1698	2067				7083	7083	53	53	53	52				53	53	35	29	32	40				34	D	34	D	34	D
diverge	Btw Clara Barton Pkwy & MD 190	922	5	103	1788	1539	1690	2063			7183	7183	54	53	54	53	52			53	53	2	34	29	32	40			28	D	22	C	22	C
basic		521	4	1861	1526	1683	2012				7082	7173	52	53	52	51				52	51	36	29	33	40				35	E	35	E	36	E
		3149	4	1986	1678	1723	1801				7188		49	51	51	51				50		42	34	34	36				36	E	36	E		
merge		1788	5	171	1878	1725	1627	1769			7169	7169	45	42	45	48	50			46	46	4	46	40	35	36			32	D	30	D	30	D
basic	MD 190 interchange	2663	4	927	1458	1808	1979				6172	6172	53	52	52	52				52	52	18	28	35	38				30	D	30	D	30	D
diverge		1585	5	564	1260	1513	1865	2033			7235	7235	51	50	51	51	51			51	51	11	26	30	37	41			29	D	26	C	26	C
diverge		1032	6	645	708	1371	1617	1981	2141		8464	8464	4	6	16	36	45	48		26	26	154	135	88	45	45	45		85	F	126	F	126	F
basic	Btw MD 190 & I-270 West Spur	446	5	1354	1449	1564	1891	2060			8317	8430	12	18	34	43	47			31	27	117	85	46	44	45			67	F	67	F	76	F
		2659	5	1437	1539	1581	1838	2050			8445		14	19	30	38	44			29		115	86	55	49	48			70	F	70	F		
		936	5	1309	1486	1672	1884	2091			8442		10	13	19	25	33			20		137	117	92	76	64			97	F	97	F		
weave		551	6	256	1122	1488	1726	1926	1950		8468	8468	6	8	13	19	26	31		17	17	77	148	121	98	80	66		98	F	98	F	98	F
basic	Btw I-270 West Spur & MD 187	7657	3	1207	940	1043					3190	3192	11	6	7					8	8	125	163	157					148	F	148	F	147	F
		1085	3	1215	1027	964					3206		11	8	7					9		131	146	152					143	F	143	F		
merge		406	4	460	728	1011	1008				3206	3206	4	6	8	8				6	6	152	154	142	144				148	F	150	F	150	F
basic	MD 187 interchange	2022	3	631	911	1013					2555	2555	9	12	14					12	12	131	124	125					127	F	127	F	127	F
diverge	Btw MD 187 & I-270 East Spur	325	4	287	695	931	1035				2948	2948	37	23	24	24				27	27	9	115	113	115				88	F	79	F	79	F
		1192	3	965	957	1039					2960	2970	25	25	24					25	25	109	110	113					110	F	110	F	108	F
basic		913	3	958	956	1065					2979		25	25	25					25		107	106	109					107	F	107	F		
		494	3	837	978	1162					2977		25	25	25					25		104	104	101					103	F	103	F		
merge		910	4	584	976	1187	224				2971	2971	24	23	23	25				23	23	99	109	112	52				93	F	91	F	91	F
basic	I-270 East Spur interchange	288	3	416	899	1193					2509	2509	24	25	25					25	25	88	101	108					99	F	99	F	99	F
diverge		1593	4	1862	1618	1031	1267				5777	5777	30	23	25	25				26	26	71	108	98	107				96	F	96	F	96	F
diverge	Btw I-270 East Spur & MD 185	402	5	583	1773	1714	1102	1349			6522	6522	42	28	23	24	26			29	29	14	73	106	93	101			77	F	64	F	64	F
basic		1045	4	2116	1766	1253	1404				6539	6588	27	22	26	27				25	24	87	108	88	96				94	F	94	F	96	F
		2087	4	1858	1726	1496	1492				6572		22	20	25	30				24		99	110	84	83				94	F	94	F		
		1257	4	1637	1607	1822	1566				6633		16	18	23	30				22		116	114	98	72				100	F	100	F		
		526	4	1448	1668	1789	1740				6645		14	18	23	30				21		117	113	99	74				101	F	101	F		
basic	ML - Btw VA 267 & VA 193	873	2	593	200						793	791	63	65						64	64	9	3						6	A	6	A	6	A
		2286	2	598	195						793		64	65						64		10	3						6	A	6	A		
		787	2	603	186						789		64	65						64		10	3						6	A	6	A		
		954	2	606	183						790		63	64						64		10	3						6	A	6	A		
merge	ML - VA 193 interchange & GWMP interchange	303	3	582	155	51					787	787	64	60	50					58	58	9	3	1					4	A	4	A	4	A
basic		1881	2	598	54						652	652	64	67						65	65	9	1						5	A	5	A	5	A
basic		1422	1	650							650	650	58							58	58	11							11	B	11	B	11	B

I-495 Outer Loop - 2045 No-build - 9-10 AM

VISSIM Lookup Data				Volume									Speed									Density									
				Volume Per Lane							Across All Lanes	Overall Volume	Speed Per Lane							Across All Lanes	Overall Speed	Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Link Length	Combined Volume (veh/hr/ln)							Total Volume	Average Volume (veh/hr)	Speed (mph)							Average Speed	Average Speed (mph)	Combined Density (pcphpl)							Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Btw VA 267 & VA 193	873	5	840	1316	1568	1654	1526			6905	6886	53	53	52	52	52			53	53	16	25	30	32	29			27	D	27	D	27	D
		73	5	796	1258	1537	1606	1468			6664		53	53	53	53	53			53		15	24	30	31	28			26	D	26	D		
merge		853	6	66	783	1279	1588	1667	1521		6905	6905	53	54	53	53	54	54		53	53	1	15	24	30	32	29			22	C	13	B	13	B
merge	VA 193 interchange & GWMP interchange	1322	5	413	1247	1611	1671	1518			6459	6459	55	53	53	53	53			53	53	8	24	31	32	29			25	C	21	C	21	C
basic		786	4	1358	1639	1679	1507				6184	6189	53	53	53	53				53	53	26	32	32	29				30	D	30	D	30	D
		727	4	1346	1653	1691	1505				6196		53	53	53	53				53		26	32	32	29				30	D	30	D		
diverge		591	5	506	1418	1698	1696	1497			6816	6816	53	53	53	53	53			53	53	10	27	33	33	29			26	C	23	C	23	C
basic		1853	4	1903	1740	1700	1492				6836	6830	52	53	53	53				53	53	37	34	33	29				33	D	33	D	33	D
		1408	4	1918	1755	1697	1452				6823		52	52	53	53				53		38	34	33	28				33	D	33	D		
diverge		603	5	1953	1796	1713	1485	551			7497	7497	49	51	52	52	53			51	51	41	36	34	29	11			30	D	20	C	20	C
basic		284	4	1995	1788	1711	1956				7451	7451	47	50	51	51				50	50	43	37	34	39				38	E	38	E	38	E
weave	Btw GWMP & Clara Barton Pkwy	1522	6	1185	1916	1791	1715	2006	1104		9717	9717	52	50	52	53	53	53		52	52	23	39	35	33	39	21		32	D	32	D	32	D
basic	Clara Barton Pkwy interchange	1713	4	1845	1606	1776	2119				7346	7346	53	53	53	52				53	53	36	31	34	41				35	E	35	E	35	E
diverge	Btw Clara Barton Pkwy & MD 190	922	5	82	1841	1601	1776	2119			7420	7420	54	53	53	53	52			53	53	2	35	30	34	42			29	D	22	C	22	C
basic		521	4	1894	1589	1761	2069				7313	7412	52	53	52	51				52	50	37	31	34	42				36	E	36	E	38	E
		3149	4	2026	1751	1803	1849				7429		48	50	51	51				50		43	35	36	37				38	E	38	E		
merge		1788	5	229	1945	1802	1682	1786			7444	7444	45	41	44	48	49			45	45	7	53	45	38	38			36	E	35	E	35	E
basic	MD 190 interchange	2663	4	971	1493	1809	1953				6227	6227	52	52	52	52				52	52	20	30	35	38				31	D	31	D	31	D
diverge		1585	5	550	1363	1547	1854	2004			7318	7318	51	51	51	51	51			51	51	11	27	31	37	40			29	D	26	C	26	C
diverge	Btw MD 190 & I-270 West Spur	1032	6	743	698	1458	1644	1938	2088		8567	8567	9	10	22	40	46	50		29	29	130	112	80	43	43	43		75	F	107	F	107	F
basic		446	5	1465	1516	1571	1860	2016			8428	8782	18	24	37	44	48			34	31	108	79	44	43	43			63	F	63	F	69	F
		2659	5	1541	1596	1591	1837	2009			8574		18	23	32	39	44			31		106	81	54	48	46			67	F	67	F		
		936	6	1474	1628	1743	1835	1867	996		9543		13	17	23	29	35	53		28		126	106	83	67	55	19		76	F	76	F		
weave		551	6	197	1425	1674	1752	1805	1678		8530	8530	7	14	19	25	29	33		21	21	54	123	101	79	66	54		79	F	79	F	79	F
basic	Btw I-270 West Spur & MD 187	7657	3	1296	1138	1225					3659	3654	12	8	9					10	10	112	150	145					135	F	135	F	136	F
		1085	3	1363	1174	1083					3621		11	8	7					9		132	147	153					144	F	144	F		
merge		406	4	547	796	1154	1137				3634	3634	4	5	8	8				6	6	152	161	145	146				151	F	153	F	153	F
basic	MD 187 interchange	2022	3	780	1043	1124					2947	2947	5	8	9					7	7	158	145	143					149	F	149	F	149	F
diverge	Btw MD 187 & I-270 East Spur	325	4	284	850	1053	1127				3315	3315	32	7	8	9				14	14	9	146	141	141				109	F	99	F	99	F
basic		1192	3	1094	1098	1138					3329	3330	9	9	10					9	10	137	137	138					137	F	137	F	131	F
		913	3	1080	1076	1174					3330		10	10	11					11		130	128	127					128	F	128	F		
		494	3	1006	1076	1249					3331		11	13	15					13		123	121	114					119	F	119	F		
merge		910	4	822	1088	1198	221				3328	3328	14	15	16	20				16	16	111	117	120	30				94	F	89	F	89	F
basic	I-270 East Spur interchange	288	3	632	1077	1208					2917	2917	17	18	19					18	18	89	102	108					100	F	100	F	100	F
diverge		1593	4	2009	1725	1221	1295				6250	6250	35	23	21	20				25	25	61	98	97	103				90	F	90	F	90	F
diverge	Btw I-270 East Spur & MD 185	402	5	629	1892	1900	1272	1354			7047	7047	46	34	27	24	23			31	31	14	61	90	87	95			69	F	55	F	55	F
basic		1045	4	2281	1959	1386	1419				7046	6996	34	27	27	26				28	27	73	91	80	88				83	F	83	F	85	F
		2087	4	1997	1907	1583	1522				7008		27	24	28	30				27		86	98	74	74				83	F	83	F		
		1257	4	1764	1717	1892	1597				6970		21	23	27	33				26		103	100	88	61				88	F	88	F		
		526	4	1494	1784	1859	1773				6911		20	23	27	32				26		106	102	89	67				91	F	91	F		
basic	ML - Btw VA 267 & VA 193	873	2	588	176						765	762	63	66						65	65	9	3						6	A	6	A	6	A
		2286	2	592	170						762		63	66						65		9	3						6	A	6	A		
		787	2	596	162						758		64	66						65		9	3						6	A	6	A		
		954	2	603	157						760		64	65						64		10	2						6	A	6	A		
merge	ML - VA 193 interchange & GWMP interchange	303	3	595	130	31					756	756	64	62	51					59	59	9	2	1					4	A	4	A	4	A
basic		1881	2	613	60						673	673	64	67						65	65	10	1						5	A	5	A	5	A
basic		1422	1	674							674	674	58							58	58	12							12	B	12	B	12	B

I-270 Southbound - 2045 No-build - 6-7 AM

VISSIM Lookup Data				Volume										Speed										Density											
				Volume Per Lane								Across All Lanes	Overall Volume	Speed Per Lane								Across All Lanes	Overall Speed	Density Per Lane								Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)								Total Volume	Average Volume (veh/hr)	Speed (mph)								Average Speed	Average Speed (mph)	Combined Density (pcphpl)								Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Through MD 117 interchange	658	4	1808	1896	1890	1923					7517	7568	19	20	20	20					20	20	98	96	98	97					97	F	97	F	99	F
		3062	4	1825	1870	1898	1985					7579		18	19	20	21					19		102	101	99	95					99	F	99	F		
merge	Btw MD 117 & I-370	1569	5	1384	2013	1937	1931	2057				9321	9321	33	30	30	31	34				32	32	43	69	66	63	61				60	F	59	F	59	F
basic		1151	5	1326	2178	2168	2091	1597				9360	9360	46	36	35	37	44				40	40	30	62	64	58	37				50	F	50	F	50	F
		431	5	1351	2279	2247	2099	1284				9260	9260	36	37	37	42	49				40	40	39	63	63	52	26				48	F	48	F	48	F
diverge		1058	6	1141	402	2173	2276	2094	1275			9361	9361	52	52	44	45	47	52			49	49	22	8	50	52	45	25			34	D	33	D	33	D
basic	I-370 interchange	1258	4	2382	2081	2180	1195					7839	7837	38	43	48	53					45	46	63	50	47	23					46	F	46	F	45	F
		193	4	2480	1968	2208	1169					7825		43	47	50	53					49		58	42	45	22					42	E	42	E		
diverge		1263	5	1534	1335	1661	2140	1157				7827	7827	51	51	52	52	53				52	52	31	27	33	42	22				31	D	33	D	33	D
basic		3427	4	1248	1642	1886	1145					5921	5921	53	53	53	53					53	53	24	31	36	22					28	D	28	D	28	D
merge	Shady Grove Rd interchange	1046	5	415	1699	2167	1692	1144				7118	7118	47	45	47	50	53				48	48	9	39	47	35	22				30	D	32	D	32	D
basic		420	4	2181	1897	1897	1144					7119	7120	39	42	46	52					45	46	58	46	43	22					42	E	42	E	40	E
		497	4	2198	1847	1932	1143					7121		43	47	50	52					48		52	40	39	22					38	E	38	E		
diverge		1518	4	2163	1848	1965	1142					7117	7117	49	51	51	53					51	51	45	37	39	22					36	E	40	E	40	E
basic		3645	4	1213	1732	1928	1142					6015	6015	53	53	53	53					53	53	23	33	37	22					29	D	29	D	29	D
merge	Btw Shady Grove Rd & MD 28	473	5	299	1636	1937	1911	1141				6924	6924	51	52	53	53	53				52	52	6	32	37	36	21				27	C	25	C	25	C
basic		1022	4	1825	1981	1974	1140					6919	6908	50	51	52	52					51	52	37	40	39	22					34	D	34	D	34	D
		1591	4	1913	1987	1864	1137					6901		52	52	52	53					52		38	39	36	22					34	D	34	D		
merge	MD 28 interchange	655	5	63	2012	2148	1724	1142				7088	7088	52	51	52	52	53				52	52	1	40	42	33	21				28	D	28	D	28	D
basic		921	4	2146	2018	1779	1140					7083	7083	49	50	51	52					51	51	45	41	35	22					36	E	36	E	36	E
diverge		1515	4	2218	1885	1846	1140					7090	7090	49	50	51	53					51	51	47	38	37	22					36	E	40	E	40	E
basic	MD 189 interchange	3237	4	1492	1823	1864	1140					6319	6315	53	53	53	53					53	53	29	35	36	22					30	D	30	D	30	D
		1874	4	1536	1799	1850	1137					6322		53	53	53	53					53		30	35	36	22					30	D	30	D		
		3407	4	1552	1786	1836	1134					6308		53	53	53	53					53		30	34	35	22					30	D	30	D		
merge	Montrose Rd interchange	598	5	1618	1579	1780	1821	1129				7927	7927	53	53	53	53	53				53	53	31	30	34	35	21				30	D	32	D	32	D
basic	Btw Montrose Rd & Spur Split	882	5	1600	1600	1794	1831	1132				7957	7960	53	53	53	53	53				53	53	31	31	34	35	21				30	D	30	D	30	D
		303	5	1603	1605	1800	1835	1134				7978		53	53	53	53	53				53		31	31	35	35	22				31	D	31	D		
		3023	5	1602	1603	1791	1831	1132				7958		53	53	53	53	53				53		31	31	34	35	22				31	D	31	D		
weave		3707	7	942	916	1734	2212	2230	1714	1137		10885	10871	53	53	52	50	49	52	53		51	52	18	18	34	45	47	34	22		31	D	31	D	31	D
		722	7	1002	1259	1857	2219	1542	1791	1128		10798		53	53	51	49	51	52	53		52		19	24	37	46	31	35	21		30	D	30	D		
diverge		400	8	1061	1371	1841	2158	1499	1782	512	615	10839	10839	54	54	52	51	53	53	54	54	53	53	20	26	36	43	29	34	10	11	26	C	18	B	18	B
weave		330	7	1073	1379	1822	2133	1556	1676	267		9905	9905	54	54	53	52	53	53	54		53	53	20	26	35	42	30	32	5		27	C	27	C	27	C
basic	Spur Split through MD 187 interchange	965	4	895	1575	1568	285					4322	4322	58	57	57	59					57	57	16	28	28	5					19	C	19	C	19	C
diverge		1138	4	965	1556	1501	300					4322	4322	63	63	63	64					63	63	16	25	24	5					17	B	17	B	17	B
basic		2602	3	1386	1489	300						3175	3175	63	63	64						63	63	22	24	5						17	B	17	B	17	B
merge		443	4	25	1401	1512	301					3238	3238	48	63	63	64					59	59	1	23	24	5					13	B	16	B	16	B
basic		947	3	1411	1524	302						3237	3237	63	63	64						63	63	23	25	5						17	B	17	B	17	B
merge	Btw MD 187 & I-495	1023	4	99	1322	1603	304					3327	3327	58	63	63	64					62	62	2	21	26	5					13	B	16	B	16	B
basic		473	3	1414	1671	223						3307	3329	63	62	64						63	63	23	27	3						18	C	18	C	18	C
		3140	3	1260	1923	149						3333		63	62	64						63		20	32	2						18	C	18	C		
diverge		1491	3	1216	1031	1082						3329	3329	63	63	63						63	63	19	16	17						18	B	18	B	18	B
basic		1568	2	1174	962							2136	2136	63	64							63	63	19	15							17	B	17	B	17	B
basic	Spur Split to Democracy Blvd	2999	4	1305	1346	1678	1342					5671	5671	53	54	53	53					53	53	25	26	32	26					27	D	27	D	27	D
weave		962	5	470	1739	2010	1458	755				6432	6432	53	52	52	53	53				53	53	9	34	39	28	14				25	C	25	C	25	C
basic	Democracy Blvd	2457	4	1560	1971	1726	761					6017	6017	53	53	53	53					53	53	30	38	33	14					29	D	29	D	29	D
merge	Democracy Blvd to I-495	522	5	75	451	2150	2482	1155				6313	6313	50	53	50	51	52				51	51	2	9	43	50	22				25	C	18	B	18	B
merge		937	4	96	2172	2342	1674					6284	6284	50	48	49	51					50	50	2	46	49	33					32	D	32	D	32	D
basic		2520	3	2187	2215	1918						6320	6320	44	45	46						45	45	53	51	44						49	F	49	F	49	F
basic	CD - I-370 interchange	1623	2	1857	50							1907	1907	43	47							45	45	44	1							23	C	23	C	23	C
weave	CD - Btw I-370 & Shady Grove Rd	795	4	1122	1020	1807	604					4553	4553	42	40	39	40					40	40	27	26	47	16					29	C	29	C	29	C
diverge		1609	3	720	1454	1200						3373	3373	41	42	42						41	41	18	35	29						27	C	27	C	27	C
basic	CD - Shady Grove Rd interchange	702	2	1336	1294							2631	2631	42	42							42	42	32	31							32	D	32	D	32	D
merge		477	3	170	1521	1512						3203	3203	40	41	41						41	41	4	37	37						26	C	26	C	26	C
basic		800	2	1623	1585							3208	3208	41	41							41	41	40	39							40	E	40	E	40	E
merge	CD - Btw Shady Grove Rd & MD 28	707	3	42	1685	1686						3414	3414	40	41	41						41	41	1	41	42						28	D	28	D	28	D
basic		1081	2	1519	1888							3407	3407	41	40							41	41	37	48							43	E	43	E	43	E
merge		609	3	1810	1648	1048						4506	4506	41	41	42						41	41	45	41	25						37	E	37	E	37	E
diverge		1506	3	1892	1698	912						4502	4502	40	41	42						41	41	47	42	22						37	E	37	E	37	E
diverge		2914	2	1834	1770							3604	3604	41	41							41	41	45	44							45	F	45	F	45	F
basic		170	2	1790	1581							3371	3371	41	41							41	41	44	39							42	E	42	E	42	E
diverge		291	3	280	1540	1600						3421	3421	42	42	41						42	42	7	37	39						28	D	28	D	28	D
basic	CD - MD 28 interchange	926	2	1454	1565							3019	3019	41	41							41	41	36	39							37	E	37	E	37	E
merge		231	3	77	1477	1579						3133	3133	29	38	39						36	36	3	39	41						28	D	28	D	28	D
basic		1111	2	1554	1616							3169	3169	37	37							37	37	44	46							45	F	45	F	45	F
merge	CD - Btw MD 28 & MD 189	577	3	1116	1437	1574						4128	4128	30	29	31						30	30	44	57	57						53	F	53	F	53	F
basic		1056	3	1265	1296	1564						4124	4124	20	18	22						20	20	74	87	78						80	F	80	F	80	F
merge		610	4	1049	1539	1515	768					4871	4871	19	16	17	21					18	18	58	102	95	38					73	F	78	F	78	F
basic		838	3	630	2090	2121						4841	4841	40	37	36						38	38	16	57	60						44	E	44	E	44	E
diverge		350	3	565	2151	2155						4871	4871	42	41	41						41	41	14	54	54						40	F	40	F	40	F
basic	CD - MD 189 interchange	816	2	2154	2155							4310	4308	41	41							41	38	53	53							53	F	53	F	58	F
		1802	2	2160	2148							4307		36	36							36		61	61							61	F	61	F		
merge	CD - Btw MD 189 & Montrose Rd	465	3	1350	1708	1789						4847	4847	35	37	36						36	36	39	47	50						45	F	45	F	45	F
diverge		2184	3	1805	1491	1567						4863	4863	35	36	36						36	36	52	42	45						46	F	46	F	46	F
basic		775	2	1802	1379							3180	3180	36	37							36	36	51	38							44	E	44	E	44	E
diverge		235	3	154	1661	1386						3201	3201	37	36	37						37	37	4	46	38						30	D	30	D	30	D
basic	CD - Montrose Rd interchange	1196	2	1607	1362							2970	2970	36	36							36	36	45	38							41	E	41	E	41	E
weave		422	3	1036	1283	1454						3773	3773	36	38	36						37	37	29	35	41						35	E	35	E	35	E
basic		1029	2	1322	1455							2777	2777	39	36							38	38	35	41							38	E	38	E	38	E
merge		415	3	50	1386	1480						2917	2917	40	39	36						38	38	1	36	41						26	C	26	C	26	C
basic		1427	2	1427	1485							2913	2913	39	37							38	38	38	41							39	E	39	E	39	E

I-270 Southbound - 2045 No-build - 7-8 AM

VISSIM Lookup Data				Volume										Speed										Density											
				Volume Per Lane								Across All Lanes	Overall Volume	Speed Per Lane								Across All Lanes	Overall Speed	Density Per Lane								Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)								Total Volume	Average Volume (veh/hr)	Speed (mph)								Average Speed	Average Speed (mph)	Combined Density (pcphpl)								Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Through MD 117 interchange	658	4	1742	1827	1839	1845					7253	7287	17	18	18	18					18	18	102	101	101	102					101	F	101	F	103	F
		3062	4	1724	1780	1842	1949					7295		16	17	18	20					18		108	107	103	98					104	F	104	F		
merge	Btw MD 117 & I-370	1569	5	1541	1974	1822	1831	1897				9064	9064	33	29	30	32	36				32	32	48	70	63	58	54				58	F	60	F	60	F
basic		1151	5	1573	2143	2084	1897	1389				9085	9085	47	42	42	44	50				45	45	34	52	51	44	28				42	E	42	E	42	E
		431	5	1643	2268	2133	1807	1138				8989	8989	44	42	38	43	52				44	44	38	55	57	43	22				43	F	43	F	43	F
diverge		1058	6	1518	665	1908	2116	1754	1137			9097	9097	53	53	50	50	51	53			52	52	29	13	39	43	35	21			30	D	31	D	31	D
basic	I-370 interchange	1258	4	2336	1759	1762	1094					6951	6950	47	50	52	53					50	50	51	36	34	21					35	E	35	E	35	E
		193	4	2490	1589	1784	1087					6949		46	50	53	53					50		55	32	35	20					36	E	36	E		
diverge		1263	5	1759	1053	1308	1749	1085				6953	6953	50	52	53	53	53				52	52	36	21	25	34	20				27	C	29	D	29	D
basic		3427	4	917	1320	1471	1084					4792	4792	54	53	53	53					53	53	17	25	28	20					23	C	23	C	23	C
merge	Shady Grove Rd interchange	1046	5	457	1640	1908	1188	1085				6278	6278	50	49	50	52	53				50	50	10	35	39	23	20				25	C	28	D	28	D
basic		420	4	2210	1613	1376	1085					6284	6286	44	46	50	52					48	49	51	35	28	21					34	D	34	D	33	D
		497	4	2210	1552	1441	1085					6288		46	49	52	52					50		49	32	28	21					33	D	33	D		
diverge		1518	4	2145	1544	1516	1085					6290	6290	49	51	52	53					51	51	45	31	30	21					31	D	35	E	35	E
basic	Btw Shady Grove Rd & MD 28	3645	4	952	1425	1517	1083					4977	4977	54	53	53	53					53	53	18	27	29	21					24	C	24	C	24	C
merge		473	5	265	1402	1586	1512	1082				5846	5846	52	53	53	54	53				53	53	5	27	30	29	20				22	C	21	C	21	C
basic		1022	4	1539	1654	1574	1084					5852	5851	51	52	53	53					52	52	30	32	30	21					28	D	28	D	28	D
		1591	4	1628	1691	1448	1083					5850		52	53	53	53					53		32	33	28	21					28	D	28	D		
merge	MD 28 interchange	655	5	165	1835	2003	1304	1085				6391	6391	52	52	52	54	53				53	53	3	36	39	25	20				25	C	26	C	26	C
basic		921	4	2019	1855	1431	1086					6391	6391	50	51	53	52					52	52	41	37	28	21					32	D	32	D	32	D
diverge		1515	4	2104	1681	1524	1088					6397	6397	50	52	52	53					52	52	43	33	30	21					31	D	35	E	35	E
basic	MD 189 interchange	3237	4	1374	1617	1556	1088					5635	5641	53	53	53	53					53	53	26	31	30	21					27	D	27	D	27	D
		1874	4	1407	1602	1551	1091					5651		53	53	53	53					53		27	31	30	21					27	D	27	D		
		3407	4	1417	1591	1544	1089					5642		53	53	53	53					53		27	31	30	21					27	D	27	D		
merge	Montrose Rd interchange	598	5	1827	1506	1586	1542	1085				7547	7547	52	53	53	54	53				53	53	36	29	30	29	20				29	D	32	D	32	D
basic	Btw Montrose Rd & Spur Split	882	5	1776	1546	1612	1551	1091				7576	7581	53	53	53	53	53				53	52	34	30	31	30	21				29	D	29	D	30	D
		303	5	1773	1550	1623	1556	1095				7596		53	53	53	53	53				53		34	30	31	30	21				29	D	29	D		
		3023	5	1757	1544	1627	1562	1091				7581		51	51	51	51	53				51		35	31	32	31	21				30	D	30	D		
weave		3707	7	1543	1322	1744	1914	1863	1908	1128		11422	11402	48	42	32	27	24	30	52		36	39	33	32	55	73	80	66	22		51	F	51	F	48	F
		722	7	1710	1450	1261	1731	1882	2113	1154		11301		53	52	50	47	47	49	53		50		33	28	26	37	41	44	22		33	D	33	D		
diverge		400	8	1713	1476	1265	1688	1929	2115	424	735	11346	11346	53	53	53	51	51	51	54	54	52	52	33	28	24	33	39	42	8	14	28	D	21	C	21	C
weave		330	7	1697	1468	1265	1667	1986	2023	127		10234	10234	53	53	53	52	51	52	54		53	53	33	28	24	33	40	40	2		29	D	29	D	29	D
basic	Spur Split through MD 187 interchange	965	4	1136	1997	1967	143					5244	5244	57	55	56	59					56	56	20	37	36	2					24	C	24	C	24	C
diverge		1138	4	1190	1956	1935	160					5241	5241	61	61	61	64					62	62	20	33	32	2					22	C	22	C	22	C
basic		2602	3	1777	1908	163						3848	3848	62	62	64						63	63	29	31	3						21	C	21	C	21	C
merge		443	4	87	1787	2001	165					4040	4040	40	59	61	64					56	56	2	31	33	3					17	B	22	C	22	C
basic		947	3	1836	2028	173						4036	4036	60	60	64						62	62	31	34	3						23	C	23	C	23	C
merge	Btw MD 187 & I-495	1023	4	242	1707	2208	181					4337	4337	51	60	60	64					59	59	5	29	37	3					19	B	24	C	24	C
basic		473	3	1951	2201	158						4309	4332	56	56	63						58	60	35	40	3						26	D	26	D	25	C
		3140	3	1886	2340	110						4336		60	59	63						61		32	41	2						25	C	25	C		
diverge		1491	3	1814	1428	1086						4329	4329	63	63	63						63	63	29	23	18						23	C	23	C	23	C
basic		1568	2	1748	1374							3122	3122	63	63							63	63	28	22							25	C	25	C	25	C
basic	Spur Split to Democracy Blvd	2999	4	1822	1403	1183	667					5076	5076	52	53	54	54					53	53	35	27	22	13					24	C	24	C	24	C
weave		962	5	633	1879	1714	860	877				5963	5963	53	52	52	54	53				53	53	12	37	33	16	17				23	C	23	C	23	C
basic	Democracy Blvd	2457	4	1574	1699	1196	882					5351	5351	49	49	49	52					50	50	33	36	26	17					28	D	28	D	28	D
merge	Democracy Blvd to I-495	522	5	129	476	1884	2183	1159				5830	5830	44	45	46	48	48				46	46	4	13	44	48	26				27	C	20	C	20	C
merge		937	4	109	1981	2129	1565					5784	5784	43	45	46	48					46	46	6	48	48	34					34	D	34	D	34	D
basic		2520	3	2014	2018	1773						5805	5805	41	43	43						42	42	53	50	43						49	F	49	F	49	F
basic	CD - I-370 interchange	1623	2	2084	88							2172	2172	41	45							43	43	53	2							27	D	27	D	27	D
weave	CD - Btw I-370 & Shady Grove Rd	795	4	1005	1110	1897	735					4747	4747	39	33	33	35					35	35	26	34	58	21					35	E	35	E	35	E
diverge		1609	3	1042	1310	914						3266	3266	41	41	42						41	41	26	32	22						27	C	27	C	27	C
basic	CD - Shady Grove Rd interchange	702	2	1001	981							1982	1982	42	42							42	42	24	24							24	C	24	C	24	C
merge		477	3	123	1202	1122						2446	2446	40	42	42						41	41	3	29	27						20	C	20	C	20	C
basic		800	2	1272	1181							2454	2454	42	42							42	42	31	29							30	D	30	D	30	D
merge	CD - Btw Shady Grove Rd & MD 28	707	3	71	1415	1344						2830	2830	40	41	42						41	41	2	35	33						23	C	23	C	23	C
basic		1081	2	1226	1601							2828	2828	42	41							41	41	30	40							35	E	35	E	35	E
merge		609	3	1547	1581	1024						4152	4152	41	41	42						41	41	38	39	25						34	D	34	D	34	D
diverge		1506	3	1699	1591	865						4156	4156	41	41	42						41	41	42	39	21						34	D	34	D	34	D
diverge		2914	2	1558	1753							3311	3311	41	41							41	41	38	44							41	F	41	F	41	F
basic		170	2	1487	1248							2735	2735	41	42							41	41	37	31							34	D	34	D	34	D
diverge		291	3	253	1245	1278						2777	2777	42	42	42						42	42	6	30	31						22	C	22	C	22	C
basic	CD - MD 28 interchange	926	2	1156	1263							2419	2419	41	41							41	41	29	31							30	D	30	D	30	D
merge		231	3	97	1214	1299						2609	2609	31	39	40						37	37	3	32	34						23	C	23	C	23	C
basic		1111	2	1289	1357							2646	2646	37	38							38	38	36	37							37	E	37	E	37	E
merge	CD - Btw MD 28 & MD 189	577	3	1227	1275	1358						3860	3860	34	34	35						34	34	40	43	43						42	F	42	F	42	F
basic		1056	3	1242	1272	1395						3909	3909	29	28	31						30	30	48	52	49						49	F	49	F	49	F
merge		610	4	906	1682	1635	469					4691	4691	28	26	27	28					27	27	35	68	63	18					46	F	50	F	50	F
basic		838	3	778	1944	1962						4683	4683	41	39	38						39	39	19	51	52						41	E	41	E	41	E
diverge		350	3	771	1972	1970						4714	4714	42	41	41						41	41	19	49	49						39	E	39	E	39	E
basic	CD - MD 189 interchange	816	2	1971	1975							3947	3951	41	41							41	38	49	48							49	F	49	F	53	F
		1802	2	1978	1975							3953		36	36							36		56	56							56	F	56	F		
merge	CD - Btw MD 189 & Montrose Rd	465	3	1621	1714	1715						5050	5050	35	36	36						36	36	48	48	48						48	F	48	F	48	F
diverge		2184	3	1856	1552	1661						5070	5070	35	35	34						35	35	54	45	50						50	F	50	F	50	F
basic		775	2	1765	1348							3114	3114	36	37							36	36	49	37							43	E	43	E	43	E
diverge		235	3	116	1659	1360						3134	3134	38	36	37						37	37	3	46	38						29	D	29	D	29	D
basic	CD - Montrose Rd interchange	1196	2	1612	1350							2962	2962	36	36							36	36	45	38							41	E	41	E	41	E
weave		422	3	1053	1488	1558						4099	4099	35	36	35						35	35	31	42	45						39	E	39	E	39	E
basic		1029	2	1590	1630							3220	3220	38	36							37	37	42	46							44	E	44	E	44	E
merge		415	3	313	1746	1864						3923	3923	36	35	34						35	35	9	50	55						38	E	38	E	38	E
basic		1427	2	1984	1922							3906	3906	37	35							36	36	55	56							56	F	56	F	56	F

I-270 Southbound - 2045 No-build - 8-9 AM

VISSIM Lookup Data				Volume										Speed										Density									
				Volume Per Lane								Across All Lanes	Overall Volume	Speed Per Lane								Across All Lanes	Overall Speed	Density Per Lane								Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)								Total Volume	Average Volume (veh/hr)	Speed (mph)								Average Speed	Average Speed (mph)	Combined Density (pcphpl)								Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Through MD 117 interchange	658	4	1716	1777	1780	1817					7091	7132	17	17	17	18					17	17	105	105	105	104					105	F	105	F	106	F
		3062	4	1677	1735	1803	1926					7141		15	16	17	20					17		111	109	106	99					106	F	106	F		
merge	Btw MD 117 & I-370	1569	5	1609	1958	1757	1776	1808				8909	8909	33	29	30	32	36				32	32	50	69	60	56	50				57	F	59	F	59	F
basic		1151	5	1719	2117	2003	1776	1324				8939	8939	47	44	44	46	51				47	47	37	49	47	39	26				40	E	40	E	40	E
		431	5	1799	2213	2054	1654	1125				8844	8844	44	40	37	42	52				43	43	42	56	58	41	22				44	F	44	F	44	F
diverge		1058	6	1677	843	1727	2004	1571	1128			8949	8949	52	53	51	50	51	53			52	52	33	16	35	41	31	21			29	D	31	D	31	D
basic	I-370 interchange	1258	4	2224	1576	1549	1096					6445	6444	49	51	53	53					52	51	47	31	30	21					32	D	32	D	32	D
		193	4	2410	1380	1554	1089					6433		47	51	53	53					51		53	28	30	20					33	D	33	D		
diverge		1263	5	1791	918	1108	1531	1087				6435	6435	48	52	53	53	53				52	52	38	18	21	29	20				25	C	27	C	27	C
basic		3427	4	733	1134	1279	1088					4233	4233	54	54	53	53					53	53	14	22	24	21					20	C	20	C	20	C
merge	Shady Grove Rd interchange	1046	5	421	1569	1679	980	1089				5739	5739	53	52	52	53	53				53	53	8	31	33	19	21				22	C	24	C	24	C
basic		420	4	2156	1390	1107	1089					5742	5742	49	51	53	52					51	51	45	28	21	21					29	D	29	D	29	D
		497	4	2140	1349	1164	1089					5742		49	51	53	52					51		45	27	22	21					29	D	29	D		
diverge		1518	4	2061	1347	1243	1087					5739	5739	50	52	53	53					52	52	42	26	24	21					28	D	31	D	31	D
basic	Btw Shady Grove Rd & MD 28	3645	4	933	1247	1261	1089					4530	4530	53	53	53	53					53	53	18	24	24	21					22	C	22	C	22	C
merge		473	5	266	1375	1432	1256	1092				5420	5420	52	53	53	54	53				53	53	5	27	27	24	20				21	C	20	C	20	C
basic		1022	4	1496	1513	1320	1092					5421	5415	52	52	53	53					52	53	30	29	25	21					26	D	26	D	26	D
		1591	4	1584	1553	1183	1090					5411		52	53	53	53					53		31	30	23	21					26	D	26	D		
merge	MD 28 interchange	655	5	185	1818	1909	1019	1092				6024	6024	52	52	52	54	53				53	53	4	35	37	19	20				23	C	25	C	25	C
basic		921	4	2003	1754	1170	1092					6019	6019	50	52	53	52					52	52	41	35	22	21					30	D	30	D	30	D
diverge		1515	4	2097	1566	1271	1095					6029	6029	50	51	52	53					52	52	43	31	25	21					30	D	33	D	33	D
basic	MD 189 interchange	3237	4	1283	1496	1321	1098					5199	5206	53	53	53	53					53	53	25	29	25	21					25	C	25	C	25	C
		1874	4	1309	1471	1329	1102					5212		53	53	53	53					53		25	28	25	21					25	C	25	C		
		3407	4	1320	1461	1328	1102					5210		53	53	53	53					53		25	28	25	21					25	C	25	C		
merge	Montrose Rd interchange	598	5	1767	1410	1463	1323	1099				7061	7061	52	53	53	54	53				53	53	34	27	28	25	21				27	C	30	D	30	D
basic	Btw Montrose Rd & Spur Split	882	5	1709	1453	1489	1331	1102				7083	7087	53	53	53	53	53				53	52	33	28	29	25	21				27	D	27	D	28	D
		303	5	1698	1462	1497	1337	1104				7097		53	53	53	53	53				53		33	28	29	26	21				27	D	27	D		
		3023	5	1680	1456	1509	1338	1103				7086		51	51	51	51	53				52		33	29	30	26	21				28	D	28	D		
weave		3707	7	1256	1102	1701	1985	1910	1780	1131		10865	10858	50	45	37	33	29	34	52		40	41	26	25	47	63	68	54	22		43	F	43	F	42	E
		722	7	1382	1260	1238	1837	1862	2083	1156		10819		47	47	47	45	46	48	53		48		33	29	28	42	42	44	22		34	D	34	D		
diverge		400	8	1369	1286	1264	1809	1892	2084	418	743	10865	10865	46	46	47	47	49	50	54	54	49	49	38	34	31	42	40	42	8	14	31	D	21	C	21	C
weave		330	7	1345	1280	1268	1796	1953	1986	120		9748	9748	45	46	46	46	49	51	54		48	48	41	37	33	43	41	40	2		34	D	34	D	34	D
basic	Spur Split through MD 187 interchange	965	4	1282	1957	1909	136					5285	5285	55	54	55	59					56	56	24	37	35	2					24	C	24	C	24	C
diverge		1138	4	1351	1901	1881	153					5286	5286	61	60	60	64					61	61	23	32	32	2					22	C	22	C	22	C
basic		2602	3	1667	1847	158						3672	3672	62	62	64						63	63	27	30	2						20	C	20	C	20	C
merge		443	4	99	1680	1953	160					3892	3892	37	58	60	64					55	55	3	29	33	3					17	B	22	C	22	C
basic		947	3	1737	1983	172						3892	3892	60	60	64						61	61	30	34	3						22	C	22	C	22	C
merge	Btw MD 187 & I-495	1023	4	340	1637	2176	183					4336	4336	41	52	56	64					53	53	9	32	39	3					21	C	27	C	27	C
basic		473	3	1917	2219	174						4310	4337	50	50	62						54	59	39	45	3						29	D	29	D	26	C
		3140	3	1856	2352	133						4341		59	57	62						59		32	42	2						25	C	25	C		
diverge		1491	3	1750	1355	1236						4341	4341	63	63	62						62	62	28	22	20						24	C	24	C	24	C
basic		1568	2	1677	1303							2980	2980	63	63							63	63	27	21							24	C	24	C	24	C
basic	Spur Split to Democracy Blvd	2999	4	1515	1166	1100	769					4549	4549	44	44	45	46					45	45	50	43	39	29					40	E	40	E	40	E
weave		962	5	749	1489	1421	890	687				5235	5235	45	43	44	46	53				46	46	26	57	52	37	13				37	E	37	E	37	E
basic	Democracy Blvd	2457	4	1326	1432	1118	696					4571	4571	44	44	46	52					46	46	49	53	40	13					39	E	39	E	39	E
merge	Democracy Blvd to I-495	522	5	223	561	1587	1880	1018				5270	5270	41	43	43	44	46				43	43	20	33	57	54	32				39	E	37	E	37	E
merge		937	4	177	1781	1911	1387					5256	5256	43	43	44	46					44	44	14	57	54	40					41	E	42	E	42	E
basic		2520	3	1833	1875	1593						5301	5301	36	39	40						38	38	61	56	47						55	F	55	F	55	F
basic	CD - I-370 interchange	1623	2	2110	105							2215	2215	39	44							41	41	56	2							29	D	29	D	29	D
weave	CD - Btw I-370 & Shady Grove Rd	795	4	973	1115	1911	731					4731	4731	39	34	34	35					35	35	25	33	58	22					34	D	34	D	34	D
diverge		1609	3	1130	1279	846						3255	3255	40	41	42						41	41	28	32	21						27	C	27	C	27	C
basic	CD - Shady Grove Rd interchange	702	2	853	888							1741	1741	42	42							42	42	20	21							21	C	21	C	21	C
merge		477	3	135	1118	1030						2283	2283	41	42	42						41	41	3	27	25						19	B	19	B	19	B
basic		800	2	1199	1089							2288	2288	42	42							42	42	29	26							28	D	28	D	28	D
merge	CD - Btw Shady Grove Rd & MD 28	707	3	85	1374	1277						2735	2735	40	42	42						41	41	2	34	31						22	C	22	C	22	C
basic		1081	2	1167	1558							2725	2725	42	41							41	41	28	39							34	D	34	D	34	D
merge		609	3	1455	1475	1005						3935	3935	41	41	42						41	41	36	36	25						32	D	32	D	32	D
diverge		1506	3	1629	1424	884						3937	3937	41	42	42						42	42	40	35	21						32	D	32	D	32	D
diverge		2914	2	1440	1621							3061	3061	42	41							41	41	35	40							38	E	38	E	38	E
basic		170	2	1364	1043							2407	2407	42	42							42	42	33	26							29	D	29	D	29	D
diverge		291	3	324	1048	1071						2443	2443	42	42	42						42	42	8	25	26						20	B	20	B	20	B
basic	CD - MD 28 interchange	926	2	928	1049							1977	1977	42	42							42	42	22	25							24	C	24	C	24	C
merge		231	3	111	1027	1076						2213	2213	33	42	42						39	39	3	25	26						18	B	18	B	18	B
basic		1111	2	1110	1135							2245	2245	42	42							42	42	27	28							27	D	27	D	27	D
merge	CD - Btw MD 28 & MD 189	577	3	1059	1117	1140						3316	3316	42	42	42						42	42	26	27	28						27	C	27	C	27	C
basic		1056	3	1057	1137	1144						3338	3338	42	42	42						42	42	25	27	28						27	D	27	D	27	D
merge		610	4	738	1612	1541	275					4166	4166	42	40	41	42					41	41	18	41	39	7					26	C	29	D	29	D
basic		838	3	790	1677	1687						4155	4155	42	40	41						41	41	19	42	42						35	D	35	D	35	D
diverge		350	3	819	1677	1687						4183	4183	42	41	41						41	41	20	42	41						34	D	34	D	34	D
basic	CD - MD 189 interchange	816	2	1666	1694							3360	3359	41	42							42	38	41	41							41	E	41	E	45	F
		1802	2	1673	1685							3358		36	36							36		47	47							47	F	47	F		
merge	CD - Btw MD 189 & Montrose Rd	465	3	1692	1498	1423						4614	4614	35	36	37						36	36	50	42	39						44	F	44	F	44	F
diverge		2184	3	1813	1333	1489						4635	4635	35	36	33						35	35	53	38	45						45	F	45	F	45	F
basic		775	2	1681	1062							2743	2743	36	37							37	37	47	29							38	E	38	E	38	E
diverge		235	3	120	1571	1073						2764	2764	37	36	37						37	37	3	44	29						26	C	26	C	26	C
basic	CD - Montrose Rd interchange	1196	2	1521	1064							2585	2585	36	37							37	37	42	29							36	E	36	E	36	E
weave		422	3	1081	1340	1240						3660	3660	35	37	36						36	36	32	37	35						35	D	35	D	35	D
basic		1029	2	1355	1333							2689	2689	39	37							38	38	35	37							36	E	36	E	36	E
merge		415	3	374	1672	1627						3673	3673	38	38	36						37	37	10	45	46						34	D	34	D	34	D
basic		1427	2	1906	1765							3671	3671	38	36							37	37	51	50							51	F	51	F	51	F

I-270 Southbound - 2045 No-build - 9-10 AM

VISSIM Lookup Data				Volume									Speed										Density											
				Volume Per Lane							Across All Lanes	Overall Volume	Speed Per Lane								Across All Lanes	Overall Speed	Density Per Lane								Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)							Total Volume	Average Volume (veh/hr)	Speed (mph)								Average Speed	Average Speed (mph)	Combined Density (pcphpl)								Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Through MD 117 interchange	658	4	1771	1858	1862	1881				7372	7423	18	19	19	19					19	19	100	99	100	100					99	F	99	F	101	F
		3062	4	1805	1820	1859	1951				7434		18	18	19	20					19		103	103	101	97					101	F	101	F		
merge	Btw MD 117 & I-370	1569	5	1599	1981	1811	1820	1843			9054	9054	34	29	29	32	35				32	32	48	69	63	59	53				59	F	60	F	60	F
basic		1151	6	1645	2141	2072	1848	1379	2200		11285	11285	47	43	43	45	50	38			44	44	36	51	50	43	28	58			44	E	44	E	44	E
		431	5	1703	2259	2132	1730	1149			8973	8973	43	41	39	44	52				44	44	41	56	56	40	22				43	F	43	F	43	F
diverge		1058	6	1590	692	1871	2080	1680	1153		9067	9067	52	53	50	50	52	53			52	52	31	13	38	42	33	22			30	D	31	D	31	D
basic	I-370 interchange	1258	6	2310	1690	1681	1120	1660	2139		10599	10091	46	49	52	53	50	49			50	50	52	35	33	21	34	44			36	E	36	E	36	E
		193	4	2471	1496	1709	1112				6788		45	50	52	53					50		56	31	33	21					35	E	35	E		
diverge		1263	5	1858	980	1167	1671	1110			6787	6787	47	51	53	53	53				52	52	40	19	22	32	21				27	C	29	D	29	D
basic		3427	4	762	1184	1394	1110				4449	4449	54	53	53	53					53	53	14	23	27	21					21	C	21	C	21	C
merge	Shady Grove Rd interchange	1046	6	324	1388	1661	1079	1112	695		6260	6260	53	53	53	53	53	54			53	53	6	27	32	21	21	13			20	C	22	C	22	C
basic		420	5	1991	1311	1151	1113	717			6283	5894	50	52	53	52	54				52	52	41	26	22	21	13				25	C	25	C	26	D
		497	4	2013	1254	1186	1113				5566		49	52	53	52					52		42	24	23	21					28	D	28	D		
diverge		1518	4	1962	1252	1234	1112				5561	5561	51	53	53	53					52	52	39	24	24	21					27	C	29	D	29	D
basic	Btw Shady Grove Rd & MD 28	3645	5	850	1159	1241	1112	789			5152	5152	54	53	53	53	54				53	53	16	22	24	21	15				20	C	20	C	20	C
merge		473	5	297	1386	1334	1240	1112			5369	5369	52	53	53	54	53				53	53	6	27	26	23	21				20	C	19	B	19	B
basic		1022	5	1506	1437	1313	1111	823			6190	5681	52	53	53	53	54				53	53	30	28	25	21	15				24	C	24	C	25	C
		1591	4	1543	1483	1220	1108				5354		53	53	53	53					53		30	29	23	21					26	D	26	D		
merge	MD 28 interchange	655	6	135	1701	1770	1101	1109	835		6652	6652	53	53	53	54	53	54			53	53	3	33	34	21	21	16			21	C	23	C	23	C
basic		921	5	1857	1646	1202	1109	853			6667	6667	51	52	53	52	54				52	52	37	32	23	21	16				26	D	26	D	26	D
diverge		1515	4	1945	1499	1265	1111				5820	5820	51	52	53	53					52	52	39	29	24	21					28	D	31	D	31	D
basic	MD 189 interchange	3237	6	1337	1465	1299	1110	1175	816		7203	5964	53	53	53	53	53	54			53	53	26	28	25	21	22	15			23	C	23	C	24	C
		1874	4	1351	1450	1303	1109				5213		53	53	53	53					53		26	28	25	21					25	C	25	C		
		3407	4	1350	1440	1300	1109				5200		53	53	53	53					53		26	28	25	21					25	C	25	C		
merge	Montrose Rd interchange	598	6	1734	1435	1445	1289	1104	986		7994	7994	52	53	54	54	53	54			53	53	34	28	27	24	21	19			25	C	30	D	30	D
basic	Btw Montrose Rd & Spur Split	882	5	1679	1477	1470	1301	1108			7036	7039	53	53	53	53	53				53	53	32	28	28	25	21				27	D	27	D	27	D
		303	5	1671	1485	1480	1308	1110			7054		53	53	53	53	53				53		32	29	28	25	21				27	D	27	D		
		3023	5	1657	1473	1482	1320	1107			7038		53	53	53	53	53				53		32	28	28	25	21				27	D	27	D		
weave		3707	7	777	750	1561	2063	2079	1624	1119	9973	9965	53	53	52	50	48	50	53		51	51	15	14	31	42	44	33	21		29	D	29	D	28	D
		722	7	802	897	1339	1976	1798	1982	1128	9922		54	54	52	50	51	52	53		52		15	17	26	40	36	39	21		28	D	28	D		
diverge		400	8	833	952	1349	1924	1792	1983	373	757	9962	9962	54	54	53	52	52	52	54	54	53	53	16	18	26	38	35	39	7	14	24	C	20	C	20	C
weave		330	7	839	952	1332	1905	1871	1862	68		8829	8829	54	54	53	52	52	53	54		53	53	16	18	25	37	37	36	1		24	C	24	C	24	C
basic	Spur Split through MD 187 interchange	965	4	1049	1860	1785	94				4788	4788	57	56	57	59					57	57	19	34	32	2					22	C	22	C	22	C
diverge		1138	4	1117	1804	1749	118				4787	4787	63	62	62	64					63	63	18	30	29	2					20	C	20	C	20	C
basic		2602	3	1603	1732	119					3454	3454	63	63	64						63	63	26	28	2						19	C	19	C	19	C
merge		443	4	59	1622	1792	120				3593	3593	43	62	62	64					58	58	1	27	29	2					15	B	19	B	19	B
basic		947	3	1650	1817	128					3594	3594	62	62	64						63	63	27	30	2						20	C	20	C	20	C
merge	Btw MD 187 & I-495	1023	4	276	1559	2038	136				4009	4009	46	57	60	64					57	57	6	28	35	2					18	B	23	C	23	C
basic		473	3	1785	2084	121					3990	4018	57	57	63						59	61	32	37	2						24	C	24	C	23	C
		3140	3	1726	2211	85					4023		61	59	63						61		29	38	1						23	C	23	C		
diverge		1491	3	1663	1390	971					4024	4024	63	63	63						63	63	27	22	16						22	C	22	C	22	C
basic		1568	2	1611	1350						2960	2960	63	63							63	63	26	22							24	C	24	C	24	C
basic	Spur Split to Democracy Blvd	2999	4	1251	896	1094	874				4114	4114	53	54	54	54					54	54	24	17	21	17					20	C	20	C	20	C
weave		962	5	788	1212	1238	883	641			4761	4761	53	53	53	53	53				53	53	15	23	24	17	12				18	B	18	B	18	B
basic	Democracy Blvd	2457	4	1030	1292	1035	644				4002	4002	51	51	51	53					52	52	21	26	21	12					20	C	20	C	20	C
merge	Democracy Blvd to I-495	522	5	173	485	1501	1782	812			4753	4753	46	47	49	50	51				49	49	4	11	32	36	16				20	C	16	B	16	B
merge		937	4	79	1715	1814	1137				4745	4745	47	49	50	51					49	49	2	36	37	23					24	C	25	C	25	C
basic		2520	3	1719	1744	1332					4795	4795	44	45	45						45	45	40	39	30						36	E	36	E	36	E
basic	CD - I-370 interchange	1623	2	2200	129						2329	2329	38	44							41	41	59	3							31	D	31	D	31	D
weave	CD - Btw I-370 & Shady Grove Rd	795	4	986	1107	1986	556				4634	4634	41	40	39	39					40	40	24	28	52	14					30	C	30	C	30	C
diverge		1609	3	1111	1396	1024					3531	3531	41	41	42						41	41	28	34	25						29	D	29	D	29	D
basic	CD - Shady Grove Rd interchange	702	2	929	1069						1998	1998	42	42							42	42	22	26							24	C	24	C	24	C
merge		477	3	136	1183	1206					2525	2525	40	42	42						41	41	3	29	29						20	C	20	C	20	C
basic		800	2	1270	1259						2529	2529	42	42							42	42	31	31							31	D	31	D	31	D
merge	CD - Btw Shady Grove Rd & MD 28	707	3	90	1444	1448					2982	2982	40	41	41						41	41	2	35	36						24	C	24	C	24	C
basic		1081	2	1257	1718						2974	2974	42	40							41	41	31	43							37	E	37	E	37	E
merge		609	3	1554	1516	1100					4170	4170	41	41	42						41	41	38	37	27						34	D	34	D	34	D
diverge		1506	3	1702	1463	1006					4171	4171	41	42	42						42	42	42	36	24						34	D	34	D	34	D
diverge		2914	2	1560	1614						3174	3174	41	41							41	41	38	40							39	E	39	E	39	E
basic		170	2	1492	1179						2671	2671	41	42							42	42	37	29							33	D	33	D	33	D
diverge		291	3	385	1125	1201					2711	2711	42	42	42						42	42	9	27	29						22	C	22	C	22	C
basic	CD - MD 28 interchange	926	2	991	1168						2159	2159	42	42							42	42	24	28							26	D	26	D	26	D
merge		231	3	136	1115	1194					2445	2445	32	41	41						38	38	4	28	29						20	C	20	C	20	C
basic		1111	2	1209	1265						2473	2473	42	41							42	42	29	31							30	D	30	D	30	D
merge	CD - Btw MD 28 & MD 189	577	3	1022	1194	1262					3477	3477	42	42	42						42	42	25	29	31						28	D	28	D	28	D
basic		1056	3	1036	1196	1262					3493	3493	42	42	42						42	42	25	29	31						28	D	28	D	28	D
merge		610	4	695	1624	1553	216				4089	4089	42	40	41	42					41	41	17	41	39	5					25	C	28	D	28	D
basic		838	3	672	1698	1699					4069	4069	42	40	40						41	41	16	43	43						34	D	34	D	34	D
diverge		350	3	687	1703	1706					4096	4096	42	41	41						42	42	16	42	42						33	D	33	D	33	D
basic	CD - MD 189 interchange	816	2	1699	1709						3408	3405	41	42							42	38	42	42							42	E	42	E	46	F
		1802	2	1711	1693						3404		36	36							36		48	47							48	F	48	F		
merge	CD - Btw MD 189 & Montrose Rd	465	3	1556	1445	1347					4348	4348	34	36	37						36	36	46	40	37						41	F	41	F	41	F
diverge		2184	3	1780	1155	1430					4366	4366	35	36	34						35	35	52	32	43						42	F	42	F	42	F
basic		775	2	1673	834						2506	2506	36	37							37	37	47	23							35	E	35	E	35	E
diverge		235	3	151	1531	840					2522	2522	37	36	37						37	37	4	43	23						23	C	23	C	23	C
basic	CD - Montrose Rd interchange	1196	2	1463	833						2296	2296	36	37							37	37	41	23							32	D	32	D	32	D
weave		422	3	1187	1159	926					3272	3272	34	37	37						36	36	36	32	26						31	C	31	C	31	C
basic		1029	2	1088	1003						2091	2091	40	37							39	39	27	27							27	D	27	D	27	D
merge		415	3	269	1409	1218					2896	2896	40	40	38						39	39	7	36	33						25	C	25	C	25	C
basic		1427	2	1571	1322						2893	2893	40	38							39	39	40	36							38	E	38	E	38	E

I-270 Northbound - 2045 No-Build - 6-7 AM

VISSIM Lookup Data				Volume									Speed									Density									
				Volume Per Lane							Across All Lanes	Overall Volume	Speed Per Lane							Across All Lanes	Overall Speed	Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)							Total Volume	Average Volume (veh/hr)	Speed (mph)							Average Speed	Average Speed (mph)	Combined Density (pcphpl)							Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Btw Watkins Mill Rd & MD 117	7479	4	1041	885	429	252				2607	2607	63	63	65	67				65	65	17	14	7	4				10	A	10	A	10	A
diverge	Btw MD 117 & I-370	1357	5	475	1090	896	400	226			3086	3086	64	63	63	65	66			64	64	8	18	14	6	3			10	B	13	B	13	B
basic		843	5	346	1252	910	364	213			3083	3083	63	63	63	65	66			64	64	6	20	15	6	3			10	A	10	A	10	A
merge		531	6	6	399	1404	762	293	201		3065	3065	57	58	62	63	66	66		62	62	0	7	23	12	5	3		8	A	11	B	11	B
basic	I-370 interchange	3616	4	949	689	310	199				2147	2145	63	64	66	66				65	65	15	11	5	3				9	A	9	A	9	A
		633	4	856	684	403	194				2137		63	64	66	66				65		14	11	6	3				8	A	8	A		
		1171	4	861	686	388	208				2142		63	64	66	66				65		14	11	6	3				8	A	8	A		
merge		337	5	0	864	682	354	242			2142	2142	0	63	64	66	66			52	52	0	14	11	5	4			7	A	8	A	8	A
basic	Shady Grove Rd interchange	3947	4	879	686	348	236				2149	2149	63	64	66	66				65	65	14	11	5	4				9	A	9	A	9	A
weave	Btw Shady Grove Rd & MD 28	1523	5	604	1087	625	313	224			2854	2856	63	63	63	66	66			64	64	10	18	10	5	3			9	A	9	A	9	A
		1475	5	434	1043	844	310	223			2855		64	63	64	66	66			64		7	17	13	5	3			9	A	9	A		
		1482	5	379	1002	869	387	221			2858		63	63	64	66	66			64		6	16	14	6	3			9	A	9	A		
basic	MD 28 interchange	3696	4	983	797	428	265				2473	2472	63	64	66	66				64	64	16	13	7	4				10	A	10	A	10	A
		464	4	1003	792	392	283				2470		63	63	65	66				64		16	13	6	4				10	A	10	A		
weave		1405	5	675	934	742	365	274			2989	2988	63	63	63	66	66			64	64	11	15	12	6	4			10	B	10	B	10	B
		640	5	726	960	676	358	267			2987		62	63	64	66	66			64		12	15	11	6	4			10	B	10	B		
basic	Btw MD 28 & MD 189	531	4	1256	686	360	264				2567	2565	63	64	66	66				64	64	20	11	6	4				10	A	10	A	10	A
		1407	4	1229	719	355	260				2564		63	63	66	65				64		20	11	5	4				10	A	10	A		
diverge	Btw MD 189 & Montrose Rd	1536	4	1484	933	347	251				3015	3015	62	63	66	65				64	64	24	15	5	4				12	B	15	B	15	B
basic		74	4	1469	922	344	244				2979	3007	63	64	66	65				64	64	24	15	5	4				12	B	12	B	12	B
		1921	4	1307	1010	451	244				3012		63	64	66	65				64		21	16	7	4				12	B	12	B		
		3344	4	1289	949	464	303				3004		63	64	66	65				64		21	15	7	5				12	B	12	B		
diverge	Montrose Rd interchange	1486	5	825	1106	838	356	309			3434	3434	62	63	63	66	65			64	64	13	18	13	5	5			11	B	15	B	15	B
basic		425	5	1309	801	677	339	302			3427	3433	63	64	64	66	65			64	64	21	13	11	5	5			11	B	11	B	11	B
		2954	5	1281	826	689	338	300			3434		63	64	64	66	65			64		21	13	11	5	5			11	B	11	B		
weave	Btw Montrose Rd & Spur Split	1533	7	728	963	1111	873	779	368	327	5149	5142	64	64	63	64	64	66	64	64	64	12	15	18	14	12	6	5	12	B	12	B	12	B
		1210	7	617	1117	1189	793	744	364	319	5143		64	63	63	64	64	66	64	64	64	10	18	19	13	12	6	5	12	B	12	B		
		1521	7	382	1464	1220	614	763	378	314	5135		64	63	63	64	64	66	64	64		6	24	20	10	12	6	5	12	B	12	B		
weave		447	6	558	1070	733	938	1027	452		4777	4777	64	64	64	63	63	65		64	64	9	17	12	15	16	7		13	B	13	B	13	B
basic	Btw Spur Split & MD 187	1227	2	868	874						1743	1743	63	64						64	64	14	14						14	B	14	B	14	B
merge		736	3	0	864	876					1741	1737	61	63	64					63	63	0	14	14					9	A	9	A	9	A
		519	3	1	859	872					1732		62	63	64					63		0	14	14					9	A	9	A		
weave		624	5	0	47	839	854	324			2063	2063	0	58	63	64	64			50	50	0	1	13	14	5			7	A	7	A	7	A
basic	MD 187 interchange	511	3	742	808	328					1878	1884	64	64	64					64	64	12	13	5					10	A	10	A	10	A
		1863	3	723	801	362					1886		64	64	64					64		12	13	6					10	A	10	A		
diverge		520	4	228	683	748	535				2194	2194	63	63	64	65				64	64	4	11	12	8				9	A	9	A	9	A
basic		797	3	895	759	528					2181	2181	63	64	65					64	64	14	12	8					12	B	12	B	12	B
diverge	Btw MD 187 & I-495	674	4	328	983	767	526				2603	2603	63	63	64	65				64	64	5	16	12	8				10	B	11	B	11	B
basic		824	3	1308	771	519					2598	2611	63	64	65					64	64	21	12	8					14	B	14	B	14	B
		3315	3	1307	804	502					2613		63	64	65					64		21	13	8					14	B	14	B		
		1125	3	1137	1078	399					2614		63	63	64					63		18	17	6					14	B	14	B		
merge		429	4	90	1264	1247	17				2617	2617	49	62	63	68				60	60	2	21	20	0				11	B	14	B	14	B
basic		386	3	1173	1143	9					2326	2326	63	63	65					64	64	19	18	0					12	B	12	B	12	B
basic		500	2	1159	1167						2326	2326	59	58						59	59	20	20						20	C	20	C	20	C
basic	Btw Spur Split & Democracy Blvd	1863	4	258	992	1270	543				3063	3063	66	63	63	65				64	64	4	16	20	8				12	B	12	B	12	B
merge		718	5	245	999	1282	526	10			3063	3063	66	63	63	65	57			63	63	4	16	21	8	0			10	B	10	B	10	B
basic		1170	4	232	1006	1285	479				3002	3002	66	63	63	66				65	65	4	16	21	7				12	B	12	B	12	B
merge		820	4	193	1054	1305	463				3014	3014	59	63	63	66				63	63	3	17	21	7				12	B	14	B	14	B
basic	Democracy Blvd interchange	457	3	1101	1294	437					2831	2831	63	63	66					64	64	18	21	7					15	B	15	B	15	B
merge		887	4	44	1094	1325	409				2872	2872	54	63	63	66				62	62	1	18	21	6				11	B	13	B	13	B
basic		790	3	1111	1325	369					2805	2805	63	63	66					64	64	18	21	6					15	B	15	B	15	B
diverge	Btw Democracy Blvd & I-495	894	4	496	1220	1387	306				3409	3409	59	63	63	65				63	63	9	20	22	5				14	B	17	B	17	B
basic		2455	3	1705	1536	175					3416	3416	60	61	64					61	61	29	26	3					19	C	19	C	19	C
diverge	CD - Btw MD 124 & MD 117	2235	2	218	593						810	810	43	43						43	43	5	14						10	B	10	B	10	B
weave	CD - Btw MD 117 & I-370	600	3	431	346	574					1350	1350	41	42	43					42	42	11	8	14					11	A	11	A	11	A
basic		4137	2	343	523						866	866	43	42						42	42	8	13						10	A	10	A	10	A
weave		1981	3	456	863	488					1806	1806	43	42	43					43	43	11	21	12					14	B	14	B	14	B
basic	CD - I-370 interchange	1052	2	454	372						826	826	43	43						43	43	11	9						10	A	10	A	10	A
merge		704	3	35	431	362					828	828	42	43	43					43	43	1	10	9					7	A	7	A	7	A
basic		981	2	323	361						685	685	43	46						44	44	8	8						8	A	8	A	8	A
diverge	CD - Btw I-370 & Shady Grove Rd	483	3	653	442	358					1453	1453	44	45	57					49	49	15	10	6					10	B	10	B	10	B
basic		944	3	647	449	357					1453	1453	45	45	57					49	49	15	10	6					10	A	10	A	10	A
diverge		528	3	616	484	350					1451	1451	45	46	58					50	50	14	11	6					10	B	10	B	10	B
merge		301	4	44	603	465	337				1449	1449	37	45	48	59				47	47	1	13	10	6				8	A	8	A	8	A
basic	CD - Shady Grove Rd interchange	954	3	497	505	311					1313	1313	47	49	61					52	52	11	10	5					9	A	9	A	9	A
weave		357	4	38	496	511	267				1312	1312	41	44	56	64				51	51	1	11	9	4				6	A	6	A	6	A
diverge	CD - Btw Shady Grove Rd & MD 28	190	3	276	536	482					1294	1294	43	43	43					43	43	6	13	12					10	B	10	B	10	B
basic		4624	2	800	506						1307	1307	43	43						43	43	19	12						15	B	15	B	15	B
diverge		2601	3	379	558	748					1686	1686	43	43	43					43	43	9	13	18					13	B	13	B	13	B
weave		177	4	2	527	611	547				1686	1686	35	43	43	44				41	41	0	12	14	13				10	B	10	B	10	B
merge		274	3	40	490	607					1136	1136	42	43	43					43	43	1	12	14					9	A	9	A	9	A
basic	CD - MD 28 interchange	924	2	436	605						1041	1041	43	43						43	43	10	14						12	B	12	B	12	B
weave		258	3	401	615	615					1631	1631	41	42	43					42	42	10	15	14					13	B	13	B	13	B
basic		862	2	976	598						1574	1574	42	43						43	43	23	14						19	C	19	C	19	C
diverge	CD - Btw MD 28 & MD 189	379	3	148	980	549					1677	1677	38	42	43					41	41	4	24	13					14	B	14	B	14	B
basic		525	3	296	848	540					1684	1684	43	43	43					43	43	7	20	13					13	B	13	B	13	B
weave		710	4	304	706	649	466				2125	2125	43	43	43	43				43	43	7	17	15	11				13	B	13	B	13	B
basic		1165	3	188	522	958					1668	1668	44	43	42					43	43	4	12	23					13	B	13	B	13	B
merge		286	3	182	604	884					1670	1670	43	43	42					43	43	4	14	21					13	B	13	B	13	B
basic	CD - MD 189 interchange	810	2	676	801						1477	1476	42	43						42	42	16	19						18	C	18	C	18	C
		649	2	666	809						1475		42	43						43		16	19						18	C	18	C		
diverge	CD - Btw MD 189 & Montrose Rd	220	3	161	749	825					1735	1735	42	42	43					42	42	4	18	20					14	B	14	B	14	B
basic		1046	2	912	830						1742	1740	42	43						42	42	22	20						21	C	21	C	21	C
		2216	2	905	834						1739		42	43						42		22	20						21	C	21	C		
merge		463	3	772	857	111					1740	1740	42	43	44					43	43	19	20	3					14	B	14	B	14	B
basic		950	2	704	605						1309	1309	42	43						42	42	17	14						16	B	16	B	16	B
merge		402	3	110	667	538					1316	1316	40	42	42					41	41	3	16	13					11	B	11	B	11	B
basic	CD - Montrose Rd interchange	1126	2	381	529						911	911	43	43						43	43	9	13						11	B	11	B	11	B
weave		342	3	89	391	534					1014	1014	42	43	43					42	42	2	9	13					8	A	8	A	8	A
basic		1121	2	418	540						958	958	43	43						43	43	10	13						11	B	11	B	11	B
diverge	CD - Btw Montrose Rd & Spur Split	262	3	476	657	570					1702	1702	41	40	42					41	41	12	17	14					14	B	14	B	14	B
basic		1304	2	1049	652						1701	1701	44	47						45	45	24	14						19	C	19	C	19	C

I-270 Northbound - 2045 No-Build - 7-8 AM

VISSIM Lookup Data				Volume									Speed								Density									
				Volume Per Lane							Across All Lanes	Overall Volume	Speed Per Lane							Across All Lanes	Overall Speed	Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)							Total Volume	Average Volume (veh/hr)	Speed (mph)							Average Speed	Average Speed (mph)	Combined Density (pcphpl)							Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Btw Watkins Mill Rd & MD 117	85	4	1117	1163	669	399				3349	3349	63	63	64	66				64	64	18	19	11	6				13	B	13	B	13	B
diverge	Btw MD 117 & I-370	1357	5	1136	1231	1205	623	335			4530	4530	62	62	63	64	66			63	63	19	20	19	10	5			15	B	19	B	19	B
basic		843	5	877	1566	1256	544	294			4538	4538	61	61	63	64	66			63	63	15	26	20	9	5			15	B	15	B	15	B
merge		531	6	21	881	1947	1006	397	266		4519	4519	54	55	61	63	65	66		60	60	0	16	33	16	6	4		13	B	16	B	16	B
basic	I-370 interchange	3616	4	1332	1016	439	264				3051	3051	63	63	65	66				64	64	22	16	7	4				12	B	12	B	12	B
		633	4	1086	994	697	265				3042		63	63	65	66				64		18	16	11	4				12	B	12	B		
		1171	4	1091	990	667	307				3055		63	63	65	66				64		18	16	10	5				12	B	12	B		
merge		337	5	0	1095	967	592	404			3058	3058	0	63	63	65	65			51	51	0	18	16	9	6			10	B	11	B	11	B
basic	Shady Grove Rd interchange	3947	4	1114	976	587	397				3074	3074	63	63	65	65				64	64	18	16	9	6				12	B	12	B	12	B
weave	Btw Shady Grove Rd & MD 28	1523	5	695	1244	918	536	378			3771	3778	63	63	63	65	65			64	64	11	20	15	8	6			12	B	12	B	12	B
		1475	5	470	1261	1131	542	373			3777		64	63	63	65	65			64		7	20	18	8	6			12	B	12	B		
		1482	5	380	1243	1165	620	377			3785		64	63	63	65	65			64		6	20	19	10	6			12	B	12	B		
basic	MD 28 interchange	3696	4	1260	1117	671	409				3458	3459	63	63	65	65				64	64	20	18	11	6				14	B	14	B	14	B
		464	4	1307	1129	627	407				3470		62	63	64	64				63		21	18	10	6				14	B	14	B		
weave		1405	5	942	1232	1016	539	376			4105	4106	60	62	63	65	65			63	63	16	20	16	8	6			13	B	13	B	13	B
		640	5	1194	1204	837	503	371			4109		61	62	63	65	65			63		20	20	13	8	6			13	B	13	B		
basic	Btw MD 28 & MD 189	531	4	1420	835	504	374				3133	3135	63	64	65	65				64	64	23	13	8	6				13	B	13	B	13	B
		1407	4	1393	872	494	376				3135		62	63	65	65				64		23	14	8	6				13	B	13	B		
diverge		1536	4	1810	1159	473	360				3803	3803	62	63	65	65				64	64	30	19	7	6				15	B	19	B	19	B
basic	Btw MD 189 & Montrose Rd	74	4	1790	1145	470	354				3759	3813	62	63	65	65				64	64	29	18	7	5				15	B	15	B	15	B
		1921	4	1573	1273	606	357				3809		63	63	65	65				64		26	20	9	6				15	B	15	B		
		3344	4	1535	1186	656	439				3817		63	63	65	65				64		25	19	10	7				15	B	15	B		
diverge	Montrose Rd interchange	1486	5	936	1335	1039	495	441			4247	4247	62	63	63	65	64			64	64	15	22	17	8	7			14	B	18	B	18	B
basic		425	5	1532	988	819	466	435			4240	4245	63	64	64	65	64			64	64	25	16	13	7	7			14	B	14	B	14	B
		2954	5	1518	1013	824	463	428			4246		63	64	64	65	64			64		25	16	13	7	7			14	B	14	B		
weave	Btw Montrose Rd & Spur Split	1533	7	1011	1214	1377	1063	904	478	460	6506	6512	63	63	63	64	64	65	64	64	64	16	19	22	17	14	7	7	15	B	15	B	15	B
		1210	7	885	1412	1508	950	838	466	454	6514		63	63	63	64	64	65	64	64		14	23	24	15	13	7	7	15	B	15	B		
		1521	7	580	1920	1566	681	838	478	453	6517		64	62	63	64	64	65	64	64		9	31	25	11	13	7	7	15	B	15	B		
weave		447	6	830	1477	948	1007	1164	590		6015	6015	63	63	64	63	63	65		64	64	13	24	15	16	19	9		16	B	16	B	16	B
basic	Btw Spur Split & MD 187	1227	2	1233	1316						2550	2550	63	63						63	63	20	21						21	C	21	C	21	C
merge		736	3	1	1239	1310					2550	2545	56	62	63					60	60	0	20	21					14	B	14	B	14	B
		519	3	6	1231	1301					2539		54	62	62					59		0	20	21					14	B	14	B		
weave		624	5	0	159	1161	1227	465			3011	3011	48	54	63	63	64			58	58	0	3	19	20	7			10	B	10	B	10	B
basic	MD 187 interchange	511	3	936	1077	472					2486	2495	63	64	64					64	64	15	17	7					13	B	13	B	13	B
		1863	3	913	1053	532					2497		63	64	64					64		15	17	8					13	B	13	B		
diverge		520	4	476	795	982	889				3142	3142	63	63	63	64				63	63	8	13	16	14				13	B	12	B	12	B
basic		797	3	1234	1011	880					3126	3126	63	64	64					64	64	20	16	14					17	B	17	B	17	B
diverge	Btw MD 187 & I-495	674	4	499	1359	1028	882				3769	3769	63	63	63	64				63	63	8	22	16	14				15	B	16	B	16	B
basic		824	3	1845	1039	877					3761	3790	62	63	64					63	63	30	17	14					20	C	20	C	21	C
		3315	3	1836	1105	852					3793		62	63	64					63		30	18	14					21	C	21	C		
		1125	3	1541	1528	731					3800		61	62	62					62		26	25	12					21	C	21	C		
merge		429	4	246	1714	1821	26				3807	3807	48	60	62	66				59	59	5	29	30	0				16	B	21	C	21	C
basic		386	3	1545	1525	13					3083	3083	63	63	63					63	63	25	25	0					17	B	17	B	17	B
basic		500	2	1557	1533						3090	3090	58	58						58	58	27	27						27	D	27	D	27	D
basic	Btw Spur Split & Democracy Blvd	1863	4	304	1029	1456	716				3504	3504	66	63	63	65				64	64	5	17	23	11				14	B	14	B	14	B
merge		718	5	284	1038	1474	689	23			3507	3507	66	63	63	65	57			63	63	4	17	24	11	0			11	B	12	B	12	B
basic		1170	4	264	1050	1465	619				3398	3398	66	63	63	65				64	64	4	17	24	10				14	B	14	B	14	B
merge		820	4	217	1103	1491	607				3417	3417	60	63	63	65				63	63	4	18	24	9				14	B	15	B	15	B
basic	Democracy Blvd interchange	457	3	1164	1485	577					3226	3226	63	63	65					64	64	19	24	9					17	B	17	B	17	B
merge		887	4	86	1141	1514	528				3269	3269	51	63	63	65				60	60	2	19	24	8				13	B	15	B	15	B
basic		790	3	1128	1482	484					3095	3095	63	63	65					64	64	18	24	8					17	B	17	B	17	B
diverge	Btw Democracy Blvd & I-495	894	4	726	1291	1567	398				3982	3982	59	62	63	64				62	62	13	21	25	6				16	B	20	C	20	C
basic		2455	3	1983	1800	209					3992	3992	57	58	63					59	59	36	31	3					23	C	23	C	23	C
diverge	CD - Btw MD 124 & MD 117	2235	2	378	989						1367	1367	43	43						43	43	9	23						16	B	16	B	16	B
weave	CD - Btw MD 117 & I-370	600	3	584	589	1034					2207	2207	40	42	43					42	42	15	14	25					18	B	18	B	18	B
basic		4137	2	391	638						1029	1029	43	42						42	42	9	15						12	B	12	B	12	B
weave		1981	3	603	1169	773					2544	2544	42	42	42					42	42	14	28	18					20	B	20	B	20	B
basic	CD - I-370 interchange	1052	2	545	335						880	880	42	43						43	43	13	8						10	A	10	A	10	A
merge		704	3	83	514	287					884	884	42	42	43					43	43	2	12	7					7	A	7	A	7	A
basic		981	2	274	272						546	546	43	46						44	44	7	6						6	A	6	A	6	A
diverge	CD - Btw I-370 & Shady Grove Rd	483	3	940	529	264					1733	1733	41	44	55					47	47	23	12	5					13	B	13	B	13	B
basic		944	3	935	540	259					1733	1733	42	44	56					47	47	23	12	5					13	B	13	B	13	B
diverge		528	3	896	587	247					1731	1731	42	46	57					48	48	22	13	4					13	B	13	B	13	B
merge		301	4	99	852	544	233				1729	1729	35	42	48	59				46	46	3	20	11	4				10	B	12	B	12	B
basic	CD - Shady Grove Rd interchange	954	3	668	569	209					1447	1447	45	50	60					52	52	15	12	4					10	A	10	A	10	A
weave		357	4	83	625	565	173				1446	1446	40	43	57	64				51	51	2	15	10	3				7	A	7	A	7	A
diverge	CD - Btw Shady Grove Rd & MD 28	190	3	357	776	482					1615	1615	43	43	43					43	43	8	18	11					13	B	13	B	13	B
basic		4624	2	1113	524						1637	1637	42	43						43	43	27	12						20	C	20	C	20	C
diverge		2601	3	493	681	805					1979	1979	43	43	43					43	43	12	16	19					16	B	16	B	16	B
weave		177	4	2	653	661	672				1989	1989	36	42	43	44				41	41	0	16	16	16				12	A	12	A	12	A
merge		274	3	101	575	635					1310	1310	42	43	43					43	43	2	14	15					10	B	10	B	10	B
basic	CD - MD 28 interchange	924	2	433	621						1054	1054	43	43						43	43	10	15						12	B	12	B	12	B
weave		258	3	634	713	629					1975	1975	37	40	43					40	40	18	18	15					17	B	17	B	17	B
basic		862	2	1260	600						1861	1861	42	43						42	42	31	14						22	C	22	C	22	C
diverge	CD - Btw MD 28 & MD 189	379	3	303	1263	527					2092	2092	34	40	43					39	39	9	32	12					18	B	18	B	18	B
basic		525	3	480	1105	515					2100	2100	43	42	43					43	43	11	27	12					17	B	17	B	17	B
weave		710	4	463	893	770	984				3111	3111	43	42	43	42				42	42	11	21	18	24				19	B	19	B	19	B
basic		1165	3	373	641	1429					2443	2443	43	42	41					42	42	9	15	36					20	C	20	C	20	C
merge		286	3	447	816	1183					2447	2447	42	42	42					42	42	11	20	29					20	C	20	C	20	C
basic	CD - MD 189 interchange	810	2	867	1023						1889	1890	42	42						42	42	21	25						23	C	23	C	23	C
		649	2	846	1045						1890		42	42						42		20	25						23	C	23	C		
diverge	CD - Btw MD 189 & Montrose Rd	220	3	347	1021	1086					2454	2454	41	41	42					41	41	9	25	26					20	C	20	C	20	C
basic		1046	2	1376	1091						2468	2471	41	42						42	42	34	26						30	D	30	D	30	D
		2216	2	1385	1088						2473		41	43						42		34	26						30	D	30	D		
merge		463	3	1196	1150	127					2473	2473	42	43	43					42	42	29	27	3					20	C	20	C	20	C
basic		950	2	1115	933						2048	2048	41	42						42	42	27	22						25	C	25	C	25	C
merge		402	3	253	1090	717					2060	2060	36	41	42					40	40	7	27	17					17	B	17	B	17	B
basic	CD - Montrose Rd interchange	1126	2	555	664						1219	1219	43	43						43	43	13	16						15	B	15	B	15	B
weave		342	3	192	559	641					1393	1393	40	42	42					41	41	5	14	15					11	A	11	A	11	A
basic		1121	2	500	633						1133	1133	43	43						43	43	12	15						14	B	14	B	14	B
diverge	CD - Btw Montrose Rd & Spur Split	262	3	693	850	681					2223	2223	39	37	40					39	39	18	23	17					19	B	19	B	19	B
basic		1304	2	1409	818						2227	2227	43	46						45	45	33	18						25	C	25	C	25	C

I-270 Northbound - 2045 No-Build - 8-9 AM

VISSIM Lookup Data				Volume									Speed									Density									
				Volume Per Lane							Across All Lanes	Overall Volume	Speed Per Lane							Across All Lanes	Overall Speed	Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)							Total Volume	Average Volume (veh/hr)	Speed (mph)							Average Speed	Average Speed (mph)	Combined Density (pcphpl)							Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Btw Watkins Mill Rd & MD 117	85	4	1192	1290	839	541				3861	3861	63	63	64	65				64	64	19	21	13	8				15	B	15	B	15	B
diverge	Btw MD 117 & I-370	1357	5	1349	1310	1348	794	453			5255	5255	60	61	62	64	65			62	62	23	22	22	13	7			17	B	22	C	22	C
basic		843	5	1069	1681	1421	687	397			5255	5255	60	61	62	64	65			62	62	18	28	23	11	6			17	B	17	B	17	B
merge		531	6	26	1048	2114	1167	513	361		5228	5228	51	54	60	63	64	65		60	60	1	20	36	19	8	6		15	B	19	B	19	B
basic	I-370 interchange	3616	4	1499	1193	565	359				3616	3614	62	63	64	65				64	64	24	19	9	6				15	B	15	B	14	B
		633	4	1177	1157	902	366				3602		63	63	64	65				64		19	19	14	6				14	B	14	B		
		1171	4	1180	1146	866	423				3614		63	63	64	65				64		19	18	14	7				14	B	14	B		
merge		337	5	0	1184	1108	773	553			3618	3618	0	63	63	64	65			51	51	0	19	18	12	9			12	B	12	B	12	B
basic	Shady Grove Rd interchange	3947	4	1201	1117	768	539				3625	3625	63	63	64	65				64	64	19	18	12	8				14	B	14	B	14	B
weave	Btw Shady Grove Rd & MD 28	1523	5	988	1457	1015	690	496			4646	4648	59	62	62	64	65			62	63	17	24	17	11	8			15	B	15	B	15	B
		1475	5	755	1388	1324	693	491			4650		64	63	63	64	65			64		12	22	21	11	8			15	B	15	B		
		1482	5	633	1323	1372	824	496			4649		63	63	63	64	65			64		10	21	22	13	8			15	B	15	B		
basic	MD 28 interchange	3696	4	1259	1274	914	580				4027	4028	63	63	64	65				64	64	20	20	14	9				16	B	16	B	16	B
		464	4	1297	1265	867	601				4030		61	62	63	63				62		22	21	14	10				16	B	16	B		
weave		1405	5	1200	1252	1140	763	550			4906	4907	56	61	63	64	65			62	62	22	21	19	12	9			16	B	16	B	16	B
		640	5	1409	1275	964	724	537			4908		61	62	63	64	65			63		24	21	15	11	8			16	B	16	B		
basic	Btw MD 28 & MD 189	531	4	1619	979	723	537				3859	3860	62	63	64	65				64	63	27	16	11	8				15	B	15	B	16	B
		1407	4	1577	1033	718	532				3860		61	62	63	64				63		26	17	11	8				16	B	16	B		
diverge		1536	4	2060	1433	674	470				4637	4637	60	60	64	65				62	62	35	24	11	7				19	B	23	C	23	C
basic	Btw MD 189 & Montrose Rd	74	4	2058	1418	657	454				4588	4636	62	63	64	65				64	64	34	23	10	7				18	C	18	C	19	C
		1921	4	1784	1543	859	455				4642		63	63	64	65				64		29	25	14	7				19	C	19	C		
		3344	4	1718	1437	925	554				4633		63	63	64	64				64		28	23	15	9				19	C	19	C		
diverge	Montrose Rd interchange	1486	5	1235	1590	1231	717	524			5297	5297	57	62	63	64	64			62	62	22	26	20	11	8			17	B	23	C	23	C
basic		425	5	1865	1284	945	679	510			5284	5289	63	63	64	65	64			64	64	30	21	15	11	8			17	B	17	B	17	B
		2954	5	1850	1302	956	680	502			5290		62	63	64	64	64			64		30	21	15	11	8			17	B	17	B		
weave	Btw Montrose Rd & Spur Split	1533	7	1257	1413	1629	1370	1047	743	539	7998	8005	63	63	63	63	64	64	64	63	63	20	23	27	22	17	12	8	18	B	18	B	18	B
		1210	7	1117	1666	1807	1240	930	726	520	8006		63	62	62	63	64	64	64	63		18	27	30	20	15	11	8	18	B	18	B		
		1521	7	775	2287	1927	866	908	744	503	8011		64	61	62	64	64	64	64	63		12	38	32	14	14	12	8	19	B	19	B		
weave		447	6	1076	1799	1255	1124	1288	920		7462	7462	63	63	63	63	63	64		63	63	17	29	20	18	21	15		20	C	20	C	20	C
basic	Btw Spur Split & MD 187	1227	2	1573	1672						3245	3243	62	62						62	62	26	27						27	D	27	D	27	D
merge		736	3	3	1572	1673					3248		49	60	60					57	57	0	27	28					18	B	18	B	18	B
		519	3	16	1537	1682					3235		51	59	60					57		0	26	29					18	B	18	B		
weave		624	5	0	279	1397	1569	506			3751	3751	59	51	61	62	64			59	59	0	6	23	26	8			13	B	13	B	13	B
basic	MD 187 interchange	511	3	1162	1283	517					2961	2971	63	63	64					63	63	19	21	8					16	B	16	B	16	B
		1863	3	1131	1239	603					2974		63	63	64					63		18	20	10					16	B	16	B		
diverge		520	4	512	890	1108	1157				3666	3666	62	63	63	63				63	63	8	14	18	18				15	B	14	B	14	B
basic		797	3	1354	1140	1149					3643	3643	63	63	63					63	63	22	18	18					20	C	20	C	20	C
diverge	Btw MD 187 & I-495	674	4	356	1438	1160	1152				4107	4107	63	63	63	63				63	63	6	23	19	18				17	B	16	B	16	B
basic		824	3	1784	1175	1141					4099	4125	62	63	63					63	61	29	19	18					22	C	22	C	23	C
		3315	3	1786	1223	1122					4130		61	62	63					62		30	20	18					23	C	23	C		
		1125	3	1529	1554	1045					4128		56	58	57					57		28	28	19					25	C	25	C		
merge		429	4	404	1733	1873	121				4132	4132	37	43	50	59				47	47	14	47	41	2				26	C	34	D	34	D
basic		386	3	1562	1547	72					3181	3181	49	50	52					50	50	38	35	2					25	C	25	C	25	C
basic		500	2	1675	1512						3188	3188	45	45						45	45	41	37						39	E	39	E	39	E
basic	Btw Spur Split & Democracy Blvd	1863	4	472	1123	1546	1129				4270	4270	65	63	63	64				64	64	7	18	25	18				17	B	17	B	17	B
merge		718	5	450	1119	1565	1102	37			4273	4273	65	63	63	64	57			62	62	7	18	25	18	1			14	B	14	B	14	B
basic		1170	4	427	1128	1533	1018				4106	4106	64	63	63	64				64	64	7	18	25	16				16	B	16	B	16	B
merge		820	4	378	1182	1564	1003				4127	4127	57	63	63	64				62	62	7	19	25	16				17	B	17	B	17	B
basic	Democracy Blvd interchange	457	3	1218	1550	967					3735	3735	62	63	64					63	63	20	25	15					20	C	20	C	20	C
merge		887	4	113	1186	1570	920				3788	3788	50	62	63	64				60	60	2	19	25	15				15	B	16	B	16	B
basic		790	3	1177	1506	877					3559	3559	62	63	63					63	63	19	24	14					19	C	19	C	19	C
diverge	Btw Democracy Blvd & I-495	894	4	835	1372	1622	759				4588	4588	57	60	61	61				60	60	15	23	27	13				19	B	22	C	22	C
basic		2455	3	2173	2107	318					4598	4598	43	46	62					50	50	52	46	5					34	D	34	D	34	D
diverge	CD - Btw MD 124 & MD 117	2235	2	582	1242						1824	1824	43	42						42	42	14	30						22	C	22	C	22	C
weave	CD - Btw MD 117 & I-370	600	3	955	909	1290					3154	3154	36	39	41					39	39	27	24	32					28	D	28	D	28	D
basic		4137	2	732	1022						1754	1754	42	42						42	42	18	25						21	C	21	C	21	C
weave		1981	3	984	1475	960					3419	3419	42	41	42					42	42	24	36	23					28	D	28	D	28	D
basic	CD - I-370 interchange	1052	2	817	594						1411	1411	42	43						42	42	20	14						17	B	17	B	17	B
merge		704	3	121	771	525					1416	1416	42	42	43					42	42	3	19	12					11	B	11	B	11	B
basic		981	2	464	507						971	971	42	45						44	44	11	12						11	B	11	B	11	B
diverge	CD - Btw I-370 & Shady Grove Rd	483	3	1140	793	518					2450	2450	40	42	51					45	45	29	19	10					19	B	19	B	19	B
basic		944	3	1142	804	511					2457	2457	41	43	53					46	46	28	19	10					19	C	19	C	19	C
diverge		528	3	1114	851	490					2455	2455	41	44	55					47	47	27	20	9					19	B	19	B	19	B
merge		301	4	148	1088	759	460				2454	2454	34	42	46	56				45	45	4	27	17	8				14	B	16	B	16	B
basic	CD - Shady Grove Rd interchange	954	3	852	802	401					2055	2055	44	48	59					51	51	20	17	7					14	B	14	B	14	B
weave		357	4	122	834	788	314				2057	2057	39	42	56	63				50	50	3	20	14	5				11	A	11	A	11	A
diverge	CD - Btw Shady Grove Rd & MD 28	190	3	465	1106	646					2216	2216	43	43	42					43	43	11	26	15					17	B	17	B	17	B
basic		4624	2	1528	709						2237	2237	41	43						42	42	37	17						27	D	27	D	27	D
diverge		2601	3	677	971	1227					2875	2875	43	43	42					42	42	16	23	30					23	C	23	C	23	C
weave		177	4	7	906	1036	933				2882	2882	33	42	43	43				40	40	0	22	25	22				17	B	17	B	17	B
merge		274	3	140	800	1015					1955	1955	42	43	43					42	42	3	19	24					16	B	16	B	16	B
basic	CD - MD 28 interchange	924	2	613	1006						1619	1619	43	43						43	43	15	24						19	C	19	C	19	C
weave		258	3	808	960	1059					2827	2827	33	38	42					38	38	26	26	26					26	C	26	C	26	C
basic		862	2	1694	1031						2724	2724	40	42						41	41	43	25						34	D	34	D	34	D
diverge	CD - Btw MD 28 & MD 189	379	3	530	1687	881					3097	3097	20	33	39					31	31	28	52	23					34	D	34	D	34	D
basic		525	3	824	1503	790					3116	3116	41	40	43					41	41	20	39	19					26	D	26	D	26	D
weave		710	4	793	1282	1047	1091				4212	4212	42	42	42	42				42	42	19	31	25	27				25	C	25	C	25	C
basic		1165	3	603	1044	1794					3440	3440	43	42	40					42	42	14	25	46					28	D	28	D	28	D
merge		286	3	653	1174	1616					3444	3444	42	42	41					42	42	16	29	40					28	D	28	D	28	D
basic	CD - MD 189 interchange	810	2	1241	1469						2709	2708	42	42						42	42	30	36						33	D	33	D	33	D
		649	2	1208	1499						2707		42	42						42		29	36						33	D	33	D		
diverge	CD - Btw MD 189 & Montrose Rd	220	3	409	1404	1553					3366	3366	41	41	42					41	41	10	35	38					28	D	28	D	28	D
basic		1046	2	1823	1561						3384	3397	41	42						41	41	45	38						42	E	42	E	42	E
		2216	2	1841	1563						3403		40	42						41		46	38						42	E	42	E		
merge		463	3	1654	1537	230					3422	3422	41	41	41					41	41	41	38	6					28	D	28	D	28	D
basic		950	2	1474	1283						2757	2757	41	42						41	41	37	31						34	D	34	D	34	D
merge		402	3	391	1425	955					2770	2770	29	39	41					36	36	14	37	24					25	C	25	C	25	C
basic	CD - Montrose Rd interchange	1126	2	743	848						1591	1591	42	42						42	42	18	20						19	C	19	C	19	C
weave		342	3	268	740	809					1817	1817	40	42	42					41	41	7	18	20					15	B	15	B	15	B
basic		1121	2	651	779						1430	1430	42	42						42	42	16	19						17	B	17	B	17	B
diverge	CD - Btw Montrose Rd & Spur Split	262	3	784	1029	859					2673	2673	38	35	37					37	37	21	30	24					25	C	25	C	25	C
basic		1304	2	1658	1017						2675	2675	43	46						44	44	40	23						31	D	31	D	31	D

I-270 Northbound - 2045 No-Build - 9-10 AM

VISSIM Lookup Data				Volume									Speed									Density									
				Volume Per Lane							Across All Lanes	Overall Volume	Speed Per Lane							Across All Lanes	Overall Speed	Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)							Total Volume	Average Volume (veh/hr)	Speed (mph)							Average Speed	Average Speed (mph)	Combined Density (pcphpl)							Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Btw Watkins Mill Rd & MD 117	85	4	1164	1207	802	523				3696	3696	63	63	64	65				64	64	19	19	13	8				15	B	15	B	15	B
diverge	Btw MD 117 & I-370	1357	5	1134	1258	1250	759	450			4851	4851	62	62	63	64	65			63	63	18	21	20	12	7			16	B	20	C	20	C
basic		843	5	865	1568	1327	685	404			4848	4848	61	61	62	64	65			63	63	14	26	22	11	6			16	B	16	B	16	B
merge		531	6	15	817	1951	1115	549	375		4822	4822	53	56	61	63	64	65		60	60	0	15	32	18	9	6		13	B	16	B	16	B
basic	I-370 interchange	3616	4	1394	1117	589	378				3478	3475	63	63	64	65				64	64	23	18	9	6				14	B	14	B	14	B
		633	4	1125	1085	872	382				3463		63	63	64	65				64		18	17	14	6				14	B	14	B		
		1171	4	1125	1077	841	430				3473		63	63	64	65				64		18	17	13	7				14	B	14	B		
merge		337	5	0	1127	1046	762	538			3474	3474	0	63	63	64	65			51	51	0	18	17	12	8			11	B	12	B	12	B
basic	Shady Grove Rd interchange	3947	4	1145	1058	756	522				3482	3482	63	63	64	65				64	64	18	17	12	8				14	B	14	B	14	B
weave	Btw Shady Grove Rd & MD 28	1523	5	1088	1495	947	657	467			4654	4654	59	62	63	64	65			62	63	19	24	15	10	7			15	B	15	B	15	B
		1475	5	807	1418	1307	655	469			4654		64	63	63	64	65			64		13	23	21	10	7			15	B	15	B		
		1482	5	664	1350	1356	809	475			4653		63	63	63	64	65			64		11	22	22	13	7			15	B	15	B		
basic	MD 28 interchange	3696	4	1279	1248	919	551				3996	3995	63	63	64	65				64	64	21	20	15	9				16	B	16	B	16	B
		464	4	1317	1246	862	568				3993		61	62	63	63				63		22	20	14	9				16	B	16	B		
weave		1405	5	1162	1267	1130	762	520			4841	4841	59	61	63	64	65			62	63	20	21	18	12	8			16	B	16	B	16	B
		640	5	1368	1271	960	732	511			4841		61	62	63	64	65			63		23	21	15	12	8			16	B	16	B		
basic	Btw MD 28 & MD 189	531	4	1610	964	736	512				3822	3822	62	64	64	65				64	63	26	15	12	8				15	B	15	B	15	B
		1407	4	1561	1021	732	509				3822		61	62	64	64				63		26	17	12	8				16	B	16	B		
diverge		1536	4	2102	1426	683	452				4662	4662	60	60	64	65				62	62	35	24	11	7				19	B	23	C	23	C
basic	Btw MD 189 & Montrose Rd	74	4	2087	1418	666	438				4609	4663	62	63	64	65				64	64	34	23	11	7				19	C	19	C	19	C
		1921	4	1811	1552	862	440				4666		63	63	64	65				64		29	25	14	7				19	C	19	C		
		3344	4	1749	1428	940	545				4662		63	63	64	65				64		28	23	15	9				19	C	19	C		
diverge	Montrose Rd interchange	1486	5	1266	1603	1234	742	519			5363	5363	59	62	63	64	64			63	63	22	26	20	12	8			18	B	23	C	23	C
basic		425	5	1901	1287	952	707	504			5351	5355	63	63	64	64	65			64	64	31	21	15	11	8			17	B	17	B	17	B
		2954	5	1879	1313	967	705	492			5356		62	63	64	64	64			64		31	21	15	11	8			17	B	17	B		
weave	Btw Montrose Rd & Spur Split	1533	7	1199	1349	1654	1376	1055	782	519	7934	7935	63	63	63	63	64	64	64	63	63	19	22	27	22	17	12	8	18	B	18	B	18	B
		1210	7	1050	1632	1810	1255	928	758	506	7939		63	62	62	63	64	64	64	63		17	27	30	20	15	12	8	18	B	18	B		
		1521	7	726	2294	1894	860	899	771	489	7933		64	61	62	64	64	64	64	63		12	38	31	14	14	12	8	18	B	18	B		
weave		447	6	1047	1794	1210	1105	1290	952		7398	7398	63	63	63	63	63	64		63	63	17	29	20	18	21	15		20	C	20	C	20	C
basic	Btw Spur Split & MD 187	1227	2	1556	1646						3201	3192	62	62						62	62	26	27						26	D	26	D	26	D
merge		736	3	3	1552	1643					3198		56	61	61					59	59	0	26	27					18	B	18	B	18	B
		519	3	12	1520	1651					3183		52	60	61					58		0	26	28					18	B	18	B		
weave		624	5	0	232	1404	1556	482			3674	3674	61	51	61	62	64			60	60	0	5	23	25	8			12	B	12	B	12	B
basic	MD 187 interchange	511	3	1213	1298	492					3004	3013	63	63	64					63	63	20	21	8					16	B	16	B	16	B
		1863	3	1183	1261	572					3016		63	63	64					63		19	20	9					16	B	16	B		
diverge		520	4	369	934	1141	1072				3515	3515	63	63	63	64				63	63	6	15	18	17				14	B	13	B	13	B
basic		797	3	1261	1170	1067					3499	3499	63	63	63					63	63	20	19	17					19	C	19	C	19	C
diverge	Btw MD 187 & I-495	674	4	395	1360	1192	1066				4013	4018	63	62	63	63				63	63	6	22	19	17				16	B	16	B	16	B
basic		824	3	1748	1200	1054					4002		62	63	64					63	62	29	19	17					22	C	22	C	22	C
		3315	3	1756	1238	1028					4022		61	63	63					62		29	20	17					22	C	22	C		
		1125	3	1571	1562	885					4017		59	60	59					59		27	26	15					23	C	23	C		
merge		429	4	274	1783	1866	92				4015	4015	42	52	56	61				53	53	7	36	34	2				20	C	26	C	26	C
basic		386	3	1648	1578	55					3281	3281	55	55	53					54	54	31	30	1					21	C	21	C	21	C
basic		500	2	1778	1503						3280	3280	50	48						49	49	36	32						34	D	34	D	34	D
basic	Btw Spur Split & Democracy Blvd	1863	4	440	1085	1546	1169				4241	4241	65	63	63	64				64	64	7	17	25	19				17	B	17	B	17	B
merge		718	5	418	1081	1558	1140	47			4244	4244	65	63	63	63	57			62	62	7	17	25	18	1			14	B	15	B	15	B
basic		1170	4	395	1088	1519	1032				4035	4035	64	63	63	64				64	64	6	18	24	16				16	B	16	B	16	B
merge		820	4	348	1137	1544	1025				4055	4055	57	62	63	64				62	62	6	19	25	16				17	B	17	B	17	B
basic	Democracy Blvd interchange	457	3	1170	1530	983					3683	3683	62	63	63					63	63	19	25	16					20	C	20	C	20	C
merge		887	4	112	1140	1549	932				3733	3733	49	62	63	64				59	59	2	19	25	15				15	B	15	B	15	B
basic		790	3	1116	1486	899					3501	3501	62	62	63					62	62	18	24	15					19	C	19	C	19	C
diverge	Btw Democracy Blvd & I-495	894	4	853	1320	1611	766				4550	4550	57	58	61	61				59	59	15	23	27	13				20	C	22	C	22	C
basic		2455	3	2139	2113	299					4551	4551	41	46	61					49	49	53	47	5					35	E	35	E	35	E
diverge	CD - Btw MD 124 & MD 117	2235	2	548	1288						1836	1836	43	42						42	42	13	31						22	C	22	C	22	C
weave	CD - Btw MD 117 & I-370	600	3	883	844	1278					3005	3005	38	40	41					40	40	24	21	32					26	C	26	C	26	C
basic		4137	2	713	1115						1827	1827	42	42						42	42	17	27						22	C	22	C	22	C
weave		1981	3	947	1419	843					3209	3209	42	41	42					42	42	23	35	20					26	C	26	C	26	C
basic	CD - I-370 interchange	1052	2	837	653						1490	1490	42	43						42	42	20	16						18	C	18	C	18	C
merge		704	3	120	794	581					1495	1495	41	42	43					42	42	3	19	14					12	B	12	B	12	B
basic		981	2	503	565						1068	1068	43	45						44	44	12	13						12	B	12	B	12	B
diverge	CD - Btw I-370 & Shady Grove Rd	483	3	1172	844	580					2596	2596	40	42	52					45	45	29	20	11					20	C	20	C	20	C
basic		944	3	1164	850	580					2594	2594	41	43	53					46	46	29	20	11					20	C	20	C	20	C
diverge		528	3	1139	885	567					2591	2591	42	44	55					47	47	28	21	10					20	C	20	C	20	C
merge		301	4	138	1117	794	539				2588	2588	33	42	46	57				45	45	4	27	17	10				15	B	16	B	16	B
basic	CD - Shady Grove Rd interchange	954	3	890	843	486					2220	2220	45	49	59					51	51	20	18	8					15	B	15	B	15	B
weave		357	4	110	857	861	388				2216	2216	40	43	56	63				51	51	3	20	16	6				11	A	11	A	11	A
diverge	CD - Btw Shady Grove Rd & MD 28	190	3	530	1077	703					2310	2310	43	43	42					43	43	12	25	17					18	B	18	B	18	B
basic		4624	2	1568	769						2337	2337	41	42						42	42	38	18						28	D	28	D	28	D
diverge		2601	3	727	1023	1239					2989	2989	42	43	42					42	42	17	24	30					24	C	24	C	24	C
weave		177	4	8	969	1100	914				2992	2992	31	42	43	43				40	40	0	23	26	21				18	B	18	B	18	B
merge		274	3	148	864	1072					2084	2084	41	42	43					42	42	4	21	26					17	B	17	B	17	B
basic	CD - MD 28 interchange	924	2	685	1047						1732	1732	43	43						43	43	16	25						21	C	21	C	21	C
weave		258	3	768	1003	1087					2858	2858	34	39	42					38	38	23	26	26					25	C	25	C	25	C
basic		862	2	1688	1045						2733	2733	41	42						41	41	42	25						34	D	34	D	34	D
diverge	CD - Btw MD 28 & MD 189	379	3	514	1687	892					3093	3093	23	37	41					34	34	23	47	22					30	D	30	D	30	D
basic		525	3	807	1484	816					3107	3107	42	41	43					42	42	20	37	19					25	C	25	C	25	C
weave		710	4	770	1247	1074	1074				4164	4164	43	42	43	42				42	42	18	30	26	26				25	C	25	C	25	C
basic		1165	3	548	992	1778					3319	3319	43	42	40					42	42	13	24	45					27	D	27	D	27	D
merge		286	3	569	1132	1620					3321	3321	42	42	41					42	42	14	27	40					27	C	27	C	27	C
basic	CD - MD 189 interchange	810	2	1226	1468						2695	2692	42	42						42	42	30	36						33	D	33	D	33	D
		649	2	1193	1495						2688		42	42						42		29	36						33	D	33	D		
diverge	CD - Btw MD 189 & Montrose Rd	220	3	403	1376	1552					3331	3331	41	41	41					41	41	10	35	38					28	D	28	D	28	D
basic		1046	2	1783	1561						3344	3344	41	42						41	41	44	38						41	E	41	E	41	E
		2216	2	1787	1557						3344		40	42						41		45	38						41	E	41	E		
merge		463	3	1583	1521	235					3340	3340	41	42	42					42	42	39	37	6					27	C	27	C	27	C
basic		950	2	1388	1242						2630	2630	41	42						41	41	35	30						32	D	32	D	32	D
merge		402	3	351	1339	951					2641	2641	30	39	41					37	37	12	35	24					24	C	24	C	24	C
basic	CD - Montrose Rd interchange	1126	2	756	854						1610	1610	42	42						42	42	18	21						19	C	19	C	19	C
weave		342	3	217	739	819					1776	1776	39	42	42					41	41	6	18	20					14	B	14	B	14	B
basic		1121	2	629	787						1415	1415	42	42						42	42	15	19						17	B	17	B	17	B
diverge	CD - Btw Montrose Rd & Spur Split	262	3	727	983	848					2558	2558	39	37	40					39	39	19	27	22					23	C	23	C	23	C
basic		1304	2	1578	977						2555	2555	43	46						44	44	37	22						29	D	29	D	29	D

Arterial Segments - 2045 No-build - 6-7 AM

VISSIM Lookup Data				Volume									Speed									Density									
				Volume Per Lane							Across All Lanes	Overall Volume	Speed Per Lane							Across All Lanes	Overall Speed	Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)							Total Volume	Average Volume (veh/hr)	Speed (mph)							Average Speed	Average Speed (mph)	Combined Density (pcphpl)							Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
diverge	MD 117 Eastbound at I-270	495	3	595	769	399					1763	1763	32	32	32					32	32	19	25	12					19	B	19	B	19	B
weave	I-370 Eastbound at I-270	623	4	241	540	180	83				1043	1043	50	50	51	53				51	51	5	11	4	2				5	A	5	A	5	A
diverge		625	3	116	52	16					184	184	53	53	53					53	53	2	1	0					1	A	1	A	1	A
weave		667	5	188	880	636	88	15			1807	1807	52	52	53	55	55			53	53	4	17	12	2	0			7	A	7	A	7	A
diverge	I-370 Westbound at I-270	461	4	726	280	162	1841				3009	3009	53	53	53	50				52	52	14	5	3	37				15	B	8	A	8	A
diverge		1411	3	39	98	1907					2044	2044	54	53	49					52	52	1	2	40					14	B	14	B	14	B
weave		623	3	296	83	131					510	510	53	54	54					53	53	6	2	2					3	A	3	A	3	A
diverge	Shady Grove Rd Eastbound at I-270	248	4	128	305	178	158				769	769	37	37	37	38				37	37	4	8	5	4				5	A	6	A	6	A
diverge		482	4	103	176	225	232				737	737	37	37	37	37				37	37	3	5	6	6				5	A	5	A	5	A
merge		271	4	79	346	236	214				874	874	35	37	37	37				37	37	2	10	6	6				6	A	6	A	6	A
diverge	Shady Grove Rd Westbound at I-270	490	4	419	241	134	113				907	907	17	22	21	22				20	20	25	11	7	5				12	B	14	B	14	B
weave		615	4	550	151	212	239				1153	1153	33	36	35	34				34	34	17	4	6	7				9	A	9	A	9	A
diverge	MD 28 Eastbound at I-270	1745	3	953	397	72					1423	1423	26	27	28					27	27	37	15	3					18	B	18	B	18	B
diverge		487	3	43	403	294					739	739	27	27	27					27	27	2	15	11					9	A	9	A	9	A
diverge	MD 28 Westbound at I-270	320	3	55	115	2					171	171	19	20	13					17	17	3	6	0					3	A	3	A	3	A
		101	3	55	109	8					172	172	24	25	20					23	23	2	4	0					2	A	2	A		
		43	3	73	243	9					326	326	24	21	26					24	24	3	12	0					5	A	5	A		
weave		489	3	220	520	79					820	820	25	26	28					26	26	9	20	3					11	A	11	A	11	A
merge		235	3	437	215	70					723	723	26	28	27					27	27	17	8	3					9	A	9	A	9	A
diverge	MD 189 Eastbound at I-270	249	3	149	114	214					477	477	27	27	27					27	27	6	4	8					6	A	6	A	6	A
merge		72	3	212	107	171					490	490	27	28	27					28	28	8	4	6					6	A	6	A	6	A
		334	3	212	117	170					499	499	28	28	27					28	28	8	4	6					6	A	6	A		
diverge	MD 189 Westbound at I-270	361	3	94	123	196					414	414	27	28	27					27	27	3	4	7					5	A	5	A	5	A
merge		519	3	50	376	55					481	481	28	27	29					28	28	2	14	2					6	A	6	A	6	A
diverge	Montrose Rd Eastboundat I-270	816	3	84	51	1					136	136	38	38	38					38	38	2	1	0					1	A	1	A	1	A
weave		314	3	283	735	29					1047	1047	36	36	36					36	36	8	20	1					10	B	10	B	10	B
merge		1393	3	459	644	378					1480	1480	37	37	38					37	37	12	18	10					13	B	13	B	13	B
diverge	Montrose Rd Westbound at I-270	315	3	394	570	493					1456	1456	36	33	34					35	35	11	17	15					14	B	14	B	14	B
weave		405	3	656	342	167					1165	1165	33	34	36					35	35	20	10	5					12	A	12	A	12	A
merge		191	3	71	289	177					538	538	32	36	37					35	35	2	8	5					5	A	5	A	5	A
diverge	MD 187 Northbound at I-270 East Spur	292	6	113	83	41	18	3	0		259	259	7	7	8	8	12	0		7	7	16	12	5	2	0	0		6	A	11	B	11	B
merge		263	5	79	285	97	96	72			629	629	33	36	37	38	38			36	36	2	8	3	3	2			4	A	4	A	4	A
diverge	MD 187 Southbound at I-270 East Spur	302	4	185	236	183	232				836	836	37	38	38	38				38	38	5	6	5	6				6	A	5	A	5	A
diverge		165	5	260	164	176	186	44			830	830	34	37	37	37	38			37	37	8	4	5	5	1			5	A	6	A	6	A
diverge		161	6	268	162	175	145	59	28		836	836	27	35	35	35	37	36		34	34	10	5	5	4	2	1		4	A	7	A	7	A
diverge	Democracy Blvd Eastbound at I-270 West Spur	2296	3	251	56	20					326	326	42	42	40					41	41	6	1	1					3	A	3	A	3	A
diverge		605	3	127	117	113					357	357	29	28	28					28	28	4	4	4					4	A	4	A	4	A
diverge	Democracy Blvd Westbound at I-270 West Spur	857	4	133	51	36	74				294	294	43	44	43	43				43	43	3	1	1	2				2	A	2	A	2	A
merge		2127	4	135	91	58	46				330	330	41	43	43	43				43	43	3	2	1	1				2	A	2	A	2	A
merge	VA 193 Eastbound at I-270 East Spur	299	3	464	583	60					1108	1108	25	31	34					30	30	19	19	2					13	B	13	B	13	B
merge	VA 193 Westbound at I-270 East Spur	452	2	248	195						443	443	30	33						31	31	8	6						7	A	7	A	7	A
merge	G.W. Memorial Pkwy Eastbound at I-495	968	3	966	1282	1167					3415	3415	46	47	47					47	47	22	28	25					25	C	25	C	25	C
		418	3	166	1620	1613					3398	3398	41	46	46					44	44	4	36	35					25	C	25	C		
diverge	G.W. Memorial Pkwy Westbound at I-495	2359	2	1749	528						2276	2276	41	43						42	42	45	13						29	D	29	D	29	D
weave	Clara Barton Pkwy Eastbound at I-495	6436	2	148	248						396	396	48	48						48	48	3	5						4	A	4	A	4	A
diverge	Clara Barton Pkwy Westbound at I-495	3047	2	235	9						244	244	48	48						48	48	5	0						3	A	3	A	3	A
merge		3254	2	316	237						553	553	48	47						48	48	7	5						6	A	6	A	6	A
diverge	MD 190 Eastbound at I-495	550	2	588	309						896	896	42	43						42	42	14	7						11	B	11	B	11	B
weave		554	4	125	707	218	87				1136	1136	40	42	43	41				41	41	3	17	5	2				7	A	7	A	7	A
merge		582	3	478	732	324					1534	1534	42	42	44					43	43	12	17	8					12	B	12	B	12	B
diverge	MD 190 Westbound at I-495	450	3	242	444	202					888	888	40	41	41					41	41	6	11	5					7	A	7	A	7	A
weave		316	3	336	377	137					851	851	37	40	42					40	40	9	10	3					7	A	7	A	7	A
diverge	MD 187 Northbound at I-495	790	3	167	139	208					513	513	25	22	12					20	20	7	7	18					10	B	10	B	10	B
merge		1654	3	192	160	61					413	413	37	38	38					38	38	5	4	2					4	A	4	A	4	A
diverge	MD 187 Southbound at I-495	1642	3	720	509	549					1778	1778	29	27	27					28	28	26	19	21					22	C	22	C	22	C
merge		796	3	627	629	501					1756	1756	35	36	36					36	36	18	18	14					17	B	17	B	17	B
weave	MD 355 Northbound at I-495	1654	3	63	62	261					385	385	36	36	34					35	35	2	2	8					4	A	4	A	4	A
weave		370	4	216	646	51	22				935	935	43	43	43	43				43	43	5	15	1	1				6	A	6	A	6	A
diverge	MD 355 Southbound at I-495	204	4	811	478	499	336				2125	2125	42	43	39	38				40	40	19	11	13	9				13	B	11	B	11	B
merge		781	4	964	773	585	497				2820	2820	23	23	22	22				23	23	42	35	27	23				32	D	35	E	35	E

Arterial Segments - 2045 No-build - 7-8 AM

VISSIM Lookup Data				Volume									Speed								Density							
				Volume Per Lane							Across All Lanes	Overall Volume	Speed Per Lane							Across All Lanes	Overall Speed	Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)							Total Volume	Average Volume (veh/hr)	Speed (mph)							Average Speed	Average Speed (mph)	Combined Density (pcphpl)							Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
diverge	MD 117 Eastbound at I-270	495	3	724	790	558					2072	2072	23	21	23					22	22	39	47	30					39	E	39	E	39	E
weave	I-370 Eastbound	623	4	267	860	509	449				2085	2085	49	48	47	50				48	48	6	18	11	9				11	B	11	B	11	B
diverge		625	3	293	511	402					1206	1206	49	49	50					49	49	6	11	8					8	A	8	A	8	A
weave		667	5	264	1146	942	522	401			3275	3275	51	52	52	53	53			52	52	5	23	18	10	8			13	B	13	B	13	B
diverge	I-370 Westbound at I-270	461	4	1237	539	402	1897				4075	4075	50	51	53	50				51	51	25	11	8	39				21	C	15	B	15	B
diverge		1411	3	143	353	1915					2411	2411	54	54	48					52	52	3	7	41					17	B	17	B	17	B
weave		623	3	376	188	450					1014	1014	53	54	53					53	53	7	4	9					6	A	6	A	6	A
diverge	Shady Grove Rd Eastbound at I-270	248	4	244	493	219	220				1175	1175	36	34	36	36				35	35	7	15	6	6				9	A	9	A	9	A
diverge		482	4	233	219	307	347				1106	1106	35	36	36	36				36	36	7	6	9	10				8	A	7	A	7	A
merge		271	4	89	402	310	315				1115	1115	35	37	37	37				36	36	3	11	8	9				8	A	7	A	7	A
diverge	Shady Grove Rd Westbound at I-270	490	4	383	306	276	277				1242	1242	18	20	20	20				19	19	22	16	14	14				16	B	17	B	17	B
weave		615	4	452	316	401	431				1601	1601	34	34	34	33				34	34	14	9	12	13				12	B	12	B	12	B
diverge	MD 28 Eastbound at I-270	1745	3	1184	701	283					2169	2169	26	26	27					26	26	47	27	11					28	D	28	D	28	D
diverge		487	3	91	596	542					1229	1229	27	26	27					27	27	3	23	21					16	B	16	B	16	B
diverge	MD 28 Westbound at I-270	320	3	216	264	18					498	498	14	15	8					12	12	16	18	2					12	B	12	B	11	B
		101	3	187	234	50					471	471	24	24	21					23	23	8	10	2					7	A	7	A		
		43	3	216	415	54					685	685	24	21	27					24	24	9	20	2					10	B	10	B		
weave		489	3	319	793	229					1341	1341	25	26	27					26	26	13	31	9					18	B	18	B	18	B
merge		235	3	639	394	137					1170	1170	26	27	27					27	27	25	15	5					15	B	15	B	15	B
diverge	MD 189 Eastbound at I-270	249	3	388	278	579					1245	1245	27	27	27					27	27	15	10	22					16	B	16	B	16	B
merge		72	3	411	210	277					898	898	27	28	27					27	27	15	8	10					11	B	11	B	11	B
		334	3	412	226	276					915	915	27	28	27					27	27	15	8	10					11	B	11	B		
diverge	MD 189 Westbound at I-270	361	3	223	406	481					1110	1110	27	27	26					26	26	8	16	19					14	B	14	B	14	B
merge		519	3	92	671	309					1072	1072	27	26	26					26	26	4	26	12					14	B	14	B	14	B
diverge	Montrose Rd Eastboundat I-270	816	3	492	372	113					977	977	37	38	38					38	38	13	10	3					9	A	9	A	9	A
weave		314	3	410	716	106					1232	1232	34	35	36					35	35	12	21	3					12	B	12	B	12	B
merge		1393	3	508	586	388					1482	1482	37	36	37					37	37	14	16	11					14	B	14	B	14	B
diverge	Montrose Rd Westbound at I-270	315	3	822	730	730					2282	2282	32	33	34					33	33	26	22	22					24	C	24	C	24	C
weave		405	3	902	458	266					1626	1626	29	29	33					31	31	32	16	8					19	B	19	B	19	B
merge		191	3	50	288	263					602	602	32	36	36					35	35	2	8	7					6	A	6	A	6	A
diverge	MD 187 Northbound at I-270 East Spur	292	6	240	186	192	271	166	40		1094	1094	8	7	7	9	8	3		7	7	29	27	28	32	22	16		26	C	28	D	28	D
merge		263	5	124	465	236	237	229			1290	1290	32	36	37	37	37			36	36	4	13	7	6	6			7	A	8	A	8	A
diverge	MD 187 Southbound at I-270 East Spur	302	4	474	676	611	705				2465	2465	33	34	33	33				33	33	14	20	19	21				19	B	18	B	18	B
diverge		165	5	695	507	550	590	102			2444	2444	26	24	25	25	33			27	27	27	22	23	24	3			20	C	24	C	24	C
diverge		161	6	741	494	526	517	136	47		2461	2461	17	9	9	9	35	31		18	18	44	59	61	61	4	2		38	E	55	F	55	F
diverge	Democracy Blvd Eastbound at I-270 West Spur	2296	3	535	208	159					902	902	39	39	39					39	39	14	5	4					8	A	8	A	8	A
diverge		605	3	331	308	320					958	958	22	20	20					21	21	15	16	16					16	B	16	B	16	B
diverge	Democracy Blvd Westbound at I-270 West Spur	857	4	144	94	58	122				418	418	43	43	43	43				43	43	3	2	1	3				2	A	2	A	2	A
merge		2127	4	127	123	100	79				429	429	41	43	43	43				42	42	3	3	2	2				3	A	3	A	3	A
merge	VA 193 Eastbound at I-270 East Spur	299	3	664	840	138					1642	1642	25	31	33					30	30	27	27	4					20	C	20	C	20	C
merge	VA 193 Westbound at I-270 East Spur	452	2	355	439						794	794	30	32						31	31	12	14						13	B	13	B	13	B
merge	G.W. Memorial Pkwy Eastbound at I-495	968	3	645	987	890					2522	2522	46	47	48					47	47	14	21	19					18	B	18	B	18	B
		418	3	90	1257	1163					2510	2510	43	46	47					46	46	2	28	25					18	B	18	B		
diverge	G.W. Memorial Pkwy Westbound at I-495	2359	2	1239	1072						2311	2311	9	13						11	11	135	85						110	F	110	F	110	F
weave	Clara Barton Pkwy Eastbound at I-495	6436	2	514	576						1090	1090	48	47						48	48	11	12						12	B	12	B	12	B
diverge	Clara Barton Pkwy Westbound at I-495	3047	2	435	24						459	459	48	48						48	48	9	1						5	A	5	A	5	A
merge		3254	2	343	243						586	586	48	47						48	48	7	5						6	A	6	A	6	A
diverge	MD 190 Eastbound at I-495	550	2	1257	793						2050	2050	33	33						33	33	39	25						32	D	32	D	32	D
weave		554	4	156	957	500	189				1801	1801	40	42	43	39				41	41	4	23	12	5				11	A	11	A	11	A
merge		582	3	569	979	615					2163	2163	42	42	43					43	43	14	24	15					17	B	17	B	17	B
diverge	MD 190 Westbound at I-495	450	3	412	779	332					1523	1523	39	40	41					40	40	11	20	8					13	B	13	B	13	B
weave		316	3	581	538	261					1380	1380	30	33	40					34	34	26	20	7					17	B	17	B	17	B
diverge	MD 187 Northbound at I-495	790	3	531	385	299					1215	1215	7	5	3					5	5	86	98	132					105	F	105	F	105	F
merge		1654	3	520	362	131					1013	1013	37	37	39					38	38	14	10	4					9	A	9	A	9	A
diverge	MD 187 Southbound at I-495	1642	3	977	896	876					2748	2748	10	10	9					10	10	113	101	106					107	F	107	F	107	F
merge		796	3	960	864	573					2397	2397	35	36	36					35	35	28	24	16					23	C	23	C	23	C
weave	MD 355 Northbound at I-495	1654	3	276	344	750					1370	1370	35	35	33					34	34	8	10	23					14	B	14	B	14	B
weave		370	4	229	754	290	212				1485	1485	43	42	43	43				43	43	5	18	7	5				9	A	9	A	9	A
diverge	MD 355 Southbound at I-495	204	4	787	559	613	583				2542	2542	42	42	37	36				39	39	19	14	17	17				16	B	16	B	16	B
merge		781	4	969	771	612	505				2857	2857	23	22	22	22				22	22	43	36	28	23				33	D	36	E	36	E

Arterial Segments - 2045 No-build - 8-9 AM

VISSIM Lookup Data				Volume									Speed								Density									
				Volume Per Lane							Across All Lanes	Overall Volume	Speed Per Lane							Across All Lanes	Overall Speed	Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)							Total Volume	Average Volume (veh/hr)	Speed (mph)							Average Speed	Average Speed (mph)	Combined Density (pcphpl)							Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
diverge	MD 117 Eastbound at I-270	495	3	770	703	627					2100	2100	14	12	15					14	14	67	77	54					66	F	66	F	66	F
weave	I-370 Eastbound	623	4	238	830	489	426				1983	1983	49	49	48	51				49	49	5	17	10	9				10	B	10	B	10	B
diverge		625	3	363	471	349					1183	1183	48	49	51					49	49	8	10	7					8	A	8	A	8	A
weave		667	5	298	1222	1086	491	348			3444	3444	51	52	52	53	53			52	52	6	24	21	9	7			13	B	13	B	13	B
diverge	I-370 Westbound at I-270	461	4	1247	760	540	1967				4514	4514	19	17	34	45				29	29	76	59	20	45				50	F	52	F	52	F
diverge		1411	3	144	441	1911					2496	2496	53	53	48					51	51	3	8	41					17	B	17	B	17	B
weave		623	3	617	289	599					1505	1505	52	53	53					53	53	12	6	11					10	B	10	B	10	B
diverge	Shady Grove Rd Eastbound at I-270	248	4	294	644	296	300				1534	1534	35	30	34	34				33	33	9	22	9	9				12	B	13	B	13	B
diverge		482	4	334	284	401	460				1479	1479	34	35	35	35				35	35	10	8	12	13				11	B	10	B	10	B
merge		271	4	83	433	403	421				1340	1340	35	37	37	37				36	36	2	12	11	12				9	A	8	A	8	A
diverge	Shady Grove Rd Westbound at I-270	490	4	447	341	313	310				1410	1410	17	20	19	19				19	19	26	17	16	16				19	B	20	C	20	C
weave		615	4	522	413	508	556				2000	2000	33	31	31	31				32	32	16	13	17	18				16	B	16	B	16	B
diverge	MD 28 Eastbound at I-270	1745	3	1058	718	413					2189	2189	26	26	26					26	26	41	28	16					28	D	28	D	28	D
diverge		487	3	79	652	668					1399	1399	27	26	26					27	27	3	25	26					18	B	18	B	18	B
diverge	MD 28 Westbound at I-270	320	3	283	481	75					839	839	13	15	8					12	12	23	34	10					22	C	22	C	19	B
		101	3	268	414	145					827	827	24	24	23					24	24	11	17	7					12	B	12	B		
		43	3	298	634	157					1090	1090	25	22	27					24	24	12	30	6					16	B	16	B		
weave		489	3	437	1044	469					1950	1950	25	25	26					25	25	18	43	19					26	C	26	C	26	C
merge		235	3	891	644	241					1776	1776	25	26	27					26	26	36	25	9					23	C	23	C	23	C
diverge	MD 189 Eastbound at I-270	249	3	445	328	742					1515	1515	27	27	26					27	27	17	12	29					19	B	19	B	19	B
merge		72	3	603	236	291					1131	1131	27	28	27					27	27	23	9	11					14	B	14	B	14	B
		334	3	593	269	292					1154	1154	27	28	27					27	27	22	10	11					14	B	14	B		
diverge	MD 189 Westbound at I-270	361	3	228	402	510					1140	1140	27	26	26					26	26	9	15	20					15	B	15	B	15	B
merge		519	3	96	654	255					1005	1005	27	26	27					27	27	4	25	10					13	B	13	B	13	B
diverge	Montrose Rd Eastboundat I-270	816	3	637	614	290					1541	1541	34	36	38					36	36	19	17	8					15	B	15	B	15	B
weave		314	3	538	865	327					1730	1730	32	34	36					34	34	17	26	9					17	B	17	B	17	B
merge		1393	3	649	767	646					2062	2062	37	36	36					37	37	18	21	18					19	B	19	B	19	B
diverge	Montrose Rd Westbound at I-270	315	3	1093	700	870					2662	2662	26	32	34					31	31	43	22	26					30	D	30	D	30	D
weave		405	3	859	515	384					1758	1758	30	31	35					32	32	29	17	11					19	B	19	B	19	B
merge		191	3	42	363	383					788	788	32	36	36					35	35	1	10	11					7	A	7	A	7	A
diverge	MD 187 Northbound at I-270 East Spur	292	6	368	322	324	380	168	48		1609	1609	7	6	6	7	7	3		6	6	53	51	51	53	26	19		42	F	52	F	52	F
merge		263	5	98	497	365	371	361			1693	1693	31	35	36	37	37			35	35	3	14	10	10	10			10	B	9	A	9	A
diverge	MD 187 Southbound at I-270 East Spur	302	4	482	790	763	873				2907	2907	32	25	24	24				26	26	15	34	34	38				30	D	28	D	28	D
diverge		165	5	701	647	682	700	151			2880	2880	26	13	13	14	31			19	19	27	54	57	55	5			40	E	46	F	46	F
diverge		161	6	744	626	645	633	181	65		2895	2895	17	6	7	6	34	30		17	17	44	101	101	100	5	2		59	F	82	F	82	F
diverge	Democracy Blvd Eastbound at I-270 West Spur	2296	3	729	383	367					1478	1478	38	37	37					37	37	20	10	10					13	B	13	B	13	B
diverge		605	3	502	504	526					1533	1533	23	21	21					22	22	23	24	25					24	C	24	C	24	C
diverge	Democracy Blvd Westbound at I-270 West Spur	857	4	286	299	200	320				1106	1106	43	43	43	43				43	43	7	7	5	8				7	A	6	A	6	A
merge		2127	4	167	266	241	150				824	824	41	43	43	43				42	42	4	6	6	4				5	A	5	A	5	A
merge	VA 193 Eastbound at I-270 East Spur	299	3	386	560	55					1002	1002	25	31	34					30	30	16	18	2					12	B	12	B	12	B
merge	VA 193 Westbound at I-270 East Spur	452	2	344	389						733	733	30	32						31	31	12	12						12	B	12	B	12	B
merge	G.W. Memorial Pkwy Eastbound at I-495	968	3	495	759	649					1903	1903	46	47	48					47	47	11	16	14					14	B	14	B	14	B
		418	3	57	989	852					1898	1898	45	47	48					46	46	1	22	18					14	B	14	B		
diverge	G.W. Memorial Pkwy Westbound at I-495	2359	2	1313	1205						2518	2518	10	13						11	11	138	94						116	F	116	F	116	F
weave	Clara Barton Pkwy Eastbound at I-495	6436	2	448	543						990	990	48	47						47	47	10	12						11	B	11	B	11	B
diverge	Clara Barton Pkwy Westbound at I-495	3047	2	538	36						574	574	47	48						48	48	12	1						6	A	6	A	6	A
merge		3254	2	158	195						354	354	48	47						48	48	3	4						4	A	4	A	4	A
diverge	MD 190 Eastbound at I-495	550	2	649	597						1246	1246	5	6						5	5	143	104						123	F	123	F	123	F
weave		554	4	104	643	272	125				1143	1143	40	42	42	39				41	41	3	15	7	3				7	A	7	A	7	A
merge		582	3	595	692	344					1630	1630	42	42	43					43	43	14	16	8					13	B	13	B	13	B
diverge	MD 190 Westbound at I-495	450	3	619	923	396					1938	1938	38	38	40					39	39	17	25	10					17	B	17	B	17	B
weave		316	3	633	537	265					1435	1435	23	30	39					31	31	32	21	7					20	C	20	C	20	C
diverge	MD 187 Northbound at I-495	790	3	504	242	142					887	887	4	1	1					2	2	142	169	208					173	F	173	F	173	F
merge		1654	3	504	319	100					923	923	36	38	38					37	37	14	9	3					8	A	8	A	8	A
diverge	MD 187 Southbound at I-495	1642	3	498	674	934					2105	2105	3	4	6					4	4	194	173	161					176	F	176	F	176	F
merge		796	3	799	729	428					1957	1957	35	37	36					36	36	23	20	12					18	B	18	B	18	B
weave	MD 355 Northbound at I-495	1654	3	393	450	855					1697	1697	31	30	29					30	30	14	18	33					22	B	22	B	22	B
weave		370	4	196	703	335	237				1471	1471	42	42	43	43				43	43	5	17	8	6				9	A	9	A	9	A
diverge	MD 355 Southbound at I-495	204	4	916	710	698	641				2965	2965	42	41	35	34				38	38	22	17	20	19				20	C	19	B	19	B
merge		781	4	1090	876	735	611				3312	3312	23	22	23	22				22	22	49	40	33	28				37	E	41	F	41	F

Arterial Segments - 2045 No-build - 9-10 AM

VISSIM Lookup Data				Volume									Speed								Density									
				Volume Per Lane							Across All Lanes	Overall Volume	Speed Per Lane							Across All Lanes	Overall Speed	Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)							Total Volume	Average Volume (veh/hr)	Speed (mph)							Average Speed	Average Speed (mph)	Combined Density (pcphpl)							Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
diverge	MD 117 Eastbound at I-270	495	3	607	728	502					1837	1837	25	25	25					25	25	26	32	22					27	C	27	C	27	C
weave	I-370 Eastbound	623	4	223	734	410	336				1703	1703	49	49	49	52				50	50	5	15	9	7				9	A	9	A	9	A
diverge		625	3	348	409	266					1022	1022	49	49	50					50	50	7	8	5					7	A	7	A	7	A
weave		667	5	264	1135	1044	429	262			3134	3134	51	52	52	53	53			52	52	5	22	20	8	5			12	B	12	B	12	B
diverge	I-370 Westbound at I-270	461	4	1190	611	470	1836				4107	4107	34	31	45	49				40	40	38	24	11	38				28	D	24	C	24	C
diverge		1411	3	181	428	1811					2421	2421	54	54	51					53	53	3	8	36					16	B	16	B	16	B
weave		623	3	589	302	606					1496	1496	52	53	53					53	53	11	6	12					10	B	10	B	10	B
diverge	Shady Grove Rd Eastbound at I-270	248	4	297	597	291	276				1462	1462	35	32	34	34				34	34	9	19	9	8				11	B	12	B	12	B
diverge		482	4	288	292	394	432				1406	1406	34	35	35	35				35	35	9	9	11	13				10	B	10	B	10	B
merge		271	4	118	515	408	390				1432	1432	34	36	37	37				36	36	4	14	11	11				10	B	10	B	10	B
diverge	Shady Grove Rd Westbound at I-270	490	4	439	298	244	237				1218	1218	17	21	20	19				19	19	26	15	13	12				16	B	18	B	18	B
weave		615	4	516	345	407	456				1723	1723	33	33	32	32				32	32	16	11	13	15				13	B	13	B	13	B
diverge	MD 28 Eastbound at I-270	1745	3	1000	588	239					1828	1828	26	26	27					26	26	39	23	9					24	C	24	C	24	C
diverge		487	3	94	602	566					1263	1263	27	26	26					27	27	4	23	22					16	B	16	B	16	B
diverge	MD 28 Westbound at I-270	320	3	321	669	148					1138	1138	12	14	7					11	11	27	49	21					32	D	32	D	27	C
		101	3	293	573	247					1113	1113	24	24	24					24	24	12	24	11					16	B	16	B		
		43	3	319	818	262					1399	1399	25	22	27					25	25	13	37	10					20	C	20	C		
weave		489	3	493	1052	625					2170	2170	24	24	25					25	25	21	44	25					30	C	30	C	30	C
merge		235	3	905	722	284					1910	1910	25	26	27					26	26	37	28	11					25	C	25	C	25	C
diverge	MD 189 Eastbound at I-270	249	3	341	288	664					1293	1293	27	27	26					27	27	13	11	25					16	B	16	B	16	B
merge		72	3	569	235	279					1083	1083	27	28	27					27	27	22	9	10					14	B	14	B	14	B
		334	3	564	261	280					1105	1105	27	28	27					27	27	21	10	11					14	B	14	B		
diverge	MD 189 Westbound at I-270	361	3	194	373	410					977	977	27	27	26					27	27	7	14	16					13	B	13	B	13	B
merge		519	3	81	598	274					953	953	27	26	26					26	26	3	23	11					12	B	12	B	12	B
diverge	Montrose Rd Eastboundat I-270	816	3	560	646	326					1532	1532	37	37	38					37	37	15	18	9					14	B	14	B	14	B
weave		314	3	581	1039	437					2057	2057	32	34	36					34	34	19	31	13					21	B	21	B	21	B
merge		1393	3	584	899	818					2301	2301	37	36	37					37	37	16	25	23					21	C	21	C	21	C
diverge	Montrose Rd Westbound at I-270	315	3	960	776	805					2541	2541	30	34	35					33	33	33	23	24					27	C	27	C	27	C
weave		405	3	770	537	432					1739	1739	31	32	35					32	32	26	17	13					19	B	19	B	19	B
merge		191	3	59	421	428					908	908	31	36	37					35	35	2	12	12					9	A	9	A	9	A
diverge	MD 187 Northbound at I-270 East Spur	292	6	360	320	325	369	157	42		1574	1574	7	7	7	7	8	3		6	6	49	48	50	52	21	16		39	E	49	F	49	F
merge		263	5	100	497	376	365	353			1690	1690	31	35	36	37	37			35	35	3	14	11	10	10			10	B	9	A	9	A
diverge	MD 187 Southbound at I-270 East Spur	302	4	414	661	602	740				2417	2417	35	33	33	33				34	34	12	20	19	23				18	B	17	B	17	B
diverge		165	5	603	518	554	602	127			2404	2404	29	23	23	25	33			27	27	21	23	24	25	4			19	B	23	C	23	C
diverge		161	6	642	504	529	519	171	59		2424	2424	20	8	9	9	34	29		18	18	33	61	61	60	5	2		37	E	52	F	52	F
diverge	Democracy Blvd Eastbound at I-270 West Spur	2296	3	642	297	274					1213	1213	39	38	38					39	39	17	8	7					11	B	11	B	11	B
diverge		605	3	428	401	420					1249	1249	24	22	22					23	23	19	18	19					19	B	19	B	19	B
diverge	Democracy Blvd Westbound at I-270 West Spur	857	4	267	236	169	326				998	998	43	43	43	43				43	43	6	6	4	8				6	A	5	A	5	A
merge		2127	4	233	297	231	116				877	877	41	43	43	43				42	42	6	7	5	3				5	A	6	A	6	A
merge	VA 193 Eastbound at I-270 East Spur	299	3	347	580	64					992	992	25	32	34					30	30	14	19	2					12	B	12	B	12	B
merge	VA 193 Westbound at I-270 East Spur	452	2	324	331						655	655	30	32						31	31	11	10						11	B	11	B	11	B
merge	G.W. Memorial Pkwy Eastbound at I-495	968	3	537	792	676					2005	2005	46	47	48					47	47	12	17	14					14	B	14	B	14	B
		418	3	63	1035	899					1998	1998	45	47	48					46	46	1	23	19					14	B	14	B		
diverge	G.W. Memorial Pkwy Westbound at I-495	2359	2	1113	1105						2218	2218	8	11						9	9	150	102						126	F	126	F	126	F
weave	Clara Barton Pkwy Eastbound at I-495	6436	2	191	330						521	521	48	47						48	48	4	7						6	A	6	A	6	A
diverge	Clara Barton Pkwy Westbound at I-495	3047	2	462	29						492	492	48	48						48	48	10	1						5	A	5	A	5	A
merge		3254	2	84	106						190	190	48	47						48	48	2	2						2	A	2	A	2	A
diverge	MD 190 Eastbound at I-495	550	2	603	674						1277	1277	4	6						5	5	152	114						133	F	133	F	133	F
weave		554	4	119	724	304	186				1332	1332	40	42	42	38				41	41	3	18	7	5				8	A	8	A	8	A
merge		582	3	547	754	398					1698	1698	42	42	43					43	43	13	18	9					14	B	14	B	14	B
diverge	MD 190 Westbound at I-495	450	3	609	895	420					1924	1924	38	38	40					39	39	16	24	11					17	B	17	B	17	B
weave		316	3	575	513	308					1395	1395	29	35	41					35	35	22	15	8					15	B	15	B	15	B
diverge	MD 187 Northbound at I-495	790	3	585	282	174					1041	1041	4	2	1					2	2	145	167	204					172	F	172	F	172	F
merge		1654	3	550	371	125					1046	1046	36	38	39					38	38	15	10	3					10	B	10	B	10	B
diverge	MD 187 Southbound at I-495	1642	3	542	721	897					2160	2160	3	4	6					4	4	189	171	164					175	F	175	F	175	F
merge		796	3	747	671	448					1865	1865	35	36	36					36	36	22	19	13					18	B	18	B	18	B
weave	MD 355 Northbound at I-495	1654	3	284	370	745					1399	1399	35	34	33					34	34	8	11	23					14	B	14	B	14	B
weave		370	4	212	709	306	235				1461	1461	43	43	43	43				43	43	5	17	7	6				9	A	9	A	9	A
diverge	MD 355 Southbound at I-495	204	4	896	635	634	483				2648	2648	42	42	38	37				40	40	21	15	17	13				17	B	15	B	15	B
merge		781	4	927	802	667	568				2965	2965	23	23	23	23				23	23	41	35	30	25				33	D	35	E	35	E

I-495 Inner Loop - 2045 No-build - 3-4 PM

VISSIM Lookup Data				Volume									Speed									Density											
				Volume Per Lane							Across All Lanes	Overall Volume	Speed Per Lane							Across All Lanes	Overall Speed	Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)							Total Volume	Average Volume (veh/hr)	Speed (mph)							Average Speed	Average Speed (mph)	Combined Density (pcphpl)							Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Btw VA 267 & VA 193	2184	5	226	1454	1339	1016	934			4968	4968	59	58	58	59	59			59	59	4	25	23	18	16			17	B	17	B	17	B
diverge		1468	5	282	1527	1250	1005	906			4970	4970	58	57	57	58	59			58	58	5	27	22	17	16			17	B	18	B	18	B
basic	VA 193 interchange	2206	4	1396	1191	1044	967				4597	4597	52	52	52	53				52	52	28	24	21	19				23	C	23	C	23	C
merge		354	6	133	1052	1393	1163	1048	1001		5790	5790	23	33	39	39	40	42		36	36	11	36	40	34	30	27		30	D	29	D	29	D
basic	Btw VA 193 & GWMP	1017	5	913	1213	1476	1109	1016			5726	5726	27	24	27	27	29			27	27	37	56	57	44	37			46	F	46	F	46	F
diverge		1526	5	287	1289	1534	1295	1169			5574	5574	10	15	18	19	22			17	17	31	89	87	71	55			66	F	69	F	69	F
basic	GWMP interchange	667	4	1351	1541	1336	1186				5413	5359	14	17	18	16				16	17	99	93	74	75				85	F	85	F	82	F
		665	4	1382	1411	1397	1172				5361		15	17	20	16				17		95	82	70	77				81	F	81	F		
		488	4	1472	1349	1334	1127				5282		17	18	18	14				17		88	77	75	83				81	F	81	F		
weave	Btw GWMP & Clara Barton Pkwy	674	6	1252	1710	1709	1647	1356	808		8483	8483	22	19	18	18	13	16		17	17	59	95	96	95	104	52		83	F	83	F	83	F
diverge		1293	5	925	1841	1872	1939	1895			8472	8472	43	21	21	23	23			26	26	22	89	91	86	86			75	F	68	F	68	F
basic	Clara Barton Pkwy interchange	500	4	1901	1813	1902	1891				7506	7503	22	19	21	21				21	21	87	95	91	90				91	F	91	F	92	F
		706	4	1982	1745	1875	1900				7501		24	18	20	21				21		86	100	94	91				93	F	93	F		
merge	Btw Clara Barton Pkwy & MD 190	1511	5	1238	1175	1430	1823	1967			7633	7616	15	9	12	18	22			15	16	84	131	122	102	93			106	F	112	F	109	F
		777	5	731	1216	1574	1941	2121			7584		13	10	13	21	25			16		58	129	122	96	85			98	F	103	F		
basic		3461	4	1834	1892	1933	1881				7540	7543	19	21	21	20				20	20	99	91	91	95				94	F	94	F	96	F
		1064	4	1998	1932	1860	1764				7554		22	20	18	17				19		93	97	102	108				100	F	100	F		
diverge		400	5	655	1579	1775	1793	1733			7535	7535	40	17	18	17	16			22	22	17	93	100	104	108			84	F	70	F	70	F
basic	MD 190 interchange	1943	4	1554	1705	1757	1735				6751	6751	13	15	16	16				15	15	120	112	109	110				112	F	112	F	112	F
merge		1495	5	1265	1506	1729	1786	1781			8067	8067	9	12	16	17	17			14	14	140	123	111	108	107			118	F	125	F	125	F
basic		621	5	1166	1504	1759	1792	1815			8036	8036	8	13	16	17	18			14	14	144	122	108	107	104			117	F	117	F	117	F
merge	Btw MD 190 & I-270 West Spur	1123	6	826	1175	1760	1775	1759	1886		9181	9181	6	9	16	17	16	19		14	14	136	130	111	107	108	100		115	F	126	F	126	F
basic		398	5	1665	1794	1848	1823	1859			8990	9111	26	21	18	18	22			21	39	66	85	101	102	88			88	F	88	F	52	F
		1764	5	1362	1343	2154	2238	2042			9139		49	44	40	40	44			43		29	31	55	57	47			44	E	44	E		
weave		732	6	1352	1281	1898	2068	1746	811		9156	9165	53	53	49	49	53	55		52	53	26	25	40	43	34	15		30	D	30	D	29	D
		2474	6	1406	1415	1412	1902	1960	1072		9168		54	55	55	52	52	55		54		27	26	26	37	38	20		29	D	29	D		
basic	Btw I-270 West Spur & MD 187	6705	3	1388	1409	1405					4202	4202	53	54	54					54	54	27	27	26					26	D	26	D	26	D
		1173	3	1404	1395	1403					4203		53	54	55					54		27	26	26					26	D	26	D		
diverge		305	4	176	1372	1307	1348				4202	4202	44	43	45	52				46	46	4	32	29	27				23	C	22	C	22	C
basic	MD 187 interchange	2021	3	1148	1270	1357					3775	3775	53	53	54					54	54	22	24	26					24	C	24	C	24	C
merge	Btw MD 187 & I-270 East Spur	440	4	89	1271	1290	1360				4011	4011	50	51	52	53				52	52	2	25	25	26				20	C	18	B	18	B
basic		659	3	633	1543	1832					4008	4008	50	49	49					49	49	13	33	39					28	D	28	D	28	D
diverge		1113	3	277	1825	1904					4007	4007	48	44	45					46	46	6	44	45					32	D	32	D	32	D
basic	I-270 East Spur interchange	1519	2	1818	1847						3665	3665	43	43						43	43	46	45						45	F	45	F	45	F
weave		1951	4	1857	1695	1612	1495				6659	6659	35	36	42	43				39	39	57	50	41	37				46	F	46	F	46	F
weave		513	6	185	1813	1716	1862	1633	430		7638	7638	22	29	30	36	35	49		34	34	9	69	61	55	50	9		42	E	42	E	42	E
basic		1013	5	1992	1736	1970	1770	171			7640	7611	29	30	34	32	31			31	30	71	60	60	58	6			51	F	51	F	53	F
		1002	5	1955	1785	1953	1766	124			7582		28	28	31	28	28			29		73	65	66	67	4			55	F	55	F		
merge	Btw I-270 East Spur & MD 185	522	5	1946	1773	1956	1726	80			7482	7482	27	27	29	27	19			26	26	74	68	69	68	4			57	F	47	F	47	F
basic		1603	4	1942	1776	1942	1793				7453	7449	28	27	29	29				28	28	73	68	68	66				69	F	69	F	69	F
		252	4	1964	1757	1918	1783				7422		28	25	28	27				27		73	72	71	69				71	F	71	F		
basic	ML- Btw VA 267 & VA 193	2189	2	801	794						1595	1595	64	64						64	64	13	13						13	B	13	B	13	B
		1496	2	800	795						1596		64	64						64		13	13						13	B	13	B		
		2215	2	796	797						1593		64	64						64		13	13						13	B	13	B		
		928	2	741	854						1594		64	64						64		12	14						13	B	13	B		
diverge	ML - Btw VA 193 & GWMP	812	3	736	726	132					1595	1595	64	64	63					63	63	12	12	2					8	A	8	A	8	A
basic		1860	2	903	543						1446	1446	62	62						62	62	15	9						12	B	12	B	12	B
basic		1146	1	1447							1447	1447	42							42	42	35							35	E	35	E	35	E

I-495 Inner Loop - 2045 No-build - 4-5 PM

VISSIM Lookup Data				Volume								Speed								Density											
				Volume Per Lane						Across All Lanes	Overall Volume	Speed Per Lane						Across All Lanes	Overall Speed	Density Per Lane						Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)						Total Volume	Average Volume (veh/hr)	Speed (mph)						Average Speed	Average Speed (mph)	Combined Density (pcphpl)						Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Btw VA 267 & VA 193	2184	5	332	1342	1289	1081	1063		5107	5107	43	32	31	31	33		34	34	10	53	53	46	41		41	E	41	E	41	E
diverge		1468	5	372	1205	1121	1107	1147		4952	4952	42	16	15	17	19		22	22	10	91	87	78	72		68	F	63	F	63	F
basic	VA 193 interchange	2206	4	920	1006	1149	1338			4413	4413	7	8	10	13			10	10	134	126	115	102			119	F	119	F	119	F
merge		354	6	520	525	801	914	1159	1493	5412	5412	3	3	5	6	8	13	6	6	161	172	167	159	143	120	154	F	167	F	167	F
basic	Btw VA 193 & GWMP	1017	5	1140	640	927	1209	1524		5439	5439	9	4	6	9	13		8	8	123	178	162	140	115		144	F	144	F	144	F
diverge		1526	5	668	713	1006	1305	1756		5449	5449	7	4	7	11	19		10	10	96	174	156	125	91		129	F	142	F	142	F
basic	GWMP interchange	667	4	1073	1214	1345	1778			5410	5416	7	9	13	19			12	14	148	134	102	94			120	F	120	F	106	F
		665	4	1155	1219	1481	1577			5432		9	12	17	18			14		126	104	86	92			102	F	102	F		
		488	4	1332	1283	1439	1348			5401		13	15	17	14			15		107	85	86	98			94	F	94	F		
weave	Btw GWMP & Clara Barton Pkwy	674	6	1459	1631	1663	1662	1233	985	8633	8633	20	16	16	15	10	14	15	15	74	106	103	112	125	70	98	F	98	F	98	F
diverge		1293	5	1327	1806	1797	1876	1855		8661	8661	41	19	18	19	19		23	23	33	98	102	98	97		86	F	78	F	78	F
basic	Clara Barton Pkwy interchange	500	4	1898	1752	1831	1840			7321	7338	20	17	18	19			18	18	96	107	102	101			101	F	101	F	102	F
		706	4	1995	1697	1807	1850			7349		22	16	17	19			18		94	110	105	102			103	F	103	F		
merge	Btw Clara Barton Pkwy & MD 190	1511	5	1317	1091	1360	1793	1933		7494	7485	14	8	11	17	20		14	14	94	141	130	107	98		114	F	122	F	118	F
		777	5	807	1120	1527	1910	2103		7467		12	8	12	20	25		15		71	135	125	98	87		103	F	110	F		
basic		3461	4	1807	1853	1905	1850			7415	7404	18	20	21	19			20	19	100	94	93	97			96	F	96	F	98	F
		1064	4	1969	1870	1812	1717			7368		21	19	17	16			18		96	101	106	110			103	F	103	F		
diverge		400	5	642	1552	1722	1737	1682		7334	7334	39	17	17	16	15		21	21	17	96	104	109	112		87	F	72	F	72	F
basic	MD 190 interchange	1943	4	1522	1644	1701	1674			6541	6541	13	14	15	15			14	14	122	115	113	113			116	F	116	F	116	F
merge		1495	5	1250	1476	1640	1721	1721		7807	7807	9	12	14	15	16		13	13	142	125	117	113	111		122	F	128	F	128	F
basic		621	5	1146	1491	1653	1712	1754		7756	7756	8	12	15	15	17		13	13	146	122	116	112	108		121	F	121	F	121	F
merge	Btw MD 190 & I-270 West Spur	1123	6	784	1153	1720	1672	1670	1817	8816	8816	6	9	16	15	15	18	13	13	145	131	113	114	114	105	120	F	130	F	130	F
basic		398	5	1627	1727	1738	1729	1787		8609	8673	24	20	17	16	20		19	31	70	91	107	107	91		93	F	93	F	62	F
		1764	5	1327	1274	1978	2086	2023		8687		38	32	29	31	38		34		37	43	71	70	54		55	F	55	F		
weave		732	6	1271	1176	1701	1893	1784	778	8603	8507	32	30	31	35	46	54	38	36	44	43	59	56	39	15	43	F	43	F	46	F
		2474	6	1243	1245	1216	1778	1976	1021	8479		22	22	22	44	49	55	35		60	60	59	42	41	19	47	F	47	F		
basic	Btw I-270 West Spur & MD 187	6705	3	1098	1068	1127				3292	3241	12	11	12				12	11	99	102	95				99	F	99	F	103	F
		1173	3	1000	924	1021				2946		8	7	9				8		128	132	124				128	F	128	F		
diverge		305	4	166	950	802	960			2878	2878	29	7	6	7			13	13	6	133	144	132			104	F	94	F	94	F
basic	MD 187 interchange	2021	3	894	716	915				2526	2526	6	5	6				6	6	146	161	146				151	F	151	F	151	F
merge	Btw MD 187 & I-270 East Spur	440	4	211	892	664	884			2652	2652	10	6	4	6			7	7	22	148	173	154			124	F	114	F	114	F
basic		659	3	986	680	944				2609	2609	9	4	6				6	6	116	176	157				150	F	150	F	150	F
diverge		1113	3	656	817	1084				2556	2556	8	5	7				7	7	85	164	154				134	F	134	F	134	F
basic	I-270 East Spur interchange	1519	2	1151	1189					2341	2341	8	8					8	8	147	149					148	F	148	F	148	F
weave		1951	4	1075	1162	1376	1408			5021	5021	7	8	11	12			9	9	155	148	124	124			138	F	138	F	138	F
weave		513	6	332	989	1187	1525	1348	721	6102	6102	10	7	8	12	10	44	15	15	34	152	144	127	133	17	101	F	101	F	101	F
basic		1013	5	1348	1361	1488	1294	609		6100	6102	10	11	12	10	22		13	13	132	125	125	138	28		110	F	110	F	111	F
		1002	5	1433	1475	1442	1247	508		6104		11	12	11	9	20		13		132	129	130	144	26		112	F	112	F		
merge	Btw I-270 East Spur & MD 185	522	5	1461	1511	1498	1218	365		6053	6053	12	12	12	9	11		11	11	129	126	129	137	35		111	F	100	F	100	F
basic		1603	4	1485	1465	1501	1564			6015	6014	12	12	13	14			13	13	122	123	119	113			119	F	119	F	119	F
		252	4	1533	1412	1491	1572			6007		13	11	13	14			13		120	126	120	115			120	F	120	F		
basic	ML- Btw VA 267 & VA 193	2189	2	800	787					1587	1588	64	64					64	64	13	13					13	B	13	B	13	B
		1496	2	802	786					1588		64	64					64		13	12					13	B	13	B		
		2215	2	800	788					1588		64	64					64		13	13					13	B	13	B		
		928	2	748	841					1590		64	64					64		12	13					13	B	13	B		
diverge	ML - Btw VA 193 & GWMP	812	3	744	724	121				1588	1588	64	64	62				63	63	12	12	2				8	A	8	A	8	A
basic		1860	2	910	541					1450	1450	61	61					61	61	15	9					12	B	12	B	12	B
basic		1146	1	1451						1451	1451	38						38	38	40						40	E	40	E	40	E

I-495 Inner Loop - 2045 No-build - 5-6 PM

VISSIM Lookup Data				Volume								Speed									Density																	
				Volume Per Lane							Across All Lanes	Overall Volume	Speed Per Lane							Across All Lanes	Overall Speed	Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)							Total Volume	Average Volume (veh/hr)	Speed (mph)							Average Speed	Average Speed (mph)	Combined Density (pcphpl)							Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Btw VA 267 & VA 193	2184	5	522	455	495	657	951			3081	3081	6	3	3	4	7			5	5	89	176	179	161	136			148	F	148	F	148	F
diverge		1468	5	318	384	545	700	997			2943	2943	4	2	3	4	7			4	4	82	193	177	164	141			151	F	151	F	151	F
basic	VA 193 interchange	2206	4	389	517	701	1024				2631	2631	2	3	4	7				4	4	192	180	166	140				169	F	169	F	169	F
merge		354	6	242	214	340	485	685	1067		3032	3032	1	1	2	3	4	7		3	3	198	201	210	197	182	154		190	F	203	F	203	F
basic	Btw VA 193 & GWMP	1017	5	503	238	467	709	1082			2999	2999	3	1	2	4	8			4	4	186	215	201	178	140			184	F	184	F	184	F
diverge		1526	5	306	250	424	715	1229			2924	2924	2	1	2	4	11			4	4	177	214	204	177	110			176	F	198	F	198	F
basic	GWMP interchange	667	4	468	459	706	1198				2832	2803	2	2	4	10				5	5	200	193	162	122				169	F	169	F	158	F
		665	4	486	548	786	987				2807		3	4	6	8				5		181	163	135	128				152	F	152	F		
		488	4	592	633	847	685				2757		4	4	7	5				5		170	148	133	153				151	F	151	F		
weave	Btw GWMP & Clara Barton Pkwy	674	6	945	725	802	999	580	622		4672	4672	8	5	5	7	3	5		5	5	129	168	163	156	172	142		155	F	155	F	155	F
diverge		1293	5	854	790	831	990	1154			4618	4618	13	5	5	6	8			7	7	76	173	173	162	149			147	F	141	F	141	F
basic	Clara Barton Pkwy interchange	500	4	915	791	960	1170				3836	3829	6	5	6	8				6	6	165	174	163	148				163	F	163	F	163	F
		706	4	940	759	949	1176				3824		6	4	6	8				6		165	177	165	148				164	F	164	F		
merge	Btw Clara Barton Pkwy & MD 190	1511	5	665	409	660	942	1193			3869	3847	4	2	4	6	8			5	5	171	200	184	165	147			173	F	185	F	182	F
		777	5	480	451	716	953	1205			3805		3	3	4	6	9			5		168	185	178	159	142			166	F	177	F		
basic		3461	4	986	819	840	1039				3684	3660	6	5	5	7				6	6	161	172	171	157				165	F	165	F	166	F
		1064	4	1018	783	773	1006				3580		7	5	4	6				6		160	177	179	161				169	F	169	F		
diverge		400	5	369	741	676	753	997			3537	3537	33	5	4	4	6			10	10	11	171	183	179	161			141	F	122	F	122	F
basic	MD 190 interchange	1943	4	746	616	726	989				3077	3077	4	3	4	6				5	5	180	190	181	161				178	F	178	F	178	F
merge		1495	5	484	734	596	707	987			3508	3508	2	4	3	4	6			4	4	202	181	192	182	161			184	F	192	F	192	F
basic		621	5	465	734	582	691	973			3445	3445	2	4	3	4	6			4	4	202	179	192	182	161			183	F	183	F	183	F
merge	Btw MD 190 & I-270 West Spur	1123	6	495	500	774	570	683	972		3994	3994	3	3	5	3	4	6		4	4	186	186	178	193	182	161		181	F	183	F	183	F
basic		398	5	885	725	555	716	978			3858	3863	7	5	3	4	8			5	6	132	154	183	169	133			154	F	154	F	153	F
		1764	5	807	589	458	718	1291			3864		7	4	3	4	13			6		131	160	194	175	104			153	F	153	F		
weave		732	6	591	531	414	652	1247	366		3802	3754	4	3	2	5	18	44		13	15	181	179	190	143	73	8		129	F	129	F	132	F
		2474	6	486	538	318	583	1364	452		3740		3	3	2	7	24	55		15		200	194	210	123	61	8		133	F	133	F		
basic	Btw I-270 West Spur & MD 187	6705	3	473	464	621					1558	1559	2	2	3					3	3	203	203	190					198	F	198	F	198	F
		1173	3	481	457	627					1565		3	2	3					3		200	199	185					195	F	195	F		
diverge		305	4	123	426	404	615				1567	1567	25	2	2	3				8	8	5	204	204	188				150	F	138	F	138	F
basic	MD 187 interchange	2021	3	418	380	625					1422	1422	2	2	3					2	2	207	208	189					201	F	201	F	201	F
merge	Btw MD 187 & I-270 East Spur	440	4	270	445	383	642				1741	1741	3	2	2	4				3	3	95	188	207	185				169	F	163	F	163	F
basic		659	3	724	359	656					1740	1740	5	2	4					3	3	150	210	185					181	F	181	F	181	F
diverge		1113	3	528	462	747					1736	1736	4	2	4					4	4	127	194	179					167	F	167	F	167	F
basic	I-270 East Spur interchange	1519	2	803	808						1611	1611	5	5						5	5	173	176						174	F	174	F	174	F
weave		1951	4	780	876	1142	1139				3937	3937	5	5	8	8				7	7	177	167	139	143				156	F	156	F	156	F
weave		513	6	240	731	905	1317	981	853		5026	5026	7	4	6	10	6	31		11	11	40	172	160	137	156	30		116	F	116	F	116	F
basic		1013	5	1074	1117	1242	892	741			5065	5077	7	8	9	6	13			9	8	154	142	141	165	63			133	F	133	F	135	F
		1002	5	1162	1254	1223	820	630			5090		8	9	9	5	9			8		151	143	144	171	77			137	F	137	F		
merge	Btw I-270 East Spur & MD 185	522	5	1195	1288	1303	814	479			5080	5080	8	9	10	5	5			8	8	147	141	139	161	97			137	F	133	F	133	F
basic		1603	4	1229	1255	1285	1345				5113	5115	9	9	10	11				10	10	139	137	133	128				134	F	134	F	134	F
		252	4	1290	1216	1263	1356				5125		10	9	10	11				10		136	139	135	129				135	F	135	F		
basic	ML- Btw VA 267 & VA 193	2189	2	778	768						1547	1484	61	61						61	43	13	13						13	B	13	B	27	D
		1496	2	765	760						1525		52	52						52		18	18						18	C	18	C		
		2215	2	724	725						1450		29	29						29		34	35						34	D	34	D		
		928	2	635	716						1351		13	14						14		57	59						58	F	58	F		
diverge	ML - Btw VA 193 & GWMP	812	3	587	499	188					1274	1274	8	6	3					6	6	85	92	75					84	F	84	F	84	F
basic		1860	2	587	446						1033	1033	5	4						4	4	125	127						126	F	126	F	126	F
basic		1146	1	951							951	951	7							7	7	147							147	F	147	F	147	F

I-495 Inner Loop - 2045 No-build - 6-7 PM

VISSIM Lookup Data				Volume								Speed									Density												
				Volume Per Lane						Across All Lanes	Overall Volume	Speed Per Lane						Across All Lanes	Overall Speed	Density Per Lane						Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)						Total Volume	Average Volume (veh/hr)	Speed (mph)						Average Speed	Average Speed (mph)	Combined Density (pcphpl)						Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Btw VA 267 & VA 193	2184	5	449	259	314	509	788		2318	2318	4	1	2	3	5		3	3	121	198	200	179	157		171	F	171	F	171	F
diverge		1468	5	311	254	399	577	849		2391	2391	3	1	2	3	6		3	3	116	204	192	175	154		168	F	171	F	171	F
basic	VA 193 interchange	2206	4	312	439	617	914			2282	2282	2	2	4	6			3	3	199	188	173	151			178	F	178	F	178	F
merge		354	6	218	174	279	439	628	980	2718	2718	1	1	1	2	3	6	3	3	199	206	214	203	188	162	195	F	206	F	206	F
basic	Btw VA 193 & GWMP	1017	5	458	197	431	662	1000		2749	2749	2	1	2	4	7		3	3	190	220	204	184	149		189	F	189	F	189	F
diverge		1526	5	306	212	390	698	1148		2754	2754	2	1	2	4	10		4	4	173	218	206	178	117		178	F	199	F	199	F
basic	GWMP interchange	667	4	443	439	689	1131			2702	2694	2	2	4	10			5	5	202	191	161	119			168	F	168	F	157	F
		665	4	472	547	730	949			2699		3	3	6	8			5		181	162	134	121			150	F	150	F		
		488	4	580	640	770	686			2675		4	4	6	5			5		170	147	135	147			150	F	150	F		
weave	Btw GWMP & Clara Barton Pkwy	674	6	933	762	822	969	646	638	4770	4770	8	5	5	6	4	5	6	6	127	165	159	155	164	127	149	F	149	F	149	F
diverge		1293	5	972	858	835	980	1143		4788	4788	15	5	5	6	8		8	8	68	168	171	162	149		144	F	136	F	136	F
basic	Clara Barton Pkwy interchange	500	4	962	802	968	1157			3889	3901	6	5	6	8			6	6	163	173	162	148			162	F	162	F	162	F
		706	4	976	775	980	1179			3910		6	4	6	8			6		162	176	163	148			162	F	162	F		
merge	Btw Clara Barton Pkwy & MD 190	1511	5	715	427	686	1002	1222		4051	4048	4	2	4	6	9		5	5	166	198	182	162	145		171	F	182	F	179	F
		777	5	539	485	755	1027	1238		4044		3	3	4	7	9		5		162	182	176	155	141		163	F	173	F		
basic		3461	4	1122	950	935	1034			4041	4057	8	6	6	7			7	7	152	161	164	157			158	F	158	F	159	F
		1064	4	1258	952	885	1015			4109		9	6	5	6			7		144	165	170	161			160	F	160	F		
diverge		400	5	506	926	815	853	1011		4111	4111	34	6	5	5	6		11	11	15	153	171	172	160		134	F	113	F	113	F
basic	MD 190 interchange	1943	4	971	768	821	1010			3570	3570	6	4	5	6			5	5	163	179	175	161			169	F	169	F	169	F
merge		1495	5	636	987	784	815	1031		4253	4253	3	6	5	5	7		5	5	187	162	177	175	159		172	F	175	F	175	F
basic		621	5	612	1021	782	814	1041		4269	4269	3	7	5	5	7		5	5	187	158	176	174	157		170	F	170	F	170	F
merge	Btw MD 190 & I-270 West Spur	1123	6	669	675	1090	785	813	1056	5088	5088	4	4	7	5	5	7	5	5	166	170	153	175	173	155	165	F	163	F	163	F
basic		398	5	1230	1054	819	849	1060		5012	5124	12	8	5	5	8		8	9	104	132	163	160	131		138	F	138	F	130	F
		1764	5	1214	937	763	876	1358		5149		15	9	5	5	13		9		80	113	171	164	110		128	F	128	F		
weave		732	6	1157	834	743	789	1249	442	5214	5264	12	7	5	6	13	44	14	16	103	122	149	145	98	10	104	F	104	F	110	F
		2474	6	1045	822	664	824	1361	563	5278		8	6	4	8	15	55	16		130	149	167	117	98	10	112	F	112	F		
basic	Btw I-270 West Spur & MD 187	6705	3	948	919	956				2824	2866	7	7	8				7	7	137	138	132				136	F	136	F	136	F
		1173	3	1028	988	1092				3108		8	8	9				8		138	139	131				136	F	136	F		
diverge		305	4	284	971	863	1040			3158	3158	25	8	6	8			12	12	13	134	142	133			105	F	96	F	96	F
basic	MD 187 interchange	2021	3	985	827	980				2792	2792	8	6	8				7	7	135	148	138				141	F	141	F	141	F
merge	Btw MD 187 & I-270 East Spur	440	4	218	1032	841	1001			3091	3091	14	8	6	8			9	9	17	134	153	141			111	F	101	F	101	F
basic		659	3	1107	919	1091				3118	3118	12	7	8				9	9	101	152	140				131	F	131	F	131	F
diverge		1113	3	693	1132	1343				3168	3168	11	9	11				11	11	65	132	128				109	F	109	F	109	F
basic	I-270 East Spur interchange	1519	2	1417	1482					2899	2899	14	14					14	14	114	113					114	F	114	F	114	F
weave		1951	4	1382	1459	1528	1620			5989	5989	12	13	18	20			16	16	126	115	92	86			105	F	105	F	105	F
weave		513	6	52	1306	1417	1772	1633	688	6868	6868	13	10	13	19	17	46	20	20	5	134	115	100	101	15	78	F	78	F	78	F
basic		1013	5	1557	1473	1774	1632	496		6933	6946	14	15	19	16	27		18	18	118	100	97	106	19		88	F	88	F	88	F
		1002	5	1683	1630	1710	1571	365		6960		16	17	17	15	24		18		110	101	103	113	16		89	F	89	F		
merge	Btw I-270 East Spur & MD 185	522	5	1734	1712	1725	1524	241		6934	6934	17	18	17	14	13		16	16	106	101	107	112	21		89	F	80	F	80	F
basic		1603	4	1837	1740	1726	1712			7016	7025	20	19	18	18			19	19	96	97	99	98			97	F	97	F	97	F
		252	4	1968	1727	1696	1688			7079		23	18	17	17			19		89	98	101	100			97	F	97	F		
basic	ML- Btw VA 267 & VA 193	2189	2	676	680					1356	1290	16	16					16	8	123	123					123	F	123	F	154	F
		1496	2	631	650					1281		6	7					7		149	149					149	F	149	F		
		2215	2	611	636					1247		4	4					4		177	177					177	F	177	F		
		928	2	578	674					1252		3	4					3		188	181					184	F	184	F		
diverge	ML - Btw VA 193 & GWMP	812	3	579	297	381				1257	1257	3	1	2				2	2	188	210	188				195	F	195	F	195	F
basic		1860	2	640	492					1133	1133	4	3					3	3	182	192					187	F	187	F	187	F
basic		1146	1	1123						1123	1123	8						8	8	147						147	F	147	F	147	F

I-495 Outer Loop - 2045 No-build - 3-4 PM

VISSIM Lookup Data				Volume									Speed									Density									
				Volume Per Lane							Across All Lanes	Overall Volume	Speed Per Lane							Across All Lanes	Overall Speed	Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Link Length	Combined Volume (veh/hr/ln)							Total Volume	Average Volume (veh/hr)	Speed (mph)							Average Speed	Average Speed (mph)	Combined Density (pcphpl)							Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Btw VA 267 & VA 193	613	5	1441	1461	1527	1487	1335			7251	7215	53	53	53	53	54			53	53	28	28	29	28	25			28	D	28	D	28	D
		345	5	1441	1439	1498	1458	1314			7149		52	52	53	53	54			53		28	28	29	28	24			27	D	27	D		
merge		842	6	114	1425	1431	1466	1474	1333		7244	7244	52	53	53	53	54	55		53	53	2	28	27	28	28	25		23	C	19	B	19	B
merge	VA 193 interchange & GWMP interchange	1316	5	1115	1219	1449	1469	1345			6597	6597	53	54	54	54	55			54	54	21	23	27	28	25			25	C	24	C	24	C
basic		728	4	1212	1451	1468	1343				5474	5491	54	53	53	55				54	54	23	28	28	25				26	D	26	D	26	D
		755	4	1199	1474	1483	1351				5507		54	53	54	55				54		23	28	28	25				26	D	26	D		
diverge		593	5	553	1276	1514	1492	1342			6176	6176	55	54	53	53	55			54	54	10	24	29	28	25			23	C	21	C	21	C
basic		2404	4	1800	1583	1512	1296				6191	6185	53	53	54	55				54	54	35	30	29	24				29	D	29	D	29	D
		840	4	1820	1626	1550	1172				6169		52	53	54	55				53		36	31	29	21				29	D	29	D		
diverge		602	5	1856	1671	1650	1217	1022			7417	7417	50	52	53	55	54			53	53	38	33	31	23	19			29	D	34	D	34	D
basic		284	4	1881	1683	1781	2108				7454	7454	50	52	53	53				52	52	38	33	34	41				36	E	36	E	36	E
weave	Btw GWMP & Clara Barton Pkwy	1524	5	1561	1751	1706	1874	2172			9063	9063	37	37	46	50	51			44	44	43	48	38	38	43			42	E	42	E	42	E
basic	Clara Barton Pkwy interchange	1713	4	1743	1655	1883	2158				7439	7439	22	33	41	43				35	35	85	52	47	51				59	F	59	F	59	F
diverge		922	5	49	1857	1776	1762	2035			7478	7478	51	26	31	35	36			36	36	1	74	59	52	57			49	F	45	F	45	F
basic	Btw Clara Barton Pkwy & MD 190	521	4	1813	1822	1804	1929				7369	7486	32	31	28	25				29	27	59	59	65	78				65	F	65	F	71	F
		3149	4	1908	1927	1863	1808				7506		29	28	26	24				27		68	70	74	78				72	F	72	F		
merge		1788	5	545	1671	1793	1787	1775			7571	7571	25	21	22	25	26			24	24	23	82	84	73	72			67	F	63	F	63	F
basic	MD 190 interchange	2663	4	1694	1626	1674	1670				6664	6664	26	25	27	28				26	26	73	73	68	66				70	F	70	F	70	F
diverge		1585	5	463	1799	1696	1705	1615			7279	7279	54	32	32	34	34			37	37	9	65	62	59	55			50	F	45	F	45	F
diverge		1032	6	780	469	1907	1741	1737	1588		8222	8222	54	52	35	35	37	37		41	41	15	9	61	58	54	50		41	E	28	D	28	D
basic	Btw MD 190 & I-270 West Spur	446	5	1086	1944	1809	1742	1523			8104	8281	50	36	36	39	39			40	43	22	61	57	51	46			47	F	47	F	44	E
		2659	5	1530	1977	1910	1612	1265			8294		43	38	40	43	43			41		38	57	54	43	35			45	F	45	F		
		939	5	2167	1956	1660	1503	1039			8326		43	45	48	50	52			48		56	48	40	34	24			40	E	40	E		
weave		554	6	62	2087	2070	1590	1517	1013		8338	8338	40	42	45	48	51	52		46	46	5	56	51	37	33	22		34	D	34	D	34	D
basic	Btw I-270 West Spur & MD 187	7657	3	925	1778	1828					4530	4535	48	45	45					46	46	22	45	45					37	E	37	E	36	E
		1085	3	1442	1557	1570					4569		51	51	51					51		29	31	31					30	D	30	D		
merge		406	4	208	1339	1504	1535				4585	4585	50	53	53	53				52	52	4	26	29	30				22	C	20	C	20	C
basic	MD 187 interchange	2022	3	1018	1372	1533					3924	3924	54	53	53					53	53	19	26	29					25	C	25	C	25	C
diverge		325	4	229	1121	1396	1546				4292	4292	53	53	53	53				53	53	4	21	27	30				21	C	18	B	18	B
basic	Btw MD 187 & I-270 East Spur	1192	3	1348	1395	1548					4291	4294	53	53	53					53	53	26	27	30					27	D	27	D	27	D
		913	3	1349	1388	1558					4295		53	53	53					53		26	26	30					27	D	27	D		
		494	3	1212	1443	1643					4297		54	53	52					53		23	28	32					28	D	28	D		
merge		910	4	771	1556	1865	96				4289	4289	51	49	48	48				49	49	15	32	39	2				22	C	25	C	25	C
basic	I-270 East Spur interchange	288	3	507	1448	1772					3728	3728	54	53	53					53	53	10	28	34					24	C	24	C	24	C
diverge		1593	4	1290	2299	1528	1812				6929	6929	53	52	53	53				53	53	25	44	29	35				33	D	33	D	33	D
diverge		402	5	797	1493	2374	1540	1814			8018	8018	52	52	52	53	53			52	52	16	29	47	30	35			31	D	30	D	30	D
basic	Btw I-270 East Spur & MD 185	1045	4	2246	2416	1546	1825				8033	8019	50	50	53	53				52	43	46	49	30	35				40	E	40	E	51	F
		2087	4	2158	2384	1680	1799				8021		44	42	46	51				46		50	58	37	36				45	F	45	F		
		1257	4	2198	2144	1971	1705				8018		30	34	40	46				37		75	64	50	38				57	F	57	F		
		526	4	1905	1926	1986	2166				7983		20	21	25	34				25		99	95	79	65				84	F	84	F		
basic	ML - Btw VA 267 & VA 193	873	2	1036	432						1468	1467	63	65						64	64	17	7						12	B	12	B	12	B
		2286	2	1045	422						1468		63	65						64		17	7						12	B	12	B		
		787	2	1052	412						1463		63	65						64		17	7						12	B	12	B		
		954	2	1063	401						1465		63	64						64		17	6						12	B	12	B		
merge	ML - VA 193 interchange & GWMP interchange	303	3	1031	353	73					1457	1457	63	62	49					58	58	17	6	2					8	A	8	A	8	A
basic		1881	2	1072	197						1269	1269	63	66						65	65	17	3						10	A	10	A	10	A
basic		1423	1	1271							1271	1271	59							59	59	22							22	C	22	C	22	C

I-495 Outer Loop - 2045 No-build - 4-5 PM

VISSIM Lookup Data				Volume									Speed									Density									
				Volume Per Lane							Across All Lanes	Overall Volume	Speed Per Lane							Across All Lanes	Overall Speed	Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Link Length	Combined Volume (veh/hr/ln)							Total Volume	Average Volume (veh/hr)	Speed (mph)							Average Speed	Average Speed (mph)	Combined Density (pcphpl)							Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Btw VA 267 & VA 193	613	5	1390	1383	1429	1439	1306			6945	6910	53	53	53	53	54			53	53	27	26	27	27	24			26	D	26	D	26	D
		345	5	1390	1362	1393	1413	1289			6847		52	53	53	53	54			53		27	26	27	27	24			26	D	26	D		
merge		842	6	95	1386	1351	1371	1432	1312		6947	6947	52	53	53	53	54	54		53	53	2	27	26	26	27	24		22	C	18	B	18	B
merge	VA 193 interchange & GWMP interchange	1316	5	1100	1175	1366	1426	1317			6384	6384	53	54	54	54	55			54	54	21	22	26	27	24			24	C	23	C	23	C
basic		728	4	1169	1378	1421	1321				5289	5304	54	53	53	55				54	54	22	26	27	25				25	C	25	C	25	C
		755	4	1149	1407	1444	1319				5319		54	54	54	55				54		22	27	27	24				25	C	25	C		
diverge		593	5	541	1219	1449	1457	1307			5973	5973	55	54	54	54	55			54	54	10	23	27	28	24			22	C	20	C	20	C
basic		2404	4	1726	1515	1478	1271				5990	5983	53	54	54	55				54	54	33	29	28	23				28	D	28	D	28	D
		840	4	1736	1538	1533	1156				5963		52	53	54	55				54		34	29	29	21				28	D	28	D		
diverge		602	5	1756	1576	1633	1217	1009			7191	7191	50	52	53	54	54			53	53	36	31	31	23	19			28	D	32	D	32	D
basic		284	4	1767	1591	1752	2118				7228	7228	50	52	53	53				52	52	36	31	33	41				35	E	35	E	35	E
weave	Btw GWMP & Clara Barton Pkwy	1524	5	1518	1621	1612	1869	2193			8812	8812	35	35	44	50	51			43	43	44	47	38	38	44			42	E	42	E	42	E
basic	Clara Barton Pkwy interchange	1713	4	1576	1595	1892	2155				7219	7219	17	28	38	41				31	31	95	57	51	54				64	F	64	F	64	F
diverge	Btw Clara Barton Pkwy & MD 190	922	5	30	1716	1729	1765	2005			7244	7244	51	21	26	31	33			32	32	1	84	66	57	62			54	F	50	F	50	F
basic		521	4	1759	1784	1762	1848				7154	7265	28	28	26	23				26	24	65	64	70	82				70	F	70	F	79	F
		3149	4	1854	1868	1822	1739				7283		25	25	23	20				23		75	76	81	87				80	F	80	F		
merge		1788	5	667	1497	1625	1759	1737			7285	7285	22	15	17	20	20			19	19	31	99	100	88	90			82	F	77	F	77	F
basic	MD 190 interchange	2663	4	1599	1543	1661	1653				6456	6456	18	17	20	19				18	18	92	95	87	88				91	F	91	F	91	F
diverge		1585	5	632	1603	1579	1655	1630			7099	7099	52	20	19	21	21			27	27	12	89	89	84	83			71	F	63	F	63	F
diverge	Btw MD 190 & I-270 West Spur	1032	6	774	612	1662	1609	1698	1652		8008	8008	53	48	23	22	25	24		32	32	15	13	83	81	78	78		58	F	37	E	37	E
basic		446	5	1173	1699	1648	1717	1640			7877	8011	44	23	24	26	26			29	28	27	83	80	74	74			68	F	68	F	67	F
		2659	5	1462	1696	1698	1618	1553			8028		31	24	25	28	29			28		50	79	78	66	63			67	F	67	F		
		939	5	1754	1659	1597	1568	1448			8026		24	26	28	30	34			28		84	76	68	61	50			68	F	68	F		
weave		554	6	295	1558	1737	1572	1560	1317		8039	8039	18	21	26	29	32	33		26	26	30	94	80	65	57	47		62	F	62	F	62	F
basic	Btw I-270 West Spur & MD 187	7657	3	1092	1458	1584					4134	4148	29	24	26					26	28	51	86	80					72	F	72	F	70	F
		1085	3	1375	1416	1455					4246		40	39	40					40		51	56	55					54	F	54	F		
merge		406	4	287	1161	1381	1425				4254	4254	34	38	40	41				38	38	29	56	54	53				48	F	46	F	46	F
basic	MD 187 interchange	2022	3	927	1260	1417					3604	3604	42	43	43					43	43	44	47	49					47	F	47	F	47	F
diverge	Btw MD 187 & I-270 East Spur	325	4	210	1023	1280	1426				3938	3938	49	44	45	45				46	46	5	40	44	45				33	D	29	D	29	D
		1192	3	1228	1288	1429					3945	3955	45	45	45					45	45	40	42	43					42	E	42	E	40	E
basic		913	3	1231	1287	1446					3964		45	45	46					45		38	39	41					39	E	39	E		
		494	3	1119	1333	1513					3965		46	45	46					45		35	39	41					38	E	38	E		
merge		910	4	785	1417	1679	85				3966	3966	43	42	42	43				42	42	28	41	47	3				30	D	31	D	31	D
basic	I-270 East Spur interchange	288	3	561	1372	1636					3569	3569	46	46	46					46	46	19	35	41					32	D	32	D	32	D
diverge		1593	4	1402	2226	1465	1682				6776	6776	52	48	47	47				49	49	28	48	35	40				38	E	37	E	37	E
diverge	Btw I-270 East Spur & MD 185	402	5	773	1558	2335	1484	1697			7848	7848	52	51	50	50	50			50	50	15	31	48	31	36			32	D	31	D	31	D
basic		1045	4	2280	2367	1502	1709				7859	7841	50	50	51	52				50	43	47	49	30	34				40	E	40	E	48	F
		2087	4	2195	2360	1627	1668				7850		43	42	47	51				46		52	57	36	33				44	E	44	E		
		1257	4	2250	2143	1936	1508				7836		33	36	41	46				39		71	61	48	33				53	F	53	F		
		526	4	1963	2008	1936	1874				7781		25	27	31	37				30		82	79	65	52				70	F	70	F		
basic	ML - Btw VA 267 & VA 193	873	2	1024	432						1456	1451	63	65						64	64	16	7						12	B	12	B	12	B
		2286	2	1029	425						1454		63	65						64		17	7						12	B	12	B		
		787	2	1030	414						1444		63	65						64		17	7						12	B	12	B		
		954	2	1040	405						1445		63	64						63		17	6						12	B	12	B		
merge	ML - VA 193 interchange & GWMP interchange	303	3	1007	363	71					1441	1441	63	62	49					58	58	16	6	1					8	A	8	A	8	A
basic		1881	2	1048	213						1260	1260	63	66						65	65	17	3						10	A	10	A	10	A
basic		1423	1	1257							1257	1257	59							59	59	22							22	C	22	C	22	C

I-495 Outer Loop - 2045 No-build - 5-6 PM

VISSIM Lookup Data				Volume									Speed									Density									
				Volume Per Lane							Across All Lanes	Overall Volume	Speed Per Lane							Across All Lanes	Overall Speed	Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Link Length	Combined Volume (veh/hr/ln)							Total Volume	Average Volume (veh/hr)	Speed (mph)							Average Speed	Average Speed (mph)	Combined Density (pcphpl)							Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Btw VA 267 & VA 193	613	5	910	1097	1308	1382	1223			5920	5889	54	54	53	53	54			54	54	17	21	25	26	23			22	C	22	C	22	C
		345	5	895	1074	1290	1367	1209			5834		53	54	53	53	54			54		17	20	25	26	23			22	C	22	C		
merge		842	6	37	878	1074	1303	1387	1230		5910	5910	53	54	54	54	54	54		54	54	1	17	20	25	26	23		19	B	13	B	13	B
merge	VA 193 interchange & GWMP interchange	1316	5	702	1027	1311	1383	1243			5666	5666	54	54	54	54	55			54	54	13	19	25	26	23			21	C	19	B	19	B
basic		728	4	1066	1319	1384	1236				5005	5020	54	53	53	55				54	54	20	25	26	23				24	C	24	C	24	C
		755	4	1045	1345	1403	1241				5033		54	54	54	55				54		20	26	27	23				24	C	24	C		
diverge		593	5	674	1143	1388	1422	1228			5854	5854	54	54	53	54	55			54	54	13	22	26	27	23			22	C	20	C	20	C
basic		2404	4	1780	1459	1446	1190				5874	5867	53	53	54	55				54	54	34	28	27	22				28	D	28	D	28	D
		840	4	1788	1491	1475	1093				5848		52	53	54	55				53		35	29	28	20				28	D	28	D		
diverge		602	5	1805	1530	1561	1168	991			7054	7054	50	52	53	54	54			53	53	37	30	30	22	19			27	C	32	D	32	D
basic		284	4	1815	1544	1668	2064				7091	7091	50	52	53	53				52	52	37	30	32	40				35	E	35	E	35	E
weave	Btw GWMP & Clara Barton Pkwy	1524	5	1508	1624	1567	1832	2161			8692	8692	34	34	43	50	51			42	42	45	48	37	37	43			42	E	42	E	42	E
basic	Clara Barton Pkwy interchange	1713	4	1511	1548	1891	2160				7109	7109	15	27	38	41				30	30	100	58	51	54				66	F	66	F	66	F
diverge	Btw Clara Barton Pkwy & MD 190	922	5	26	1679	1680	1738	1999			7122	7122	49	20	25	31	33			32	32	1	86	68	57	62			55	F	51	F	51	F
basic		521	4	1716	1743	1719	1833				7011	7094	27	27	25	22				25	22	66	65	71	84				71	F	71	F	81	F
		3149	4	1823	1824	1760	1701				7108		24	23	21	19				22		77	80	85	90				83	F	83	F		
merge		1788	5	639	1484	1587	1697	1713			7121	7121	22	15	16	19	19			18	18	30	100	102	92	92			83	F	77	F	77	F
basic	MD 190 interchange	2663	4	1606	1501	1584	1625				6316	6316	18	16	18	19				18	18	92	98	92	89				93	F	93	F	93	F
diverge		1585	5	563	1587	1545	1567	1588			6850	6850	52	19	18	19	20			26	26	11	91	91	88	85			73	F	64	F	64	F
diverge	Btw MD 190 & I-270 West Spur	1032	6	745	562	1625	1562	1598	1573		7666	7666	52	48	21	21	22	22		31	31	15	12	84	83	81	78		59	F	37	E	37	E
basic		446	5	1119	1651	1595	1613	1549			7527	7573	44	23	23	25	25			28	28	26	84	80	75	73			68	F	68	F	66	F
		2659	5	1397	1605	1611	1519	1462			7595		31	24	25	27	29			27		49	78	78	68	63			67	F	67	F		
		939	5	1657	1561	1501	1469	1346			7534		25	26	28	31	34			29		78	70	63	56	46			63	F	63	F		
weave		554	6	296	1566	1692	1493	1373	1058		7478	7478	20	23	27	31	34	36		29	29	23	85	70	54	44	33		52	F	52	F	52	F
basic	Btw I-270 West Spur & MD 187	7657	3	1098	1414	1530					4042	4022	26	21	24					24	25	56	89	83					76	F	76	F	73	F
		1085	3	1285	1281	1318					3884		37	36	37					37		50	53	52					51	F	51	F		
merge		406	4	290	1067	1222	1307				3886	3886	35	38	39	40				38	38	25	54	51	49				45	F	43	F	43	F
basic	MD 187 interchange	2022	3	808	1105	1286					3199	3199	42	43	44					43	43	44	46	46					45	F	45	F	45	F
diverge	Btw MD 187 & I-270 East Spur	325	4	212	895	1119	1285				3511	3511	48	44	44	45				45	45	5	42	45	46				34	D	31	D	31	D
basic		1192	3	1091	1127	1284					3502	3493	45	45	45					45	45	44	44	46					44	E	44	E	44	E
		913	3	1073	1121	1291					3485		45	45	45					45		43	43	45					44	E	44	E		
		494	3	971	1161	1350					3482		45	45	45					45		42	44	45					44	E	44	E		
merge		910	4	705	1216	1457	79				3457	3457	42	41	41	43				42	42	34	45	50	3				33	D	32	D	32	D
basic	I-270 East Spur interchange	288	3	471	1186	1472					3129	3129	42	44	44					43	43	20	34	41					32	D	32	D	32	D
diverge		1593	4	1116	1797	1311	1549				5773	5773	19	23	33	41				29	29	80	88	42	40				62	F	70	F	70	F
diverge	Btw I-270 East Spur & MD 185	402	5	748	1285	1917	1318	1553			6821	6821	48	24	28	34	45			36	36	16	67	80	41	36			48	F	54	F	54	F
basic		1045	4	1990	1989	1352	1552				6883	6982	30	29	37	46				36	34	74	78	39	35				57	F	57	F	60	F
		2087	4	1942	2068	1464	1494				6969		29	29	36	44				35		74	79	44	36				58	F	58	F		
		1257	4	2051	1943	1766	1293				7054		27	30	35	41				33		85	73	55	34				62	F	62	F		
		526	4	1818	1919	1782	1541				7059		28	30	34	37				32		80	74	60	46				65	F	65	F		
basic	ML - Btw VA 267 & VA 193	873	2	979	354						1332	1331	63	65						64	64	16	6						11	B	11	B	11	B
		2286	2	985	347						1332		63	65						64		16	5						11	B	11	B		
		787	2	989	337						1326		63	65						64		16	5						11	B	11	B		
		954	2	1001	328						1329		63	65						64		16	5						11	B	11	B		
merge	ML - VA 193 interchange & GWMP interchange	303	3	993	296	37					1327	1327	63	63	49					59	59	16	5	1					7	A	7	A	7	A
basic		1881	2	1037	196						1233	1233	63	66						65	65	17	3						10	A	10	A	10	A
basic		1423	1	1231							1231	1231	59							59	59	21							21	C	21	C	21	C

I-495 Outer Loop - 2045 No-build - 6-7 PM

VISSIM Lookup Data				Volume									Speed									Density									
				Volume Per Lane							Across All Lanes	Overall Volume	Speed Per Lane							Across All Lanes	Overall Speed	Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Link Length	Combined Volume (veh/hr/ln)							Total Volume	Average Volume (veh/hr)	Speed (mph)							Average Speed	Average Speed (mph)	Combined Density (pcphpl)							Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Btw VA 267 & VA 193	613	5	643	1103	1274	1259	1151			5430	5403	55	53	53	54	55			54	54	12	21	24	24	21			20	C	20	C	20	C
		345	5	617	1090	1270	1244	1134			5354		54	53	53	54	56			54		12	21	24	23	21			20	C	20	C		
merge		842	6	16	598	1107	1295	1266	1150		5431	5431	53	55	54	53	55	56		54	54	0	11	21	25	24	21		17	B	11	B	11	B
merge	VA 193 interchange & GWMP interchange	1316	5	471	1111	1306	1277	1142			5306	5306	54	54	54	55	56			55	55	9	21	25	24	21			20	C	18	B	18	B
basic		728	4	1170	1321	1277	1136				4904	4919	53	53	55	56				54	54	22	25	24	21				23	C	23	C	23	C
		755	4	1162	1345	1295	1131				4933		54	53	55	56				54		22	26	24	21				23	C	23	C		
diverge		593	5	548	1251	1379	1310	1110			5598	5598	55	53	53	55	56			54	54	10	24	26	24	20			21	C	20	C	20	C
basic		2404	4	1799	1438	1326	1052				5614	5610	53	53	55	56				54	54	35	27	25	19				26	D	26	D	26	D
		840	4	1826	1491	1344	935				5596		52	53	55	57				54		36	28	25	17				26	D	26	D		
diverge		602	5	1863	1533	1401	968	783			6548	6548	51	53	55	56	54			54	54	37	30	26	18	15			25	C	31	D	31	D
basic		284	4	1887	1552	1480	1658				6577	6577	51	53	55	54				53	53	38	30	28	31				32	D	32	D	32	D
weave	Btw GWMP & Clara Barton Pkwy	1524	5	1249	1817	1558	1506	1655			7785	7785	41	42	48	52	53			47	47	32	44	33	29	32			34	D	34	D	34	D
basic	Clara Barton Pkwy interchange	1713	4	1575	1217	1393	1632				5817	5817	30	38	46	47				40	40	56	34	32	36				39	E	39	E	39	E
diverge	Btw Clara Barton Pkwy & MD 190	922	5	41	1445	1269	1395	1654			5803	5803	53	34	38	43	44			42	42	1	45	36	34	39			31	D	27	C	27	C
basic		521	4	1270	1271	1473	1685				5698	5709	39	40	40	38				39	39	35	34	39	46				38	E	38	E	39	E
		3149	4	1459	1450	1554	1247				5711		39	40	40	37				39		40	39	41	37				39	E	39	E		
merge		1788	5	218	1399	1408	1464	1104			5593	5593	33	36	38	41	38			37	37	8	43	42	39	33			33	D	31	D	31	D
basic	MD 190 interchange	2663	4	1191	1190	1366	1001				4747	4747	43	43	46	44				44	44	32	33	34	27				32	D	32	D	32	D
diverge		1585	5	166	1246	1221	1336	936			4905	4905	56	46	47	50	49			50	50	3	31	30	31	24			24	C	22	C	22	C
diverge	Btw MD 190 & I-270 West Spur	1032	6	510	191	1289	1256	1311	892		5449	5449	56	55	47	49	51	51		51	51	9	4	31	29	29	22		21	C	15	B	15	B
basic		446	5	642	1274	1303	1279	856			5353	5412	55	48	50	52	52			51	51	12	30	30	28	21			24	C	24	C	24	C
		2659	5	889	1173	1333	1221	810			5425		50	48	50	52	52			51		19	28	30	26	19			24	C	24	C		
		939	5	1116	968	1249	1269	799			5401		48	50	53	54	55			52		26	22	25	24	15			23	C	23	C		
weave		554	6	23	907	905	1368	1369	821		5393	5393	43	48	50	54	55	56		51	51	1	21	20	26	25	15		18	B	18	B	18	B
basic	Btw I-270 West Spur & MD 187	7657	3	473	691	627					1792	1782	48	47	47					47	47	12	19	17					16	B	16	B	16	B
		1085	3	784	445	487					1716		48	47	47					47		19	13	14					15	B	15	B		
merge		406	4	223	648	366	468				1706	1706	44	46	46	47				46	46	9	18	11	13				13	B	13	B	13	B
basic	MD 187 interchange	2022	3	164	324	453					942	942	47	46	47					47	47	8	10	12					10	A	10	A	10	A
diverge	Btw MD 187 & I-270 East Spur	325	4	69	185	320	451				1025	1025	50	47	47	47				48	48	1	7	10	12				7	A	6	A	6	A
		1192	3	248	315	447					1010	1004	48	47	48					48	50	7	8	11					9	A	9	A	8	A
basic		913	3	240	315	446					1001		51	51	52					51		5	6	9					7	A	7	A		
		494	3	185	345	465					994		54	54	53					54		3	7	9					6	A	6	A		
merge		910	4	81	294	601	9				986	986	50	51	49	48				49	49	2	6	13	0				5	A	6	A	6	A
basic	I-270 East Spur interchange	288	3	19	174	714					907	907	39	45	50					45	45	0	4	15					6	A	6	A	6	A
diverge		1593	4	355	265	328	834				1782	1782	2	1	2	22				7	7	207	216	162	41				156	F	195	F	195	F
diverge	Btw I-270 East Spur & MD 185	402	5	272	393	237	370	862			2134	2134	32	2	1	2	14			10	10	9	172	218	173	65			127	F	133	F	133	F
basic		1045	4	630	247	412	875				2164	2238	4	1	3	11				5	4	151	222	180	84				159	F	159	F	164	F
		2087	4	568	287	487	875				2217		4	1	3	10				5		146	217	178	93				158	F	158	F		
		1257	4	526	356	565	844				2291		3	2	3	9				4		198	209	179	103				172	F	172	F		
		526	4	457	425	573	888				2343		2	2	4	7				4		199	198	173	136				176	F	176	F		
basic	ML - Btw VA 267 & VA 193	873	2	799	254						1053	1046	63	66						65	65	13	4						8	A	8	A	8	A
		2286	2	802	246						1048		63	66						65		13	4						8	A	8	A		
		787	2	805	235						1040		63	66						65		13	4						8	A	8	A		
		954	2	813	228						1041		63	66						65		13	4						8	A	8	A		
merge	ML - VA 193 interchange & GWMP interchange	303	3	806	210	22					1037	1037	63	65	50					59	59	13	3	0					6	A	6	A	6	A
basic		1881	2	840	142						981	981	63	67						65	65	13	2						8	A	8	A	8	A
basic		1423	1	980							980	980	60							60	60	17							17	B	17	B	17	B

I-270 Southbound - 2045 No-Build - 3-4 PM

VISSIM Lookup Data				Volume										Speed										Density									
				Volume Per Lane								Across All Lanes	Overall Volume	Speed Per Lane								Across All Lanes	Overall Speed	Density Per Lane								Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)								Total Volume	Average Volume (veh/hr)	Speed (mph)								Average Speed	Average Speed (mph)	Combined Density (pcphpl)								Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Through MD 117 interchange	658	4	1290	1578	1332	1030					5230	5261	62	62	63	63					63	63	21	26	21	17					21	C	21	C	21	C
		3062	4	1278	1555	1350	1084					5268		63	63	63	64					63		21	25	22	17					21	C	21	C		
merge	Btw MD 117 & I-370	1569	5	992	1955	1694	1218	747				6606	6606	58	58	61	63	64				61	61	18	34	28	20	12				22	C	27	C	27	C
basic		1151	5	1282	2025	1483	1082	756				6628	6605	62	61	62	63	64				63	63	21	34	24	17	12				22	C	22	C	22	C
		431	5	1329	1995	1510	954	753				6542		62	61	61	63	64				62		22	33	25	15	12				21	C	21	C		
diverge		1058	6	1317	766	1305	1484	975	781			6627	6627	63	63	62	63	64	64			63	63	21	12	21	24	16	12			18	B	20	C	20	C
basic	I-370 interchange	1258	4	1584	1211	970	792					4556	4555	62	63	64	64					63	63	26	19	15	13					18	C	18	C	18	C
		193	4	1684	1102	968	793					4547		62	63	64	64					63		28	18	15	13					18	C	18	C		
diverge		1263	5	744	992	1044	973	796				4549	4549	63	63	63	64	64				64	64	12	16	17	15	13				15	B	15	B	15	B
basic		3427	4	899	1048	945	752					3644	3644	63	64	64	64					64	64	14	17	15	12					15	B	15	B	15	B
merge	Shady Grove Rd interchange	1046	5	299	1314	1450	917	746				4727	4727	54	56	62	64	64				60	60	6	24	24	15	12				16	B	18	B	18	B
basic		420	4	1486	1434	1037	768					4726	4726	55	61	63	64					61	61	28	24	17	12					20	C	20	C	20	C
		497	4	1455	1374	1093	803					4725		55	61	63	64					61		27	23	18	13					20	C	20	C		
diverge		1518	4	1374	1334	1157	854					4719	4719	54	61	63	64					61	61	26	22	19	14					20	C	22	C	22	C
basic		3645	4	970	1220	1273	941					4404	4404	54	61	63	64					60	60	18	20	20	15					18	C	18	C	18	C
merge	Btw Shady Grove Rd & MD 28	473	5	220	1207	1325	1332	961				5045	5045	58	56	60	63	64				60	60	4	22	22	21	15				17	B	16	B	16	B
basic		1022	4	1243	1446	1508	851					5047	5045	55	58	62	64					60	60	23	25	25	14					22	C	22	C	21	C
		1591	4	1286	1419	1394	944					5043		55	59	62	64					60		24	24	23	15					21	C	21	C		
merge	MD 28 interchange	655	5	73	1427	1595	1195	973				5263	5263	59	56	59	63	64				60	60	1	26	27	19	15				18	B	18	B	18	B
basic		921	4	1530	1455	1259	1012					5256	5256	54	58	62	63					60	60	29	25	20	16					23	C	23	C	23	C
diverge		1515	4	1704	1128	1334	1096					5261	5261	54	57	62	63					59	59	32	20	22	18					23	C	25	C	25	C
basic	MD 189 interchange	3237	4	745	912	1314	1422					4393	4394	56	58	62	61					59	59	14	16	22	24					19	C	19	C	19	C
		1874	4	760	889	1384	1369					4402		55	58	62	60					59		14	15	23	23					19	C	19	C		
		3407	4	761	881	1429	1320					4391		55	58	62	60					59		14	15	23	22					19	C	19	C		
merge	Montrose Rd interchange	598	5	1420	811	876	1455	1291				5853	5853	62	57	59	62	61				60	60	23	15	15	24	21				20	C	18	B	18	B
basic	Btw Montrose Rd & Spur Split	882	5	1399	827	884	1474	1289				5873	5879	63	57	58	62	60				60	60	23	15	15	24	22				20	C	20	C	20	C
		303	5	1406	828	888	1489	1276				5886		63	57	58	62	59				60		23	15	15	24	22				20	C	20	C		
		3023	5	1416	828	876	1501	1259				5880		63	57	59	62	59				60		23	15	15	25	21				20	C	20	C		
weave		3707	7	561	589	1320	1451	1609	1426	1001		7957	7949	59	60	60	58	58	61	59		59	59	10	10	22	25	28	24	17		20	C	20	C	19	B
		722	7	565	719	1149	1580	1339	1382	1170		7904		59	61	61	58	59	59	59		59		10	12	19	28	23	24	20		19	B	19	B		
diverge		400	8	596	785	1171	1502	1495	1319	764	307	7937	7937	60	61	61	58	59	60	61	58	60	60	10	13	20	26	26	22	13	5	17	B	13	B	13	B
weave		334	7	610	801	1172	1456	1576	1257	568		7440	7440	60	61	61	58	58	60	63		60	60	10	13	20	25	27	21	9		18	B	18	B	18	B
basic	Spur Split through MD 187 interchange	965	4	544	1564	1299	495					3902	3902	59	58	59	61					59	59	9	27	22	8					17	B	17	B	17	B
diverge		1138	4	582	1502	1276	540					3900	3900	59	58	59	60					59	59	10	26	22	9					17	B	17	B	17	B
basic		2602	3	1267	1233	599						3099	3099	58	58	60						59	59	22	21	10						18	C	18	C	18	C
merge		443	4	139	1361	1364	641					3505	3505	44	56	58	59					54	54	3	25	24	11					16	B	17	B	17	B
basic		947	3	1356	1387	763						3506	3506	58	58	59						58	58	24	24	13						20	C	20	C	20	C
merge	Btw MD 187 & I-495	1023	4	267	1193	1419	1056					3934	3934	52	60	61	63					59	59	5	20	24	17					17	B	16	B	16	B
basic		473	3	1636	1489	789						3914	3943	61	62	63						62	63	27	24	13						21	C	21	C	21	C
		3140	3	1601	1736	611						3948		62	62	64						63		26	28	10						21	C	21	C		
diverge		1491	3	1599	1509	839						3947	3947	63	63	63						63	63	26	24	13						21	C	21	C	21	C
basic		1568	2	1566	1526							3092	3092	58	59							59	59	27	26							27	D	27	D	27	D
basic	Spur Split to Democracy Blvd	2999	4	1084	755	935	824					3597	3597	58	59	59	59					59	59	19	13	16	14					16	B	16	B	16	B
weave		962	5	726	1028	1038	833	325				3950	3950	58	58	59	59	59				59	59	13	18	18	14	6				14	B	14	B	14	B
basic	Democracy Blvd	2456	4	875	1105	922	330					3232	3232	59	59	59	60					59	59	15	19	16	6					14	B	14	B	14	B
merge	Democracy Blvd to I-495	522	5	133	377	1371	1523	446				3950	3850	50	53	57	58	60				56	56	3	7	25	27	7				14	B	12	B	12	B
merge		937	4	31	1579	1542	682					3835	3835	55	55	57	59					57	57	1	29	27	12					17	B	19	B	19	B
basic		2520	3	1486	1495	881						3862	3862	55	57	58						57	57	27	27	15						23	C	23	C	23	C
basic	CD - I-370 interchange	1623	2	892	14							905	905	56	57							57	57	16	0							8	A	8	A	8	A
weave	CD - Btw I-370 & Shady Grove Rd	795	4	1030	842	1145	533					3549	3549	53	52	51	48					51	51	20	17	23	11					18	B	18	B	18	B
diverge		1609	3	713	1091	672						2476	2476	51	53	53						52	52	14	21	13						16	B	16	B	16	B
basic	CD - Shady Grove Rd interchange	702	2	860	781							1642	1642	53	54							53	53	16	15							16	B	16	B	16	B
merge		477	3	175	1138	959						2273	2273	47	52	53						51	51	4	22	18						15	B	15	B	15	B
basic		800	2	1212	1065							2277	2277	52	53							53	53	23	20							22	C	22	C	22	C
merge	CD - Btw Shady Grove Rd & MD 28	707	3	113	1402	1289						2804	2804	49	52	53						51	51	2	27	25						18	B	18	B	18	B
basic		1081	2	1274	1519							2792	2792	53	52							52	52	25	30							27	D	27	D	27	D
merge		609	3	1414	1094	600						3108	3108	53	53	54						53	53	27	21	11						20	C	20	C	20	C
diverge		1506	3	1482	993	635						3110	3110	53	54	54						53	53	29	19	12						20	C	20	C	20	C
diverge		2914	2	1413	1069							2482	2482	53	53							53	53	27	20							24	C	24	C	24	C
basic		170	2	1363	866							2229	2229	52	53							53	53	27	16							21	C	21	C	21	C
diverge		291	3	410	971	883						2263	2263	46	52	54						51	51	9	19	17						15	B	15	B	15	B
basic	CD - MD 28 interchange	926	2	762	855							1617	1617	54	54							54	54	14	16							15	B	15	B	15	B
merge		231	3	117	861	883						1862	1862	29	50	53						44	44	4	18	17						13	B	13	B	13	B
basic		1111	2	886	1000							1886	1886	53	53							53	53	17	19							18	C	18	C	18	C
merge	CD - Btw MD 28 & MD 189	577	3	936	1000	1016						2952	2952	52	53	53						52	52	18	19	19						19	B	19	B	19	B
basic		1056	3	909	1008	1047						2964	2964	53	53	53						53	53	17	19	20						19	C	19	C	19	C
merge		610	4	624	1460	1480	260					3825	3825	54	53	53	53					53	53	12	28	29	5					18	B	21	C	21	C
basic		838	3	729	1508	1572						3808	3808	53	52	52						52	52	14	29	31						25	C	25	C	25	C
diverge		350	3	763	1514	1556						3833	3833	53	52	52						52	52	15	30	30						25	C	25	C	25	C
basic	CD - MD 189 interchange	816	2	1502	1558							3060	3061	53	53							53	53	29	30							29	D	29	D	29	D
		1802	2	1507	1554							3061		53	53							53		29	30							29	D	29	D		
merge	CD - Btw MD 189 & Montrose Rd	465	3	1077	1299	1222						3599	3599	52	53	53						53	53	21	25	23						23	C	23	C	23	C
diverge		2184	3	1529	896	1187						3611	3611	52	53	52						52	52	30	17	23						23	C	23	C	23	C
basic		775	2	1456	653							2109	2109	52	54							53	53	28	12							20	C	20	C	20	C
diverge		235	3	219	1243	663						2125	2125	48	51	54						51	51	5	25	12						14	B	14	B	14	B
basic	CD - Montrose Rd interchange	1196	2	1103	652							1755	1755	53	54							54	54	21	12							17	B	17	B	17	B
weave		422	3	861	962	761						2584	2584	35	43	49						43	43	25	23	16						21	B	21	B	21	B
basic		1029	2	752	906							1658	1658	51	52							52	52	15	18							16	B	16	B	16	B
merge		415	3	127	965	973						2066	2066	51	53	53						52	52	3	19	19						13	B	13	B	13	B
basic		1431	2	1030	1027							2057	2057	53	53							53	53	20	20							20	C	20	C	20	C

I-270 Southbound - 2045 No-Build - 4-5 PM

VISSIM Lookup Data				Volume										Speed										Density											
				Volume Per Lane								Across All Lanes	Overall Volume	Speed Per Lane								Across All Lanes	Overall Speed	Density Per Lane								Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)								Total Volume	Average Volume (veh/hr)	Speed (mph)								Average Speed	Average Speed (mph)	Combined Density (pc/phpl)								Average Density	LOS	Average Density	LOS	Average Density (pc/phpl)	LOS
basic	Through MD 117 interchange	658	4	1282	1568	1388	1153					5390	5423	62	62	63	63					62	63	21	26	22	19					22	C	22	C	22	C
		3062	4	1276	1537	1412	1205					5431		63	63	63	63					63		21	25	23	19					22	C	22	C		
merge	Btw MD 117 & I-370	1569	5	1168	1999	1757	1286	850				7060	7060	55	56	60	62	63				59	59	21	36	30	21	14				24	C	29	D	29	D
basic		1151	5	1484	2041	1500	1157	892				7073	7046	61	60	62	63	64				62	62	25	34	25	19	14				23	C	23	C	23	C
		431	5	1536	1987	1501	1048	899				6971		62	60	61	63	64				62		25	34	25	17	14				23	C	23	C		
diverge		1058	6	1520	891	1198	1456	1067	935			7067	7067	62	63	62	63	63	64			63	63	25	14	19	24	17	15			19	B	21	C	21	C
basic	I-370 interchange	1258	4	1453	1205	1061	949					4668	4667	63	63	64	64					63	63	24	19	17	15					19	C	19	C	19	C
		193	4	1554	1105	1051	951					4661		62	63	64	64					63		25	18	17	15					19	C	19	C		
diverge		1263	5	626	967	1066	1051	954				4664	4664	63	63	63	64	64				64	64	10	16	17	17	15				15	B	15	B	15	B
basic		3427	4	943	1142	1018	817					3921	3921	63	63	64	64					64	64	15	18	16	13					16	B	16	B	16	B
merge	Shady Grove Rd interchange	1046	5	262	1336	1557	887	793				4835	4835	54	57	62	64	64				60	60	5	24	25	14	13				16	B	18	B	18	B
basic		420	4	1630	1397	998	808					4833	4833	56	61	63	64					61	61	30	23	16	13					21	C	21	C	21	C
		497	4	1663	1282	1052	835					4832		55	61	63	63					61		31	21	17	13					21	C	21	C		
diverge		1518	4	1599	1224	1120	889					4831	4831	55	61	63	64					61	61	30	20	18	14					21	C	23	C	23	C
basic	Btw Shady Grove Rd & MD 28	3645	4	851	1104	1207	974					4136	4136	55	61	63	64					61	61	16	18	19	16					17	B	17	B	17	B
merge		473	5	219	1133	1207	1256	986				4800	4800	58	56	60	63	64				60	60	4	21	20	20	16				16	B	15	B	15	B
basic		1022	4	1161	1332	1403	903					4799	4797	55	59	62	63					60	60	21	23	23	14					20	C	20	C	20	C
		1591	4	1178	1323	1319	975					4795		56	59	63	63					60		21	23	21	16					20	C	20	C		
merge	MD 28 interchange	655	5	69	1304	1469	1182	1006				5030	5030	60	57	59	63	64				61	61	1	23	25	19	16				17	B	17	B	17	B
basic		921	4	1389	1360	1245	1037					5031	5031	55	58	62	63					60	60	25	24	20	17					21	C	21	C	21	C
diverge		1515	4	1506	1106	1319	1106					5036	5036	55	58	62	63					60	60	28	19	21	18					22	C	23	C	23	C
basic	MD 189 interchange	3237	4	741	907	1292	1416					4355	4357	56	59	62	61					60	59	14	16	21	23					18	C	18	C	19	C
		1874	4	739	891	1365	1367					4363		56	59	62	61					59		14	15	22	23					19	C	19	C		
		3407	4	734	881	1406	1334					4356		56	58	62	60					59		14	15	23	22					19	C	19	C		
merge	Montrose Rd interchange	598	5	1419	780	876	1427	1312				5814	5814	62	57	59	63	61				60	60	23	14	15	23	22				19	B	17	B	17	B
basic	Btw Montrose Rd & Spur Split	882	5	1396	793	885	1447	1316				5838	5844	63	57	59	62	60				60	60	23	14	15	24	22				20	C	20	C	20	C
		303	5	1397	798	885	1462	1312				5853		63	57	59	62	60				60		23	14	15	24	22				20	C	20	C		
		3023	5	1403	789	882	1478	1293				5844		63	57	59	62	60				60		23	14	15	24	22				20	C	20	C		
weave		3707	7	639	652	1358	1496	1643	1395	994		8178	8168	59	60	60	58	58	61	59		59	59	11	11	23	26	29	23	17		20	C	20	C	20	C
		722	7	640	782	1254	1658	1302	1348	1136		8118		59	61	60	58	58	60	59		59		11	13	21	29	23	23	19		20	C	20	C		
diverge		400	8	672	859	1282	1562	1449	1291	742	297	8152	8152	59	61	61	58	59	60	62	59	60	60	11	14	21	27	25	22	12	5	17	B	13	B	13	B
weave		334	7	686	884	1272	1514	1537	1228	544		7664	7664	59	61	61	58	58	60	63		60	60	12	15	21	27	27	21	9		19	B	19	B	19	B
basic	Spur Split through MD 187 interchange	965	4	582	1524	1265	470					3840	3840	59	58	59	61					59	59	10	27	22	8					17	B	17	B	17	B
diverge		1138	4	615	1469	1239	516					3839	3839	59	58	59	60					59	59	11	26	21	9					17	B	17	B	17	B
basic		2602	3	1235	1199	577						3011	3011	58	58	60						59	59	22	21	10						17	B	17	B	17	B
merge		443	4	178	1339	1384	627					3528	3528	40	52	55	55					50	50	5	27	26	12					17	B	19	B	19	B
basic		947	3	1315	1405	796						3516	3516	52	53	53						53	53	27	28	16						24	C	24	C	24	C
merge	Btw MD 187 & I-495	1023	4	291	1112	1364	1108					3874	3874	31	41	45	46					41	41	18	34	35	28					29	D	29	D	29	D
basic		473	3	1509	1364	918						3791	3731	35	34	37						35	25	49	46	30						42	E	42	E	61	F
		3140	3	1412	1505	804						3721		18	20	33						24		83	82	26						64	F	64	F		
diverge		1491	3	1341	1388	856						3585	3585	12	13	35						20	20	114	108	26						83	F	83	F	83	F
basic		1568	2	1288	1454							2743	2743	12	15							14	14	110	97							104	F	104	F	104	F
basic	Spur Split to Democracy Blvd	2999	4	1245	831	981	835					3892	3892	58	59	59	59					59	59	22	14	17	14					17	B	17	B	17	B
weave		962	5	888	1103	1093	840	324				4248	4248	58	58	58	59	60				59	59	16	19	19	14	5				15	B	15	B	15	B
basic	Democracy Blvd	2456	4	933	1159	933	343					3368	3368	59	59	59	61					59	59	16	20	16	6					15	B	15	B	15	B
merge	Democracy Blvd to I-495	522	5	141	406	1456	1560	467				4030	4030	49	52	56	58	61				55	55	3	8	26	27	8				14	B	12	B	12	B
merge		937	4	35	1663	1587	726					4011	4011	54	55	57	59					56	56	1	31	28	12					18	B	20	C	20	C
basic		2520	3	1551	1527	960						4038	4038	51	53	52						52	52	31	29	19						26	D	26	D	26	D
basic	CD - I-370 interchange	1623	2	747	7							754	754	56	57							56	56	13	0							7	A	7	A	7	A
weave	CD - Btw I-370 & Shady Grove Rd	795	4	895	735	977	459					3066	3066	53	52	52	50					52	52	17	14	19	9					15	B	15	B	15	B
diverge		1609	3	652	940	578						2170	2170	52	53	54						53	53	13	18	11						14	B	14	B	14	B
basic	CD - Shady Grove Rd interchange	702	2	712	666							1379	1379	53	54							54	54	14	13							13	B	13	B	13	B
merge		477	3	145	989	794						1928	1928	47	52	53						51	51	3	19	15						13	B	13	B	13	B
basic		800	2	1045	889							1934	1934	53	53							53	53	20	17							19	C	19	C	19	C
merge	CD - Btw Shady Grove Rd & MD 28	707	3	123	1280	1135						2538	2538	48	52	53						51	51	3	25	22						17	B	17	B	17	B
basic		1081	2	1146	1393							2540	2540	53	52							52	52	22	27							25	C	25	C	25	C
merge		609	3	1359	1176	709						3244	3244	53	53	53						53	53	26	22	14						21	C	21	C	21	C
diverge		1506	3	1485	1102	658						3245	3245	52	53	54						53	53	29	21	12						21	C	21	C	21	C
diverge		2914	2	1409	1190							2599	2599	53	53							53	53	27	23							25	C	25	C	25	C
basic		170	2	1357	983							2341	2341	52	53							53	53	27	19							23	C	23	C	23	C
diverge		291	3	384	989	1003						2376	2376	46	52	53						51	51	9	19	19						16	B	16	B	16	B
basic	CD - MD 28 interchange	926	2	797	976							1773	1773	54	53							54	54	15	19							17	B	17	B	17	B
merge		231	3	85	862	997						1943	1943	31	51	53						45	45	3	17	19						13	B	13	B	13	B
basic		1111	2	890	1079							1969	1969	53	53							53	53	17	21							19	C	19	C	19	C
merge	CD - Btw MD 28 & MD 189	577	3	987	1032	1092						3112	3112	51	52	53						52	52	20	20	21						20	C	20	C	20	C
basic		1056	3	958	1047	1126						3132	3132	53	53	53						53	53	18	20	21						20	C	20	C	20	C
merge		610	4	660	1475	1451	217					3803	3803	53	52	53	53					53	53	13	29	28	4					18	B	20	C	20	C
basic		838	3	738	1512	1538						3789	3789	53	52	52						52	52	14	30	30						25	C	25	C	25	C
diverge		350	3	771	1507	1536						3815	3815	53	52	53						53	53	15	29	30						25	C	25	C	25	C
basic	CD - MD 189 interchange	816	2	1495	1538							3033	3032	53	53							53	53	29	29							29	D	29	D	29	D
		1802	2	1491	1541							3032		53	53							53		28	29							29	D	29	D		
merge	CD - Btw MD 189 & Montrose Rd	465	3	1102	1293	1225						3620	3620	52	53	53						53	53	22	25	23						23	C	23	C	23	C
diverge		2184	3	1527	909	1197						3633	3633	52	53	52						52	52	30	17	23						24	C	24	C	24	C
basic		775	2	1461	665							2126	2126	52	54							53	53	28	13							21	C	21	C	21	C
diverge		235	3	222	1245	673						2140	2140	48	51	54						51	51	5	25	13						14	B	14	B	14	B
basic	CD - Montrose Rd interchange	1196	2	1105	661							1766	1766	53	54							53	53	21	13							17	B	17	B	17	B
weave		422	3	854	999	789						2642	2642	35	42	48						42	42	25	24	17						22	B	22	B	22	B
basic		1029	2	788	958							1746	1746	51	51							51	51	16	19							17	B	17	B	17	B
merge		415	3	180	1091	1049						2320	2320	50	53	53						52	52	4	21	20						15	B	15	B	15	B
basic		1431	2	1177	1132							2309	2309	53	53							53	53	23	22							22	C	22	C	22	C

I-270 Southbound - 2045 No-Build - 5-6 PM

VISSIM Lookup Data				Volume										Speed										Density											
				Volume Per Lane								Across All Lanes	Overall Volume	Speed Per Lane								Across All Lanes	Overall Speed	Density Per Lane								Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)								Total Volume	Average Volume (veh/hr)	Speed (mph)								Average Speed	Average Speed (mph)	Combined Density (pc/phpl)								Average Density	LOS	Average Density	LOS	Average Density (pc/phpl)	LOS
basic	Through MD 117 interchange	658	4	1325	1613	1491	1241					5671	5703	61	61	62	63					62	63	22	27	24	20					23	C	23	C	23	C
		3062	4	1309	1589	1518	1293					5709		62	63	63	63					63		21	26	24	21					23	C	23	C		
merge	Btw MD 117 & I-370	1569	5	1244	2042	1827	1400	880				7393	7393	55	55	59	62	63				59	59	23	38	31	23	14				26	C	31	D	31	D
basic		1151	5	1595	2130	1571	1202	916				7415	7387	60	60	61	63	64				62	62	27	36	26	19	15				25	C	25	C	25	C
		431	5	1653	2107	1597	1035	922				7314		61	59	60	63	64				61		28	36	27	17	15				24	C	24	C		
diverge		1058	6	1616	918	1321	1551	1049	956			7411	7411	62	62	62	62	63	63			63	63	26	15	22	25	17	15			20	C	22	C	22	C
basic	I-370 interchange	1258	4	1667	1215	1039	963					4885	4884	62	63	64	64					63	63	27	20	17	15					20	C	20	C	20	C
		193	4	1808	1071	1032	963					4874		61	63	64	64					63		30	17	16	15					20	C	20	C		
diverge		1263	5	958	928	991	1027	967				4870	4870	63	63	63	64	64				63	63	16	15	16	16	15				16	B	16	B	16	B
basic		3427	4	846	1043	979	839					3708	3708	64	64	64	64					64	64	14	17	16	13					15	B	15	B	15	B
merge	Shady Grove Rd interchange	1046	5	244	1253	1414	857	815				4583	4583	54	57	63	64	64				60	60	5	22	23	14	13				15	B	17	B	17	B
basic		420	4	1529	1281	951	824					4585	4585	56	61	63	64					61	61	28	21	15	13					19	C	19	C	19	C
		497	4	1563	1179	1000	843					4585		56	61	63	63					61		28	20	16	14					19	C	19	C		
diverge		1518	4	1509	1125	1062	881					4578	4578	56	61	63	64					61	61	28	19	17	14					19	B	21	C	21	C
basic	Btw Shady Grove Rd & MD 28	3645	4	830	1014	1150	950					3943	3943	55	61	63	64					61	61	15	17	18	15					16	B	16	B	16	B
merge		473	5	182	1052	1143	1180	936				4493	4493	58	57	60	63	64				60	60	3	19	19	19	15				15	B	14	B	14	B
basic		1022	4	1095	1272	1348	775					4490	4481	56	59	62	64					60	61	20	22	22	12					19	C	19	C	19	C
		1591	4	1171	1302	1176	828					4476		57	60	63	64					61		21	22	19	13					19	C	19	C		
merge	MD 28 interchange	655	5	58	1319	1484	943	849				4652	4652	60	57	60	63	64				61	61	1	24	25	15	13				16	B	17	B	17	B
basic		921	4	1441	1334	992	882					4650	4650	56	59	63	64					60	60	26	23	16	14					20	C	20	C	20	C
diverge		1515	4	1641	999	1069	947					4656	4656	55	58	62	64					60	60	30	17	17	15					20	C	22	C	22	C
basic	MD 189 interchange	3237	4	623	786	1075	1239					3722	3721	56	59	62	61					60	59	11	13	18	20					16	B	16	B	16	B
		1874	4	616	763	1153	1191					3723		56	59	62	61					60		11	13	19	20					16	B	16	B		
		3407	4	616	760	1191	1151					3718		56	59	62	60					59		11	13	19	19					16	B	16	B		
merge	Montrose Rd interchange	598	5	1350	683	766	1198	1136				5132	5132	63	57	59	63	61				61	61	22	12	13	19	19				17	B	16	B	16	B
basic	Btw Montrose Rd & Spur Split	882	5	1315	709	776	1216	1137				5153	5155	63	58	59	62	60				61	61	21	13	13	20	19				17	B	17	B	17	B
		303	5	1310	719	775	1233	1130				5165		63	58	59	62	60				61		21	13	13	20	19				17	B	17	B		
		3023	5	1303	712	780	1244	1116				5155		63	58	59	62	60				61		21	13	13	20	19				17	B	17	B		
weave		3707	7	506	512	1196	1291	1431	1153	829		6918	6911	59	60	61	59	59	62	59		60	60	9	9	20	22	25	19	14		17	B	17	B	17	B
		722	7	504	628	1125	1563	1091	1098	869		6878		59	61	61	58	59	60	59		60		9	10	19	27	19	18	15		17	B	17	B		
diverge		400	8	531	704	1151	1489	1172	1069	539	256	6911	6911	60	61	61	59	59	61	62	59	60	60	9	12	19	26	20	18	9	4	15	B	10	B	10	B
weave		334	7	546	723	1149	1447	1247	1013	370		6496	6496	60	61	61	59	59	61	63		61	61	9	12	19	25	21	17	6		16	B	16	B	16	B
basic	Spur Split through MD 187 interchange	965	4	611	1246	1013	330					3199	3199	59	57	58	57					58	58	11	22	18	6					14	B	14	B	14	B
diverge		1138	4	654	1163	984	400					3201	3201	59	50	50	51					52	52	11	30	25	14					20	C	20	C	20	C
basic		2602	3	827	910	546						2283	2283	37	40	38						38	38	54	47	35						45	F	45	F	45	F
merge		443	4	183	763	976	737					2659	2659	18	25	28	30					25	25	74	94	82	67					79	F	83	F	83	F
basic		947	3	785	964	907						2656	2656	19	21	22						21	21	107	97	82						95	F	95	F	95	F
merge	Btw MD 187 & I-495	1023	4	432	586	930	1130					3079	3079	13	14	17	20					16	16	133	144	130	111					130	F	136	F	136	F
basic		473	3	1012	994	1077						3083	3115	16	16	20						17	12	131	131	98						120	F	120	F	124	F
		3140	3	1004	1027	1089						3120		7	7	19						11		152	152	68						124	F	124	F		
diverge		1491	3	1055	1108	994						3157	3157	7	8	20						11	11	157	151	51						120	F	120	F	120	F
basic		1568	2	1017	1255							2273	2273	8	11							9	9	137	118							128	F	128	F	128	F
basic	Spur Split to Democracy Blvd	2999	4	1132	672	828	723					3355	3355	58	60	59	59					59	59	20	11	14	13					15	B	15	B	15	B
weave		962	5	949	882	855	700	261				3647	3647	58	58	59	59	60				59	59	17	15	15	12	4				13	B	13	B	13	B
basic	Democracy Blvd	2456	4	733	923	767	267					2690	2690	59	59	59	60					59	59	13	16	13	4					12	B	12	B	12	B
merge	Democracy Blvd to I-495	522	5	121	328	1241	1235	341				3267	3267	50	53	57	58	61				56	56	2	6	22	22	6				12	B	10	B	10	B
merge		937	4	22	1436	1276	516					3250	3250	55	55	58	60					57	57	0	26	23	9					15	B	16	B	16	B
basic		2520	3	1333	1253	686						3271	3271	55	56	57						56	56	25	23	12						20	C	20	C	20	C
basic	CD - I-370 interchange	1623	2	1139	19							1158	1158	56	57							56	56	21	0							11	B	11	B	11	B
weave	CD - Btw I-370 & Shady Grove Rd	795	4	485	551	1242	414					2693	2693	52	50	50	47					50	50	9	11	25	9					14	B	14	B	14	B
diverge		1609	3	437	719	664						1820	1820	51	53	53						52	52	9	14	13						12	B	12	B	12	B
basic	CD - Shady Grove Rd interchange	702	2	504	699							1202	1202	54	54							54	54	9	13							11	B	11	B	11	B
merge		477	3	123	797	776						1696	1696	49	53	53						52	52	3	15	15						11	B	11	B	11	B
basic		800	2	853	847							1700	1700	53	53							53	53	16	16							16	B	16	B	16	B
merge	CD - Btw Shady Grove Rd & MD 28	707	3	54	984	936						1974	1974	50	53	53						52	52	1	19	18						13	B	13	B	13	B
basic		1081	2	835	1134							1969	1969	53	53							53	53	16	22							19	C	19	C	19	C
merge		609	3	1019	979	595						2593	2593	53	53	54						53	53	19	19	11						16	B	16	B	16	B
diverge		1506	3	1150	897	545						2592	2592	53	54	54						53	53	22	17	10						16	B	16	B	16	B
diverge		2914	2	1092	957							2049	2049	53	53							53	53	21	18							20	C	20	C	20	C
basic		170	2	1045	790							1835	1835	52	53							53	53	20	15							18	C	18	C	18	C
diverge		291	3	304	755	803						1861	1861	46	53	53						51	51	7	15	15						12	B	12	B	12	B
basic	CD - MD 28 interchange	926	2	600	781							1382	1382	54	54							54	54	11	15							13	B	13	B	13	B
merge		231	3	55	661	782						1499	1499	32	52	53						46	46	2	13	15						10	B	10	B	10	B
basic		1111	2	681	836							1517	1517	53	53							53	53	13	16							14	B	14	B	14	B
merge	CD - Btw MD 28 & MD 189	577	3	1072	866	870						2808	2808	51	52	53						52	52	21	17	17						18	B	18	B	18	B
basic		1056	3	1014	896	912						2821	2821	53	54	53						53	53	19	17	17						18	C	18	C	18	C
merge		610	4	646	1428	1407	268					3748	3748	53	53	53	53					53	53	12	27	27	5					18	B	20	C	20	C
basic		838	3	771	1476	1487						3733	3733	53	52	52						52	52	15	29	29						24	C	24	C	24	C
diverge		350	3	810	1459	1484						3754	3754	53	52	52						52	52	16	29	29						24	C	24	C	24	C
basic	CD - MD 189 interchange	816	2	1445	1484							2928	2925	53	53							53	53	28	29							28	D	28	D	28	D
		1802	2	1443	1481							2924		53	53							53		28	28							28	D	28	D		
merge	CD - Btw MD 189 & Montrose Rd	465	3	1065	1233	1154						3453	3453	52	53	53						53	53	21	24	22						22	C	22	C	22	C
diverge		2184	3	1495	839	1133						3467	3467	52	53	52						52	52	29	16	22						22	C	22	C	22	C
basic		775	2	1430	591							2021	2021	52	54							53	53	28	11							20	C	20	C	20	C
diverge		235	3	209	1224	598						2032	2032	48	51	54						51	51	5	24	11						13	B	13	B	13	B
basic	CD - Montrose Rd interchange	1196	2	1094	587							1681	1681	53	54							53	53	21	11							16	B	16	B	16	B
weave		422	3	773	691	627						2091	2091	41	47	52						47	47	19	15	12						16	B	16	B	16	B
basic		1029	2	475	689							1164	1164	52	53							52	52	9	13							11	B	11	B	11	B
merge		415	3	172	816	754						1742	1742	51	53	53						53	53	3	16	14						11	B	11	B	11	B
basic		1431	2	904	830							1734	1734	53	54							53	53	17	16							17	B	17	B	17	B

I-270 Southbound - 2045 No-Build - 6-7 PM

VISSIM Lookup Data				Volume										Speed										Density									
				Volume Per Lane								Across All Lanes	Overall Volume	Speed Per Lane								Across All Lanes	Overall Speed	Density Per Lane								Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)								Total Volume	Average Volume (veh/hr)	Speed (mph)								Average Speed	Average Speed (mph)	Combined Density (pc/phpl)								Average Density	LOS	Average Density	LOS	Average Density (pc/phpl)	LOS
basic	Through MD 117 interchange	658	4	1325	1628	1480	1221					5654	5698	61	62	63	63					62	63	22	27	24	20					23	C	23	C	23	C
		3062	4	1316	1612	1503	1277					5708		63	63	63	63					63		21	26	24	21					23	C	23	C		
merge	Btw MD 117 & I-370	1569	5	976	1981	1778	1370	907				7013	7013	57	58	61	63	64				60	60	17	35	30	22	14				24	C	27	C	27	C
basic		1151	5	1297	2065	1569	1192	914				7037	7013	62	61	62	63	64				62	62	21	34	26	19	15				23	C	23	C	23	C
		431	5	1363	2015	1607	1050	913				6948		62	60	60	63	64				62		22	34	27	17	15				23	C	23	C		
diverge		1058	6	1349	722	1382	1570	1078	940			7042	7042	63	63	62	62	63	63			63	63	22	12	23	26	17	15			19	B	20	C	20	C
basic	I-370 interchange	1258	4	1684	1280	1075	948					4987	4986	62	63	64	64					63	63	27	21	17	15					20	C	20	C	20	C
		193	4	1813	1152	1065	950					4980		62	63	64	64					63		30	18	17	15					20	C	20	C		
diverge		1263	5	831	1044	1087	1068	951				4980	4980	63	63	63	64	64				63	63	13	17	17	17	15				16	B	16	B	16	B
basic		3427	4	960	1118	1036	853					3968	3968	63	64	64	64					64	64	15	18	17	14					16	B	16	B	16	B
merge	Shady Grove Rd interchange	1046	5	386	1522	1617	984	841				5350	5350	53	55	62	64	64				59	59	7	28	27	16	13				18	B	21	C	21	C
basic		420	4	1748	1565	1156	883					5352	5352	53	60	63	63					60	60	33	27	19	14					23	C	23	C	23	C
		497	4	1725	1455	1226	946					5352		54	59	62	63					60		33	25	20	15					23	C	23	C		
diverge		1518	4	1658	1358	1308	1022					5346	5346	54	59	63	63					60	60	31	23	21	16					23	C	25	C	25	C
basic	Btw Shady Grove Rd & MD 28	3645	4	1090	1166	1402	1155					4813	4813	54	59	62	63					60	60	21	20	23	19					20	C	20	C	20	C
merge		473	5	260	1343	1321	1440	1182				5545	5545	57	56	58	63	64				59	59	5	25	23	23	19				19	B	18	B	18	B
basic		1022	4	1399	1458	1607	1078					5543	5534	54	56	61	63					59	59	26	26	27	17					24	C	24	C	24	C
		1591	4	1422	1462	1480	1164					5528		55	57	62	63					59		26	26	24	19					24	C	24	C		
merge	MD 28 interchange	655	5	91	1555	1647	1284	1203				5780	5780	59	55	57	62	64				60	60	2	29	29	21	19				20	C	20	C	20	C
basic		921	4	1649	1528	1338	1254					5768	5768	54	56	61	63					58	58	31	28	22	20					25	C	25	C	25	C
diverge		1515	4	1765	1252	1402	1346					5765	5765	54	56	61	63					58	58	33	23	23	22					25	C	26	C	26	C
basic	MD 189 interchange	3237	4	874	1032	1388	1641					4935	4922	56	57	61	60					58	58	16	18	23	28					21	C	21	C	21	C
		1874	4	893	1041	1449	1550					4933		55	57	61	59					58		17	19	24	26					21	C	21	C		
		3407	4	906	1029	1472	1496					4903		55	57	61	59					58		17	19	25	26					21	C	21	C		
merge	Montrose Rd interchange	598	5	1506	954	1026	1481	1460				6427	6427	62	57	57	62	60				59	59	25	17	18	24	25				22	C	20	C	20	C
basic	Btw Montrose Rd & Spur Split	882	5	1498	965	1032	1489	1461				6445	6430	63	57	57	61	59				59	59	24	17	18	25	25				22	C	22	C	22	C
		303	5	1512	959	1035	1501	1449				6457		63	57	57	61	59				59		24	17	18	25	25				22	C	22	C		
		3023	5	1529	949	1024	1500	1422				6423		63	57	57	61	58				59		25	17	18	25	25				22	C	22	C		
weave		3707	7	467	579	1380	1498	1647	1451	1121		8142	8130	59	60	60	57	56	60	58		59	59	8	10	23	27	30	25	19		20	C	20	C	20	C
		722	7	507	751	1194	1563	1356	1441	1259		8070		60	61	60	57	58	58	58		59		9	13	20	28	24	25	22		20	C	20	C		
diverge		400	8	548	818	1209	1458	1532	1367	813	353	8097	8097	60	61	61	58	58	59	61	58	59	59	9	14	20	26	27	23	14	6	17	B	14	B	14	B
weave		334	7	568	831	1206	1410	1617	1292	606		7529	7529	60	61	61	58	58	59	62		60	60	10	14	20	25	28	22	10		18	B	18	B	18	B
basic	Spur Split through MD 187 interchange	965	4	516	1591	1323	538					3968	3968	59	58	59	60					59	59	9	28	23	9					17	B	17	B	17	B
diverge		1138	4	563	1509	1288	601					3962	3962	59	54	55	54					55	55	10	29	24	12					19	B	19	B	19	B
basic		2602	3	1231	1226	741						3198	3198	48	49	50						49	49	41	38	26						35	E	35	E	35	E
merge		443	4	121	1237	1299	824					3481	3481	35	46	48	50					45	45	15	52	47	34					37	E	38	E	38	E
basic		947	3	1252	1284	946						3481	3481	40	41	42						41	41	56	54	43						51	F	51	F	51	F
merge	Btw MD 187 & I-495	1023	4	320	907	1247	1174					3649	3649	30	35	38	39					36	36	61	76	69	57					66	F	68	F	68	F
basic		473	3	1368	1271	1013						3651	3731	33	32	36						34	29	76	74	51						67	F	67	F	71	F
		3140	3	1384	1443	916						3743		24	25	35						28		89	89	35						71	F	71	F		
diverge		1491	3	1456	1408	944						3809	3809	19	19	37						25	25	95	92	30						72	F	72	F	72	F
basic		1568	2	1458	1518							2975	2975	19	22							21	21	83	76							80	F	80	F	80	F
basic	Spur Split to Democracy Blvd	2999	4	1070	779	943	817					3609	3609	58	59	59	59					59	59	19	13	16	14					16	B	16	B	16	B
weave		962	5	758	1012	1042	853	355				4019	4019	58	58	58	59	59				58	58	13	18	18	15	6				14	B	14	B	14	B
basic	Democracy Blvd	2456	4	862	1108	952	347					3269	3269	59	59	59	59					59	59	15	19	16	6					14	B	14	B	14	B
merge	Democracy Blvd to I-495	522	5	65	226	1413	1404	446				3555	3555	51	54	57	58	60				56	56	1	4	25	25	8				13	B	10	B	10	B
merge		937	4	28	1501	1400	608					3537	3537	57	56	58	59					58	58	1	27	25	10					16	B	17	B	17	B
basic		2520	3	1445	1370	741						3555	3555	57	58	59						58	58	26	24	13						21	C	21	C	21	C
basic	CD - I-370 interchange	1623	2	998	14							1012	1012	56	57							57	57	18	0							9	A	9	A	9	A
weave	CD - Btw I-370 & Shady Grove Rd	795	4	1062	830	1265	680					3838	3838	51	47	47	39					46	46	21	18	28	18					21	B	21	B	21	B
diverge		1609	3	693	1078	689						2460	2460	51	52	53						52	52	14	21	13						16	B	16	B	16	B
basic	CD - Shady Grove Rd interchange	702	2	887	785							1673	1673	53	54							53	53	17	15							16	B	16	B	16	B
merge		477	3	213	1226	1011						2450	2450	46	52	53						50	50	5	24	19						16	B	16	B	16	B
basic		800	2	1299	1153							2451	2451	52	53							52	52	25	22							24	C	24	C	24	C
merge	CD - Btw Shady Grove Rd & MD 28	707	3	184	1553	1509						3247	3247	46	50	51						49	49	4	32	30						22	C	22	C	22	C
basic		1081	2	1475	1757							3232	3232	51	50							50	50	30	36							33	D	33	D	33	D
merge		609	3	1678	1334	745						3757	3757	52	53	53						53	53	33	26	14						24	C	24	C	24	C
diverge		1506	3	1742	1273	738						3752	3752	52	53	53						53	53	34	24	14						24	C	24	C	24	C
diverge		2914	2	1643	1367							3010	3010	53	53							53	53	32	26							29	D	29	D	29	D
basic		170	2	1578	1123							2701	2701	52	53							53	53	31	21							26	D	26	D	26	D
diverge		291	3	447	1149	1146						2741	2741	46	52	53						51	51	10	22	22						18	B	18	B	18	B
basic	CD - MD 28 interchange	926	2	928	1109							2037	2037	54	53							53	53	18	21							19	C	19	C	19	C
merge		231	3	112	999	1137						2247	2247	28	50	53						44	44	4	20	22						15	B	15	B	15	B
basic		1111	2	1040	1234							2274	2274	52	53							52	52	20	24							22	C	22	C	22	C
merge	CD - Btw MD 28 & MD 189	577	3	1026	1166	1241						3433	3433	51	52	53						52	52	21	23	24						22	C	22	C	22	C
basic		1056	3	999	1176	1271						3446	3446	53	53	53						53	53	19	22	24						22	C	22	C	22	C
merge		610	4	731	1636	1622	269					4258	4258	53	52	52	52					52	52	14	32	32	5					21	C	23	C	23	C
basic		838	3	850	1676	1711						4237	4237	53	51	51						52	52	16	33	34						28	D	28	D	28	D
diverge		350	3	894	1669	1699						4262	4262	52	51	52						52	52	17	33	33						28	D	28	D	28	D
basic	CD - MD 189 interchange	816	2	1657	1697							3355	3352	53	53							53	53	32	33							32	D	32	D	32	D
		1802	2	1658	1693							3351		53	53							53		32	32							32	D	32	D		
merge	CD - Btw MD 189 & Montrose Rd	465	3	1182	1435	1350						3967	3967	51	53	53						52	52	24	28	26						26	C	26	C	26	C
diverge		2184	3	1661	1038	1276						3975	3975	51	53	52						52	52	33	20	25						26	C	26	C	26	C
basic		775	2	1604	782							2386	2386	52	53							53	53	31	15							23	C	23	C	23	C
diverge		235	3	260	1347	796						2403	2403	48	51	53						51	51	6	27	15						16	B	16	B	16	B
basic	CD - Montrose Rd interchange	1196	2	1186	778							1964	1964	53	54							53	53	23	15							19	C	19	C	19	C
weave		422	3	762	717	812						2291	2291	42	48	52						47	47	18	15	16						17	B	17	B	17	B
basic		1029	2	511	839							1351	1351	52	53							53	53	10	16							13	B	13	B	13	B
merge		415	3	114	732	887						1733	1733	50	53	53						52	52	2	14	17						11	B	11	B	11	B
basic		1431	2	797	926							1723	1723	53	53							53	53	15	18							16	B	16	B	16	B

I-270 Northbound - 2045 No-Build - 3-4 PM

VISSIM Lookup Data				Volume									Speed									Density									
				Volume Per Lane							Across All Lanes	Overall Volume	Speed Per Lane							Across All Lanes	Overall Speed	Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)							Total Volume	Average Volume (veh/hr)	Speed (mph)							Average Speed	Average Speed (mph)	Combined Density (pcphpl)							Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Btw Watkins Mill Rd & MD 117	7479	4	1220	1336	1464	2039				6059	6059	11	13	16	46				22	22	111	102	92	44				87	F	87	F	87	F
diverge	Btw MD 117 & I-370	1357	5	1527	1377	1448	1456	1943			7751	7751	39	17	18	19	48			28	28	40	85	84	78	40			65	F	69	F	69	F
basic		843	5	1328	1554	1560	1450	1909			7800	7800	27	23	24	25	46			29	29	50	71	68	61	42			58	F	58	F	58	F
merge		531	6	221	1156	1753	1391	1380	1880		7782	7782	12	15	20	24	30	47		25	25	20	80	92	60	49	40		57	F	63	F	63	F
basic	I-370 interchange	3610	4	1526	1458	1321	1852				6158	6194	23	27	34	50				34	35	73	58	40	37				52	F	52	F	50	F
		633	4	1342	1518	1557	1802				6220		30	32	35	49				37		50	52	47	37				47	F	47	F		
		1171	4	1345	1548	1552	1844				6290		35	36	39	47				39		44	47	43	39				43	E	43	E		
merge		337	5	0	1347	1547	1559	1878			6332	6332	0	39	40	42	47			33	33	0	40	44	41	41			33	D	28	D	28	D
basic	Shady Grove Rd interchange	3947	4	1341	1597	1580	1888				6406	6406	46	46	48	49				47	47	31	36	34	39				35	E	35	E	35	E
weave	Btw Shady Grove Rd & MD 28	1523	5	1136	2135	1678	1599	1902			8450	8452	54	53	53	53	53			53	53	21	41	32	30	36			32	D	32	D	32	D
		1475	5	1043	2235	1695	1578	1900			8451		54	51	52	53	53			53		20	44	33	30	36			33	D	33	D		
		1482	5	835	2028	2298	1395	1898			8453		54	52	52	54	53			53		16	40	45	26	36			32	D	32	D		
basic	MD 28 interchange	3696	4	1951	1904	1460	1901				7217	7218	51	51	53	52				52	52	39	38	28	37				35	E	35	E	35	E
		464	4	1746	1793	1716	1969				7224		53	53	53	53				53		34	34	33	38				35	E	35	E		
weave		1405	5	873	1735	1742	1686	2006			8042	8043	53	52	52	53	53			53	53	17	34	34	32	38			31	D	31	D	31	D
		640	5	1043	1717	1688	1591	2006			8044		53	53	53	53	53			53		20	33	32	30	38			31	D	31	D		
basic	Btw MD 28 & MD 189	531	4	1570	1436	1598	2022				6626	6623	53	53	53	53				53	52	30	27	31	38				32	D	32	D	32	D
		1407	4	1527	1431	1640	2026				6622		50	51	51	52				51		31	28	32	39				33	D	33	D		
diverge	Btw MD 189 & Montrose Rd	1536	4	2337	1681	1634	1959				7611	7611	33	34	41	50				40	40	72	51	41	39				51	F	55	F	55	F
basic		74	4	2496	1761	1379	1887				7524	7612	39	43	49	52				46	52	66	42	29	36				43	E	43	E	37	E
		1921	4	2307	2150	1273	1885				7615		48	50	52	52				50		50	44	25	36				39	E	39	E		
		3344	4	2191	2069	1458	1894				7612		52	52	53	53				53		43	40	28	36				37	E	37	E		
diverge	Montrose Rd interchange	1486	5	1496	2024	1847	1148	1915			8431	8431	48	51	52	53	53			51	51	32	40	36	22	36			33	D	36	E	36	E
basic		425	5	2150	1795	1475	1064	1921			8405	8410	53	53	54	54	53			54	52	41	34	28	20	36			32	D	32	D	33	D
		2955	5	2205	1808	1443	1074	1881			8410		51	53	53	54	51			52		44	35	27	20	37			33	D	33	D		
weave	Btw Montrose Rd & Spur Split	1533	7	1378	1481	1970	1880	1586	1687	1300	11281	11281	53	53	52	52	53	53	53	53	52	26	29	39	36	30	32	25	31	D	31	D	32	D
		1210	7	1272	1794	2102	1793	1385	1654	1285	11285		53	52	51	52	53	53	53	52		25	35	42	35	26	31	24	31	D	31	D		
		1521	7	1143	2285	2271	1451	1239	1652	1239	11278		51	45	47	52	53	53	53	50		23	51	49	29	24	31	23	33	D	33	D		
weave		447	6	1410	2250	2084	1384	1276	1675		10079	10079	51	47	49	52	53	53		51	51	28	49	44	27	25	31		34	D	34	D	34	D
basic	Btw Spur Split & MD 187	1229	2	2014	2044						4058	4058	42	41						41	41	49	50						50	F	50	F	50	F
merge		736	3	35	1970	2058					4063	4055	36	33	33					34	36	1	62	65					43	F	43	F	40	E
		519	3	130	1833	2081					4044		40	40	40					40		4	49	56					36	E	36	E		
weave		624	5	82	703	1395	1886	1122			5188	5188	36	36	46	49	59			45	45	2	20	33	42	19			23	C	23	C	23	C
basic	MD 187 interchange	511	3	1288	1350	1117					3756	3765	54	54	58					55	57	25	26	19					24	C	24	C	22	C
		1863	3	1280	1367	1120					3767		58	58	58					58		23	24	19					22	C	22	C		
diverge		520	4	149	1304	1389	1118				3960	3960	58	59	59	59				58	58	3	23	24	19				17	B	16	B	16	B
basic		797	3	1418	1408	1111					3938	3938	57	57	57					57	57	25	25	20					23	C	23	C	23	C
diverge	Btw MD 187 & I-495	674	4	359	1473	1445	1116				4394	4394	59	58	58	58				58	58	6	26	25	19				19	B	19	B	19	B
basic		824	3	1810	1459	1114					4383	4403	58	58	58					58	57	32	26	19					26	D	26	D	26	D
		3315	3	1844	1450	1115					4408		57	58	58					58		33	25	19					26	D	26	D		
		1136	3	1778	1601	1025					4404		56	56	58					57		33	29	18					26	D	26	D		
merge		429	4	438	1693	1307	957				4395	4395	51	56	57	59				56	56	9	31	23	16				20	C	21	C	21	C
basic		386	3	1323	1150	649					3122	3122	58	59	59					59	59	23	20	11					18	C	18	C	18	C
basic		500	2	1321	1805						3126	3126	56	56						56	56	24	33						28	D	28	D	28	D
basic	Btw Democracy Blvd & I-495	2479	3	2003	1886	1099					4988	4988	50	51	54					52	52	41	37	20					33	D	33	D	33	D
diverge	CD - Btw MD 124 & MD 117	2235	2	963	1513						2476	2476	49	44						46	46	20	35						27	C	27	C	27	C
weave	CD - Btw MD 117 & I-370	600	3	989	1339	1471					3799	3799	38	38	36					38	38	26	36	41					34	D	34	D	34	D
basic		4137	2	815	1458						2273	2273	53	51						52	52	16	29						22	C	22	C	22	C
weave		1981	3	1177	1697	1231					4104	4104	32	28	22					27	27	40	66	63					56	F	56	F	56	F
basic	CD - I-370 interchange	1052	2	1313	1364						2677	2677	29	32						30	30	54	50						52	F	52	F	52	F
merge		704	3	247	1161	1324					2731	2731	24	32	36					31	31	24	46	41					37	E	37	E	37	E
basic		981	2	1001	1101						2102	2102	38	42						40	40	30	28						29	D	29	D	29	D
diverge	CD - Btw I-370 & Shady Grove Rd	483	3	1736	1479	1120					4334	4334	50	48	48					49	49	36	31	24					30	D	30	D	30	D
basic		950	3	1514	1712	1093					4319	4319	51	51	53					52	52	30	34	21					28	D	28	D	28	D
diverge		553	3	1414	1812	1109					4335	4335	51	51	52					51	51	28	36	22					29	D	29	D	29	D
merge		303	4	314	1501	1431	1029				4275	4275	44	50	53	53				50	50	7	30	28	20				21	C	22	C	22	C
basic	CD - Shady Grove Rd interchange	986	3	1294	1282	1000					3576	3576	53	53	54					53	53	25	24	19					23	C	23	C	23	C
weave		352	4	221	1199	1206	934				3561	3561	47	52	53	54				52	52	5	23	23	18				17	B	17	B	17	B
diverge	CD - Btw Shady Grove Rd & MD 28	190	3	494	1108	905					2507	2507	53	54	52					53	53	9	21	18					16	B	16	B	16	B
basic		4624	2	1574	962						2535	2535	52	53						53	53	31	18						24	C	24	C	24	C
diverge		2601	3	871	1157	1749					3778	3778	53	53	51					53	53	17	22	34					24	C	24	C	24	C
weave		177	4	17	1202	1634	929				3781	3781	32	51	52	53				47	47	1	24	32	18				19	B	19	B	19	B
merge		274	3	266	1083	1529					2878	2878	39	49	53					47	47	7	22	29					20	C	20	C	20	C
basic	CD - MD 28 interchange	924	2	825	1473						2298	2298	52	52						52	52	16	29						22	C	22	C	22	C
weave		258	3	847	1201	1570					3618	3618	26	36	49					37	37	33	34	33					33	D	33	D	33	D
basic		862	2	2008	1468						3476	3476	47	50						49	49	44	30						37	E	37	E	37	E
diverge	CD - Btw MD 28 & MD 189	379	3	620	2026	1276					3922	3922	39	40	48					42	42	16	52	27					32	D	32	D	32	D
basic		525	3	1123	1764	1052					3939	3939	51	48	51					50	50	22	37	21					27	D	27	D	27	D
weave		710	4	1029	1570	1378	1441				5418	5418	53	51	49	46				50	50	20	31	29	32				28	D	28	D	28	D
basic		1165	3	681	1377	2364					4422	4422	53	52	49					51	51	13	27	49					30	D	30	D	30	D
merge		286	3	740	1501	2180					4422	4422	42	51	52					48	48	18	30	43					30	D	30	D	30	D
basic	CD - MD 189 interchange	810	2	1570	1970						3540	3538	53	53						53	53	30	38						34	D	34	D	34	D
		649	2	1540	1995						3535		53	53						53		29	38						34	D	34	D		
diverge	CD - Btw MD 189 & Montrose Rd	220	3	378	1745	2039					4162	4162	45	49	53					49	49	9	36	39					28	D	28	D	28	D
basic		1046	2	2173	2006						4179	4178	51	53						52	50	43	39						41	E	41	E	43	E
		2216	2	2185	1993						4178		48	49						49		46	41						43	E	43	E		
merge		463	3	1972	1824	387					4184	4184	41	37	35					37	37	50	52	12					38	E	38	E	38	E
basic		950	2	1696	1664						3360	3360	45	45						45	45	39	39						39	E	39	E	39	E
merge		402	3	456	1515	1405					3376	3376	38	44	48					44	44	14	36	30					27	C	27	C	27	C
basic	CD - Montrose Rd interchange	1126	2	853	1113						1966	1966	52	53						53	53	17	21						19	C	19	C	19	C
weave		342	3	357	897	1051					2306	2306	42	49	53					48	48	9	19	20					16	B	16	B	16	B
basic		1121	2	907	973						1880	1880	53	53						53	53	17	19						18	C	18	C	18	C
diverge	CD - Btw Montrose Rd & Spur Split	262	3	587	1230	1022					2839	2839	48	49	52					49	49	13	26	20					19	B	19	B	19	B
basic		1303	2	1804	1037						2841	2841	52	54						53	53	36	20						28	D	28	D	28	D
merge	Btw Spur Split & Democracy Blvd	717	5	1143	1553	1703	1534	142			6076	6076	55	54	53	50	46			51	51	21	29	32	31	3			23	C	22	C	22	C
basic		1170	4	1056	1576	1752	1096				5480	5480	54	54	53	53				54	54	20	30	33	21				26	D	26	D	26	D
merge		820	4	930	1636	1842	1101				5508	5508	51	53	53	53				53	53	19	31	35	21				26	C	28	D	28	D
basic	Democracy Blvd interchange	457	3	1727	1861	1084					4673	4673	52	52	53					52	52	34	36	20					30	D	30	D	30	D
merge		887	4	186	1552	1901	1097				4737	4737	50	54	53	54				53	53	4	29	36	20				22	C	23	C	23	C
basic		790	3	1616	1744	1095					4455	4455	54	54	54					54	54	30	33	20					28	D	28	D	28	D
diverge	Btw Democracy Blvd & I-495	894	4	447	1603	1835	1099				4984	4984	53	54	54	54				54	54	9	30	34	20				23	C	24	C	24	C
basic		2479	3	2003	1886	1099					4988	4988	50	51	54					52	52	41	37	20					33	D	33	D	33	D
diverge	CD - Btw MD 124 & MD 117	2235	2	963	1513						2476	2476	49	44						46	46	20	35						27	C	27	C	27	C
weave	CD - Btw MD 117 & I-370	600	3	989	1339	1471					3799	3799	38	38	36					38	38	26	36	41					34	D	34	D	34	D
basic		4137	2	815	1458						2273	2273	53	51						52	52	16	29						22	C	22	C	22	C
weave		1981	3	1177	1697	1231					4104	4104	32	28	22					27	27	40	66	63					56	F	56	F	56	F
basic	CD - I-370 interchange	1052	2	1313	1364						2677	2677	29	32						30	30	54	50						52	F	52	F	52	F
merge		704	3	247	1161	1324					2731	2731	24	32	36					31	31	24	46	41					37	E	37	E	37	E
basic		981	2	1001	1101						2102	2102	38	42						40	40	30	28						29	D	29	D	29	D
diverge	CD - Btw I-370 & Shady Grove Rd	483	3	1736	1479	1120					4334	4334	50	48	48					49	49	36	31	24					30	D	30	D	30	D
basic		950	3	1514	1712	1093					4319	4319	51	51	53					52	52	30	34	21					28	D	28	D	28	D
diverge		553	3	1414	1812	1109					4335	4335	51	51	52					51	51	28	36	22					29	D	29	D	29	D
merge		303	4	314	1501	1431	1029				4275	4275	44	50	53	53				50	50	7	30	28	20				21	C	22	C	22	C
basic	CD - Shady Grove Rd interchange	986	3	1294	1282	1000					3576	3576	53	53	54					53	53	25	24	19					23	C	23	C	23	C
weave		352	4	221	1199	1206	934				3561	3561	47	52	53	54				52	52	5	23	23	18				17	B	17	B	17	B
diverge	CD - Btw Shady Grove Rd & MD 28	190	3	494	1108	905					2507	2507	53	54	52					53	53	9	21	18					16	B	16	B	16	B
basic		4624	2	1574	962						2535	2535	52	53						53	53	31	18						24	C	24	C	24	C
diverge		2601	3	871	1157	1749					3778	3778	53	53	51					53	53	17	22	34					24	C	24	C	24	C
weave		177	4	17	1202	1634	929				3781	3781	32	51	52	53				47	47	1	24	32	18				19	B	19	B	19	B
merge		274	3	266	1083	1529					2878	2878	39	49	53					47	47	7	22	29					20	C	20	C	20	C
basic	CD - MD 28 interchange	924	2	825	1473						2298	2298	52	52						52	52	16	29						22	C	22	C	22	C
weave		258	3	847	1201	1570					3618	3618	26	36	49					37	37	33	34	33					33	D	33	D	33	D
basic		862	2	2008	1468						3476	3476	47	50						49	49	44	30						37	E	37	E	37	E
diverge	CD - Btw MD 28 & MD 189	379	3	620	2026	1276					3922	3922	39	40	48					42	42	16	52	27					32	D	32	D	32	D
basic		525	3	1123	1764	1052					3939	3939	51	48	51					50	50	22	37	21					27	D	27	D	27	D
weave		710	4	1029	1570	1378	1441				5418	5418	53	51	49	46				50	50	20	31	29	32				28	D	28	D	28	D
basic		1165	3	681	1377	2364					4422	4422	53	52	49					51	51	13	27	49					30	D	30	D	30	D
merge		286	3	740	1501	2180					4422	4422	42	51	52					48	48	18	30	43					30	D	30	D	30	D
basic	CD - MD 189 interchange	810	2	1570	1970						3540	3538	53	53						53	53	30	38						34	D	34	D	34	D
		649	2	1540	1995						3535		53	53						53		29	38						34	D	34	D		
diverge	CD - Btw MD 189 & Montrose Rd	220	3	378	1745	2039					4162	4162	45	49	53					49	49	9	36	39					28	D	28	D	28	D
basic		1046	2	2173	2006						4179	4178	51	53						52	50	43	39						41	E	41	E	43	E
		2216	2	2185	1993						4178		48	49						49		46	41						43	E	43	E		
merge		463	3	1972	1824	387					4184	4184	41	37	35					37	37	50	52	12					38	E	38	E	38	E
basic		950	2	1696	1664						3360	3360	45	45						45	45	39	39						39	E	39	E	39	E
merge		402	3	456	1515	1405					3376	3376	38	44	48					44	44	14	36	30					27	C	27	C	27	C
basic	CD - Montrose Rd interchange	1126	2	853	1113						1966	1966	52	53						53	53	17	21						19	C	19	C	19	C
weave		342	3	357	897	1051					2306	2306	42	49	53					48	48	9	19	20					16	B	16	B	16	B
basic		1121	2	907	973						1880	1880	53	53						53	53	17	19						18	C	18	C	18	C
diverge	CD - Btw Montrose Rd & Spur Split	262	3	587	1230	1022					2839	2839	48	49	52					49	49	13	26	20					19	B	19	B	19	B
basic		1303	2	1804	1037						2841	2841	52	54						53	53	36	20						28	D	28	D	28	D

I-270 Northbound - 2045 No-Build - 4-5 PM

VISSIM Lookup Data				Volume									Speed									Density									
				Volume Per Lane							Across All Lanes	Overall Volume	Speed Per Lane							Across All Lanes	Overall Speed	Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)							Total Volume	Average Volume (veh/hr)	Speed (mph)							Average Speed	Average Speed (mph)	Combined Density (pcphpl)							Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Btw Watkins Mill Rd & MD 117	7479	4	947	1046	1175	1852				5019	5019	7	8	10	38				16	16	143	135	124	49				113	F	113	F	113	F
diverge	Btw MD 117 & I-370	1357	5	1142	985	1056	1151	1812			6146	6146	23	7	8	9	42			18	18	51	140	135	128	43			100	F	109	F	109	F
basic		843	5	1078	994	1046	1243	1790			6150	6150	14	8	9	11	41			17	17	79	123	122	114	44			96	F	96	F	96	F
merge		531	6	485	755	805	936	1379	1776		6136	6136	5	5	5	8	13	39		12	12	108	162	160	122	106	46		117	F	138	F	138	F
basic	I-370 interchange	3610	4	770	971	1374	1757				4872	4890	5	7	15	41				17	16	158	133	92	43				107	F	107	F	110	F
		633	4	926	1004	1264	1709				4903		6	7	10	30				14		148	142	123	57				117	F	117	F		
		1171	4	959	1025	1223	1730				4937		7	8	10	24				12		141	137	121	73				118	F	118	F		
merge		337	5	0	970	1027	1216	1744			4957	4957	0	6	7	9	17			8	8	0	154	150	138	101			108	F	101	F	101	F
basic	Shady Grove Rd interchange	3947	4	1000	1106	1240	1746				5092	5092	9	10	12	22				13	13	118	118	110	81				107	F	107	F	107	F
weave	Btw Shady Grove Rd & MD 28	1523	5	1246	1479	1369	1417	1799			7311	7446	14	14	15	16	25			17	21	94	112	96	95	72			94	F	94	F	78	F
		1475	5	1174	1683	1358	1440	1787			7442		17	18	18	20	31			21		74	95	78	74	57			76	F	76	F		
		1482	5	948	1635	1866	1363	1777			7589		17	20	23	27	41			26		58	84	84	52	44			64	F	64	F		
basic	MD 28 interchange	3696	4	1717	1707	1424	1788				6636	6650	25	26	31	46				32	32	72	67	47	39				56	F	56	F	56	F
		464	4	1578	1629	1658	1895				6760		27	27	30	38				30		61	61	57	50				57	F	57	F		
weave		1405	5	821	1567	1560	1645	1978			7571	7604	33	27	29	31	38			32	32	26	59	56	54	52			49	F	49	F	49	F
		640	5	1017	1576	1490	1603	1990			7677		35	30	31	33	40			34		30	54	51	50	51			47	F	47	F		
basic	Btw MD 28 & MD 189	531	4	1388	1291	1630	2012				6322	6415	31	32	35	40				35	37	47	42	47	50				47	F	47	F	44	E
		1407	4	1370	1328	1704	2048				6449		34	36	39	44				38		41	38	44	47				43	E	43	E		
diverge		1536	4	2016	1595	1928	2032				7570	7570	23	23	34	46				31	31	91	70	58	44				66	F	73	F	73	F
basic	Btw MD 189 & Montrose Rd	74	4	2021	1735	1825	1958				7539	7698	23	27	38	49				34	46	93	66	49	40				62	F	62	F	45	F
		1921	4	2080	2111	1596	1901				7688		31	36	42	51				40		72	63	40	38				53	F	53	F		
		3344	4	2152	2110	1609	1836				7707		48	49	50	52				50		46	44	33	35				40	E	40	E		
diverge	Montrose Rd interchange	1486	5	1634	2045	1940	1284	1836			8739	8739	41	50	51	52	53			49	49	41	42	38	25	35			36	E	41	E	41	E
basic		425	5	2221	1875	1602	1180	1838			8717	8713	52	53	54	54	53			53	52	44	36	30	22	34			33	D	33	D	34	D
		2955	5	2304	1909	1555	1142	1801			8712		50	52	53	54	51			52		47	37	30	21	35			34	D	34	D		
weave	Btw Montrose Rd & Spur Split	1533	7	1231	1341	2043	1982	1713	1735	1240	11286	11286	53	53	51	52	53	53	53	53	52	24	26	41	39	33	33	23	31	D	31	D	32	D
		1210	7	1128	1711	2145	1912	1492	1689	1215	11292		53	52	51	52	53	53	53	52		22	34	43	38	29	32	23	31	D	31	D		
		1521	7	1045	2247	2268	1542	1343	1696	1141	11282		51	45	46	51	52	53	53	50		21	51	50	31	26	32	22	33	D	33	D		
weave		447	6	1409	2211	2116	1415	1330	1742		10223	10223	50	45	47	51	53	53		50	50	29	50	45	28	26	33		35	E	35	E	35	E
basic	Btw Spur Split & MD 187	1229	2	2020	2074						4094	4094	38	39						39	39	55	54						54	F	54	F	54	F
merge		736	3	109	1938	2054					4101	4098	29	23	23					25	24	4	87	89					60	F	60	F	62	F
		519	3	383	1786	1926					4095		27	22	20					23		15	83	96					64	F	64	F		
weave		624	5	129	1008	1388	1611	980			5115	5115	26	21	15	16	59			27	27	5	50	93	106	17			54	F	54	F	54	F
basic	MD 187 interchange	511	3	1276	1313	977					3566	3605	15	16	58					30	32	87	86	17					63	F	63	F	56	F
		1863	3	1275	1362	978					3615		19	20	58					32		73	72	17					54	F	54	F		
diverge		520	4	173	1307	1415	977				3872	3872	51	26	27	59				41	41	4	59	62	17				35	E	42	E	42	E
basic		797	3	1437	1466	971					3874	3874	37	36	57					43	43	48	49	17					38	E	38	E	38	E
diverge	Btw MD 187 & I-495	674	4	398	1488	1529	974				4389	4389	56	42	42	58				50	50	7	42	43	17				27	C	31	D	31	D
basic		824	3	1845	1572	971					4387	4437	47	46	58					50	52	44	40	17					33	D	33	D	31	D
		3315	3	1888	1581	972					4441		48	48	58					52		42	36	17					31	D	31	D		
		1136	3	1845	1745	870					4460		51	52	58					54		37	35	15					29	D	29	D		
merge		429	4	480	1745	1471	763				4460	4460	46	52	54	59				53	53	11	34	28	13				22	C	24	C	24	C
basic		386	3	1391	1210	517					3118	3118	57	58	59					58	58	25	21	9					18	C	18	C	18	C
basic		500	2	1412	1711						3123	3123	56	55						55	55	26	31						29	D	29	D	29	D
basic	Btw Spur Split & Democracy Blvd	1850	4	1269	1533	1626	1750				6179	6179	54	53	53	51				53	53	24	29	31	34				30	D	30	D	30	D
merge		717	5	1171	1545	1701	1570	177			6164	6164	54	54	53	47	44			50	50	22	29	32	34	4			24	C	23	C	23	C
basic		1170	4	1089	1572	1739	1054				5454	5454	54	54	54	53				54	54	21	30	33	20				26	D	26	D	26	D
merge		820	4	990	1624	1807	1058				5478	5478	50	53	53	53				52	52	20	31	34	20				26	C	29	D	29	D
basic	Democracy Blvd interchange	457	3	1653	1794	1040					4487	4487	52	53	53	53				53	53	32	35	20					29	D	29	D	29	D
merge		887	4	169	1489	1835	1052				4545	4545	50	54	53	53				53	53	3	28	35	20				22	C	22	C	22	C
basic		790	3	1534	1705	1050					4289	4289	54	54	54					54	54	29	32	20					27	D	27	D	27	D
diverge	Btw Democracy Blvd & I-495	894	4	455	1529	1784	1051				4820	4820	54	54	54	54				54	54	9	29	33	19				23	C	24	C	24	C
basic		2479	3	1921	1841	1049					4810	4810	50	52	54					52	52	39	36	20					31	D	31	D	31	D
diverge	CD - Btw MD 124 & MD 117	2235	2	680	1030						1709	1709	51	45						48	48	13	23						18	B	18	B	18	B
weave	CD - Btw MD 117 & I-370	600	3	883	953	1019					2854	2854	40	44	43					42	42	23	22	24					23	B	23	B	23	B
basic		4137	2	730	1029						1759	1759	52	50						51	51	14	21						18	C	18	C	18	C
weave		1981	3	1172	1106	871					3148	3148	13	8	6					9	9	90	141	156					129	F	129	F	129	F
basic	CD - I-370 interchange	1052	2	881	1121						2002	2002	5	8						6	6	166	151						158	F	158	F	158	F
merge		704	3	451	477	1102					2031	2031	3	3	7					4	4	179	186	151					172	F	172	F	172	F
basic		981	2	472	1064						1535	1535	3	7						5	5	188	147						168	F	168	F	168	F
diverge	CD - Btw I-370 & Shady Grove Rd	483	3	1631	583	1043					3257	3257	24	3	7					12	12	69	180	145					131	F	131	F	131	F
basic		950	3	1380	876	1035					3291	3291	14	6	8					9	9	102	152	132					129	F	129	F	129	F
diverge		553	3	1183	1076	1094					3354	3354	11	8	10					10	10	113	137	115					122	F	122	F	122	F
merge		303	4	501	781	966	1099				3347	3347	4	6	7	9				7	7	125	136	139	120				130	F	133	F	133	F
basic	CD - Shady Grove Rd interchange	986	3	719	931	1092					2742	2742	5	7	10					7	7	146	134	117					132	F	132	F	132	F
weave		352	4	241	572	945	1042				2801	2801	2	4	8	10				6	6	127	140	126	109				125	F	125	F	125	F
diverge	CD - Btw Shady Grove Rd & MD 28	190	3	413	774	496					1684	1684	43	32	4					26	26	10	29	124					54	F	54	F	54	F
basic		4624	2	1202	624						1825	1825	28	8						18	18	45	89						67	F	67	F	67	F
diverge		2601	3	704	932	1547					3182	3182	30	31	34					32	32	28	36	49					38	E	38	E	38	E
weave		177	4	20	1019	1383	840				3262	3262	22	43	44	43				38	38	4	27	34	23				22	B	22	B	22	B
merge		274	3	211	929	1319					2459	2459	34	42	46					41	41	8	25	31					21	C	21	C	21	C
basic	CD - MD 28 interchange	924	2	685	1310						1995	1995	46	49						48	48	16	27						22	C	22	C	22	C
weave		258	3	919	1090	1461					3470	3470	20	28	45					31	31	48	40	33					41	F	41	F	41	F
basic		862	2	1941	1362						3303	3303	43	48						45	45	46	29						38	E	38	E	38	E
diverge	CD - Btw MD 28 & MD 189	379	3	740	1836	1149					3725	3725	24	26	37					29	29	37	78	34					50	F	50	F	50	F
basic		525	3	1150	1615	977					3741	3741	34	29	37					33	33	40	66	30					45	F	45	F	45	F
weave		710	4	1107	1453	1286	1424				5270	5270	34	30	27	26				29	29	36	53	49	56				49	F	49	F	49	F
basic		1165	3	878	1314	2160					4352	4352	39	37	34					37	37	25	37	67					43	E	43	E	43	E
merge		286	3	860	1478	2055					4393	4393	38	42	40					40	40	23	36	53					38	E	38	E	38	E
basic	CD - MD 189 interchange	810	2	1551	1915						3466	3469	48	45						46	48	34	44						39	E	39	E	38	E
		649	2	1502	1972						3474		50	50						50		31	41						36	E	36	E		
diverge	CD - Btw MD 189 & Montrose Rd	220	3	389	1696	2032					4117	4117	44	47	51					47	47	9	37	41					29	D	29	D	29	D
basic		1046	2	2140	1999						4139	4143	50	51						50	49	44	40						42	E	42	E	43	E
		2216	2	2166	1978						4145		47	48						48		46	42						44	E	44	E		
merge		463	3	1931	1680	531					4141	4141	36	29	25					30	30	56	64	27					49	F	49	F	49	F
basic		950	2	1626	1474						3100	3100	43	42						43	43	39	37						38	E	38	E	38	E
merge		402	3	454	1463	1195					3112	3112	39	45	49					45	45	13	34	25					24	C	24	C	24	C
basic	CD - Montrose Rd interchange	1126	2	718	912						1630	1630	53	53						53	53	14	17						16	B	16	B	16	B
weave		342	3	348	774	856					1979	1979	43	49	53					48	48	8	16	16					14	B	14	B	14	B
basic		1121	2	777	798						1574	1574	53	54						53	53	15	15						15	B	15	B	15	B
diverge	CD - Btw Montrose Rd & Spur Split	262	3	600	1123	833					2556	2556	48	48	52					49	49	13	24	16					18	B	18	B	18	B
basic		1303	2	1690	862						2553	2553	52	54						53	53	33	16						25	C	25	C	25	C

I-270 Northbound - 2045 No-Build - 5-6 PM

VISSIM Lookup Data				Volume									Speed								Density											
				Volume Per Lane							Across All Lanes	Overall Volume	Speed Per Lane							Across All Lanes	Overall Speed	Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)							Total Volume	Average Volume (veh/hr)	Speed (mph)							Average Speed	Average Speed (mph)	Combined Density (pcphpl)							Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Btw Watkins Mill Rd & MD 117	7479	4	878	1006	1153	1552				4590	4590	6	7	9	46				17	17	148	138	125	34				111	F	111	F	111	F
diverge	Btw MD 117 & I-370	1357	5	1135	883	964	1076	1528			5586	5586	20	6	7	8	48			18	18	58	147	141	132	32			102	F	115	F	115	F
basic		843	5	1024	942	950	1144	1508			5568	5568	13	8	8	11	43			16	16	83	124	122	113	35			96	F	96	F	96	F
merge		531	6	504	676	720	861	1291	1483		5535	5535	4	4	5	7	14	41		13	13	124	165	162	120	95	37		117	F	143	F	143	F
basic	I-370 interchange	3610	4	619	855	1235	1469				4179	4136	4	7	14	40				16	15	161	133	88	37				105	F	105	F	108	F
		633	4	691	829	1111	1443				4074		5	6	9	29				12		149	142	122	50				116	F	116	F		
		1171	4	699	812	1048	1477				4037		5	6	9	24				11		141	136	119	63				115	F	115	F		
merge		337	5	0	681	784	1033	1497			3996	3996	0	5	6	9	19			8	8	0	140	137	125	81			97	F	92	F	92	F
basic	Shady Grove Rd interchange	3947	4	591	735	1031	1472				3829	3829	6	8	12	26				13	13	106	105	100	58				92	F	92	F	92	F
weave	Btw Shady Grove Rd & MD 28	1523	5	878	636	826	1333	1446			5119	5044	6	4	7	16	30			12	15	161	180	122	97	49			122	F	122	F	111	F
		1475	5	818	619	897	1312	1413			5059		6	4	8	16	36			14		146	168	118	91	39			112	F	112	F		
		1482	5	771	675	998	1141	1367			4953		6	5	8	19	47			17		123	148	128	65	29			99	F	99	F		
basic	MD 28 interchange	3696	4	811	1016	1089	1331				4247	4233	8	11	18	38				19	18	103	99	65	35				75	F	75	F	77	F
		464	4	633	958	1139	1387				4117		7	11	13	23				13		92	98	90	64				86	F	86	F		
weave		1405	5	392	566	940	1086	1420			4404	4392	3	4	12	14	23			11	11	155	169	90	84	66			113	F	113	F	109	F
		640	5	576	627	808	959	1398			4367		5	5	11	14	25			12		141	135	83	76	62			99	F	99	F		
basic	Btw MD 28 & MD 189	531	4	658	640	882	1397				3577	3478	6	11	15	26				14	15	119	71	69	59				80	F	80	F	69	F
		1407	4	679	540	841	1380				3441		9	11	17	27				16		83	60	60	55				64	F	64	F		
diverge		1536	4	963	436	1022	1423				3844	3844	6	2	9	27				11	11	160	195	117	55				132	F	158	F	158	F
basic	Btw MD 189 & Montrose Rd	74	4	882	511	1006	1417				3817	4041	6	3	8	28				11	10	165	188	122	53				132	F	132	F	139	F
		1921	4	767	665	1045	1441				3918		4	4	9	28				11		177	184	121	53				134	F	134	F		
		3344	4	886	791	973	1468				4118		6	5	7	18				9		165	172	152	81				143	F	143	F		
diverge	Montrose Rd interchange	1486	5	759	780	885	901	1478			4803	4803	6	5	6	6	14			7	7	138	168	156	148	105			143	F	154	F	154	F
basic		425	5	973	745	839	879	1473			4909	5078	6	5	6	6	14			7	9	156	165	148	140	107			143	F	143	F	123	F
		2955	5	1044	880	867	891	1421			5103		8	7	7	8	15			9		137	135	123	115	93			120	F	120	F		
weave	Btw Montrose Rd & Spur Split	1533	7	1066	703	897	958	1029	1150	1103	6907	7114	38	11	6	7	9	10	11	13	12	31	72	152	142	117	111	102	104	F	104	F	99	F
		1210	7	994	1008	1020	936	917	1147	1088	7109		22	11	8	7	9	11	12	12		47	94	142	133	106	102	93	102	F	102	F		
		1521	7	912	1339	1201	809	864	1183	1018	7326		16	12	10	9	12	14	14	12		61	122	130	98	76	86	75	92	F	92	F		
weave		447	6	1147	1386	1168	798	880	1228		6606	6606	17	14	12	12	15	23		16	16	70	106	105	78	66	59		81	F	81	F	81	F
basic	Btw Spur Split & MD 187	1229	2	1577	1434						3011	3011	18	14						16	16	94	111						102	F	102	F	102	F
merge		736	3	279	1290	1470					3038	3043	5	10	11					9	9	61	133	133					109	F	109	F	112	F
		519	3	543	1158	1348					3049		8	9	10					9		73	139	140					117	F	117	F		
weave		624	5	223	832	926	1124	781			3887	3887	4	8	6	8	59			17	17	67	111	155	152	13			100	F	100	F	100	F
basic	MD 187 interchange	511	3	860	974	778					2611	2648	6	7	58					24	24	157	143	13					104	F	104	F	104	F
		1863	3	892	987	779					2658		6	7	58					24		155	142	13					104	F	104	F		
diverge		520	4	163	901	1027	778				2868	2868	38	6	7	59				27	27	4	160	151	13				82	F	105	F	105	F
basic		797	3	1012	1083	772					2868	2868	7	8	57					24	24	145	136	13					98	F	98	F	98	F
diverge	Btw MD 187 & I-495	674	4	232	1023	1127	773				3155	3155	43	8	9	58				30	30	5	140	132	13				73	F	92	F	92	F
basic		824	3	1208	1205	770					3183	3297	10	10	58					26	28	130	124	13					89	F	89	F	80	F
		3315	3	1280	1247	767					3293		12	13	58					28		117	109	13					80	F	80	F		
		1136	3	1325	1365	699					3389		18	19	57					31		106	99	12					72	F	72	F		
merge		429	4	484	1104	1241	610				3440	3440	13	18	20	56				27	27	95	110	94	11				78	F	100	F	100	F
basic		386	3	992	1041	457					2491	2491	19	21	46					29	29	101	84	10					65	F	65	F	65	F
basic		500	2	1087	1426						2514	2514	19	24						22	22	92	80						86	F	86	F	86	F
basic	Btw Spur Split & Democracy Blvd	1850	4	702	856	919	1238				3715	3715	20	24	26	35				26	26	58	56	53	43				52	F	52	F	52	F
merge		717	5	717	885	922	1069	170			3763	3763	35	37	37	43	42			39	39	45	45	44	30	7			34	D	27	C	27	C
basic		1170	4	701	911	927	476				3015	3015	37	39	39	52				42	42	33	36	35	9				28	D	28	D	28	D
merge		820	4	714	937	929	472				3052	3052	41	45	46	54				46	46	24	26	26	9				21	C	25	C	25	C
basic	Democracy Blvd interchange	457	3	757	865	461					2082	2082	48	48	54					50	50	21	23	9					17	B	17	B	17	B
merge		887	4	112	671	864	465				2112	2112	39	48	48	54				47	47	9	20	22	9				15	B	17	B	17	B
basic		790	3	623	794	463					1879	1879	50	49	54					51	51	15	19	9					14	B	14	B	14	B
diverge	Btw Democracy Blvd & I-495	894	4	228	628	838	463				2157	2157	54	54	53	55				54	54	4	12	17	9				10	B	11	B	11	B
basic		2479	3	776	920	461					2157	2157	53	53	55					53	53	15	18	8					14	B	14	B	14	B
diverge	CD - Btw MD 124 & MD 117	2235	2	640	1124						1764	1764	52	45						48	48	13	25						19	B	19	B	19	B
weave	CD - Btw MD 117 & I-370	600	3	709	918	1074					2701	2701	42	46	42					43	43	17	20	26					21	B	21	B	21	B
basic		4137	2	578	1044						1622	1622	51	50						51	51	11	21						16	B	16	B	16	B
weave		1981	3	1101	1036	787					2924	2924	12	7	5					8	8	91	145	163					133	F	133	F	133	F
basic	CD - I-370 interchange	1052	2	779	1025						1804	1804	5	7						6	6	173	157						165	F	165	F	165	F
merge		704	3	387	401	1009					1797	1797	2	2	6					4	4	194	196	159					183	F	183	F	183	F
basic		981	2	381	967						1349	1349	2	6						4	4	205	162						183	F	183	F	183	F
diverge	CD - Btw I-370 & Shady Grove Rd	483	3	1293	374	950					2617	2617	17	2	6					8	8	79	206	163					149	F	149	F	149	F
basic		950	3	1137	541	911					2589	2589	10	3	6					6	6	119	187	159					155	F	155	F	155	F
diverge		553	3	967	728	896					2591	2591	7	4	6					6	6	140	169	147					152	F	152	F	152	F
merge		303	4	491	481	666	906				2544	2544	3	3	4	6				4	4	166	172	178	160				169	F	172	F	172	F
basic	CD - Shady Grove Rd interchange	986	3	427	625	912					1965	1965	2	3	6					4	4	201	183	165					183	F	183	F	183	F
weave		352	4	203	227	620	899				1949	1949	1	1	3	6				3	3	203	205	183	165				189	F	189	F	189	F
diverge	CD - Btw Shady Grove Rd & MD 28	190	3	365	202	173					739	739	25	2	1					9	9	15	84	225					108	F	108	F	108	F
basic		4624	2	573	156						729	729	5	1						3	3	114	230						172	F	172	F	172	F
diverge		2601	3	474	333	478					1285	1285	3	2	3					3	3	159	180	174					171	F	171	F	171	F
weave		177	4	180	398	457	316				1351	1351	1	4	4	3				3	3	130	150	166	171				154	F	154	F	154	F
merge		274	3	271	339	430					1041	1041	3	3	4					3	3	118	162	162					147	F	147	F	147	F
basic	CD - MD 28 interchange	924	2	286	440						726	726	3	4						3	3	150	145						147	F	147	F	147	F
weave		258	3	496	455	488					1438	1438	8	6	8					7	7	81	118	114					104	F	104	F	104	F
basic		862	2	847	506						1354	1354	13	13						13	13	105	84						94	F	94	F	94	F
diverge	CD - Btw MD 28 & MD 189	379	3	387	824	405					1616	1616	7	9	10					9	9	73	110	57					80	F	80	F	80	F
basic		525	3	616	708	316					1640	1640	11	8	11					10	10	73	104	37					72	F	72	F	72	F
weave		710	4	834	576	486	537				2433	2433	8	4	3	3				5	5	108	163	158	168				149	F	149	F	149	F
basic		1165	3	952	588	469					2008	2008	8	4	2					5	5	127	160	200					162	F	162	F	162	F
merge		286	3	880	675	481					2036	2036	7	4	3					5	5	134	163	196					164	F	164	F	164	F
basic	CD - MD 189 interchange	810	2	796	511						1307	1327	5	3						4	4	175	194						185	F	185	F	182	F
		649	2	769	584						1353		5	3						4		171	186						178	F	178	F		
diverge	CD - Btw MD 189 & Montrose Rd	220	3	292	775	692					1758	1758	29	5	4					13	13	10	160	175					115	F	115	F	115	F
basic		1046	2	1046	759						1805	1874	7	5						6	7	154	171						162	F	162	F	157	F
		2216	2	1066	840						1906		8	6						7		150	158						154	F	154	F		
merge		463	3	970	732	290					1993	1993	7	5	3					5	5	151	157	105					137	F	137	F	137	F
basic		950	2	923	686						1608	1608	7	5						6	6	145	158						151	F	151	F	151	F
merge		402	3	352	646	669					1667	1667	3	5	6					5	5	140	151	144					145	F	145	F	145	F
basic	CD - Montrose Rd interchange	1126	2	416	558						974	974	6	8						7	7	119	109						114	F	114	F	114	F
weave		342	3	231	479	501					1211	1211	12	14	16					14	14	67	83	75					75	F	75	F	75	F
basic		1121	2	509	441						950	950	23	24						23	23	54	40						47	F	47	F	47	F
diverge	CD - Btw Montrose Rd & Spur Split	262	3	356	757	429					1542	1542	48	38	40					42	42	8	29	19					19	B	19	B	19	B
basic		1303	2	1134	406						1539	1539	47	49						48	48	25	9						17	B	17	B	17	B

I-270 Northbound - 2045 No-Build - 6-7 PM

VISSIM Lookup Data				Volume									Speed									Density									
				Volume Per Lane							Across All Lanes	Overall Volume	Speed Per Lane							Across All Lanes	Overall Speed	Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)							Total Volume	Average Volume (veh/hr)	Speed (mph)							Average Speed	Average Speed (mph)	Combined Density (pcphpl)							Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Btw Watkins Mill Rd & MD 117	7479	4	1195	1304	1358	1312				5169	5169	12	14	16	49				23	23	108	100	90	27				81	F	81	F	81	F
diverge	Btw MD 117 & I-370	1357	5	1081	1330	1371	1171	1193			6146	6146	41	23	24	23	51			32	32	27	63	62	55	24			46	F	51	F	51	F
basic		843	5	927	1547	1459	1026	1159			6118	6118	34	34	34	33	50			37	37	29	49	45	34	23			36	E	36	E	36	E
merge		531	6	106	1055	1814	1123	814	1138		6049	6049	19	27	33	35	38	53		34	34	9	47	60	36	24	22		33	D	38	E	38	E
basic	I-370 interchange	3610	4	1102	986	790	1133				4010	3978	35	38	42	52				42	43	37	30	21	22				28	D	28	D	26	D
		633	4	849	972	979	1115				3916		43	45	46	51				46		23	24	23	22				23	C	23	C		
		1171	4	832	959	964	1156				3911		45	46	47	49				47		21	23	22	24				23	C	23	C		
merge		337	5	0	820	927	950	1196			3893	3893	0	47	47	48	51			39	39	0	21	23	23	24			18	B	15	B	15	B
basic	Shady Grove Rd interchange	3947	4	799	923	959	1205				3886	3886	47	48	49	52				49	49	19	21	21	23				21	C	21	C	21	C
weave	Btw Shady Grove Rd & MD 28	1523	5	767	1472	977	997	1218			5431	5365	24	29	38	51	53			39	42	43	58	28	20	23			35	E	35	E	31	D
		1475	5	668	1529	1021	926	1206			5351		30	35	41	48	53			41		32	52	28	21	23			31	D	31	D		
		1482	5	625	1319	1395	775	1196			5310		41	42	44	49	53			46		22	38	37	17	23			27	C	27	C		
basic	MD 28 interchange	3696	4	1011	1172	883	1209				4275	4275	44	46	48	51				47	47	27	29	20	24				25	C	25	C	25	C
		464	4	777	1060	1139	1296				4273		46	47	48	50				48		20	25	26	26				24	C	24	C		
weave		1405	5	532	864	1019	1104	1367			4886	4863	5	8	45	47	50			31	31	122	118	25	25	28			64	F	64	F	62	F
		640	5	613	948	890	998	1364			4812		6	10	42	46	51			31		116	102	23	23	27			58	F	58	F		
basic	Btw MD 28 & MD 189	531	4	855	645	923	1374				3798	3800	16	48	50	52				42	45	71	14	19	26				32	D	32	D	25	C
		1407	4	884	604	927	1387				3801		34	48	51	53				47		32	13	18	26				22	C	22	C		
diverge		1536	4	1313	542	1080	1426				4361	4361	10	3	10	42				16	16	137	187	111	34				117	F	145	F	145	F
basic	Btw MD 189 & Montrose Rd	74	4	1184	600	1066	1405				4255	4121	8	4	9	37				14	10	145	181	119	39				121	F	121	F	141	F
		1921	4	966	773	1079	1404				4223		6	4	9	30				12		165	179	125	48				129	F	129	F		
		3344	4	886	763	990	1420				4059		5	4	6	17				8		169	180	161	82				148	F	148	F		
diverge	Montrose Rd interchange	1486	5	634	666	772	908	1432			4411	4411	4	4	4	5	13			6	6	171	186	180	171	109			163	F	179	F	179	F
basic		425	5	694	608	755	877	1410			4344	4254	4	3	4	5	13			6	6	184	190	178	170	112			167	F	167	F	151	F
		2955	5	636	627	754	880	1344			4241		4	4	5	6	14			6		171	167	156	148	100			148	F	148	F		
weave	Btw Montrose Rd & Spur Split	1533	7	852	378	337	515	817	972	1198	5070	4981	13	3	2	3	5	6	11	6	6	70	147	211	202	170	156	116	153	F	153	F	151	F
		1210	7	852	496	335	430	790	959	1141	5004		9	3	2	2	5	6	11	6		101	172	210	198	163	152	108	158	F	158	F		
		1521	7	753	496	357	432	782	1096	957	4873		6	3	2	3	7	10	14	6		121	202	214	167	116	109	71	143	F	143	F		
weave		447	6	792	428	427	638	1131	1174		4591	4591	6	2	2	4	9	34		10	10	143	192	199	166	126	36		143	F	143	F	143	F
basic	Btw Spur Split & MD 187	1229	2	842	455						1298	1298	5	2						4	4	159	198						179	F	179	F	179	F
merge		736	3	382	358	561					1301	1297	2	2	3					2	2	173	197	194					188	F	188	F	191	F
		519	3	502	268	522					1292		3	1	3					2		178	212	196					195	F	195	F		
weave		624	5	265	338	201	498	177			1479	1479	1	2	1	3	59			13	13	198	211	221	197	3			166	F	166	F	166	F
basic	MD 187 interchange	511	3	189	483	177					848	853	1	3	58					21	21	224	191	3					139	F	139	F	139	F
		1863	3	194	484	177					855		1	3	58					21		225	191	3					140	F	140	F		
diverge		520	4	51	203	483	176				912	912	32	1	2	59				24	24	2	228	199	3				108	F	143	F	143	F
basic		797	3	258	476	174					908	908	1	3	58					21	21	217	191	3					137	F	137	F	137	F
diverge	Btw MD 187 & I-495	674	4	84	264	483	174				1005	1005	37	1	3	59				25	25	2	211	189	3				101	F	134	F	134	F
basic		824	3	330	501	174					1005	1014	2	3	59					21	21	206	188	3					132	F	132	F	134	F
		3315	3	340	500	173					1014		2	3	59					21		207	190	3					133	F	133	F		
		1136	3	362	493	166					1021		2	3	55					20		212	199	3					138	F	138	F		
merge		429	4	187	194	495	143				1018	1018	1	1	3	54				14	14	214	215	199	3				158	F	209	F	209	F
basic		386	3	200	481	130					812	812	1	3	31					12	12	225	196	4					141	F	141	F	141	F
basic		500	2	242	580						822	822	1	3						2	2	222	190						206	F	206	F	206	F
basic	Btw Spur Split & Democracy Blvd	1850	4	450	662	1040	1163				3316	3316	3	4	8	46				15	15	181	164	133	26				126	F	126	F	126	F
merge		717	5	493	677	1001	1037	108			3317	3317	3	4	7	48	39			20	20	181	170	144	22	3			104	F	57	F	57	F
basic		1170	4	498	696	996	594				2783	2783	3	5	8	52				17	17	162	155	134	11				116	F	116	F	116	F
merge		820	4	466	727	1028	595				2816	2816	3	6	9	54				18	18	145	141	123	11				105	F	137	F	137	F
basic	Democracy Blvd interchange	457	3	799	1031	584					2414	2414	7	10	54					24	24	126	112	11					83	F	83	F	83	F
merge		887	4	247	599	1053	591				2491	2491	2	5	11	54				18	18	112	126	107	11				89	F	115	F	115	F
basic		790	3	703	1006	590					2299	2299	7	11	54					24	24	115	99	11					75	F	75	F	75	F
diverge	Btw Democracy Blvd & I-495	894	4	251	725	1050	592				2618	2618	49	8	13	55				31	31	5	105	92	11				53	F	68	F	68	F
basic		2479	3	986	1128	595					2709	2709	13	16	54					28	28	85	77	11					58	F	58	F	58	F
diverge	CD - Btw MD 124 & MD 117	2235	2	1119	1692						2811	2811	49	44						47	47	23	39						31	D	31	D	31	D
weave	CD - Btw MD 117 & I-370	600	3	1224	1540	1511					4275	4275	36	35	33					35	35	34	44	46					42	F	42	F	42	F
basic		4137	2	1175	2039						3213	3213	51	44						48	48	23	47						35	E	35	E	35	E
weave		1981	3	1634	1903	1658					5194	5194	26	23	25					25	25	64	87	70					74	F	74	F	74	F
basic	CD - I-370 interchange	1052	2	1570	1867						3437	3437	14	19						17	17	113	100						107	F	107	F	107	F
merge		704	3	840	882	1711					3433	3433	7	6	15					9	9	132	154	114					134	F	134	F	134	F
basic		981	2	892	1436						2328	2328	6	13						10	10	145	114						130	F	130	F	130	F
diverge	CD - Btw I-370 & Shady Grove Rd	483	3	1969	1302	1464					4734	4734	30	13	16					20	20	68	112	95					92	F	92	F	92	F
basic		950	3	1661	1542	1472					4675	4675	22	18	21					20	20	81	92	76					83	F	83	F	83	F
diverge		553	3	1527	1642	1489					4657	4657	21	19	21					20	20	81	97	76					85	F	85	F	85	F
merge		303	4	632	1136	1376	1423				4568	4568	8	12	16	19				14	14	93	109	100	82				96	F	101	F	101	F
basic	CD - Shady Grove Rd interchange	986	3	1105	1216	1284					3606	3606	13	16	19					16	16	106	93	78					92	F	92	F	92	F
weave		352	4	411	1093	1065	965				3534	3534	8	15	19	21				16	16	75	94	70	57				74	F	74	F	74	F
diverge	CD - Btw Shady Grove Rd & MD 28	190	3	447	680	909					2036	2036	39	23	12					25	25	12	38	101					50	F	50	F	50	F
basic		4624	2	1119	824						1943	1943	21	10						16	16	60	106						83	F	83	F	83	F
diverge		2601	3	778	780	1156					2714	2714	11	10	13					12	12	82	96	103					94	F	94	F	94	F
weave		177	4	183	737	921	740				2581	2581	2	9	10	8				7	7	82	95	107	110				99	F	99	F	99	F
merge		274	3	353	628	827					1808	1808	5	7	9					7	7	84	106	104					98	F	98	F	98	F
basic	CD - MD 28 interchange	924	2	442	774						1216	1216	5	9						7	7	103	102						103	F	103	F	103	F
weave		258	3	692	658	875					2225	2225	9	7	10					9	9	80	105	95					93	F	93	F	93	F
basic		862	2	1242	848						2090	2090	17	18						17	17	85	57						71	F	71	F	71	F
diverge	CD - Btw MD 28 & MD 189	379	3	606	1095	697					2398	2398	10	11	18					13	13	69	105	40					71	F	71	F	71	F
basic		525	3	876	933	604					2413	2413	13	10	18					14	14	72	103	35					70	F	70	F	70	F
weave		710	4	1033	803	739	834				3409	3409	12	6	6	6				7	7	93	144	134	140				128	F	128	F	128	F
basic		1165	3	1067	826	833					2726	2726	10	6	5					7	7	108	134	173					138	F	138	F	138	F
merge		286	3	948	903	828					2679	2679	9	7	5					7	7	116	143	170					143	F	143	F	143	F
basic	CD - MD 189 interchange	810	2	994	813						1807	1788	7	5						6	6	152	168						160	F	160	F	158	F
		649	2	919	844						1763		6	5						6		150	164						157	F	157	F		
diverge	CD - Btw MD 189 & Montrose Rd	220	3	317	933	940					2190	2190	33	7	6					15	15	10	144	159					104	F	104	F	104	F
basic		1046	2	1206	966						2173	2119	9	6						8	7	146	159						152	F	152	F	153	F
		2216	2	1139	954						2093		8	6						7		150	157						153	F	153	F		
merge		463	3	1001	646	389					2036	2036	7	4	3					4	4	161	175	157					164	F	164	F	164	F
basic		950	2	881	642						1523	1523	6	4						5	5	164	184						174	F	174	F	174	F
merge		402	3	381	447	677					1506	1506	2	3	4					3	3	176	183	177					179	F	179	F	179	F
basic	CD - Montrose Rd interchange	1126	2	367	539						906	906	2	4						3	3	163	148						155	F	155	F	155	F
weave		342	3	229	398	393					1021	1021	4	6	6					5	5	115	135	118					123	F	123	F	123	F
basic		1121	2	312	303						614	614	10	12						11	11	119	75						97	F	97	F	97	F
diverge	CD - Btw Montrose Rd & Spur Split	262	3	222	431	278					931	931	41	22	25					30	30	6	76	40					41	F	41	F	41	F
basic		1303	2	701	241						942	942	29	29						29	29	40	24						32	D	32	D	32	D

Arterial Segments - 2045 No-build - 3-4 PM

VISSIM Lookup Data				Volume									Speed								Density									
				Volume Per Lane							Across All Lanes	Overall Volume	Speed Per Lane							Across All Lanes	Overall Speed	Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)							Total Volume	Average Volume (veh/hr)	Speed (mph)							Average Speed	Average Speed (mph)	Combined Density (pcphpl)							Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
diverge	MD 117 Eastbound at I-270	495	3	533	670	593					1796	1796	32	31	31					32	32	17	22	19					19	B	19	B	19	B
weave	I-370 Eastbound at I-270	656	4	395	932	510	411				2248	2248	49	49	48	51				49	49	8	19	11	8				12	B	12	B	12	B
diverge		625	3	540	506	317					1362	1362	47	47	48					47	47	12	11	7					10	B	10	B	10	B
weave		667	5	265	1125	1410	526	325			3652	3652	51	52	52	53	53			52	52	5	22	28	10	6			14	B	14	B	14	B
diverge	I-370 Westbound at I-270	461	4	1152	636	628	1920				4336	4336	46	47	53	51				50	50	26	14	12	38				22	C	17	B	17	B
diverge		1411	3	295	609	1883					2787	2787	54	54	51					53	53	6	11	37					18	B	18	B	18	B
weave		623	3	739	450	777					1966	1966	52	53	53					53	53	14	9	15					13	B	13	B	13	B
diverge	Shady Grove Rd Eastbound at I-270	248	4	346	912	344	342				1944	1944	34	31	35	35				34	34	10	30	10	10				15	B	17	B	17	B
diverge		482	4	547	303	408	456				1715	1715	32	36	37	37				35	35	17	9	11	13				12	B	12	B	12	B
merge		271	4	229	711	439	425				1804	1804	34	36	37	37				36	36	7	20	12	12				13	B	13	B	13	B
diverge	Shady Grove Rd Westbound at I-270	490	4	595	269	138	141				1143	1143	27	27	29	31				29	29	22	10	5	5				11	B	12	B	12	B
weave		615	4	615	152	213	267				1247	1247	35	35	34	34				34	34	18	4	6	8				9	A	9	A	9	A
diverge	MD 28 Eastbound at I-270	1745	3	1048	580	166					1794	1794	26	26	27					27	27	41	22	6					23	C	23	C	23	C
diverge		487	3	104	568	487					1159	1159	27	26	26					26	26	4	22	19					15	B	15	B	15	B
diverge	MD 28 Westbound at I-270	320	3	492	511	98					1101	1101	7	13	6					9	9	84	40	16					47	F	47	F	40	F
		101	3	462	439	172					1073	1073	13	24	23					20	20	46	18	7					24	C	24	C		
		43	3	525	711	184					1420	1420	15	20	27					21	21	42	36	7					28	D	28	D		
weave		489	3	437	1174	541					2152	2152	25	25	25					25	25	18	48	22					29	C	29	C	29	C
merge		235	3	973	739	287					1999	1999	25	26	27					26	26	40	29	11					26	C	26	C	26	C
diverge	MD 189 Eastbound at I-270	249	3	127	268	698					1093	1093	27	27	26					27	27	5	10	27					14	B	14	B	14	B
merge		72	3	445	266	330					1041	1041	27	28	27					27	27	17	10	13					13	B	13	B	13	B
		334	3	453	277	332					1061	1061	27	28	27					27	27	17	10	13					13	B	13	B		
diverge	MD 189 Westbound at I-270	361	3	304	359	430					1092	1092	26	26	26					26	26	12	14	17					14	B	14	B	14	B
merge		519	3	88	634	312					1034	1034	27	26	26					26	26	3	25	12					13	B	13	B	13	B
diverge	Montrose Rd Eastboundat I-270	816	3	240	678	278					1196	1196	38	37	38					38	38	6	18	7					11	B	11	B	11	B
weave		314	3	557	1009	345					1912	1912	35	36	37					36	36	16	28	9					18	B	18	B	18	B
merge		1393	3	516	840	699					2055	2055	38	36	37					37	37	14	23	19					19	B	19	B	19	B
diverge	Montrose Rd Westbound at I-270	315	3	1186	720	847					2753	2753	27	33	35					32	32	45	22	24					30	D	30	D	30	D
weave		405	3	707	650	531					1888	1888	31	33	35					33	33	23	20	15					20	C	20	C	20	C
merge		191	3	125	653	575					1353	1353	29	36	37					34	34	4	18	16					13	B	13	B	13	B
diverge	MD 187 Northbound at I-270 East Spur	292	6	521	482	436	252	443	268		2402	2402	8	8	8	6	4	3		6	6	66	61	56	44	131	111		78	F	61	F	61	F
merge		263	5	91	545	530	556	571			2293	2293	31	36	37	37	37			36	36	3	15	15	15	16			13	B	11	B	11	B
diverge	MD 187 Southbound at I-270 East Spur	302	4	340	552	483	589				1964	1964	36	36	36	36				36	36	10	16	14	17				14	B	13	B	13	B
diverge		165	5	493	424	456	486	88			1948	1948	31	31	31	32	35			32	32	16	14	15	16	3			13	B	15	B	15	B
diverge		161	6	522	414	440	419	127	39		1960	1960	23	15	16	16	36	33		23	23	23	27	28	27	4	1		18	B	26	C	26	C
diverge	Democracy Blvd Eastbound at I-270 West Spur	2296	3	585	306	276					1168	1168	40	40	40					40	40	15	8	7					10	B	10	B	10	B
diverge		605	3	404	380	392					1176	1176	31	29	29					29	29	14	13	14					14	B	14	B	14	B
diverge	Democracy Blvd Westbound at I-270 West Spur	857	4	562	523	417	557				2059	2059	41	41	42	42				42	42	14	13	10	13				13	B	12	B	12	B
merge		2127	4	313	498	449	242				1502	1502	41	42	43	43				42	42	8	12	11	6				9	A	10	B	10	B
merge	VA 193 Eastbound at I-270 East Spur	299	3	268	393	27					688	688	27	32	35					31	31	10	12	1					8	A	8	A	8	A
merge	VA 193 Westbound at I-270 East Spur	452	2	389	436						825	825	30	32						31	31	13	14						13	B	13	B	13	B
merge	G.W. Memorial Pkwy Eastbound at I-495	981	3	77	863	876					1816	1816	48	47	48					48	48	2	19	18					13	B	13	B	13	B
		418	3	22	908	895					1825	1825	46	47	48					47	47	0	20	19					13	B	13	B		
diverge	G.W. Memorial Pkwy Westbound at I-495	2359	2	1847	1353						3200	3200	22	25						23	23	88	58						73	F	73	F	73	F
weave	Clara Barton Pkwy Eastbound at I-495	6436	2	221	356						578	578	48	47						48	48	5	8						6	A	6	A	6	A
diverge	Clara Barton Pkwy Westbound at I-495	3047	2	888	87						975	975	37	37						37	37	27	3						15	B	15	B	15	B
merge		3254	2	389	325						714	714	48	47						48	48	8	7						8	A	8	A	8	A
diverge	MD 190 Eastbound at I-495	550	2	776	665						1442	1442	41	40						41	41	19	17						18	B	18	B	18	B
weave		554	4	109	813	476	250				1648	1648	40	42	43	38				41	41	3	20	11	7				10	A	10	A	10	A
merge		582	3	496	823	556					1874	1874	43	42	43					43	43	12	20	13					15	B	15	B	15	B
diverge	MD 190 Westbound at I-495	886	3	628	542	756					1926	1926	4	3	5					4	4	182	187	161					177	F	177	F	177	F
weave		316	3	597	767	415					1779	1779	33	35	36					35	35	19	22	12					18	B	18	B	18	B
diverge	MD 187 Northbound at I-495	790	3	714	732	756					2201	2201	21	21	20					21	21	35	36	38					36	E	36	E	36	E
merge		1654	3	846	862	666					2374	2374	36	36	37					36	36	24	24	18					22	C	22	C	22	C
diverge	MD 187 Southbound at I-495	1642	3	771	506	586					1863	1863	28	27	27					27	27	28	19	22					23	C	23	C	23	C
merge		796	3	555	592	386					1533	1533	36	37	37					37	37	16	16	11					14	B	14	B	14	B
weave	MD 355 Northbound at I-495	1654	3	486	592	1096					2174	2174	34	32	31					32	32	14	19	36					23	B	23	B	23	B
weave		370	4	290	968	442	290				1990	1990	42	42	43	43				42	42	7	23	11	7				12	A	12	A	12	A
diverge	MD 355 Southbound at I-495	204	4	633	357	475	444				1908	1908	43	43	38	37				40	40	15	8	13	12				12	B	11	B	11	B
merge		781	4	762	641	394	264				2061	2061	28	28	26	24				26	26	28	24	15	11				19	B	22	C	22	C

Arterial Segments - 2045 No-build - 4-5 PM

VISSIM Lookup Data				Volume									Speed								Density							
				Volume Per Lane							Across All Lanes	Overall Volume	Speed Per Lane							Across All Lanes	Overall Speed	Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)							Total Volume	Average Volume (veh/hr)	Speed (mph)							Average Speed	Average Speed (mph)	Combined Density (pcphpl)							Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
diverge	MD 117 Eastbound at I-270	495	3	654	791	604					2048	2048	32	31	31					31	31	21	26	20					22	C	22	C	22	C
weave	I-370 Eastbound	656	4	442	884	546	497				2368	2368	15	18	13	13				15	15	36	57	50	45				47	F	47	F	47	F
diverge		625	3	536	508	435					1478	1478	9	9	9					9	9	69	63	51					61	F	61	F	61	F
weave		667	5	305	1229	1285	514	387			3720	3720	51	51	52	53	53			52	52	6	24	25	10	7			15	B	15	B	15	B
diverge	I-370 Westbound at I-270	461	4	685	528	674	1983				3870	3870	7	5	10	34				14	14	117	127	79	60				96	F	108	F	108	F
diverge		1411	3	347	599	1707					2653	2653	52	52	49					51	51	7	12	36					18	B	18	B	18	B
weave		623	3	669	499	845					2012	2012	52	53	53					53	53	13	10	16					13	B	13	B	13	B
diverge	Shady Grove Rd Eastbound at I-270	248	4	397	754	303	349				1803	1803	32	11	8	20				18	18	13	70	43	20				36	E	42	F	42	F
diverge		482	4	378	236	355	460				1429	1429	5	3	27	36				18	18	75	75	13	13				44	F	54	F	54	F
merge		271	4	174	539	363	418				1495	1495	35	37	37	37				37	37	5	15	10	11				10	B	10	B	10	B
diverge	Shady Grove Rd Westbound at I-270	490	4	490	238	139	147				1013	1013	14	8	5	9				9	9	35	32	28	18				28	D	32	D	32	D
weave		615	4	532	124	166	224				1045	1045	35	35	34	34				34	34	16	4	5	7				8	A	8	A	8	A
diverge	MD 28 Eastbound at I-270	1745	3	1125	578	186					1888	1888	26	26	27					26	26	44	22	7					25	C	25	C	25	C
diverge		487	3	128	543	509					1180	1180	27	26	26					26	26	5	21	20					15	B	15	B	15	B
diverge	MD 28 Westbound at I-270	320	3	414	540	134					1088	1088	3	12	6					7	7	149	45	22					72	F	72	F	61	F
		101	3	376	445	234					1056	1056	6	23	23					17	17	73	20	10					34	D	34	D		
		43	3	436	714	253					1404	1404	7	16	26					16	16	68	46	10					41	F	41	F		
weave		489	3	412	1279	698					2390	2390	25	24	24					24	24	17	55	30					34	D	34	D	34	D
merge		235	3	1101	863	337					2301	2301	25	26	27					26	26	45	34	13					31	D	31	D	31	D
diverge	MD 189 Eastbound at I-270	249	3	121	310	693					1124	1124	27	27	26					27	27	5	12	27					14	B	14	B	14	B
merge		72	3	443	314	368					1124	1124	27	27	27					27	27	17	12	14					14	B	14	B	14	B
		334	3	449	327	369					1145	1145	27	28	27					27	27	17	12	14					14	B	14	B		
diverge	MD 189 Westbound at I-270	361	3	385	455	542					1382	1382	23	25	25					25	25	17	18	22					19	B	19	B	19	B
merge		519	3	96	687	377					1159	1159	26	26	26					26	26	4	27	15					15	B	15	B	15	B
diverge	Montrose Rd Eastboundat I-270	816	3	363	685	306					1354	1354	37	37	38					37	37	10	19	8					12	B	12	B	12	B
weave		314	3	547	950	380					1877	1877	22	33	35					30	30	26	29	11					22	B	22	B	22	B
merge		1393	3	495	811	680					1986	1986	38	36	37					37	37	13	23	19					18	B	18	B	18	B
diverge	Montrose Rd Westbound at I-270	315	3	1202	695	920					2816	2816	25	32	35					31	31	50	22	27					33	D	33	D	33	D
weave		405	3	740	644	539					1923	1923	30	32	35					33	33	25	20	16					20	B	20	B	20	B
merge		191	3	128	629	586					1342	1342	29	36	37					34	34	4	18	16					13	B	13	B	13	B
diverge	MD 187 Northbound at I-270 East Spur	292	6	472	439	376	191	446	288		2212	2212	7	7	7	4	3	2		5	5	72	66	59	44	155	131		88	F	66	F	66	F
merge		263	5	82	493	493	529	561			2158	2158	31	36	37	37	37			36	36	3	14	14	15	15			12	B	10	B	10	B
diverge	MD 187 Southbound at I-270 East Spur	302	4	368	574	510	624				2075	2075	35	36	36	35				36	36	11	16	15	18				15	B	14	B	14	B
diverge		165	5	534	441	482	517	87			2062	2062	30	30	30	31	35			31	31	18	15	16	17	2			14	B	16	B	16	B
diverge		161	6	565	436	464	450	123	40		2078	2078	22	14	15	14	36	33		22	22	27	32	33	32	3	1		21	C	30	D	30	D
diverge	Democracy Blvd Eastbound at I-270 West Spur	2296	3	484	256	225					966	966	39	39	39					39	39	13	7	6					8	A	8	A	8	A
diverge		605	3	382	355	374					1111	1111	29	28	28					28	28	13	13	14					13	B	13	B	13	B
diverge	Democracy Blvd Westbound at I-270 West Spur	857	4	651	580	489	660				2379	2379	33	39	41	42				39	39	21	15	12	16				16	B	16	B	16	B
merge		2127	4	365	541	485	238				1630	1630	41	42	43	43				42	42	9	13	12	6				10	B	11	B	11	B
merge	VA 193 Eastbound at I-270 East Spur	299	3	278	384	24					686	686	26	32	35					31	31	11	12	1					8	A	8	A	8	A
merge	VA 193 Westbound at I-270 East Spur	452	2	365	352						717	717	30	32						31	31	12	11						12	B	12	B	12	B
merge	G.W. Memorial Pkwy Eastbound at I-495	981	3	78	833	871					1782	1782	48	47	48					48	48	2	18	18					13	B	13	B	13	B
		418	3	25	881	886					1792	1792	46	47	48					47	47	1	19	19					13	B	13	B		
diverge	G.W. Memorial Pkwy Westbound at I-495	2359	2	1637	1485						3122	3122	14	18						16	16	117	84						101	F	101	F	101	F
weave	Clara Barton Pkwy Eastbound at I-495	6436	2	143	360						503	503	44	38						41	41	4	10						7	A	7	A	7	A
diverge	Clara Barton Pkwy Westbound at I-495	3047	2	683	345						1028	1028	6	3						5	5	120	112						116	F	116	F	116	F
merge		3254	2	457	399						856	856	48	47						47	47	10	9						9	A	9	A	9	A
diverge	MD 190 Eastbound at I-495	550	2	826	731						1557	1557	41	40						40	40	21	19						20	C	20	C	20	C
weave		554	4	106	807	437	361				1711	1711	40	42	43	32				39	39	3	20	10	12				11	A	11	A	11	A
merge		582	3	465	809	519					1793	1793	43	42	43					43	43	11	19	12					14	B	14	B	14	B
diverge	MD 190 Westbound at I-495	886	3	438	419	586					1443	1443	2	2	3					3	3	199	198	178					192	F	192	F	192	F
weave		316	3	547	880	313					1740	1740	33	36	35					35	35	17	25	9					17	B	17	B	17	B
diverge	MD 187 Northbound at I-495	790	3	890	896	919					2706	2706	20	20	19					19	19	46	46	49					47	F	47	F	47	F
merge		1654	3	1001	969	791					2761	2761	36	36	36					36	36	28	27	22					26	C	26	C	26	C
diverge	MD 187 Southbound at I-495	1642	3	762	490	577					1828	1828	29	27	27					27	27	27	19	22					22	C	22	C	22	C
merge		796	3	493	553	369					1414	1414	36	37	37					37	37	14	15	10					13	B	13	B	13	B
weave	MD 355 Northbound at I-495	1654	3	630	725	1161					2516	2516	34	32	30					32	32	19	23	39					27	C	27	C	27	C
weave		370	4	301	1046	575	387				2308	2308	42	42	42	43				42	42	7	25	14	9				14	B	14	B	14	B
diverge	MD 355 Southbound at I-495	204	4	672	383	488	449				1992	1992	43	43	38	37				40	40	16	9	13	12				13	B	12	B	12	B
merge		781	4	709	664	417	271				2062	2062	29	29	28	26				28	28	25	23	15	10				18	B	21	C	21	C

Arterial Segments - 2045 No-build - 5-6 PM

VISSIM Lookup Data				Volume									Speed								Density							
				Volume Per Lane							Across All Lanes	Overall Volume	Speed Per Lane							Across All Lanes	Overall Speed	Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)							Total Volume	Average Volume (veh/hr)	Speed (mph)							Average Speed	Average Speed (mph)	Combined Density (pcphpl)							Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
diverge	MD 117 Eastbound at I-270	495	3	762	867	774					2403	2403	31	29	30					30	30	25	30	27					27	C	27	C	27	C
weave	I-370 Eastbound	656	4	349	212	274	488				1322	1322	2	1	1	3				2	2	177	213	206	189				196	F	196	F	196	F
diverge		625	3	235	249	478					963	963	1	1	3					2	2	210	190	159					186	F	186	F	186	F
weave		667	5	291	1220	1085	353	299			3249	3249	51	52	52	53	53			52	52	6	24	21	7	6			13	B	13	B	13	B
diverge	I-370 Westbound at I-270	461	4	507	384	489	1982				3361	3361	3	2	4	30				10	10	157	180	136	67				135	F	158	F	158	F
diverge		1411	3	290	503	1501					2294	2294	52	51	49					51	51	6	10	31					16	B	16	B	16	B
weave		623	3	636	456	802					1894	1894	52	53	53					53	53	12	9	15					12	B	12	B	12	B
diverge	Shady Grove Rd Eastbound at I-270	248	4	178	283	119	200				780	780	24	2	1	2				7	7	8	182	174	84				112	F	121	F	121	F
diverge		482	4	123	97	114	367				701	701	1	0	2	32				9	9	152	203	55	12				105	F	136	F	136	F
merge		271	4	74	222	98	306				699	699	36	37	39	37				37	37	2	6	3	8				5	A	4	A	4	A
diverge	Shady Grove Rd Westbound at I-270	490	4	407	211	137	127				882	882	10	4	3	4				5	5	43	48	49	33				43	F	47	F	47	F
weave		615	4	484	87	107	126				805	805	35	36	35	35				35	35	14	2	3	4				6	A	6	A	6	A
diverge	MD 28 Eastbound at I-270	1745	3	1260	715	330					2306	2306	25	26	27					26	26	50	28	13					30	D	30	D	30	D
diverge		487	3	101	638	604					1343	1343	27	26	26					26	26	4	25	23					17	B	17	B	17	B
diverge	MD 28 Westbound at I-270	320	3	275	338	91					704	704	1	11	6					6	6	204	31	14					83	F	83	F	72	F
		101	3	251	267	167					685	685	3	19	23					15	15	104	15	7					42	F	42	F		
		43	3	306	481	187					975	975	3	10	25					13	13	110	51	7					56	F	56	F		
weave		489	3	222	701	367					1290	1290	25	24	25					25	25	9	29	15					18	B	18	B	18	B
merge		235	3	613	459	171					1244	1244	25	26	27					26	26	25	18	6					16	B	16	B	16	B
diverge	MD 189 Eastbound at I-270	249	3	120	332	654					1106	1106	27	23	21					24	24	5	19	43					22	C	22	C	22	C
merge		72	3	248	332	359					938	938	27	27	27					27	27	9	12	14					12	B	12	B	12	B
		334	3	261	334	359					953	953	27	27	27					27	27	10	12	14					12	B	12	B		
diverge	MD 189 Westbound at I-270	361	3	222	289	506					1017	1017	4	7	11					8	8	92	81	67					80	F	80	F	80	F
merge		519	3	88	617	274					979	979	27	26	26					26	26	3	24	11					13	B	13	B	13	B
diverge	Montrose Rd Eastboundat I-270	816	3	298	579	277					1154	1154	30	29	30					30	30	12	22	11					15	B	15	B	15	B
weave		314	3	458	906	387					1751	1751	19	30	34					28	28	38	31	12					27	C	27	C	27	C
merge		1393	3	339	760	664					1763	1763	38	36	37					37	37	9	21	18					16	B	16	B	16	B
diverge	Montrose Rd Westbound at I-270	315	3	537	369	679					1586	1586	4	9	33					16	16	147	48	21					72	F	72	F	72	F
weave		405	3	354	379	441					1174	1174	31	34	35					33	33	12	12	13					12	A	12	A	12	A
merge		191	3	115	479	459					1053	1053	30	36	36					34	34	4	13	13					10	B	10	B	10	B
diverge	MD 187 Northbound at I-270 East Spur	292	6	575	562	491	275	445	287		2635	2635	7	7	7	5	3	2		5	5	86	80	72	56	151	129		96	F	79	F	79	F
merge		263	5	54	529	589	647	653			2472	2472	31	36	37	37	37			36	36	2	15	16	18	18			14	B	11	B	11	B
diverge	MD 187 Southbound at I-270 East Spur	302	4	338	595	569	660				2162	2162	18	21	23	27				22	22	30	38	29	28				31	D	32	D	32	D
diverge		165	5	487	467	531	586	57			2127	2127	15	15	18	22	34			21	21	46	42	35	29	2			31	D	41	F	41	F
diverge		161	6	508	460	509	550	76	26		2130	2130	11	8	10	11	36	34		18	18	57	62	55	50	2	1		38	E	58	F	58	F
diverge	Democracy Blvd Eastbound at I-270 West Spur	2296	3	478	251	223					952	952	38	39	39					38	38	13	7	6					8	A	8	A	8	A
diverge		605	3	396	364	382					1142	1142	31	30	31					31	31	13	12	13					13	B	13	B	13	B
diverge	Democracy Blvd Westbound at I-270 West Spur	857	4	657	503	420	592				2172	2172	28	27	28	31				28	28	37	34	29	26				31	D	33	D	33	D
merge		2127	4	347	455	398	183				1383	1383	41	42	43	43				42	42	9	11	9	4				8	A	10	B	10	B
merge	VA 193 Eastbound at I-270 East Spur	299	3	117	379	30					526	526	26	32	36					31	31	5	12	1					6	A	6	A	6	A
merge	VA 193 Westbound at I-270 East Spur	452	2	390	275						665	665	30	33						31	31	13	9						11	B	11	B	11	B
merge	G.W. Memorial Pkwy Eastbound at I-495	981	3	47	815	859					1721	1721	49	47	48					48	48	1	18	18					12	B	12	B	12	B
		418	3	19	838	871					1728	1728	46	47	48					47	47	0	18	18					12	B	12	B		
diverge	G.W. Memorial Pkwy Westbound at I-495	2359	2	894	976						1871	1871	5	8						7	7	170	121						146	F	146	F	146	F
weave	Clara Barton Pkwy Eastbound at I-495	6436	2	48	242						289	289	40	32						36	36	2	12						7	A	7	A	7	A
diverge	Clara Barton Pkwy Westbound at I-495	3047	2	572	365						937	937	4	3						3	3	139	147						143	F	143	F	143	F
merge		3254	2	381	239						619	619	48	47						48	48	8	5						7	A	7	A	7	A
diverge	MD 190 Eastbound at I-495	550	2	883	741						1625	1625	33	32						33	33	30	28						29	D	29	D	29	D
weave		554	4	131	892	415	239				1678	1678	33	33	17	10				23	23	5	32	59	77				43	F	43	F	43	F
merge		582	3	241	840	534					1615	1615	43	42	43					43	43	6	20	13					13	B	13	B	13	B
diverge	MD 190 Westbound at I-495	886	3	225	255	408					888	888	1	1	2					1	1	222	217	196					212	F	212	F	212	F
weave		316	3	319	540	224					1083	1083	33	36	36					35	35	10	16	7					11	A	11	A	11	A
diverge	MD 187 Northbound at I-495	790	3	845	857	883					2585	2585	22	22	22					22	22	39	39	41					40	E	40	E	40	E
merge		1654	3	915	927	718					2561	2561	36	37	37					36	36	26	26	20					24	C	24	C	24	C
diverge	MD 187 Southbound at I-495	1642	3	834	571	662					2067	2067	27	26	26					26	26	31	23	26					26	C	26	C	26	C
merge		796	3	538	625	412					1574	1574	36	37	37					37	37	15	17	11					15	B	15	B	15	B
weave	MD 355 Northbound at I-495	1654	3	728	636	843					2206	2206	17	14	14					15	15	55	66	81					67	F	67	F	67	F
weave		370	4	293	1012	586	334				2226	2226	42	42	42	43				42	42	7	25	14	8				13	B	13	B	13	B
diverge	MD 355 Southbound at I-495	204	4	672	411	524	531				2138	2138	43	42	37	36				39	39	16	10	14	15				14	B	13	B	13	B
merge		781	4	752	684	442	264				2141	2141	30	30	29	27				29	29	26	23	15	10				19	B	21	C	21	C

Arterial Segments - 2045 No-build - 6-7 PM

VISSIM Lookup Data				Volume									Speed								Density							
				Volume Per Lane							Across All Lanes	Overall Volume	Speed Per Lane							Across All Lanes	Overall Speed	Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)							Total Volume	Average Volume (veh/hr)	Speed (mph)							Average Speed	Average Speed (mph)	Combined Density (pcphpl)							Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
diverge	MD 117 Eastbound at I-270	495	3	535	680	608					1822	1822	32	31	31					31	31	17	22	20					20	C	20	C	20	C
weave	I-370 Eastbound	656	4	825	663	703	950				3142	3142	6	4	4	7				5	5	137	172	162	142				153	F	153	F	153	F
diverge		625	3	689	607	823					2119	2119	5	4	7					5	5	158	154	129					147	F	147	F	147	F
weave		667	5	248	1108	1403	639	558			3956	3956	51	52	52	53	53			52	52	5	22	27	12	11			15	B	15	B	15	B
diverge	I-370 Westbound at I-270	461	4	1012	696	921	2104				4734	4734	15	12	25	39				23	23	83	75	46	56				65	F	68	F	68	F
diverge		1411	3	374	789	1979					3141	3141	52	52	47					51	51	7	15	43					22	C	22	C	22	C
weave		623	3	876	579	974					2428	2428	52	53	52					52	52	17	11	19					16	B	16	B	16	B
diverge	Shady Grove Rd Eastbound at I-270	248	4	464	809	440	652				2364	2364	22	7	5	12				11	11	22	115	103	58				74	F	80	F	80	F
diverge		482	4	598	269	312	616				1795	1795	9	5	12	35				15	15	80	74	37	18				52	F	64	F	64	F
merge		271	4	171	505	313	537				1526	1526	34	36	37	37				36	36	5	14	9	15				11	B	9	A	9	A
diverge	Shady Grove Rd Westbound at I-270	490	4	633	315	222	191				1361	1361	16	8	5	7				9	9	39	38	42	28				37	E	40	E	40	E
weave		615	4	758	130	160	188				1236	1236	33	35	35	35				34	34	23	4	5	6				9	A	9	A	9	A
diverge	MD 28 Eastbound at I-270	1745	3	1133	538	163					1834	1834	26	26	27					26	26	45	21	6					24	C	24	C	24	C
diverge		487	3	85	620	441					1146	1146	27	20	15					21	21	3	37	47					29	D	29	D	29	D
diverge	MD 28 Westbound at I-270	320	3	494	755	249					1498	1498	4	11	6					7	7	123	67	40					77	F	77	F	65	F
		101	3	445	659	360					1463	1463	8	22	24					18	18	60	30	15					35	E	35	E		
		43	3	473	889	380					1742	1742	8	16	26					17	17	62	58	15					45	F	45	F		
weave		489	3	471	960	819					2251	2251	17	17	18					17	17	31	60	47					46	F	46	F	46	F
merge		235	3	982	807	297					2087	2087	25	26	27					26	26	40	32	11					28	D	28	D	28	D
diverge	MD 189 Eastbound at I-270	249	3	120	319	631					1070	1070	27	21	18					22	22	5	28	55					29	D	29	D	29	D
merge		72	3	317	339	381					1037	1037	27	28	27					27	27	12	13	14					13	B	13	B	13	B
		334	3	324	348	381					1053	1053	27	27	27					27	27	12	13	14					13	B	13	B		
diverge	MD 189 Westbound at I-270	361	3	362	408	575					1345	1345	6	7	9					7	7	110	108	102					107	F	107	F	107	F
merge		519	3	111	683	366					1160	1160	26	25	25					25	25	4	28	15					16	B	16	B	16	B
diverge	Montrose Rd Eastboundat I-270	816	3	233	482	377					1092	1092	16	14	17					16	16	71	106	70					82	F	82	F	82	F
weave		314	3	451	768	662					1880	1880	9	17	26					18	18	114	54	28					65	F	65	F	65	F
merge		1393	3	206	738	797					1740	1740	39	36	36					37	37	5	20	22					16	B	16	B	16	B
diverge	Montrose Rd Westbound at I-270	315	3	308	196	445					949	949	2	5	29					12	12	181	42	18					81	F	81	F	81	F
weave		405	3	299	235	201					735	735	33	35	36					34	34	9	7	6					7	A	7	A	7	A
merge		191	3	135	377	227					739	739	32	36	36					35	35	4	11	6					7	A	7	A	7	A
diverge	MD 187 Northbound at I-270 East Spur	292	6	421	360	278	142	224	169		1594	1594	8	8	7	5	1	1		5	5	52	47	40	29	194	171		89	F	46	F	46	F
merge		263	5	18	370	439	436	459			1723	1723	31	36	37	37	37			36	36	1	10	12	12	13			10	B	8	A	8	A
diverge	MD 187 Southbound at I-270 East Spur	302	4	66	122	142	220				551	551	1	1	1	2				1	1	150	186	176	171				171	F	170	F	170	F
diverge		165	5	88	95	126	210	12			531	531	1	1	3	5	33			8	8	202	188	171	148	0			142	F	187	F	187	F
diverge		161	6	91	90	124	199	15	5		523	523	1	1	1	7	37	36		14	14	202	176	142	30	0	0		92	F	173	F	173	F
diverge	Democracy Blvd Eastbound at I-270 West Spur	2296	3	459	244	209					912	912	39	40	40					40	40	12	6	5					8	A	8	A	8	A
diverge		605	3	377	327	327					1031	1031	32	30	30					31	31	12	11	11					11	B	11	B	11	B
diverge	Democracy Blvd Westbound at I-270 West Spur	857	4	247	231	234	474				1186	1186	2	2	2	6				3	3	146	142	129	98				129	F	139	F	139	F
merge		2127	4	289	332	284	196				1100	1100	41	42	43	43				42	42	7	8	7	5				7	A	7	A	7	A
merge	VA 193 Eastbound at I-270 East Spur	299	3	100	293	21					414	414	26	32	35					31	31	4	9	1					5	A	5	A	5	A
merge	VA 193 Westbound at I-270 East Spur	452	2	333	224						557	557	30	33						31	31	11	7						9	A	9	A	9	A
merge	G.W. Memorial Pkwy Eastbound at I-495	981	3	47	659	673					1379	1379	48	47	48					48	48	1	14	14					10	B	10	B	10	B
		418	3	15	686	688					1389	1389	46	47	48					47	47	0	15	15					10	B	10	B		
diverge	G.W. Memorial Pkwy Westbound at I-495	2359	2	686	797						1483	1483	4	6						5	5	185	133						159	F	159	F	159	F
weave	Clara Barton Pkwy Eastbound at I-495	6436	2	211	336						547	547	48	46						47	47	5	7						6	A	6	A	6	A
diverge	Clara Barton Pkwy Westbound at I-495	3047	2	784	454						1238	1238	6	3						5	5	125	138						132	F	132	F	132	F
merge		3254	2	459	312						771	771	48	47						48	48	10	7						8	A	8	A	8	A
diverge	MD 190 Eastbound at I-495	550	2	767	613						1380	1380	31	29						30	30	39	37						38	E	38	E	38	E
weave		554	4	144	810	241	227				1421	1421	26	22	10	5				16	16	7	51	120	136				79	F	79	F	79	F
merge		582	3	277	756	369					1402	1402	43	42	43					43	43	7	18	9					11	B	11	B	11	B
diverge	MD 190 Westbound at I-495	886	3	320	307	490					1118	1118	2	1	3					2	2	210	211	188					203	F	203	F	203	F
weave		316	3	439	608	254					1300	1300	32	36	37					35	35	14	17	7					13	B	13	B	13	B
diverge	MD 187 Northbound at I-495	790	3	675	706	737					2118	2118	20	20	19					20	20	35	36	39					36	E	36	E	36	E
merge		1654	3	750	773	536					2058	2058	37	37	37					37	37	21	21	15					19	B	19	B	19	B
diverge	MD 187 Southbound at I-495	1642	3	770	484	531					1785	1785	31	30	30					30	30	25	16	18					20	C	20	C	20	C
merge		796	3	471	532	402					1404	1404	36	37	37					37	37	13	15	11					13	B	13	B	13	B
weave	MD 355 Northbound at I-495	1654	3	331	130	126					587	587	3	1	1					2	2	116	151	159					142	F	142	F	142	F
weave		370	4	86	361	170	50				667	667	42	42	43	44				43	43	2	9	4	1				4	A	4	A	4	A
diverge	MD 355 Southbound at I-495	204	4	645	364	479	473				1961	1961	43	43	37	37				40	40	15	9	13	13				13	B	12	B	12	B
merge		781	4	770	663	398	261				2093	2093	27	27	25	23				26	26	29	25	16	12				20	C	23	C	23	C

I-495 Inner Loop - 2045 Preferred Alternative - 6-7 AM

VISSIM Lookup Data				Volume									Speed									Density									
				Volume Per Lane						Across All Lanes	Overall Volume		Speed Per Lane							Across All Lanes	Overall Speed		Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)						Total Volume	Average Volume (veh/hr)		Speed (mph)							Average Speed	Average Speed (mph)		Combined Density (pcphpl)							Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Btw VA 267 & VA 193	2183	5	689	2049	1795	1464	1391			7388	7388	58	57	57	58	59			58	58	12	36	32	25	24			26	D	26	D	26	D
diverge		1499	5	643	2041	1755	1536	1407			7382	7382	56	52	51	53	55			54	54	12	40	35	29	26			28	D	29	D	29	D
basic	VA 193 interchange	2217	4	2404	1672	1366	1283				6727	6727	52	55	56	57				55	55	47	31	25	23				31	D	31	D	31	D
merge	Btw VA 193 & GWMP	351	6	29	654	2316	1663	1405	1297		7365	7365	40	47	56	58	58	58		53	53	1	14	42	29	25	23		22	C	19	B	19	B
basic		1019	5	727	2181	1706	1449	1300			7364	7364	55	54	57	58	58			56	56	14	41	31	25	23			27	D	27	D	27	D
diverge		1278	5	967	2240	1621	1376	1206			7410	7410	58	55	57	58	58			57	57	17	42	29	24	21			26	C	28	D	28	D
basic	GWMP interchange	773	4	1590	1548	1411	1250			5799	5796		54	56	57	58				56	57	30	28	25	22				26	D	26	D	26	D
		597	4	1570	1509	1435	1275			5789			55	57	58	58				57		29	27	25	22				26	D	26	D		
		470	4	1567	1499	1441	1292			5800			55	57	58	58				57		29	27	25	23				26	D	26	D		
weave	Btw GWMP & Clara Barton Pkwy	652	5	933	1833	1841	1457	1295			7359	7379	52	54	56	58	59			56	56	19	34	33	25	22			27	C	27	C	27	C
		1764	5	648	1771	1845	1672	1450			7386		57	53	54	56	57			56		12	34	35	30	26			27	C	27	C		
basic	Clara Barton Pkwy interchange	216	4	1681	1766	1691	1505				6643	6700	56	56	57	58				57	57	31	32	30	26				30	D	30	D	30	D
		524	4	1691	1786	1712	1534				6723		56	56	57	58				57		31	32	30	27				30	D	30	D		
merge	Btw Clara Barton Pkwy & MD 190	1414	5	53	1626	1889	1753	1556			6877	6877	54	57	56	58	58			57	57	1	29	34	31	27			24	C	21	C	21	C
basic		697	4	1676	1843	1775	1574				6867	6870	57	56	58	58				57	57	30	33	31	27				31	D	31	D	31	D
		502	4	1677	1822	1781	1583				6863		57	56	57	58				57		30	33	31	28				31	D	31	D		
		851	4	1755	1805	1753	1553				6867		56	56	57	58				57		32	33	31	27				31	D	31	D		
		2266	4	1923	1757	1691	1499				6870		55	56	58	58				57		36	32	30	26				31	D	31	D		
		1266	4	1877	1745	1723	1530				6875		56	56	57	58				57		34	31	30	27				31	D	31	D		
diverge		600	5	424	1466	1701	1739	1550			6880	6874	58	57	56	57	58			57	57	7	26	31	31	27			24	C	21	C	22	C
		499	5	532	1399	1647	1730	1559			6867		58	56	56	57	58			57		9	25	30	31	27			25	C	22	C		
basic	MD 190 interchange	339	4	1412	1635	1733	1575				6355	6344	56	56	57	58				57	57	26	30	31	28				28	D	28	D	28	D
		399	4	1411	1624	1727	1575				6337		57	56	57	58				57		25	29	31	28				28	D	28	D		
		306	4	1422	1617	1722	1579				6340		57	56	57	58				57		26	29	30	28				28	D	28	D		
merge		1267	5	1427	1597	1693	1401	238			6357	6354	56	56	57	58	63			58	58	26	29	30	24	4			23	C	19	B	19	B
		530	5	1417	1580	1656	1362	334			6349		56	56	58	58	63			58		26	28	29	24	5			22	C	19	B		
merge	Btw MD 190 & I-270 West Spur	798	6	101	1641	1718	1649	1356	376		6841	6841	56	57	56	57	58	63		58	58	2	30	31	29	24	6		20	C	21	C	21	C
basic		922	5	1649	1721	1682	1365	420			6838	6833	56	56	57	58	63			58	58	30	31	30	24	7			24	C	24	C	24	C
		1982	5	1452	1738	1787	1424	431			6832		57	56	57	58	62			58		26	31	32	25	7			24	C	24	C		
		728	5	1087	1851	1939	1640	312			6829		58	55	56	58	62			58		19	34	35	29	5			24	C	24	C		
weave		2481	5	1166	1599	2263	1323	478			6829	6829	57	56	55	57	60			57	57	21	29	42	23	8			25	C	25	C	25	C
basic	Btw I-270 West Spur & MD 187	1259	3	1340	1447	1351					4138	4138	52	52	53					52	52	26	28	26					27	D	27	D	27	D
merge		2525	4	1341	1468	1370	677				4856	4856	57	57	58	59				58	58	24	26	24	12				21	C	21	C	21	C
basic		2741	3	1505	1663	1670					4839	4832	57	57	57					57	57	27	30	30					29	D	29	D	29	D
		1173	3	1682	1568	1568					4817		55	57	58					57		31	28	27					29	D	29	D		
diverge		305	4	333	1326	1548	1597				4803	4803	52	52	55	57				54	54	7	26	29	29				22	C	20	C	20	C
basic	MD 187 interchange	2021	3	1182	1485	1610					4276	4276	57	57	58					57	57	21	26	28					25	C	25	C	25	C
merge	Btw MD 187 & I-270 East Spur	440	4	65	1256	1502	1602				4424	4424	47	57	57	58				55	55	1	22	27	28				20	C	17	B	17	B
diverge		659	3	849	1762	1840					4451	4451	57	56	57					56	54	15	32	33					27	C	27	C	28	D
		1113	3	542	1910	2000					4451		56	50	52					53		10	38	39					29	D	29	D		
basic	I-270 East Spur interchange	1519	2	1975	2008						3984	3984	49	50						49	49	41	41						41	E	41	E	41	E
weave		1951	4	1748	1720	1467	1173				6108	6108	55	57	61	62				59	59	32	31	25	19				27	C	27	C	27	C
weave		513	6	43	1650	1667	1631	1530	237		6756	6756	52	58	58	62	63	62		59	59	1	29	29	27	25	4		19	B	19	B	19	B
merge	Btw I-270 East Spur & MD 185	1013	5	1641	1689	1718	1690	46			6784	6784	56	57	60	61	63			59	60	30	30	29	28	1			24	C	19	B	19	B
		1002	5	1601	1683	1740	1749	15			6788		57	57	60	61	64			60		29	30	29	29	0			23	C	20	C		
		521	5	1587	1666	1749	1770	4			6777		58	58	61	63	57			59		28	29	29	29	0			23	C	19	B		
basic		1603	4	1864	1671	1618	1612				6766	6768	55	57	60	62				58	58	34	30	27	26				29	D	29	D	30	D
		252	4	1970	1633	1574	1604				6781		54	57	60	62				58		37	29	27	26				30	D	30	D		
basic	ML - Btw VA 267 & GWMP	2189	2	926	914						1840	1837	64	64						64	64	15	14						15	B	15	B	15	B
		1496	2	925	913						1838		64	64						64		15	14						15	B	15	B		
		2215	2	921	915						1836		64	64						64		15	15						15	B	15	B		
		928	2	824	1012						1836		64	63						64		13	16						15	B	15	B		
diverge		812	3	810	797	223					1830	1830	64	64	62					63	63	13	13	4					10	B	10	B	10	B
basic	ML - GWMP interchange	2524	2	798	753						1551	1551	64	64						64	64	13	12						12	B	12	B	12	B
		1327	2	798	753						1551		64	64						64		13	12						12	B	12	B		
merge	ML - Btw GWMP & MD 190	1243	3	885	941	411					2236	2236	63	63	62					63	63	14	15	7					12	B	12	B	12	B
basic		2810	2	1054	1190						2243	2244	63	63						63	63	17	19						18	C	18	C	18	C
		207	2	1066	1168						2234		63	63						63		17	19						18	C	18	C		
		1459	2	1076	1167						2243		63	63						63		17	19						18	C	18	C		
		321	2	1077	1162						2239		63	63						63		17	19						18	C	18	C		
		255	2	1077	1164						2241		63	63						63		17	19						18	C	18	C		
		162	2	1078	1165						2243		63	63						63		17	19						18	C	18	C		
		269	2	1080	1167						2247		63	63						63		17	19						18	C	18	C		
		2593	2	1053	1194						2248		63	63						63		17	19						18	C	18	C		
diverge		1051	3	981	1053	216					2249	2249	63	63	64					63	63	16	17	3					12	B	12	B	12	B
basic	ML - MD 190 interchange	951	2	970	1019						1989	1989	63	63						63	63	16	16						16	B	16	B	16	B
merge		1003	3	131	902	1011					2044	2044	66	64	63					64	64	2	14	16					11	B	11	B	11	B
basic		1020	3	173	872	997					2043	2043	67	63	63					65	65	3	14	16					11	B	11	B	11	B
merge	ML - Btw MD 190 & I-270 West Spur	701	4	189	904	1019	46				2159	2156	67	63	63	60				64	64	3	14	16	1				9	A	11	B	11	B
basic		337	3	205	907	1043					2155		67	63	63					65	64	3	15	17					11	B	11	B	11	B
		3394	3	301	975	881					2156		66	63	63					64		5	16	14					11	B	11	B		
diverge		500	3	424	1042	692					2158	2158	64	62	63					63	63	7	17	11					12	B	12	B	12	B
basic	ML - Btw I-270 West Spur & MD 187	2325	1	713							713	712	59							59	59	12							12	B	12	B	12	B
		745	1	711							711		58							58		13							13	B	13	B		

I-495 Inner Loop - 2045 Preferred Alternative - 7-8 AM

VISSIM Lookup Data				Volume								Speed									Density											
				Volume Per Lane						Across All Lanes	Overall Volume	Speed Per Lane							Across All Lanes	Overall Speed	Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)						Total Volume	Average Volume (veh/hr)	Speed (mph)							Average Speed	Average Speed (mph)	Combined Density (pcphpl)							Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Btw VA 267 & VA 193	2183	5	919	2136	1899	1586	1504		8043	8043	58	56	57	58	58			57	57	16	39	34	28	26			29	D	29	D	29	D
diverge		1499	5	958	2060	1819	1646	1556		8039	8039	56	48	49	51	54			52	52	17	44	38	33	29			32	D	33	D	33	D
basic	VA 193 interchange	2217	4	2280	1737	1529	1502			7048	7048	52	54	56	56				55	55	44	33	28	27				33	D	33	D	33	D
merge	Btw VA 193 & GWMP	351	6	68	843	2236	1881	1551	1496	8075	8075	27	38	55	57	58	58		49	49	3	23	41	33	27	26		26	C	22	C	22	C
basic		1019	5	721	2193	1998	1652	1508		8071	8071	50	52	55	57	58			55	55	15	43	37	29	26			30	D	30	D	30	D
diverge		1278	5	860	2256	1890	1635	1465		8106	8106	58	52	55	57	58			56	56	15	44	35	29	26			30	D	31	D	31	D
basic	GWMP interchange	773	4	1862	1810	1677	1547			6896	6881	51	54	56	56				55	55	37	34	30	28				32	D	32	D	32	D
		597	4	1809	1772	1699	1588			6868		54	56	57	57				56	55	34	32	30	28				31	D	31	D		
		470	4	1795	1768	1702	1608			6873		54	56	57	58				56		34	32	30	28				31	D	31	D		
weave	Btw GWMP & Clara Barton Pkwy	652	5	1111	2100	2156	1746	1620		8732	8767	50	49	52	56	57			53	51	23	43	42	32	29			34	D	34	D	35	E
		1764	5	717	2054	2087	2017	1906		8780		49	48	49	52	53			50		15	44	43	40	36			36	E	36	E		
basic	Clara Barton Pkwy interchange	216	4	1984	2026	2035	1972			8017	8088	53	54	55	56				54	54	38	38	38	36				38	E	38	E	38	E
		524	4	1998	2046	2069	2005			8118		53	54	55	56				54		38	39	38	37				38	E	38	E		
merge	Btw Clara Barton Pkwy & MD 190	1414	5	73	1899	2140	2102	2034		8247	8247	54	56	55	57	58			56	56	1	35	39	37	36			30	D	25	C	25	C
basic		697	4	1994	2074	2112	2060			8240	8222	56	56	57	58				56	56	36	38	38	36				37	E	37	E	37	E
		502	4	1996	2055	2113	2075			8240		56	56	57	57				56		36	38	38	37				37	E	37	E		
		851	4	2091	2040	2077	2033			8241		56	56	57	58				56		38	37	37	36				37	E	37	E		
		2266	4	2286	2013	1981	1941			8221		54	55	57	58				56		43	37	35	34				37	E	37	E		
		1266	4	2221	1996	2008	1970			8195		54	56	57	58				56		42	37	36	35				37	E	37	E		
diverge		600	5	588	1667	1930	2015	1986		8186	8174	57	56	56	57	57			57	56	10	30	35	36	35			29	D	25	C	25	C
		499	5	741	1586	1843	1998	1991		8159		58	55	55	56	57			56		13	29	34	36	35			30	D	26	C		
basic	MD 190 interchange	339	4	1606	1832	1994	2004			7436	7424	56	55	56	57				56	56	29	34	36	36				34	D	34	D	33	D
		399	4	1614	1823	1983	1995			7416		56	56	57	57				56		29	33	36	35				33	D	33	D		
		306	4	1627	1812	1982	1999			7420		56	56	57	57				56		30	33	35	35				33	D	33	D		
merge		1267	5	1640	1797	1923	1776	328		7465	7464	56	56	57	58	62			58	58	30	33	34	31	5			27	C	24	C	24	C
		530	5	1641	1763	1883	1725	452		7464		56	56	57	58	62			58		30	32	34	30	7			27	C	24	C		
merge	Btw MD 190 & I-270 West Spur	798	6	166	1966	1979	1879	1720	502	8212	8212	55	55	55	57	58	62		57	57	3	36	36	34	30	8		25	C	25	C	25	C
basic		922	5	1978	1989	1941	1735	567		8209	8209	54	54	57	58	62			57	57	38	37	35	30	9			30	D	30	D	30	D
		1982	5	1725	1992	2073	1825	596		8211		57	56	56	58	61			57		31	37	37	32	10			29	D	29	D		
		728	5	1293	2112	2220	2096	480		8201		58	54	54	57	61			57		23	40	42	37	8			30	D	30	D		
weave		2481	5	1454	1801	2381	1681	844		8161	8161	55	53	50	55	58			54	54	27	35	48	31	15			31	D	31	D	31	D
basic	Btw I-270 West Spur & MD 187	1259	3	1607	1606	1425				4638	4638	49	49	49					49	49	34	33	30					32	D	32	D	32	D
merge		2525	4	1520	1621	1457	798			5396	5396	49	49	47	46				48	48	34	35	34	21				31	D	30	D	30	D
basic		2741	3	1706	1782	1795				5283	5249	40	41	42					41	39	47	47	45					46	F	46	F	48	F
		1173	3	1875	1655	1639				5169		35	34	34					34		56	53	52					54	F	54	F		
diverge		305	4	461	1410	1595	1653			5119	5119	45	28	29	31				33	33	11	54	58	58				45	F	41	E	41	E
basic	MD 187 interchange	2021	3	1256	1471	1623				4351	4351	22	24	26					24	24	62	66	65					64	F	64	F	64	F
merge	Btw MD 187 & I-270 East Spur	440	4	155	1314	1460	1574			4503	4503	16	20	21	23				20	20	11	70	73	71				56	F	51	F	51	F
diverge		659	3	1107	1637	1745				4489	4459	24	22	24					23	25	47	78	76					67	F	67	F	64	F
		1113	3	706	1790	1946				4442		31	22	25					26		23	83	81					62	F	62	F		
basic	I-270 East Spur interchange	1519	2	1945	1996					3941	3941	27	27						27	27	75	75						75	F	75	F	75	F
weave		1951	4	1780	1796	1709	1600			6885	6885	27	28	26	25				26	26	68	67	68	67				67	F	67	F	67	F
weave		513	6	146	1712	1801	1781	1743	805	7988	7988	32	22	24	23	22	52		29	29	5	80	77	81	82	16		57	F	57	F	57	F
merge	Btw I-270 East Spur & MD 185	1013	5	1833	1872	1848	1809	621		7983	7951	27	27	24	23	32			27	26	71	71	78	80	20			64	F	60	F	59	F
		1002	5	1836	1913	1886	1803	509		7946		27	28	26	24	28			27		71	70	75	79	18			63	F	57	F		
		521	5	1828	1917	1974	1907	274		7900		23	25	25	22	22			23		81	79	81	88	13			69	F	61	F		
basic		1603	4	2073	1903	1916	1966			7858	7859	36	39	42	46				41	42	59	50	46	44				50	F	50	F	48	F
		252	4	2134	1845	1897	1991			7867		48	51	54	56				52		45	37	36	37				39	E	39	E		
basic	ML - Btw VA 267 & GWMP	2189	2	972	960					1932	1931	64	64						64	64	15	15						15	B	15	B	15	B
		1496	2	973	958					1932		64	64						64		16	15						15	B	15	B		
		2215	2	969	961					1930		64	64						64		15	15						15	B	15	B		
		928	2	894	1038					1932		64	63						63		14	17						15	B	15	B		
diverge		812	3	883	869	177				1929	1929	64	63	62					63	63	14	14	3					10	B	10	B	10	B
basic	ML - GWMP interchange	2524	2	875	836					1711	1710	63	64						64	63	14	13						14	B	14	B	14	B
		1327	2	871	837					1708		63	63						63		14	13						14	B	14	B		
merge		1243	3	965	1018	438				2420	2420	63	63	62					63	63	16	17	7					13	B	13	B	13	B
basic	ML - Btw GWMP & MD 190	2810	2	1147	1279					2426	2425	63	63						63	63	18	21						20	C	20	C	20	C
		207	2	1160	1257					2418		63	63						63		19	20						19	C	19	C		
		1459	2	1166	1259					2425		63	63						63		19	20						20	C	20	C		
		321	2	1165	1256					2420		63	63						63		19	20						19	C	19	C		
		255	2	1166	1255					2421		63	63						63		19	20						19	C	19	C		
		162	2	1170	1253					2423		63	63						63		19	20						20	C	20	C		
		269	2	1174	1253					2427		63	63						63		19	20						20	C	20	C		
		2593	2	1153	1274					2426		63	63						63		19	21						20	C	20	C		
diverge		1051	3	1098	1154	173				2425	2425	63	63	64					63	63	18	19	3					13	B	13	B	13	B
basic	ML - MD 190 interchange	951	2	1095	1123					2218	2218	63	63						63	63	18	18						18	C	18	C	18	C
merge		1003	3	228	1006	1116				2350	2350	66	63	63					64	64	4	16	18					13	B	13	B	13	B
basic		1020	3	274	971	1103				2349	2349	66	63	63					64	64	4	16	18					13	B	13	B	13	B
merge	ML - Btw MD 190 & I-270 West Spur	701	4	293	1027	1137	67			2524	2524	66	63	63	60				63	63	4	17	18	1				10	B	12	B	12	B
basic		337	3	319	1032	1171				2522	2520	66	63	63					64	64	5	17	19					13	B	13	B	13	B
		3394	3	436	1087	997				2520		65	63	63					64		7	17	16					13	B	13	B		
diverge		500	3	574	1138	799				2511	2511	63	62	62					63	63	9	19	13					14	B	14	B	14	B
basic	ML - Btw I-270 West Spur & MD 187	2325	1	827						827	827	59							59	58	14							14	B	14	B	15	B
		745	1	829						829		55							55		16							16	B	16	B		

I-495 Inner Loop - 2045 Preferred Alternative - 8-9 AM

VISSIM Lookup Data				Volume								Speed									Density											
				Volume Per Lane						Across All Lanes	Overall Volume	Speed Per Lane							Across All Lanes	Overall Speed	Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)						Total Volume	Average Volume (veh/hr)	Speed (mph)							Average Speed	Average Speed (mph)	Combined Density (pcphpl)							Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Btw VA 267 & VA 193	2183	5	680	1969	1707	1374	1303		7033	7033	58	57	58	59	59			58	58	12	35	30	24	23			25	C	25	C	25	C
diverge		1499	5	664	1959	1667	1428	1314		7032	7032	58	55	54	56	57			56	56	12	36	31	26	23			26	C	26	C	26	C
basic	VA 193 interchange	2217	4	2183	1584	1322	1254			6342	6342	55	57	57	58				57	57	40	28	23	22				28	D	28	D	28	D
merge	Btw VA 193 & GWMP	351	6	136	929	2102	1852	1337	1254	7609	7609	20	28	55	58	58	58		46	46	7	34	39	33	23	22		26	C	26	C	26	C
basic		1019	5	647	2187	2021	1483	1279		7617	7617	46	52	55	58	58			54	54	14	43	37	26	22			29	D	29	D	29	D
diverge		1278	5	709	2254	1899	1530	1278		7670	7670	58	52	55	57	58			56	56	13	44	35	27	22			28	D	30	D	30	D
basic	GWMP interchange	773	4	1925	1824	1604	1398			6752	6749	50	54	56	57				54	55	39	34	29	25				32	D	32	D	31	D
		597	4	1855	1768	1640	1477			6740		53	55	57	58				56		36	32	29	26				31	D	31	D		
		470	4	1840	1752	1657	1506			6755		54	56	57	58				56		35	32	30	27				31	D	31	D		
weave	Btw GWMP & Clara Barton Pkwy	652	5	1113	2132	2132	1697	1525		8599	8631	52	51	53	57	58			54	52	22	43	41	30	27			33	D	33	D	34	D
		1764	5	740	2045	2069	1979	1810		8642		53	49	50	53	54			52		14	43	42	38	34			34	D	34	D		
basic	Clara Barton Pkwy interchange	216	4	1960	1987	1995	1891			7833	7902	54	54	56	57				55	55	37	37	36	34				36	E	36	E	36	E
		524	4	1967	2012	2023	1927			7930		54	54	56	57				55		37	38	37	35				37	E	37	E		
merge	Btw Clara Barton Pkwy & MD 190	1414	5	68	1866	2108	2060	1961		8062	8062	55	56	55	57	58			56	56	1	34	39	37	34			29	D	25	C	25	C
basic		697	4	1947	2040	2078	1988			8053	8076	56	55	57	58				56	56	36	37	37	35				36	E	36	E	37	E
		502	4	1951	2018	2079	2002			8050		56	55	57	57				56		36	37	37	35				36	E	36	E		
		851	4	2066	2010	2043	1949			8068		55	55	57	57				56		38	37	37	34				37	E	37	E		
		2266	4	2295	1992	1939	1857			8083		53	55	57	58				56		44	37	35	33				37	E	37	E		
		1266	4	2230	1963	1987	1909			8090		54	55	57	57				56		42	36	36	34				37	E	37	E		
diverge		600	5	701	1574	1878	1997	1940		8091	8080	57	56	55	56	57			56	56	13	29	34	36	34			29	D	25	C	26	C
		499	5	880	1475	1787	1972	1952		8066		57	53	54	55	56			55		16	28	34	36	35			30	D	26	C		
basic	MD 190 interchange	339	4	1500	1766	1963	1966			7196	7184	55	55	56	56				55	55	28	33	36	35				33	D	33	D	33	D
		399	4	1516	1754	1948	1958			7177		55	55	56	57				56		28	32	35	35				33	D	33	D		
		306	4	1522	1750	1946	1963			7181		54	54	55	56				55		29	33	36	35				33	D	33	D		
merge		1267	5	1527	1723	1875	1717	352		7194	7193	52	52	54	55	56			54	53	31	34	36	32	7			28	D	25	C	26	C
		530	5	1515	1690	1813	1663	510		7192		50	51	52	54	55			52		33	35	37	33	12			30	D	27	C		
merge	Btw MD 190 & I-270 West Spur	798	6	263	1942	1943	1805	1659	597	8209	8209	47	48	49	50	52	54		50	50	8	45	43	40	35	15		31	D	32	D	32	D
basic		922	5	1971	1947	1859	1675	735		8188	8155	46	47	48	50	52			48	42	47	47	47	40	21			40	E	40	E	51	F
		1982	5	1764	1852	1817	1719	998		8150		43	39	37	41	44			41		49	59	66	54	33			52	F	52	F		
		728	5	1409	1910	1831	1894	1079		8124		40	34	31	36	41			36		44	72	82	67	36			60	F	60	F		
weave		2481	5	1437	1564	1875	1722	1463		8061	8061	35	31	29	34	41			34	34	56	69	88	64	42			64	F	64	F	64	F
basic	Btw I-270 West Spur & MD 187	1259	3	1357	1346	1098				3801	3801	21	21	18					20	20	88	87	90					88	F	88	F	88	F
merge		2525	4	1341	1341	820	926			4428	4428	11	11	6	7				9	9	125	124	153	136				134	F	138	F	138	F
basic		2741	3	1374	1442	1543				4359	4355	10	12	13					12	12	134	127	118					126	F	126	F	126	F
		1173	3	1528	1398	1418				4344		13	11	11					12		123	128	129					127	F	127	F		
diverge		305	4	489	1165	1306	1371			4330	4330	33	9	10	10				16	16	15	129	135	133				103	F	93	F	93	F
basic	MD 187 interchange	2021	3	1139	1226	1384				3748	3748	8	9	10					9	9	149	144	134					142	F	142	F	142	F
merge	Btw MD 187 & I-270 East Spur	440	4	309	1109	1228	1403			4049	4049	8	8	9	11				9	9	38	142	142	130				113	F	107	F	107	F
diverge		659	3	1224	1356	1496				4076	4075	15	10	12					12	16	83	132	126					113	F	113	F	96	F
		1113	3	738	1586	1751				4075		25	14	16					18		30	115	112					86	F	86	F		
basic	I-270 East Spur interchange	1519	2	1790	1864					3654	3654	18	19						18	18	104	101						102	F	102	F	102	F
weave		1951	4	1703	1722	1636	1607			6668	6668	18	18	17	16				18	18	96	94	97	99				97	F	97	F	97	F
weave		513	6	228	1654	1782	1661	1573	1039	7938	7938	29	15	17	15	14	50		23	23	8	111	105	110	115	21		78	F	78	F	78	F
merge	Btw I-270 East Spur & MD 185	1013	5	1844	1863	1717	1598	956		7978	7987	22	22	18	16	30			21	21	87	87	98	105	33			82	F	78	F	77	F
		1002	5	1867	1918	1795	1589	828		7998		22	23	20	16	27			22		86	83	91	103	31			79	F	75	F		
		521	5	1869	1952	1947	1742	473		7983		19	21	20	15	20			19		99	96	100	116	23			87	F	80	F		
basic		1603	4	2076	1933	1962	2004			7975	7978	34	37	40	43				39	41	62	53	49	47				53	F	53	F	51	F
		252	4	2115	1875	1964	2040			7995		52	54	55	56				54		42	36	36	37				38	E	38	E		
basic	ML - Btw VA 267 & GWMP	2189	2	879	863					1742	1743	64	64						64	64	14	14						14	B	14	B	14	B
		1496	2	877	865					1742		64	64						64		14	14						14	B	14	B		
		2215	2	877	867					1744		64	64						64		14	14						14	B	14	B		
		928	2	842	903					1745		64	64						64		13	14						14	B	14	B		
diverge		812	3	836	833	72				1742	1742	64	64	62					63	63	13	13	1					9	A	9	A	9	A
basic	ML - GWMP interchange	2524	2	831	821					1652	1652	64	64						64	64	13	13						13	B	13	B	13	B
		1327	2	828	826					1654		63	64						63		13	13						13	B	13	B		
merge		1243	3	905	977	387				2268	2268	63	63	62					63	63	15	16	6					12	B	12	B	12	B
basic	ML - Btw GWMP & MD 190	2810	2	1062	1214					2276	2277	63	63						63	63	17	20						18	C	18	C	18	C
		207	2	1077	1192					2269		63	63						63		17	19						18	C	18	C		
		1459	2	1084	1194					2278		63	63						63		17	19						18	C	18	C		
		321	2	1085	1187					2272		63	63						63		17	19						18	C	18	C		
		255	2	1086	1188					2274		63	63						63		17	19						18	C	18	C		
		162	2	1087	1189					2276		63	63						63		17	19						18	C	18	C		
		269	2	1088	1192					2280		63	63						63		17	19						18	C	18	C		
		2593	2	1073	1205					2279		63	63						63		17	19						18	C	18	C		
diverge		1051	3	1037	1128	113				2279	2279	63	63	64					63	63	17	18	2					12	B	12	B	12	B
basic	ML - MD 190 interchange	951	2	1033	1112					2145	2145	63	63						63	63	17	18						17	B	17	B	17	B
merge		1003	3	194	953	1102				2249	2249	66	63	63					64	64	3	15	18					12	B	12	B	12	B
basic		1020	3	239	925	1084				2248	2248	67	63	63					64	64	4	15	17					12	B	12	B	12	B
merge	ML - Btw MD 190 & I-270 West Spur	701	4	259	987	1146	75			2466	2466	67	63	63	60				63	63	4	16	19	1				10	B	12	B	12	B
basic		337	3	285	996	1181				2463	2467	66	63	63					64	64	4	16	19					13	B	13	B	13	B
		3394	3	420	1083	965				2468		65	63	63					64		7	17	16					13	B	13	B		
diverge		500	3	589	1180	703				2471	2471	64	62	63					63	63	9	19	11					13	B	13	B	13	B
basic	ML - Btw I-270 West Spur & MD 187	2325	1	725						725	724	59							59	53	12							12	B	12	B	15	B
		745	1	724						724		36							36		22							22	C	22	C		

I-495 Inner Loop - 2045 Preferred Alternative - 9-10 AM

VISSIM Lookup Data				Volume								Speed									Density									
				Volume Per Lane						Across All Lanes	Overall Volume	Speed Per Lane							Across All Lanes	Overall Speed	Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)						Total Volume	Average Volume (veh/hr)	Speed (mph)							Average Speed	Average Speed (mph)	Combined Density (pcphpl)							Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Btw VA 267 & VA 193	2183	5	614	1894	1625	1310	1239		6682	6682	59	58	58	59	59			58	58	11	33	29	23	21			23	C	23	C	23	C
diverge		1499	5	575	1906	1602	1357	1242		6682	6682	59	57	57	58	58			58	58	10	34	29	24	22			24	C	24	C	24	C
basic	VA 193 interchange	2217	4	2183	1545	1228	1147			6104	6104	56	58	58	58				58	58	39	27	21	20				27	D	27	D	27	D
merge	Btw VA 193 & GWMP	351	6	68	798	2185	1775	1234	1151	7212	7212	27	37	56	58	59	59		49	49	3	22	40	31	21	20		23	C	22	C	22	C
basic		1019	5	555	2186	1930	1371	1170		7210	7210	51	53	56	58	58			55	55	11	42	35	24	20			27	D	27	D	27	D
diverge		1278	5	687	2253	1803	1377	1117		7237	7237	58	53	56	58	58			57	57	12	43	33	24	19			26	C	28	D	28	D
basic	GWMP interchange	773	4	1891	1730	1455	1216			6292	6282	51	55	57	57				55	56	37	32	26	21				29	D	29	D	29	D
		597	4	1815	1680	1487	1290			6272		54	56	57	58				56		34	30	26	23				28	D	28	D		
		470	4	1799	1661	1506	1313			6279		54	56	58	58				56		34	30	27	23				28	D	28	D		
weave	Btw GWMP & Clara Barton Pkwy	652	5	1105	2029	2029	1532	1326		8021	8060	52	53	55	58	59			55	54	22	39	37	27	23			30	D	30	D	30	D
		1764	5	788	1926	1978	1807	1576		8075		56	51	52	55	56			54		14	39	38	34	29			31	D	31	D		
basic	Clara Barton Pkwy interchange	216	4	1826	1888	1835	1669			7217	7281	54	55	56	57				56	56	34	35	33	30				33	D	33	D	33	D
		524	4	1835	1904	1865	1703			7308		55	55	56	57				56		34	35	34	30				33	D	33	D		
merge		1414	5	53	1742	1982	1911	1738		7426	7426	55	56	56	57	58			56	56	1	32	36	34	30			27	C	23	C	23	C
basic	Btw Clara Barton Pkwy & MD 190	697	4	1808	1914	1937	1773			7432	7433	56	56	57	58				57	56	33	35	34	31				33	D	33	D	34	D
		502	4	1802	1893	1948	1794			7438		56	56	57	58				57		33	35	35	31				33	D	33	D		
		851	4	1906	1877	1908	1750			7441		55	55	57	58				56		35	34	34	31				34	D	34	D		
		2266	4	2146	1838	1792	1661			7436		54	55	57	58				56		41	34	32	29				34	D	34	D		
		1266	4	2086	1809	1830	1696			7421		54	55	57	58				56		39	33	33	30				34	D	34	D		
diverge		600	5	659	1463	1724	1847	1724		7417	7408	57	56	56	57	58			57	56	12	27	31	33	30			27	C	23	C	23	C
		499	5	828	1359	1640	1832	1737		7396		57	54	54	56	57			56		15	26	31	33	31			27	C	24	C		
basic	MD 190 interchange	339	4	1373	1625	1830	1756			6584	6575	56	55	56	57				56	56	25	30	33	31				30	D	30	D	30	D
		399	4	1383	1614	1821	1751			6568		56	56	57	57				56		25	29	33	31				30	D	30	D		
		306	4	1391	1606	1819	1757			6573		55	55	56	57				56		26	30	33	31				30	D	30	D		
merge		1267	5	1377	1566	1743	1553	384		6622	6623	46	47	49	51	49			49	47	33	35	37	32	10			29	D	26	C	29	D
		530	5	1337	1506	1655	1508	619		6626		41	43	44	46	47			44		44	44	47	40	21			39	E	36	E		
merge		798	6	320	1717	1723	1646	1514	702	7623	7623	39	41	42	43	44	46		43	43	17	54	51	50	43	25		40	E	41	E	41	E
basic	Btw MD 190 & I-270 West Spur	922	5	1835	1768	1666	1536	827		7632	7636	42	40	40	42	43			41	33	52	54	57	48	30			48	F	48	F	65	F
		1982	5	1710	1660	1545	1555	1171		7641		36	30	28	31	35			32		59	74	84	69	46			66	F	66	F		
		728	5	1503	1644	1453	1670	1355		7626		32	24	20	25	33			27		59	92	108	88	54			80	F	80	F		
weave		2481	5	1486	1425	1505	1555	1642		7614	7614	26	22	19	24	34			25	25	74	92	114	85	58			85	F	85	F	85	F
basic	Btw I-270 West Spur & MD 187	1259	3	1309	1283	1014				3606	3606	14	13	10					12	12	107	105	115					109	F	109	F	109	F
merge		2525	4	1368	1355	793	930			4446	4446	11	10	5	6				8	8	131	131	163	148				144	F	148	F	148	F
basic		2741	3	1413	1472	1551				4435	4435	11	12	13					12	12	132	127	119					126	F	126	F	126	F
		1173	3	1511	1439	1483				4433		12	11	12					12		125	128	125					126	F	126	F		
diverge		305	4	326	1266	1375	1452			4419	4419	34	10	11	12				16	16	10	128	132	128				99	F	90	F	90	F
basic	MD 187 interchange	2021	3	1268	1314	1462				4044	4044	9	10	12					10	10	140	138	128					136	F	136	F	136	F
merge	Btw MD 187 & I-270 East Spur	440	4	242	1251	1310	1491			4294	4294	11	9	10	12				11	11	23	135	136	124				105	F	98	F	98	F
diverge		659	3	1274	1444	1606				4323	4317	16	12	14					14	18	81	126	120					109	F	109	F	91	F
		1113	3	736	1699	1877				4313		25	16	18					20		30	108	105					81	F	81	F		
basic	I-270 East Spur interchange	1519	2	1905	2025					3929	3929	20	23						22	22	96	90						93	F	93	F	93	F
weave		1951	4	1746	1774	1711	1698			6928	6928	19	20	19	19				20	20	92	89	89	89				90	F	90	F	90	F
weave		513	6	208	1690	1807	1731	1700	802	7937	7937	29	16	18	17	16	53		25	25	7	109	104	106	108	16		75	F	75	F	75	F
merge	Btw I-270 East Spur & MD 185	1013	5	1856	1884	1773	1716	752		7981	7996	22	22	19	18	33			23	22	86	86	94	97	23			77	F	71	F	71	F
		1002	5	1874	1924	1848	1715	648		8009		22	24	21	18	30			23		85	82	88	95	22			74	F	68	F		
		521	5	1868	1956	1969	1849	361		8002		19	21	20	17	23			20		98	95	98	109	16			83	F	74	F		
basic		1603	4	2068	1937	1961	2024			7991	7994	34	37	40	43				39	41	62	54	50	48				53	F	53	F	51	F
		252	4	2109	1888	1951	2062			8010		51	53	55	57				54		42	36	36	37				38	E	38	E		
basic	ML - Btw VA 267 & GWMP	2189	2	859	842					1701	1701	64	64						64	64	14	13						13	B	13	B	14	B
		1496	2	860	841					1701		64	64						64		14	13						14	B	14	B		
		2215	2	856	845					1700		64	64						64		14	13						14	B	14	B		
		928	2	841	859					1700		64	64						64		13	14						14	B	14	B		
diverge		812	3	839	825	34				1698	1698	64	64	62					63	63	13	13	1					9	A	9	A	9	A
basic	ML - GWMP interchange	2524	2	839	823					1661	1662	64	64						64	64	13	13						13	B	13	B	13	B
		1327	2	841	824					1664		63	63						63		13	13						13	B	13	B		
merge		1243	3	915	979	390				2284	2284	63	63	63					63	63	15	16	6					12	B	12	B	12	B
basic	ML - Btw GWMP & MD 190	2810	2	1066	1225					2290	2287	63	63						63	63	17	20						18	C	18	C	18	C
		207	2	1075	1204					2279		63	63						63		17	19						18	C	18	C		
		1459	2	1081	1205					2286		63	63						63		17	19						18	C	18	C		
		321	2	1084	1196					2279		63	63						63		17	19						18	C	18	C		
		255	2	1084	1196					2280		63	63						63		17	19						18	C	18	C		
		162	2	1085	1198					2282		63	63						63		17	19						18	C	18	C		
		269	2	1086	1199					2285		63	63						63		17	19						18	C	18	C		
		2593	2	1067	1218					2285		63	63						63		17	20						18	C	18	C		
diverge		1051	3	1012	1114	162				2288	2288	63	63	64					63	63	16	18	3					12	B	12	B	12	B
basic	ML - MD 190 interchange	951	2	1004	1091					2095	2095	63	63						63	63	16	18						17	B	17	B	17	B
merge		1003	3	212	927	1085				2224	2224	65	63	63					64	64	3	15	17					12	B	12	B	12	B
basic		1020	3	255	899	1070				2224	2224	66	63	63					64	64	4	14	17					12	B	12	B	12	B
merge	ML - Btw MD 190 & I-270 West Spur	701	4	280	1038	1220	139			2678	2678	66	63	63	58				62	62	4	17	20	2				11	B	13	B	13	B
basic		337	3	338	1056	1277				2671	2668	65	63	62					64	64	5	17	21					14	B	14	B	14	B
		3394	3	480	1145	1043				2667		65	63	63					64		7	18	17					14	B	14	B		
diverge		500	3	649	1227	788				2664	2664	63	62	63					63	63	10	20	13					14	B	14	B	14	B
basic	ML - Btw I-270 West Spur & MD 187	2325	1	819						819	819	59							59	50	14							14	B	14	B	20	C
		745	1	817						817		25							25		36							36	E	36	E		

I-495 Outer Loop - 2045 Preferred Alternative - 6-7 AM

VISSIM Lookup Data				Volume									Speed									Density									
				Volume Per Lane						Across All Lanes	Overall Volume		Speed Per Lane							Across All Lanes	Overall Speed		Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)						Total Volume	Average Volume (veh/hr)		Speed (mph)							Average Speed	Average Speed (mph)		Combined Density (pcphpl)							Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Btw VA 267 & VA 193	873	5	482	1071	1419	1402	1353		5728	5728		56	53	53	53	53			53	53		9	21	27	27	26			22	C	22	C	22	C
merge		853	6	23	429	1070	1444	1409	1354	5729	5729		54	56	53	53	54	54		54	54		0	8	20	27	27	26		18	B	10	B	10	B
merge		1322	5	247	1091	1463	1419	1351		5570	5570		57	53	53	53	53			54	54		4	21	28	27	26			21	C	18	B	18	B
basic	VA 193 interchange & GWMP interchange	786	4	1213	1490	1425	1343			5471	5476		53	53	53	53				53	53		23	29	27	26				26	D	26	D	26	D
		727	4	1204	1503	1430	1345			5482			53	53	53	53				53			23	29	27	26				26	D	26	D		
diverge		591	5	364	1260	1524	1430	1341		5920	5920		53	53	53	53	53			53	53		7	24	29	27	26			23	C	20	C	20	C
basic		1828	4	1632	1555	1422	1339			5948	5948		52	53	53	53				52	52		32	30	27	26				29	D	29	D	29	D
diverge		720	5	1243	1678	1550	1356	1326		7153	7153		46	51	53	53	53			51	51		28	33	30	26	25			28	D	30	D	30	D
basic	Btw GWMP & Clara Barton Pkwy	453	5	1371	1635	1515	1307	1326		7154	7158		52	52	53	53	53			53	53		27	32	29	25	25			28	D	28	D	28	D
		2500	5	1760	1351	1373	1327	1349		7159			52	53	53	53	53			53			35	26	26	25	26			28	D	28	D		
merge		462	6	4	1124	1489	1614	1469	1453	7153	7153		36	49	52	53	53	53		50	50		0	23	29	31	28	28		23	C	21	C	21	C
basic	Clara Barton Pkwy interchange	1131	4	2183	1664	1458	1450			6755	6755		49	52	53	53				52	52		45	32	28	28				33	D	33	D	33	D
diverge		401	5	136	1966	1738	1575	1484		6898	6898		53	51	52	53	53			52	52		3	39	34	30	28			27	C	25	C	25	C
basic	Btw Clara Barton Pkwy & MD 190	1108	4	1707	1766	1766	1719			6958	6945		53	53	53	53				53	52		33	34	34	33				33	D	33	D	34	D
		699	4	1678	1759	1764	1717			6918			52	53	53	53				53			33	34	34	33				33	D	33	D		
		282	4	1684	1764	1771	1719			6938			52	53	53	53				53			33	34	34	33				34	D	34	D		
		1935	4	1695	1763	1770	1719			6947			52	52	53	52				52			33	34	34	33				34	D	34	D		
		740	4	1637	1800	1777	1732			6947			51	51	52	52				51			33	36	35	34				34	D	34	D		
merge		1594	5	212	1420	1793	1764	1761		6950	6950		56	53	53	53	53			54	54		4	27	34	34	33			26	C	22	C	22	C
basic	MD 190 interchange	2499	4	1609	1718	1762	1757			6846	6846		52	53	53	53				53	53		31	33	34	34				33	D	33	D	33	D
diverge		1081	5	885	1607	1721	1753	1756		7721	7721		53	52	52	52	52			52	52		17	32	34	34	34			30	D	27	C	27	C
diverge	Btw MD 190 & I-270 West Spur	407	6	748	897	1603	1731	1731	1750	8459	8466		54	54	52	53	53	53		53	53		14	17	31	33	33	33		27	C	21	C	21	C
		718	6	626	1056	1598	1734	1707	1749	8470			54	54	53	53	54	54		53			12	20	31	33	32	33		27	C	21	C		
basic		501	5	1954	1455	1612	1691	1746		8459	8468		51	53	53	53	53			53	49		39	28	31	32	33			33	D	33	D	35	E
		2892	5	1952	1491	1586	1701	1739		8470			44	47	50	51	51			49			45	32	33	34	34			36	E	36	E		
weave		621	6	907	1487	1792	1681	1443	1157	8467	8457		11	14	28	37	45	49		31	39		89	106	66	46	33	24		60	F	60	F	46	F
		281	6	1752	1554	1658	1304	1161	1020	8450			40	40	47	50	53	53		47			45	39	36	26	22	19		31	D	31	D		
		242	6	1709	1837	1587	1126	1138	1044	8440			51	51	53	53	53	54		52			34	36	31	21	22	20		27	C	27	C		
basic	Btw I-270 West Spur & MD 187	2743	3	1107	1140	1012				3259	3259		52	52	52					52	52		22	22	20					21	C	21	C	21	C
diverge		851	4	1130	1166	1057	510			3863	3863		53	53	53	53				53	53		22	22	20	10				19	B	17	B	17	B
basic		2904	3	1263	1266	1339				3868	3867		53	53	53					53	53		24	24	26					25	C	25	C	25	C
		1128	3	1341	1316	1213				3870			53	53	53					53			26	25	23					25	C	25	C		
		1088	3	1367	1314	1180				3861			52	53	53					53			27	25	23					25	C	25	C		
merge		406	4	210	1268	1240	1122			3840	3840		51	53	53	53				52	52		4	24	24	21				18	B	17	B	17	B
basic	MD 187 interchange	2022	3	946	1114	1122				3182	3182		53	53	53					53	53		18	21	21					20	C	20	C	20	C
diverge	Btw MD 187 & I-270 East Spur	325	4	173	1032	1129	1125			3460	3460		52	53	53	53				53	53		3	20	22	21				17	B	15	B	15	B
basic		1192	3	1204	1128	1124				3456	3456		53	53	53					53	53		23	21	21					22	C	22	C	22	C
		913	3	1201	1129	1128				3457			53	53	53					53			23	21	21					22	C	22	C		
		494	3	1119	1167	1167				3453			53	53	53					53			21	22	22					22	C	22	C		
merge		910	4	984	1235	1191	34			3444	3444		49	49	49	48				49	49		20	26	25	1				18	B	17	B	17	B
basic	I-270 East Spur interchange	288	3	906	1223	1062				3190	3190		53	53	53					53	53		17	23	20					20	C	20	C	20	C
weave		1593	4	1016	1994	1271	1074			5355	5355		54	53	53	53				53	53		19	38	24	20				26	C	26	C	26	C
diverge	Btw I-270 East Spur & MD 185	402	5	604	1189	2059	1273	1061		6186	6186		53	53	53	53	53			53	53		12	23	40	24	20			24	C	25	C	25	C
basic		1045	4	1772	2089	1281	1054			6195	6183		53	53	54	54				53	53		34	40	24	20				30	D	30	D	30	D
		2087	4	1706	2236	1249	993			6185			53	51	53	54				53			33	44	24	19				30	D	30	D		
		1257	4	1949	1657	1640	936			6183			51	53	53	54				53			39	32	31	18				30	D	30	D		
		526	4	1497	1826	1688	1138			6149			53	53	53	54				53			29	35	32	22				29	D	29	D		
basic	ML - Btw VA 267 & GWMP	873	2	1404	823					2227	2220		63	64						63	63		23	13						18	C	18	C	18	C
		2286	2	1411	811					2223			63	64						63			23	13						18	C	18	C		
		787	2	1414	797					2210			63	64						63			23	13						18	C	18	C		
		954	2	1425	789					2214			63	63						63			23	13						18	C	18	C		
merge		303	3	1391	740	77				2208	2208		63	62	48					58	58		22	12	2					12	B	12	B	12	B
basic	ML - GWMP interchange through MD 19 interchange	2891	2	1405	623					2028	2028		63	65						64	64		23	10						16	B	16	B	16	B
diverge		697	3	594	1655	438				2687	2687		63	62	62					62	62		10	27	7					15	B	15	B	15	B
basic		572	2	618	2055					2673	2688		63	59						61	63		10	36						23	C	23	C	22	C
		1070	2	708	1977					2685			63	61						62			11	33						22	C	22	C		
		3680	2	1376	1313					2690			63	63						63			22	21						22	C	22	C		
		540	2	1379	1312					2691			63	63						63			22	21						22	C	22	C		
		733	2	1378	1311					2689			63	63						63			22	21						22	C	22	C		
		905	2	1377	1307					2685			63	63						63			22	21						22	C	22	C		
		580	2	1379	1308					2687			63	63						63			22	21						22	C	22	C		
		298	2	1377	1307					2684			63	63						63			22	21						22	C	22	C		
		1376	2	1379	1312					2691			63	63						63			22	21						22	C	22	C		
		627	2	1371	1319					2690			63	62						63			22	21						22	C	22	C		
		404	2	1361	1327					2689			63	62						63			22	22						22	C	22	C		
merge		800	3	1317	1225	145				2687	2687		63	63	60					62	62		21	20	3					14	B	14	B	14	B
basic		935	2	1232	1091					2323	2323		63	63						63	63		20	17						19	C	19	C	19	C
diverge		509	3	599	1240	1085				2924	2924		63	63	63					63	63		10	20	17					16	B	16	B	16	B
basic		1249	3	563	1304	1061				2928	2928		63	63	63					63	63		9	21	17					16	B	16	B	16	B
diverge	ML - Btw MD 190 & I-270 West Spur	589	4	669	1155	1168	164			3156	3156		64	63	63	63				63	63		11	19	19	3				13	B	13	B	13	B
basic		3452	3	688	1215	1251				3154	3154		64	63	63					63	63		11	19	20					17	B	17	B	17	B
merge		702	3	661	1257	1225				3143	3143		64	63	63					63	63		11	20	20					17	B	17	B	17	B
basic	ML - Btw I-270 West Spur & MD 187	887	1	615						615	614		63							63	58		10							10	A	10	A	11	B
		1676	1	614						614			56							56			11							11	B	11	B		
		713	1	613						613			58							58			11							11	B	11	B		

I-495 Outer Loop - 2045 Preferred Alternative - 7-8 AM

VISSIM Lookup Data				Volume								Speed									Density									
				Volume Per Lane						Across All Lanes	Overall Volume	Speed Per Lane						Across All Lanes	Overall Speed	Density Per Lane						Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)						Total Volume	Average Volume (veh/hr)	Speed (mph)						Average Speed	Average Speed (mph)	Combined Density (pcphpl)						Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Btw VA 267 & VA 193	873	5	864	1305	1669	1704	1604		7146	7146	53	53	52	52	52		53	53	16	25	32	33	31		28	D	28	D	28	D
merge		853	6	51	815	1285	1691	1712	1607	7161	7161	52	54	53	53	54	54	53	53	1	15	25	32	32	30	23	C	14	B	14	B
merge		1322	5	531	1274	1712	1719	1605		6841	6841	55	53	53	53	53		53	53	10	24	33	33	31		26	C	22	C	22	C
basic	VA 193 interchange & GWMP interchange	786	4	1405	1743	1723	1599			6469	6476	53	53	53	53			53	53	27	34	33	31			31	D	31	D	31	D
		727	4	1389	1767	1727	1600			6483		53	53	53	53			53		27	34	33	31			31	D	31	D		
diverge		591	5	525	1464	1808	1735	1589		7122	7122	53	53	52	53	53		53	53	10	28	35	33	30		27	C	24	C	24	C
basic		1828	4	2000	1876	1728	1558			7162	7162	50	51	52	52			51	51	41	37	34	30			35	E	35	E	35	E
diverge		720	5	1273	2125	1910	1600	1468		8376	8376	46	49	52	53	53		51	51	28	44	38	31	28		34	D	37	E	37	E
basic	Btw GWMP & Clara Barton Pkwy	453	5	1486	2081	1862	1499	1452		8379	8393	52	51	52	53	53		53	52	29	41	36	29	28		32	D	32	D	33	D
		2500	5	2088	1709	1601	1515	1482		8395		50	52	53	53	53		52		42	34	31	29	28		33	D	33	D		
merge		462	6	24	1409	1794	1862	1701	1612	8401	8401	36	46	51	53	53	53	49	49	1	31	36	36	32	31	28	D	26	C	26	C
basic	Clara Barton Pkwy interchange	1131	4	2363	1922	1666	1597			7548	7548	48	52	53	53			52	52	50	38	32	30			37	E	37	E	37	E
diverge		401	5	130	2172	1966	1778	1635		7681	7681	53	51	52	53	53		52	52	3	43	38	34	31		30	D	28	D	28	D
basic	Btw Clara Barton Pkwy & MD 190	1108	4	1937	1992	1951	1871			7751	7753	53	53	53	53			53	52	37	38	37	35			37	E	37	E	38	E
		699	4	1910	1986	1949	1873			7717		52	52	52	53			52		38	38	38	36			37	E	37	E		
		282	4	1926	1986	1955	1874			7740		51	52	52	52			52		38	39	38	36			38	E	38	E		
		1935	4	1942	1995	1955	1871			7762		51	52	52	52			52		39	39	38	36			38	E	38	E		
		740	4	1937	2067	1945	1822			7771		47	48	51	51			49		42	43	39	36			40	E	40	E		
merge		1594	5	579	1589	1999	1811	1793		7771	7771	53	53	53	53	53		53	53	11	31	39	34	34		30	D	27	C	27	C
basic	MD 190 interchange	2499	4	1688	1784	1805	1787			7064	7064	53	53	53	53			53	53	33	34	35	34			34	D	34	D	34	D
diverge		1081	5	541	1686	1797	1805	1771		7601	7601	54	52	52	52	52		52	52	10	33	35	35	34		30	D	26	C	26	C
diverge	Btw MD 190 & I-270 West Spur	407	6	1188	553	1680	1818	1784	1756	8779	8788	52	54	53	53	53	53	53	53	23	10	33	35	34	33	28	D	22	C	22	C
		718	6	993	791	1662	1827	1762	1757	8793		53	53	53	53	54	54	53		19	15	32	35	33	33	28	D	22	C		
basic		501	5	2048	1542	1694	1743	1754		8781	8797	51	53	53	53	53		53	49	41	30	32	33	34		34	D	34	D	37	E
		2892	5	2048	1592	1664	1744	1753		8799		43	47	49	51	51		48		48	35	34	35	35		37	E	37	E		
weave		621	6	759	1637	1865	1705	1528	1310	8804	8795	12	18	30	39	46	50	33	41	68	92	62	44	33	27	54	F	54	F	43	F
		281	6	1694	1510	1410	1446	1409	1322	8790		43	44	48	51	53	53	49		40	35	30	29	27	25	31	D	31	D		
		242	6	1704	1687	1274	1371	1407	1335	8778		51	52	53	53	53	53	53		34	33	24	26	27	25	28	D	28	D		
basic	Btw I-270 West Spur & MD 187	2743	3	1378	1439	1294				4112	4112	52	52	52				52	52	27	28	25				27	D	27	D	27	D
diverge		851	4	1398	1494	1341	606			4839	4839	53	53	53	53			53	53	27	29	26	12			23	C	22	C	22	C
basic		2904	3	1548	1594	1714				4855	4862	53	53	52				53	53	30	31	33				31	D	31	D	31	D
		1128	3	1633	1657	1580				4869		53	53	53				53		31	32	30				31	D	31	D		
		1088	3	1677	1663	1532				4872		51	52	53				52		33	32	29				32	D	32	D		
merge		406	4	306	1534	1574	1436			4850	4850	50	52	53	53			52	52	6	30	30	27			23	C	22	C	22	C
basic	MD 187 interchange	2022	3	1113	1373	1443				3929	3929	53	53	53				53	53	21	26	28				25	C	25	C	25	C
diverge	Btw MD 187 & I-270 East Spur	325	4	199	1202	1400	1455			4255	4255	52	53	53	53			53	53	4	23	27	28			20	C	18	B	18	B
basic		1192	3	1395	1406	1456				4257	4262	53	53	53				53	53	27	27	28				27	D	27	D	27	D
		913	3	1394	1402	1469				4265		53	53	53				53		27	27	28				27	D	27	D		
		494	3	1295	1440	1535				4269		53	53	53				53		25	28	30				27	D	27	D		
merge		910	4	1000	1568	1621	72			4260	4260	50	49	49	48			49	49	21	33	34	2			22	C	23	C	23	C
basic	I-270 East Spur interchange	288	3	823	1526	1457				3806	3806	53	53	53				53	53	16	29	28				24	C	24	C	24	C
weave		1593	4	1382	2211	1595	1482			6671	6671	53	53	53	53			53	53	26	43	30	28			32	D	32	D	32	D
diverge	Btw I-270 East Spur & MD 185	402	5	686	1558	2301	1602	1479		7625	7625	53	53	52	53	53		53	53	13	30	45	31	28		29	D	29	D	29	D
basic		1045	4	2217	2345	1614	1470			7645	7643	52	51	53	53			52	51	44	46	31	28			37	E	37	E	38	E
		2087	4	2150	2499	1622	1374			7645		50	48	52	53			50		44	53	32	26			39	E	39	E		
		1257	4	2349	2093	2029	1178			7649		47	50	52	53			50		51	43	40	22			39	E	39	E		
		526	4	1961	2261	2016	1380			7618		50	51	53	53			52		40	45	39	26			37	E	37	E		
basic	ML - Btw VA 267 & GWMP	873	2	1169	708					1876	1871	63	64					64	63	19	11					15	B	15	B	15	B
		2286	2	1172	703					1874		63	64					64		19	11					15	B	15	B		
		787	2	1170	694					1864		63	64					64		19	11					15	B	15	B		
		954	2	1185	681					1866		63	63					63		19	11					15	B	15	B		
merge		303	3	1136	636	84				1857	1857	63	62	48				58	58	18	10	2				10	B	10	B	10	B
basic	ML - GWMP interchange through MD 19 interchange	2891	2	1130	521					1651	1651	63	65					64	64	18	8					13	B	13	B	13	B
diverge		697	3	599	1628	368				2595	2595	63	62	63				63	63	10	26	6				14	B	14	B	14	B
basic		572	2	729	1859					2588	2591	63	60					62	63	12	31					21	C	21	C	21	C
		1070	2	790	1811					2602		63	61					62		13	30					21	C	21	C		
		3680	2	1336	1255					2591		63	63					63		21	20					21	C	21	C		
		540	2	1331	1257					2588		63	63					63		21	20					21	C	21	C		
		733	2	1330	1259					2589		63	63					63		21	20					21	C	21	C		
		905	2	1329	1259					2589		63	63					63		21	20					21	C	21	C		
		580	2	1333	1260					2594		63	63					63		21	20					21	C	21	C		
		298	2	1333	1259					2591		63	63					63		21	20					21	C	21	C		
		1376	2	1333	1258					2591		63	63					63		21	20					21	C	21	C		
		627	2	1333	1256					2589		63	63					63		21	20					21	C	21	C		
		404	2	1334	1254					2588		63	63					63		22	20					21	C	21	C		
merge		800	3	1308	1183	96				2587	2587	63	63	61				63	63	21	19	2				14	B	14	B	14	B
basic		935	2	1251	1114					2365	2365	63	63					63	63	20	18					19	C	19	C	19	C
diverge		509	3	684	1266	1104				3054	3054	63	63	63				63	63	11	20	18				16	B	16	B	16	B
basic		1249	3	635	1343	1079				3057	3057	63	63	63				63	63	10	22	17				16	B	16	B	16	B
diverge	ML - Btw MD 190 & I-270 West Spur	589	4	764	1168	1215	240			3388	3388	64	63	63	63			63	63	12	19	20	4			14	B	14	B	14	B
basic		3452	3	796	1241	1355				3393	3393	64	63	63				63	63	13	20	22				18	C	18	C	18	C
merge		702	3	772	1297	1320				3390	3390	64	63	63				63	63	12	21	21				18	B	18	B	18	B
basic	ML - Btw I-270 West Spur & MD 187	887	1	728						728	728	63						63	58	12						12	B	12	B	13	B
		1676	1	728						728		56						56		13						13	B	13	B		
		713	1	728						728		58						58		13						13	B	13	B		

I-495 Outer Loop - 2045 Preferred Alternative - 8-9 AM

VISSIM Lookup Data				Volume								Speed								Density									
				Volume Per Lane						Across All Lanes	Overall Volume	Speed Per Lane						Across All Lanes	Overall Speed	Density Per Lane						Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)						Total Volume	Average Volume (veh/hr)	Speed (mph)						Average Speed	Average Speed (mph)	Combined Density (pcphpl)						Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Btw VA 267 & VA 193	873	5	996	1375	1685	1637	1458		7152	7152	53	52	52	53	52		52	52	19	27	33	32	28		28	D	28	D	28	D
merge		853	6	70	940	1360	1701	1639	1451	7160	7160	53	53	53	53	54	54	53	53	1	18	26	32	31	27	23	C	15	B	15	B
merge		1322	5	612	1305	1723	1644	1440		6725	6725	54	53	53	53	53		53	53	11	25	33	31	28		26	C	23	C	23	C
basic	VA 193 interchange & GWMP interchange	786	4	1406	1753	1645	1424			6228	6232	53	52	53	53			53	53	27	34	32	27			30	D	30	D	30	D
		727	4	1391	1775	1650	1421			6237		53	53	53	53			53		27	34	32	27			30	D	30	D		
diverge		591	5	524	1471	1812	1653	1410		6869	6869	53	53	53	53	53		53	53	10	28	35	32	27		26	C	24	C	24	C
basic		1828	4	2017	1877	1639	1360			6894	6894	50	51	52	53			52	52	41	37	32	26			34	D	34	D	34	D
diverge		720	5	1112	2176	1935	1471	1220		7914	7914	47	49	51	53	53		51	51	24	45	38	28	23		32	D	36	E	36	E
basic	Btw GWMP & Clara Barton Pkwy	453	5	1360	2148	1876	1334	1193		7912	7916	53	51	52	53	53		53	52	26	43	36	25	23		31	D	31	D	31	D
		2500	5	2098	1743	1531	1335	1211		7917		50	52	53	54	53		52		42	34	29	25	23		31	D	31	D		
merge		462	6	61	1543	1804	1710	1470	1321	7910	7910	36	45	50	53	53	53	48	48	2	35	37	33	28	25	27	C	27	C	27	C
basic	Clara Barton Pkwy interchange	1131	4	2130	1703	1446	1317			6596	6596	50	53	53	53			52	52	43	33	27	25			32	D	32	D	32	D
diverge	Btw Clara Barton Pkwy & MD 190	401	5	100	1952	1756	1538	1342		6687	6687	53	51	52	53	53		53	53	2	39	34	29	26		26	C	25	C	25	C
basic		1108	4	1718	1820	1682	1524			6744	6731	53	53	54	54			53	52	33	35	32	29			32	D	32	D	33	D
		699	4	1699	1813	1678	1517			6706		52	53	53	53			53		33	35	32	29			32	D	32	D		
		282	4	1711	1818	1683	1513			6725		52	53	53	53			53		34	35	32	29			32	D	32	D		
		1935	4	1729	1823	1682	1502			6736		52	52	53	53			52		34	35	32	29			33	D	33	D		
		740	4	1736	1884	1660	1446			6726		50	51	52	52			51		36	38	32	28			33	D	33	D		
merge		1594	5	542	1439	1786	1528	1425		6720	6720	53	53	53	53	53		53	53	10	28	34	29	27		26	C	24	C	24	C
basic	MD 190 interchange	2499	4	1498	1569	1515	1414			5996	5996	53	53	53	53			53	53	29	30	29	27			29	D	29	D	29	D
diverge		1081	5	1035	1502	1580	1507	1395		7019	7019	53	52	53	53	53		53	53	20	29	30	29	27		27	C	27	C	27	C
diverge	Btw MD 190 & I-270 West Spur	407	6	773	1043	1506	1585	1493	1380	7780	7785	54	53	53	53	53	53	53	53	15	20	29	30	28	26	25	C	21	C	21	C
		718	6	644	1194	1510	1592	1472	1375	7787		54	53	53	53	54	54	53		12	23	29	30	28	26	25	C	21	C		
basic		501	5	2073	1397	1489	1449	1369		7777	7785	51	53	53	53	53		53	50	41	27	28	27	26		30	D	30	D	32	D
		2892	5	2101	1480	1459	1417	1329		7786		45	49	51	52	52		50		48	31	29	28	26		32	D	32	D		
weave		621	6	565	1987	1765	1297	1128	1019	7762	7751	24	31	41	46	51	52	41	46	24	66	44	28	22	20	34	D	34	D	30	D
		281	6	1602	1455	1074	1200	1237	1175	7742		52	51	53	53	54	53	53		31	29	21	23	23	22	25	C	25	C		
		242	6	1566	1502	981	1194	1268	1220	7732		53	53	54	54	54	53	53		30	29	18	23	24	23	25	C	25	C		
basic	Btw I-270 West Spur & MD 187	2743	3	1213	1290	1184				3688	3688	52	52	52				52	52	24	25	23				24	C	24	C	24	C
diverge		851	4	1230	1330	1246	634			4440	4440	53	53	52	53			53	53	24	26	24	12			21	C	21	C	21	C
basic		2904	3	1363	1430	1649				4443	4440	53	53	52				53	53	26	27	32				28	D	28	D	28	D
		1128	3	1444	1483	1512				4439		53	53	53				53		28	28	29				28	D	28	D		
		1088	3	1475	1477	1481				4433		52	53	53				53		29	28	28				29	D	29	D		
merge		406	4	288	1327	1377	1414			4406	4406	51	53	53	53			52	52	6	26	26	27			21	C	19	B	19	B
basic	MD 187 interchange	2022	3	835	1227	1425				3487	3487	54	53	53				54	54	16	23	27				22	C	22	C	22	C
diverge	Btw MD 187 & I-270 East Spur	325	4	318	973	1256	1437			3985	3985	52	53	53	53			53	53	6	19	24	28			19	B	16	B	16	B
basic		1192	3	1286	1259	1438				3982	3983	53	54	53				53	53	25	24	27				25	C	25	C	25	C
		913	3	1287	1249	1448				3983		53	53	53				53		25	24	28				25	C	25	C		
		494	3	1097	1332	1553				3982		54	53	53				53		21	26	30				25	C	25	C		
merge		910	4	614	1447	1826	86			3972	3972	51	49	48	48			49	49	12	30	38	2			21	C	23	C	23	C
basic	I-270 East Spur interchange	288	3	364	1341	1768				3472	3472	54	53	53				53	53	7	26	34				22	C	22	C	22	C
weave		1593	4	1897	2304	1426	1811			7438	7438	52	52	53	53			53	53	37	45	27	35			36	E	36	E	36	E
diverge	Btw I-270 East Spur & MD 185	402	5	678	1948	2457	1447	1826		8356	8356	51	50	49	53	53		51	51	14	39	51	28	35		33	D	35	E	35	E
basic		1045	4	2505	2501	1535	1827			8369	8366	45	46	51	53			49	42	57	56	30	35			45	F	45	F	54	F
		2087	4	2370	2405	1789	1799			8364		39	38	44	50			43		61	65	41	36			51	F	51	F		
		1257	4	2212	2195	2318	1650			8375		28	32	39	46			36		81	71	62	37			62	F	62	F		
		526	4	2008	2288	2254	1797			8347		29	34	39	45			37		74	70	60	41			61	F	61	F		
basic	ML - Btw VA 267 & GWMP	873	2	1477	1016					2493	2491	63	64					63	63	24	16					20	C	20	C	20	C
		2286	2	1482	1012					2494		63	63					63		24	16					20	C	20	C		
		787	2	1481	1003					2484		63	63					63		24	16					20	C	20	C		
		954	2	1503	985					2488		62	62					62		24	16					20	C	20	C		
merge		303	3	1439	923	122				2483	2483	63	61	46				57	57	23	15	3				14	B	14	B	14	B
basic	ML - GWMP interchange through MD 19 interchange	2891	2	1422	783					2204	2204	63	64					64	64	23	12					18	C	18	C	18	C
diverge		697	3	443	1798	572				2813	2813	63	61	61				62	62	7	30	10				15	B	15	B	15	B
basic		572	2	635	2164					2799	2820	62	57					59	63	10	38					24	C	24	C	23	C
		1070	2	740	2073					2812		63	60					61		12	35					23	C	23	C		
		3680	2	1435	1384					2819		63	63					63		23	22					23	C	23	C		
		540	2	1442	1381					2823		63	63					63		23	22					23	C	23	C		
		733	2	1443	1379					2822		63	63					63		23	22					23	C	23	C		
		905	2	1441	1379					2820		63	63					63		23	22					23	C	23	C		
		580	2	1442	1381					2823		63	63					63		23	22					23	C	23	C		
		298	2	1440	1380					2820		63	63					63		23	22					23	C	23	C		
		1376	2	1442	1384					2826		63	63					63		23	22					23	C	23	C		
		627	2	1440	1391					2831		62	62					62		23	23					23	C	23	C		
		404	2	1438	1397					2836		62	62					62		23	23					23	C	23	C		
merge		800	3	1394	1295	147				2836	2836	63	63	59				62	62	22	21	3				15	B	15	B	15	B
basic		935	2	1300	1170					2470	2470	63	63					63	63	21	19					20	C	20	C	20	C
diverge		509	3	672	1315	1161				3148	3148	63	63	63				63	63	11	21	19				17	B	17	B	17	B
basic		1249	3	627	1388	1139				3154	3154	63	63	63				63	63	10	22	18				17	B	17	B	17	B
diverge	ML - Btw MD 190 & I-270 West Spur	589	4	790	1193	1243	187			3412	3412	64	63	63	63			63	63	13	19	20	3			14	B	14	B	14	B
basic		3452	3	825	1252	1336				3413	3413	64	63	63				63	63	13	20	21				18	C	18	C	18	C
merge		702	3	799	1306	1302				3408	3408	63	63	63				63	63	13	21	21				18	B	18	B	18	B
basic	ML - Btw I-270 West Spur & MD 187	887	1	762						762	763	63						63	58	12						12	B	12	B	13	B
		1676	1	764						764		56						56		14						14	B	14	B		
		713	1	764						764		58						58		13						13	B	13	B		

I-495 Outer Loop - 2045 Preferred Alternative - 9-10 AM

VISSIM Lookup Data				Volume								Speed									Density									
				Volume Per Lane						Across All Lanes	Overall Volume	Speed Per Lane							Across All Lanes	Overall Speed	Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)						Total Volume	Average Volume (veh/hr)	Speed (mph)							Average Speed	Average Speed (mph)	Combined Density (pcphpl)							Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Btw VA 267 & VA 193	873	5	751	1239	1569	1421	1197		6177	6177	54	53	52	53	53			53	53	14	24	30	27	23			24	C	24	C	24	C
merge		853	6	58	697	1216	1593	1418	1191	6173	6173	53	54	53	53	54	54		54	54	1	13	23	30	27	22		20	C	12	B	12	B
merge		1322	5	342	1204	1615	1417	1186		5765	5765	56	53	53	53	53			54	54	6	23	31	27	23			22	C	20	C	20	C
basic	VA 193 interchange & GWMP interchange	786	4	1334	1641	1420	1172			5567	5572	53	53	53	53				53	53	26	32	27	22				27	D	27	D	27	D
		727	4	1331	1656	1425	1165			5577		53	53	53	53				53		26	32	27	22				27	D	27	D		
diverge		591	5	465	1411	1686	1428	1151		6140	6140	54	53	53	53	53			53	53	9	27	32	27	22			24	C	23	C	23	C
basic		1828	4	1899	1747	1409	1116			6170	6170	51	52	53	53				52	52	38	34	27	21				30	D	30	D	30	D
diverge		720	5	979	2023	1790	1278	1013		7084	7084	47	50	52	53	54			51	51	21	41	35	24	19			28	D	32	D	32	D
basic	Btw GWMP & Clara Barton Pkwy	453	5	1199	1985	1749	1151	996		7080	7077	53	52	53	54	54			53	53	23	39	34	22	19			27	D	27	D	27	D
		2500	5	1890	1603	1409	1161	1013		7076		51	52	53	54	54			53		37	31	27	22	19			27	D	27	D		
merge		462	6	38	1366	1677	1599	1287	1099	7067	7067	36	46	51	53	53	53		49	49	1	30	34	31	24	21		23	C	24	C	24	C
basic	Clara Barton Pkwy interchange	1131	4	2022	1599	1269	1097			5987	5987	51	53	54	54				53	53	41	31	24	21				29	D	29	D	29	D
diverge	Btw Clara Barton Pkwy & MD 190	401	5	79	1874	1634	1356	1115		6057	6057	53	52	53	53	54			53	53	2	37	32	26	21			23	C	23	C	23	C
basic		1108	4	1655	1706	1481	1269			6111	6105	53	53	54	54				53	53	32	33	28	24				29	D	29	D	29	D
		699	4	1630	1703	1480	1265			6079		52	53	53	53				53		32	33	28	24				29	D	29	D		
		282	4	1639	1708	1486	1264			6096		52	53	53	53				53		32	33	28	24				29	D	29	D		
		1935	4	1658	1721	1481	1250			6110		52	53	53	53				53		32	33	28	24				29	D	29	D		
		740	4	1663	1783	1467	1200			6112		51	51	52	53				52		33	35	28	23				30	D	30	D		
merge		1594	5	369	1477	1724	1355	1186		6111	6111	54	53	53	54	54			53	53	7	28	33	26	22			23	C	23	C	23	C
basic	MD 190 interchange	2499	4	1643	1546	1339	1170			5698	5698	53	53	53	53				53	53	32	30	25	22				27	D	27	D	27	D
diverge		1081	5	590	1672	1567	1310	1132		6271	6271	53	52	53	53	53			53	53	11	33	30	25	22			24	C	25	C	25	C
diverge	Btw MD 190 & I-270 West Spur	407	6	751	605	1690	1592	1268	1100	7006	7011	54	54	53	53	54	54		53	54	14	11	33	31	24	21		22	C	19	B	20	C
		718	6	631	785	1691	1600	1218	1089	7014		54	54	53	53	54	54		54		12	15	33	31	23	21		22	C	20	C		
basic		501	5	1922	1446	1376	1185	1077		7006	7014	53	53	53	54	54			53	52	37	28	26	22	20			27	D	27	D	28	D
		2892	5	2066	1485	1274	1145	1046		7016		49	52	53	53	53			52		43	29	25	22	20			28	D	28	D		
weave		621	6	305	2064	1481	1112	1058	993	7013	7004	49	49	52	53	53	53		52	53	6	43	29	21	20	19		23	C	23	C	23	C
		281	6	1268	1256	895	1195	1232	1151	6998		53	53	54	54	53	53		54		24	24	17	23	23	22		22	C	22	C		
		242	6	1250	1244	853	1204	1257	1179	6986		53	53	54	53	53	53		54		24	24	16	23	24	22		22	C	22	C		
basic	Btw I-270 West Spur & MD 187	2743	3	1239	1271	1152				3663	3663	52	52	52					52	52	24	25	22					24	C	24	C	24	C
diverge		851	4	1263	1296	1186	454			4199	4199	53	53	53	53				53	53	24	25	23	9				20	C	19	B	19	B
basic		2904	3	1379	1382	1444				4205	4202	53	53	53					53	53	26	26	28					27	D	27	D	27	D
		1128	3	1444	1419	1337				4201		53	53	53					53		28	27	26					27	D	27	D		
		1088	3	1473	1419	1304				4196		52	53	53					53		29	27	25					27	D	27	D		
merge		406	4	277	1341	1330	1229			4177	4177	51	53	53	53				52	52	6	26	26	23				20	C	19	B	19	B
basic	MD 187 interchange	2022	3	903	1167	1234				3305	3305	54	53	53					53	53	17	22	23					21	C	21	C	21	C
diverge	Btw MD 187 & I-270 East Spur	325	4	214	1003	1192	1239			3648	3648	52	53	53	53				53	53	4	19	23	24				17	B	15	B	15	B
basic		1192	3	1218	1186	1241				3645	3647	53	53	53					53	53	23	23	24					23	C	23	C	23	C
		913	3	1219	1180	1249				3648		53	53	53					53		23	22	24					23	C	23	C		
		494	3	1106	1233	1309				3648		53	53	53					53		21	24	25					23	C	23	C		
merge		910	4	836	1363	1382	61			3642	3642	50	49	49	48				49	49	17	28	29	1				19	B	19	B	19	B
basic	I-270 East Spur interchange	288	3	691	1334	1202				3227	3227	53	53	53					53	53	13	25	23					21	C	21	C	21	C
weave		1593	4	1514	2202	1395	1219			6330	6330	53	53	53	53				53	53	29	43	27	23				30	D	30	D	30	D
diverge	Btw I-270 East Spur & MD 185	402	5	581	1654	2283	1393	1212		7123	7123	52	53	52	53	53			53	53	11	32	45	27	23			27	C	29	D	29	D
basic		1045	4	2196	2323	1408	1207			7133	7109	51	51	53	53				52	50	44	46	27	23				35	E	35	E	36	E
		2087	4	2111	2462	1419	1128			7120		49	48	51	53				50		44	52	28	22				37	E	37	E		
		1257	4	2251	1992	1887	967			7097		46	48	50	52				49		50	42	38	19				37	E	37	E		
		526	4	1912	2138	1841	1155			7046		48	49	51	52				50		41	44	37	23				36	E	36	E		
basic	ML - Btw VA 267 & GWMP	873	2	1488	996					2484	2480	63	64						63	63	24	16						20	C	20	C	20	C
		2286	2	1497	986					2482		63	64						63		24	16						20	C	20	C		
		787	2	1498	973					2472		63	64						63		24	16						20	C	20	C		
		954	2	1523	953					2476		63	63						63		25	15						20	C	20	C		
merge		303	3	1475	900	91				2467	2467	63	62	47					57	57	24	15	2					14	B	14	B	14	B
basic	ML - GWMP interchange through MD 19 interchange	2891	2	1466	787					2252	2252	63	64						64	64	24	13						18	C	18	C	18	C
diverge		697	3	472	1800	566				2837	2837	63	61	60					61	61	8	30	10					16	B	16	B	16	B
basic		572	2	640	2186					2825	2837	62	57						59	62	11	39						25	C	25	C	23	C
		1070	2	744	2099					2843		63	60						61		12	35						24	C	24	C		
		3680	2	1449	1391					2841		63	63						63		23	22						23	C	23	C		
		540	2	1445	1392					2837		63	63						63		23	22						23	C	23	C		
		733	2	1445	1391					2836		63	63						63		23	22						23	C	23	C		
		905	2	1444	1389					2833		63	63						63		23	22						23	C	23	C		
		580	2	1445	1392					2836		63	63						63		23	22						23	C	23	C		
		298	2	1443	1390					2833		63	63						63		23	22						23	C	23	C		
		1376	2	1442	1392					2834		63	63						63		23	23						23	C	23	C		
		627	2	1425	1405					2830		62	62						62		23	23						23	C	23	C		
		404	2	1413	1414					2827		62	62						62		23	23						23	C	23	C		
merge		800	3	1338	1288	199				2825	2825	63	62	59					61	61	22	21	3					15	B	15	B	15	B
basic		935	2	1206	1076					2282	2282	63	63						63	63	19	17						18	C	18	C	18	C
diverge		509	3	769	1222	1067				3058	3058	63	63	63					63	63	12	20	17					16	B	16	B	16	B
basic		1249	3	706	1306	1047				3059	3059	63	63	63					63	63	11	21	17					16	B	16	B	16	B
diverge	ML - Btw MD 190 & I-270 West Spur	589	4	676	1215	1228	160			3278	3278	64	63	63	63				63	63	11	20	20	3				13	B	14	B	14	B
basic		3452	3	668	1276	1332				3276	3276	64	63	63					63	63	11	20	21					18	C	18	C	18	C
merge		702	3	613	1335	1315				3263	3263	64	63	63					63	63	10	21	21					17	B	17	B	17	B
basic	ML - Btw I-270 West Spur & MD 187	887	1	552						552	550	63							63	58	9							9	A	9	A	10	A
		1676	1	550						550		56							56		10							10	A	10	A		
		713	1	549						549		58							58		10							10	A	10	A		

I-270 Southbound - 2045 Preferred Alternative - 6-7 AM

| VISSIM Lookup Data | | | | Volume | | | | | | | | | | Speed | | | | | | | | | | Density | | | | | | | | | |

I-270 Southbound - 2045 Preferred Alternative - 7-8 AM

VISSIM Lookup Data				Volume										Speed										Density													
				Volume Per Lane								Across All Lanes	Overall Volume	Speed Per Lane								Across All Lanes	Overall Speed	Density Per Lane								Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)								Total Volume	Average Volume (veh/hr)	Speed (mph)								Average Speed	Average Speed (mph)	Combined Density (pcphpl)								Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Through MD 117 interchange	658	4	1802	1913	1975	1974					7663	7723	19	21	22	22					21	20	97	94	92	93					94	F	94	F	97	F
		3062	4	1788	1895	2009	2044					7736		18	19	22	23					20		104	100	93	91					97	F	97	F		
merge		1569	5	1494	1871	1921	2056	2212				9556	9556	27	19	20	24	28				24	24	55	99	98	87	79				84	F	84	F	84	F
basic	Btw MD 117 & I-370	1152	6	855	873	1901	1834	1887	2234			9583	9592	49	44	38	38	38	38			41	44	18	20	51	49	50	60			41	E	41	E	39	E
		430	6	1157	899	1737	1742	1807	2272			9615		53	52	50	51	51	49			51		22	17	35	35	36	47			32	D	32	D		
diverge		928	6	1194	931	1680	1713	1813	2269			9600	9583	53	53	49	50	51	49			51	51	23	18	35	35	36	47			32	D	28	D	28	D
		38	6	1158	889	1575	1611	1755	2164			9153		53	50	46	50	50	49			50		22	18	35	33	36	45			31	D	27	C		
basic	I-370 interchange	1066	4	1646	1712	1824	2261					7442	7456	52	52	52	51					52	52	32	33	35	45					36	E	36	E	36	E
		1043	4	1654	1721	1826	2261					7462		53	53	53	52					53		32	33	35	44					36	E	36	E		
		884	4	1658	1724	1834	2250					7466		53	53	53	49					52		32	33	35	46					37	E	37	E		
diverge		203	5	1667	1742	1925	1300	825				7458	7458	53	53	52	42	40				48	48	32	34	38	31	21				31	D	30	D	30	D
basic		183	4	1651	1730	1806	833					6019	6019	53	53	53	52					53	53	32	33	35	16					29	D	29	D	29	D
basic		941	5	185	1500	1717	1781	897				6080	6080	58	53	53	53	54				54	54	3	29	33	34	17				23	C	23	C	23	C
weave	Btw I-370 & Shady Grove Rd	703	7	259	1595	1144	1365	1490	1537	831		8221	8221	52	51	53	53	53	53	54		53	53	5	31	22	26	28	29	16		23	C	23	C	23	C
diverge		1673	6	1223	1868	1582	1337	1397	807			8214	8214	51	51	52	53	53	54			52	52	25	37	31	26	27	15			27	C	31	D	31	D
basic		510	5	1537	1662	1440	1414	840				6893	6893	52	53	53	53	54				53	53	30	32	28	27	16				26	D	26	D	26	D
merge	Shady Grove Rd interchange	1027	6	94	1568	1919	1520	1418	858			7378	7378	35	51	52	53	53	54			50	50	3	31	37	29	27	16			24	C	24	C	24	C
basic		209	5	1632	1850	1594	1430	872				7378	7378	52	52	53	53	54				53	53	32	36	31	27	16				29	D	29	D	29	D
merge		504	6	106	1644	2001	1616	1434	896			7697	7697	36	51	52	53	53	54			50	50	3	33	39	31	27	17			25	C	25	C	25	C
basic	Btw Shady Grove Rd & MD 28	4159	5	1844	1863	1632	1418	961				7718	7712	52	52	53	53	54				53	53	36	36	31	27	18				30	D	30	D	30	D
		458	5	1866	1830	1618	1425	993				7733		53	53	53	53	54				53		36	35	31	27	19				30	D	30	D		
		982	5	1852	1817	1609	1421	999				7698		53	53	53	53	54				53		36	35	31	27	19				30	D	30	D		
		396	5	1837	1803	1600	1416	1003				7660		53	53	53	53	54				53		35	35	31	27	19				29	D	29	D		
diverge		526	6	251	1606	1806	1614	1428	1013			7718	7718	54	53	53	54	54	54			54	54	5	31	34	31	27	19			24	C	23	C	23	C
basic		1448	5	1557	1783	1608	1437	1032				7417	7417	53	53	53	53	53	53			53	53	30	34	31	28	20				29	D	29	D	29	D
merge	MD 28 interchange	672	6	324	1455	1767	1600	1441	1047			7634	7634	52	53	53	54	53	54			53	53	6	28	34	30	27	20			24	C	23	C	23	C
basic		272	6	384	1405	1761	1604	1444	1051			7648	7650	56	53	53	53	53	53			53	53	7	27	34	31	28	20			24	C	24	C	25	C
		281	6	429	1347	1773	1603	1442	1057			7651		56	53	52	52	52	53			53		8	26	35	31	28	20			25	C	25	C		
merge		499	7	328	952	1341	2213	1574	1382	1014		8805	8805	46	51	51	52	53	53	54		52	52	7	19	27	43	30	26	19		24	C	18	B	18	B
basic	Btw MD 28 & MD 189	405	6	616	1961	2285	1629	1342	988			8821	8821	51	49	50	53	53	54			52	52	12	41	46	31	26	19			29	D	29	D	29	D
		2028	6	648	1927	2086	1757	1397	1006			8821		53	51	52	53	53	54			53		12	38	41	34	27	19			28	D	28	D		
diverge		487	6	673	1896	2024	1767	1425	1027			8813	8813	53	51	52	52	53	53			52	52	13	38	40	34	27	19			29	D	30	D	30	D
basic	MD 189 interchange	777	5	1870	1985	1750	1449	1070				8125	8153	51	51	52	52	53				52	52	37	39	34	28	21				32	D	32	D	32	D
		2018	5	1848	1943	1756	1485	1132				8164		51	51	52	52	53				53		37	39	34	29	22				32	D	32	D		
merge		717	6	524	1842	2343	1864	1568	1215			9356	9356	34	34	41	47	50	51			43	43	17	56	59	41	32	25			38	E	44	F	44	F
basic	Btw MD 189 & Montrose Rd	1028	5	2168	2070	1959	1738	1436				9372	9359	38	41	45	48	49				44	49	58	51	44	37	30				44	E	44	E	40	E
		198	5	2194	1968	1872	1734	1489				9258		45	48	51	52	52				50		49	42	38	34	29				38	E	38	E		
		1502	5	2224	1957	1892	1761	1529				9363		48	51	52	53	53				51		47	39	37	34	29				37	E	37	E		
diverge		375	6	108	2114	1930	1906	1775	1551			9384	9384	45	51	52	53	53	54			51	51	2	42	38	37	34	29			30	D	27	C	27	C
basic	Montrose Rd interchange	880	5	2080	1910	1899	1775	1558				9222	9222	52	53	53	53	53				53	53	41	37	36	34	30				35	E	35	E	35	E
weave		644	6	978	1730	2200	1950	1790	1567			10215	10215	41	43	49	52	53	53			48	48	25	41	46	38	34	30			36	E	36	E	36	E
basic		806	5	1733	2104	2065	1850	1612				9364	9364	49	50	51	52	52				51	51	36	43	41	36	32				38	E	38	E	38	E
weave	Btw Montrose Rd & Spur Split	828	6	638	1722	2149	2028	1847	1651			10035	9908	48	48	46	45	44	43			45	38	14	38	49	48	45	41			39	E	39	E	53	F
		1055	6	904	1649	1905	2030	1815	1702			10004		47	38	33	30	29	29			34		20	47	64	74	68	64			56	F	56	F		
		3754	6	1484	1176	1760	1863	1792	1823			9898		50	42	28	22	19	24			31		30	28	65	85	96	78			64	F	64	F		
		663	6	1706	1384	1221	1878	1738	1889			9816		53	52	49	45	46	49			49		33	27	25	43	39	39			34	D	34	D		
		605	6	1701	1433	1247	1810	1735	1860			9785		53	53	53	51	51	51			52		33	27	24	36	35	37			32	D	32	D		
		416	6	1703	1446	1293	1809	1719	1863			9833		53	53	53	52	52	52			52		33	28	25	36	34	36			32	D	32	D		
basic	Spur Split through MD 187 interchange	694	3	1458	1623	1718						4799	4808	56	58	58						57	60	26	29	30						28	D	28	D	27	D
		1027	3	1495	1640	1680						4815		60	62	62						61		25	27	28						27	D	27	D		
diverge		473	4	678	826	1625	1673					4801	4801	62	63	62	62					62	62	11	13	27	27					20	C	20	C	20	C
basic		2458	2	1607	1667							3274	3274	63	63							63	63	26	27							27	D	27	D	27	D
merge		502	3	78	1569	1775						3422	3422	34	60	62						52	52	2	26	29						19	B	19	B	19	B
basic		550	2	1646	1813							3459	3459	61	61							61	61	27	30							29	D	29	D	29	D
merge	Btw MD 187 & I-495	955	3	197	1544	2007						3748	3748	51	60	61						57	57	4	26	33						21	C	21	C	21	C
basic		1835	2	1759	1986							3745	3745	61	61							61	61	30	33							31	D	31	D	31	D
weave		2007	3	1779	2222	231						4232	4229	61	60	63						62	62	29	37	4						23	C	23	C	23	C
		1491	3	1697	1431	1097						4226		62	62	63						62		28	24	18						23	C	23	C		
basic		1568	2	1624	1391							3015	3015	47	45							46	46	37	34							35	E	35	E	35	E
basic	Spur Split to Democracy Blvd	2632	4	1775	1402	1197	647					5020	5020	53	53	53	54					53	53	34	27	23	12					24	C	24	C	24	C
diverge		1205	4	538	1827	1813	850					5029	5029	52	52	52	54					53	53	10	36	35	16					24	C	27	C	27	C
merge	Democracy Blvd	1103	4	1862	1743	1068	201					4874	4874	52	53	54	56					54	54	36	34	20	4					23	C	19	B	19	B
basic		1559	3	1698	1656	1572						4925	4925	53	53	52						52	52	33	32	31						32	D	32	D	32	D
diverge		597	4	1656	1546	1213	512					4926	4926	51	49	48	52					50	50	33	32	25	10					25	C	30	D	30	D
basic		473	3	1655	1502	1095						4252	4252	52	52	53						52	52	32	29	21						28	D	28	D	28	D
merge	Democracy Blvd to I-495	705	4	174	1639	1757	1137					4706	4706	53	52	52	54					53	53	3	32	34	21					23	C	23	C	23	C
basic		1692	3	1730	1715	1261						4706	4706	52	53	53						53	53	34	33	24						30	D	30	D	30	D
basic	ML - I-370 interchange	834	1	1378								1378	1374	50								50	55	28								28	D	28	D	26	D
		302	1	1375								1375		56								56		25								25	C	25	C		
		2032	1	1372								1372		57								57		25								25	C	25	C		
merge	ML - Btw I-370 & Gude Dr	703	2	1261	1086							2348	2348	61	61							61	61	21	18							19	B	19	B	19	B
basic		2364	2	1179	1164							2342	2342	63	62							63	63	19	19							19	C	19	C	19	C
		134	2	1143	1197							2341		63	62							62		18	20							19	C	19	C		
diverge		405	3	1135	1016	179						2330	2330	63	62	61						62	62	18	17	3						13	B	13	B	13	B
basic	ML - Gude Dr interchange	3730	2	1115	950							2066	2066	63	63							63	63	18	15							17	B	17	B	17	B
merge		363	3	1250	1147	240						2636	2636	62	58	34						51	51	21	20	7						16	B	16	B	16	B
basic	ML - Btw Gude Dr & Wootton Pkwy	3064	2	1381	1259							2639	2641	62	62							62	63	23	21							22	C	22	C	21	C
		794	2	1380	1259							2639		63	63							63		22	20							21	C	21	C		
		470	2	1386	1262							2648		63	63							63		22	20							21	C	21	C		
		1684	2	1380	1265							2644		63	63							63		22	20							21	C	21	C		
		3871	2	1327	1312							2640		63	63							63		21	21							21	C	21	C		
diverge		293	3	1300	1123	212						2635	2635	61	59	54						58	58	21	19	4						15	B	15	B	15	B
basic	ML - Wootton Pkwy interchange	3349	2	1262	1030							2292	2292	63	63							63	63	20	17							18	C	18	C	18	C
merge		875	3	1358	1247	140						2746	2746	62	62	60						62	62	22	20	2						15	B	15	B	15	B
basic	ML - Btw Wootton Pkwy & Spur Split	742	2	1411	1339							2750	2746	62	62							62	63	23	22							23	C	23	C	22	C
		1144	2	1418	1332							2750		63	63							63		23	22							22	C	22	C		
		420	2	1420	1332							2752		63	63							63		23	22							22	C	22	C		
		1516	2	1418	1332							2750		63	63							63		23	21							22	C	22	C		
		4115	2	1457	1284							2741		63	63							63		24	21							22	C	22	C		
diverge		1050	3	423	1153	1162						2738	2738	63	63	63						63	63	7	19	19						15	B	15	B	15	B
basic	ML - Spur Split through MD 187 interchange	5364	1	499								499	498	64								64	64	8								8	A	8	A	8	A
		1942	1	497								497		63								63		8								8	A	8	A		
		1803	1	497								497		63								63		8								8	A	8	A		
basic	ML - Spur Split to Westlake Ter/ Fernwood Rd	1266	2	998	1244							2243	2243	63	63							63	63	16	20							18	C	18	C	18	C
diverge		709	3	967	973	300						2241	2241	63	63	63						63	63	16	16	5						12	B	12	B	12	B
basic	ML - Westlake Ter/Fernwood Rd interchange	851	2	1003	858							1861	1859	63	63							63	63	16	14							15	B	15	B	15	B
		1013	2	1021	837							1858		63	64							63		17	13							15	B	15	B		
diverge		276	3	119	859	880						1859	1859	52	61	63						59	59	2	14	14						10	B	10	B	10	B
basic		443	2	790	875							1664	1663	63	63							63	63	13	14							13	B	13	B	13	B
		628	2	795	868							1663		64	63							63		13	14							13	B	13	B		
merge	ML - Westlake Ter/Fernwood Rd to I-495	724	3	860	1011	121						1992	1992	63	63	63						63	63	14	16	2						11	B	11	B	11	B
basic		1677	2	910	1083							1993	1993	63	63							63	63	15	17							16	B	16	B	16	B
merge		972	3	302	1165	1206						2673	2673	57	63	63						61	61	5	19	19						15	B	15	B	15	B
basic		2160	2	1349	1321							2670	2670	63	63							63	63	22	21							22	C	22	C	22	C
		322	2	1342	1326							2668		63	63							63		22	21							21	C	21	C		

I-270 Southbound - 2045 Preferred Alternative - 8-9 AM

VISSIM Lookup Data				Volume										Speed										Density									
				Volume Per Lane								Across All Lanes	Overall Volume	Speed Per Lane								Across All Lanes	Overall Speed	Density Per Lane								Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)								Total Volume	Average Volume (veh/hr)	Speed (mph)								Average Speed	Average Speed (mph)	Combined Density (pcphpl)								Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Through MD 117 interchange	658	4	1799	1885	1953	1972					7610	7644	19	20	21	21					20	20	97	96	94	93					95	F	95	F	98	F
		3062	4	1787	1856	1972	2037					7651		17	19	21	23					20		104	102	95	92					98	F	98	F		
merge		1569	5	1541	1839	1872	2032	2183				9468	9468	27	19	19	23	28				23	23	59	101	100	89	80				86	F	86	F	86	F
basic	Btw MD 117 & I-370	1152	6	1025	947	1832	1744	1772	2176			9496	9502	48	44	38	37	38	39			41	43	22	22	50	48	48	57			41	E	41	E	39	E
		430	6	1386	1046	1600	1602	1673	2212			9519		52	52	51	51	51	49			51		27	20	32	32	34	46			32	D	32	D		
diverge		928	6	1436	1086	1528	1573	1668	2214			9504	9487	53	53	48	49	50	49			50	50	28	21	32	33	34	46			32	D	28	D	28	D
		38	6	1391	1046	1406	1486	1611	2117			9059		53	52	44	50	50	50			50		27	20	33	30	33	43			31	D	28	D		
basic	I-370 interchange	1066	4	1479	1563	1678	2213					6934	6942	52	52	52	51					52	52	29	30	33	44					34	D	34	D	34	D
		1043	4	1488	1570	1678	2210					6946		53	53	53	52					53		29	30	32	43					33	D	33	D		
		884	4	1494	1571	1686	2197					6948		53	53	53	50					52		29	30	32	45					34	D	34	D		
diverge		203	5	1501	1585	1792	1209	855				6942		53	53	52	42	41				48	48	29	30	35	29	22				29	D	28	D	28	D
basic		183	4	1490	1572	1684	708					5454	5454	53	53	53	53					53	53	29	30	32	14					26	D	26	D	26	D
basic		941	5	167	1358	1560	1663	764				5512	5512	59	53	53	53	54				55	55	3	26	30	32	14				21	C	21	C	21	C
weave	Btw I-370 & Shady Grove Rd	703	7	242	1537	1119	1235	1313	1371	679		7495	7495	52	51	53	53	53	53	54		53	53	5	30	22	24	25	26	13		21	C	21	C	21	C
diverge		1673	6	1309	1817	1398	1117	1216	643			7500	7500	50	51	53	53	53	54			52	52	26	36	27	21	23	12			24	C	30	D	30	D
basic		510	5	1351	1505	1214	1231	669				5970	5970	53	53	53	53	54				53	53	26	29	23	23	13				23	C	23	C	23	C
merge	Shady Grove Rd interchange	1027	6	110	1418	1788	1320	1237	684			6557	6557	35	51	52	53	53	54			50	50	3	28	35	25	24	13			21	C	22	C	22	C
basic		209	5	1476	1718	1408	1260	697				6557	6557	52	52	53	53	54				53	53	29	33	27	24	13				25	C	25	C	25	C
merge		504	6	123	1535	1887	1432	1265	719			6960	6960	36	50	52	53	53	54			50	50	3	31	37	27	24	13			23	C	24	C	24	C
basic	Btw Shady Grove Rd & MD 28	4159	5	1793	1741	1445	1236	768				6983	6976	52	53	53	53	54				53	53	35	34	28	24	14				27	D	27	D	27	D
		458	5	1825	1706	1434	1233	797				6996		53	53	53	53	54				53		35	33	27	23	15				27	D	27	D		
		982	5	1809	1691	1426	1231	802				6958		53	53	53	53	54				53		35	33	27	23	15				27	D	27	D		
		396	5	1795	1677	1417	1227	806				6922		53	53	53	53	54				53		35	32	27	23	15				26	D	26	D		
diverge	MD 28 interchange	526	6	341	1473	1679	1426	1240	815			6975	6975	54	53	53	54	54	54			54	54	7	28	32	27	23	15			22	C	22	C	22	C
basic		1448	5	1407	1647	1421	1248	833				6557	6557	53	53	53	53	54	54			53	53	27	32	27	24	16				25	C	25	C	25	C
merge		672	6	332	1344	1630	1421	1247	848			6821	6821	51	53	53	54	54	54			53	53	7	26	31	27	24	16			22	C	21	C	21	C
basic		272	6	380	1298	1634	1424	1250	851			6836	6836	56	53	53	53	53	53			53	53	7	25	32	27	24	16			22	C	22	C	22	C
		281	6	418	1245	1645	1419	1254	856			6837		55	53	52	53	53	53			53		8	24	32	27	24	16			22	C	22	C		
merge		499	7	301	886	1275	2032	1381	1192	821		7887	7887	47	51	52	52	53	54	54		52	52	7	18	25	39	26	23	15		22	C	16	B	16	B
basic	Btw MD 28 & MD 189	405	6	587	1840	2095	1424	1158	797			7902	7907	52	50	51	53	53	54			52	53	12	37	42	27	22	15			26	D	26	D	25	C
		2028	6	631	1795	1930	1531	1205	816			7907		53	52	52	53	53	54			53		12	35	38	29	23	15			25	C	25	C		
diverge		487	6	662	1766	1869	1542	1225	834			7897	7897	53	52	52	53	53	54			53	53	13	35	37	30	23	16			25	C	28	D	28	D
basic	MD 189 interchange	777	5	1739	1826	1537	1247	860				7209	7237	52	52	52	53	53				52	53	34	36	30	24	16				28	D	28	D	28	D
		2018	5	1728	1794	1543	1277	906				7248		53	53	53	54					53		33	35	30	24	17				28	D	28	D		
merge		717	6	438	1948	2326	1624	1303	931			8571	8571	47	46	48	52	53	54			50	50	10	43	49	32	25	17			29	D	34	D	34	D
basic	Btw MD 189 & Montrose Rd	1028	5	2253	2083	1819	1412	1003				8571	8558	41	45	49	51	52				48	50	55	47	38	28	19				38	E	38	E	35	E
		198	5	2242	1967	1742	1445	1072				8468		46	49	52	53	53				51		50	41	34	28	20				35	E	35	E		
		1502	5	2267	1921	1761	1487	1126				8561		48	51	53	53	54				52		48	38	34	28	21				34	D	34	D		
diverge	Montrose Rd interchange	375	6	109	2146	1884	1763	1521	1157			8581	8581	45	51	52	53	53	54			51	51	2	43	37	34	29	22			28	D	28	D	28	D
basic		880	5	2108	1862	1755	1524	1171				8420	8420	52	53	53	53	54				53	53	41	36	34	29	22				32	D	32	D	32	D
weave		644	6	1074	1673	2123	1803	1535	1185			9392	9392	41	44	50	52	53	53			49	49	27	39	43	35	29	22			33	D	33	D	33	D
basic		806	5	1615	2024	1912	1595	1242				8388	8388	50	51	52	53	53				52	52	33	41	37	31	24				33	D	33	D	33	D
weave	Btw Montrose Rd & Spur Split	828	6	652	1680	2171	1919	1615	1275			9313	9398	49	50	50	51	51	50			50	41	14	34	44	39	32	26			31	D	31	D	45	F
		1055	6	728	1555	1958	2129	1633	1346			9349		50	45	41	40	39	38			42		15	37	50	56	46	39			41	E	41	E		
		3754	6	1182	1015	1776	1927	1811	1704			9416		51	46	31	26	23	27			34		24	23	59	78	85	67			56	F	56	F		
		663	6	1468	1259	1138	1916	1773	1883			9437		53	52	49	45	46	49			49		28	25	24	44	40	39			33	D	33	D		
		605	6	1478	1315	1160	1845	1751	1859			9408		53	53	53	51	51	52			52		28	25	22	37	35	37			31	D	31	D		
		416	6	1480	1328	1211	1854	1724	1858			9456		53	53	53	51	52	52			53		28	25	23	37	34	36			31	D	31	D		
basic	Spur Split through MD 187 interchange	694	3	1643	1616	1695						4954	4964	55	58	58						57	59	30	28	30						29	D	29	D	28	D
		1027	3	1694	1619	1658						4970		59	62	62						61		29	27	27						28	D	28	D		
diverge		473	4	779	929	1593	1659					4961	4961	62	62	62	62					62	62	13	15	26	27					20	C	20	C	20	C
basic		2458	2	1581	1660							3241	3241	63	63							63	63	26	27							26	D	26	D	26	D
merge		502	3	84	1539	1779						3402	3402	33	60	61						52	52	3	26	29						19	B	19	B	19	B
basic		550	2	1637	1805							3442	3442	61	61							61	61	27	30							29	D	29	D	29	D
merge	Btw MD 187 & I-495	955	3	245	1564	2048						3856	3856	50	60	61						57	57	5	27	34						22	C	22	C	22	C
basic		1835	2	1813	2048							3861	3861	60	60							60	60	31	34							33	D	33	D	33	D
weave		2007	3	1815	2293	262						4370	4374	61	60	63						61	62	30	39	4						24	C	24	C	24	C
		1491	3	1733	1384	1262						4379		63	63	62						63		28	22	21						24	C	24	C		
basic		1568	2	1631	1365							2996	2996	45	43							44	44	37	32							35	E	35	E	35	E
basic	Spur Split to Democracy Blvd	2632	4	1646	1253	1071	520					4491	4491	53	53	54	55					54	54	32	24	20	10					21	C	21	C	21	C
diverge		1205	4	721	1599	1522	654					4496	4496	52	52	53	55					53	53	14	31	29	12					22	C	25	C	25	C
merge	Democracy Blvd	1103	4	1617	1482	800	116					4015	4015	53	53	55	59					55	55	31	28	15	2					19	B	15	B	15	B
basic		1559	3	1433	1357	1272						4061	4061	53	53	53						53	53	27	26	24						26	D	26	D	26	D
diverge		597	4	1387	1254	911	514					4067	4067	53	52	52	53					53	53	27	24	18	10					20	C	23	C	23	C
basic		473	3	1384	1219	789						3392	3392	53	53	54						53	53	27	23	15						22	C	22	C	22	C
merge	Democracy Blvd to I-495	705	4	217	1501	1515	821					4053	4053	53	53	53	55					53	53	4	29	29	15					19	B	21	C	21	C
basic		1692	3	1580	1521	956						4058	4058	52	53	54						53	53	31	29	18						26	D	26	D	26	D
basic	ML - I-370 interchange	834	1	1438								1438	1439	49								49	55	30								30	D	30	D	27	D
		302	1	1440								1440		56								56		26								26	D	26	D		
		2032	1	1440								1440		57								57		26								26	D	26	D		
merge	ML - Btw I-370 & Gude Dr	703	2	1346	1214							2560	2560	61	61							61	61	22	20							21	C	21	C	21	C
basic		2364	2	1278	1281							2559	2559	63	62							63	63	21	21							21	C	21	C	21	C
		134	2	1254	1308							2562		63	62							62		20	22							21	C	21	C		
diverge		405	3	1245	1115	192						2552	2552	62	61	60						61	61	20	19	3						14	B	14	B	14	B
basic	ML - Gude Dr interchange	3730	2	1227	1047							2275	2275	63	63							63	63	20	17							18	C	18	C	18	C
merge		363	3	1368	1200	224						2791	2791	62	58	29						50	50	23	21	8						17	B	17	B	17	B
basic	ML - Btw Gude Dr & Wootton Pkwy	3064	2	1469	1317							2786	2777	62	62							62	62	24	22							23	C	23	C	23	C
		794	2	1449	1320							2768		63	63							63		23	21							22	C	22	C		
		470	2	1453	1323							2776		63	63							63		24	21							22	C	22	C		
		1684	2	1449	1324							2772		63	63							63		23	21							22	C	22	C		
		3871	2	1396	1378							2774		63	63							63		23	22							22	C	22	C		
diverge		293	3	1378	1188	213						2780	2780	62	59	53						58	58	23	21	4						16	B	16	B	16	B
basic	ML - Wootton Pkwy interchange	3349	2	1348	1095							2443	2443	63	63							63	63	22	18							20	C	20	C	20	C
merge		875	3	1431	1296	132						2858	2858	63	63	61						62	62	23	21	2						15	B	15	B	15	B
basic	ML - Btw Wootton Pkwy & Spur Split	742	2	1472	1393							2865	2860	62	62							62	63	24	23							24	C	24	C	23	C
		1144	2	1479	1382							2861		63	63							63		24	22							23	C	23	C		
		420	2	1480	1379							2859		63	63							63		24	22							23	C	23	C		
		1516	2	1478	1379							2858		63	63							63		24	22							23	C	23	C		
		4115	2	1528	1332							2861		63	63							63		25	21							23	C	23	C		
diverge		1050	3	432	1208	1218						2858		64	63	63						63	63	7	20	20						15	B	15	B	15	B
basic	ML - Spur Split through MD 187 interchange	5364	1	511								511	512	64								64	64	8								8	A	8	A	8	A
		1942	1	512								512		63								63		8								8	A	8	A		
		1803	1	512								512		63								63		8								8	A	8	A		
basic	ML - Spur Split to Westlake Ter/ Fernwood Rd	1266	2	1027	1323							2350	2350	63	63							63	63	16	21							19	C	19	C	19	C
diverge		709	3	987	996	364						2347	2347	63	63	63						63	63	16	16	6						13	B	13	B	13	B
basic	ML - Westlake Ter/Fernwood Rd interchange	851	2	1003	879							1882	1881	63	63							63	63	16	14							15	B	15	B	15	B
		1013	2	1014	865							1879		63	63							63		16	14							15	B	15	B		
diverge		276	3	70	916	891						1877	1877	53	62	63						59	59	1	15	14						10	B	10	B	10	B
basic		443	2	876	888							1764	1764	63	63							63	63	14	14							14	B	14	B	14	B
		628	2	878	886							1764		63	63							63		14	14							14	B	14	B		
merge	ML - Westlake Ter/Fernwood Rd to I-495	724	3	919	970	83						1972	1972	63	63	63						63	63	15	15	1						11	B	11	B	11	B
basic		1677	2	950	1022							1973	1973	63	63							63	63	15	16							16	B	16	B	16	B
merge		972	3	302	1183	1163						2647	2647	58	63	63						61	61	5	19	19						14	B	14	B	14	B
basic		2160	2	1354	1295							2648	2649	63	63							63	63	22	21							21	C	21	C	21	C
		322	2	1347	1305							2652		63	63							63		22	21							21	C	21	C		

I-270 Southbound - 2045 Preferred Alternative - 9-10 AM

VISSIM Lookup Data				Volume										Speed										Density									
				Volume Per Lane								Across All Lanes	Overall Volume	Speed Per Lane								Across All Lanes	Overall Speed	Density Per Lane								Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)								Total Volume	Average Volume (veh/hr)	Speed (mph)								Average Speed	Average Speed (mph)	Combined Density (pcphpl)								Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Through MD 117 interchange	658	4	1880	1965	2016	2015					7877	7942	21	23	23	23					23	22	90	89	88	89					89	F	89	F	92	F
		3062	4	1898	1956	2029	2072					7955		20	21	23	24					22		96	94	91	88					92	F	92	F		
merge		1569	5	1484	1885	1910	2055	2216				9550	9550	29	20	20	24	29				24	24	52	97	97	87	78				82	F	82	F	82	F
basic	Btw MD 117 & I-370	1152	6	968	892	1871	1800	1831	2211			9573	9581	48	44	38	38	38	38			41	43	20	21	51	49	49	59			41	E	41	E	39	E
		430	6	1323	954	1663	1680	1746	2235			9602		52	52	50	51	51	49			51		26	19	34	34	35	47			32	D	32	D		
diverge		928	6	1377	996	1589	1651	1738	2234			9586	9568	53	53	48	49	50	49			50	50	27	19	34	34	35	46			32	D	28	D	28	D
		38	6	1334	964	1474	1555	1674	2139			9139		53	51	45	50	50	50			50		26	19	33	31	34	43			31	D	27	C		
basic	I-370 interchange	1066	4	1541	1647	1742	2232					7161	7169	52	53	53	51					52	52	30	32	34	44					35	E	35	E	35	E
		1043	4	1549	1656	1743	2229					7177		53	53	53	52					53		30	32	33	43					35	E	35	E		
		884	4	1551	1651	1756	2210					7168		53	53	53	50					52		30	32	34	45					35	E	35	E		
diverge		203	5	1554	1667	1854	1245	837				7156	7156	53	53	52	42	41				48	48	30	32	36	30	21				30	D	29	D	29	D
basic		183	4	1541	1657	1732	765					5695	5695	53	53	53	53					53	53	30	32	33	15					27	D	27	D	27	D
basic		941	5	180	1396	1644	1712	823				5754	5754	59	53	53	53	54				54	54	3	27	31	33	15				22	C	22	C	22	C
weave	Btw I-370 & Shady Grove Rd	703	7	205	1416	1070	1262	1367	1412	735		7466	7466	52	52	53	53	53	53	54		53	53	4	28	21	24	26	27	14		20	C	20	C	20	C
diverge		1673	6	1288	1772	1342	1131	1236	693			7461	7461	51	51	53	53	53	54			53	53	26	35	26	22	24	13			24	C	29	D	29	D
basic		510	5	1277	1453	1213	1246	711				5901	5901	53	53	53	53	54				53	53	25	28	23	24	13				23	C	23	C	23	C
merge	Shady Grove Rd interchange	1027	6	98	1395	1707	1291	1257	722			6469	6469	36	51	52	53	53	54			50	50	3	28	33	25	24	14			21	C	21	C	21	C
basic		209	5	1439	1658	1366	1268	736				6467	6467	52	52	53	53	54				53	53	28	32	26	24	14				25	C	25	C	25	C
merge		504	6	129	1501	1836	1390	1272	754			6881	6881	36	50	52	53	53	54			50	50	4	31	36	27	24	14			22	C	23	C	23	C
basic	Btw Shady Grove Rd & MD 28	4159	5	1779	1696	1403	1219	796				6892	6884	52	53	53	53	54				53	53	35	33	27	23	15				27	D	27	D	26	D
		458	5	1817	1662	1386	1212	821				6899		53	53	53	53	54				53		35	32	26	23	15				26	D	26	D		
		982	5	1805	1646	1380	1208	828				6868		53	53	53	53	54				53		35	32	26	23	16				26	D	26	D		
		396	5	1791	1632	1371	1203	831				6828		53	53	53	53	54				53		35	31	26	23	16				26	D	26	D		
diverge	MD 28 interchange	526	6	382	1429	1631	1378	1210	842			6871	6871	54	53	53	54	54	54			54	54	7	27	31	26	23	16	7		22	C	22	C	22	C
basic		1448	5	1344	1601	1371	1216	862				6394	6394	53	53	53	53	54	54			53	53	26	31	26	23	16				24	C	24	C	24	C
merge		672	6	344	1303	1585	1364	1216	878			6690	6690	50	53	53	54	54	54			53	53	7	25	30	26	23	16			21	C	21	C	21	C
basic		272	6	384	1261	1591	1366	1220	881			6703	6703	55	53	53	53	53	54			53	53	7	24	31	26	23	17			21	C	21	C	21	C
		281	6	420	1211	1602	1364	1219	887			6704		55	53	52	53	53	53			53		8	23	31	26	23	17			21	C	21	C		
merge	Btw MD 28 & MD 189	499	7	277	831	1237	1971	1330	1162	852		7660	7660	47	51	52	52	53	54	54		52	52	6	17	24	38	25	22	16		21	C	16	B	16	B
basic		405	6	538	1779	2034	1368	1124	829			7672	7672	52	50	51	53	53	54			52	53	11	36	40	26	21	16			25	C	25	C	25	C
		2028	6	577	1732	1884	1471	1168	840			7672		53	52	52	53	53	54			53		11	34	37	28	22	16			25	C	25	C		
diverge		487	6	609	1701	1833	1480	1188	849			7661	7661	53	52	52	53	53	54			53	53	12	33	36	28	23	16			25	C	27	C	27	C
basic	MD 189 interchange	777	5	1676	1792	1478	1206	873				7026	7044	52	52	53	53	53				52	53	33	35	29	23	17				27	D	27	D	27	D
		2018	5	1668	1760	1486	1229	909				7051		53	53	53	53	53				53		32	34	28	23	17				27	D	27	D		
merge		717	6	321	1841	2196	1533	1236	922			8050	8050	50	50	51	53	54	54			52	52	7	38	44	29	23	17			26	C	29	D	29	D
basic	Btw MD 189 & Montrose Rd	1028	5	2289	2012	1658	1222	873				8054	8039	43	47	51	52	53				49	51	54	44	33	24	17				34	D	34	D	33	D
		198	5	2293	1911	1606	1239	906				7955		45	49	51	53	53				50		52	40	32	24	17				33	D	33	D		
		1502	5	2294	1863	1628	1298	958				8041		48	51	53	53	54				52		49	37	31	25	18				32	D	32	D		
diverge	Montrose Rd interchange	375	6	146	2140	1797	1645	1337	992			8059	8059	45	51	51	53	53	54			51	51	3	43	35	32	26	19			26	C	27	C	27	C
basic		880	5	2081	1771	1635	1346	1008				7841	7841	52	53	53	53	54				53	53	41	34	31	26	19				30	D	30	D	30	D
weave		644	6	1147	1558	1987	1685	1354	1020			8751	8751	40	44	50	52	53	54			49	49	29	36	40	33	26	19			31	D	31	D	31	D
basic		806	5	1450	1892	1789	1413	1067				7610	7610	50	51	52	53	53				52	52	29	37	35	27	20				30	D	30	D	30	D
weave	Btw Montrose Rd & Spur Split	828	6	527	1510	2019	1802	1431	1087			8377	8421	50	52	52	53	53	54			52	51	11	30	39	35	27	21			27	C	27	C	28	D
		1055	6	479	1321	1874	2141	1465	1101			8382		54	53	52	52	53	54			53		9	26	37	41	28	21			27	C	27	C		
		3754	6	519	724	1693	2136	2030	1327			8429		54	53	50	48	46	48			50		10	14	35	46	45	28			30	D	30	D		
		663	6	629	876	1339	2190	1732	1689			8455		54	53	51	48	49	51			51		12	17	26	47	36	33			29	D	29	D		
		605	6	668	967	1387	2074	1674	1661			8431		54	54	53	51	52	53			53		13	18	27	41	33	32			27	C	27	C		
		416	6	688	996	1451	2040	1634	1665			8474		54	54	53	52	53	53			53		13	19	28	40	32	32			27	C	27	C		
basic	Spur Split through MD 187 interchange	694	3	1451	1480	1547						4478	4491	57	59	59						58	61	26	26	27						26	D	26	D	25	C
		1027	3	1495	1482	1523						4500		61	62	63						62		25	24	25						25	C	25	C		
diverge		473	4	674	829	1465	1524					4492	4492	63	63	63	63					63	63	11	13	24	25					18	B	18	B	18	B
basic		2458	2	1456	1521							2977	2977	63	63							63	63	24	25							24	C	24	C	24	C
merge		502	3	60	1435	1598						3092	3092	36	61	62						53	53	2	24	26						17	B	17	B	17	B
basic		550	2	1495	1634							3130	3130	62	62							62	62	25	27							26	D	26	D	26	D
merge	Btw MD 187 & I-495	955	3	216	1446	1866						3528	3528	50	61	62						58	58	4	24	31						20	C	20	C	20	C
basic		1835	2	1652	1880							3532	3532	61	62							61	61	27	31							29	D	29	D	29	D
weave		2007	3	1690	2136	210						4036	4039	62	61	64						62	63	28	35	4						22	C	22	C	22	C
		1491	3	1628	1428	985						4042		63	63	63						63		26	23	16						22	C	22	C		
basic		1568	2	1564	1400							2964	2964	56	56							56	56	28	26							27	D	27	D	27	D
basic	Spur Split to Democracy Blvd	2632	4	1044	938	1215	782					3979	3979	53	54	53	54					54	54	20	18	23	15					19	C	19	C	19	C
diverge		1205	4	696	1135	1341	807					3980	3980	52	53	53	54					53	53	14	22	26	15					19	B	20	C	20	C
merge	Democracy Blvd	1103	4	1160	1317	865	110					3453	3453	53	53	54	59					55	55	22	25	16	2					16	B	14	B	14	B
basic		1559	3	979	1181	1326						3486	3486	54	53	53						53	53	19	22	25						22	C	22	C	22	C
diverge		597	4	935	1075	878	597					3484	3484	53	52	52	52					52	52	18	21	17	12					17	B	19	B	19	B
basic		473	3	941	1034	715						2690	2690	53	53	54						53	53	18	20	13						17	B	17	B	17	B
merge	Democracy Blvd to I-495	705	4	195	1182	1228	740					3345	3345	53	53	53	54					54	54	4	23	23	14					16	B	17	B	17	B
basic		1692	3	1265	1255	829						3349	3349	53	53	54						54	54	24	24	16						21	C	21	C	21	C
basic	ML - I-370 interchange	834	1	1407								1407	1407	49								49	55	29								29	D	29	D	26	D
		302	1	1406								1406		56								56		26								26	D	26	D		
		2032	1	1407								1407		57								57		25								25	C	25	C		
merge	ML - Btw I-370 & Gude Dr	703	2	1340	1286							2625	2625	61	61							61	61	22	21							22	C	22	C	22	C
basic		2364	2	1279	1342							2622	2622	63	62							63	63	21	22							21	C	21	C	21	C
		134	2	1257	1369							2626		63	62							62		20	23							21	C	21	C		
diverge		405	3	1249	1177	190						2617	2617	62	62	61						62	62	20	19	3						14	B	14	B	14	B
basic	ML - Gude Dr interchange	3720	2	1236	1103							2339	2339	63	63							63	63	20	18							19	C	19	C	19	C
merge		363	3	1377	1244	223						2844	2844	62	58	30						50	50	23	22	8						17	B	17	B	17	B
basic	ML - Btw Gude Dr & Wootton Pkwy	3064	2	1489	1356							2846	2844	62	61							62	62	25	23							24	C	24	C	23	C
		794	2	1475	1362							2837		63	63							63		24	22							23	C	23	C		
		470	2	1482	1364							2845		63	63							63		24	22							23	C	23	C		
		1684	2	1475	1370							2845		63	63							63		24	22							23	C	23	C		
		3871	2	1426	1418							2844		63	63							63		23	23							23	C	23	C		
diverge		293	3	1414	1235	193						2842	2842	62	59	53						58	58	23	21	4						16	B	16	B	16	B
basic	ML - Wootton Pkwy interchange	3349	2	1378	1155							2532	2532	63	63							63	63	22	19							20	C	20	C	20	C
merge	ML - Btw Wootton Pkwy & Spur Split	875	3	1439	1308	112						2859	2859	63	63	62						62	62	23	21	2						15	B	15	B	15	B
basic		742	2	1479	1382							2861	2866	62	62							62	63	24	23							23	C	23	C	23	C
		1144	2	1479	1380							2859		63	63							63		24	22							23	C	23	C		
		420	2	1479	1380							2859		63	63							63		24	22							23	C	23	C		
		1516	2	1480	1385							2865		63	63							63		24	22							23	C	23	C		
		4115	2	1529	1340							2869		63	63							63		25	22							23	C	23	C		
diverge		1050	3	430	1215	1223						2868	2868	63	63	63						63	63	7	20	20						15	B	15	B	15	B
basic	ML - Spur Split through MD 187 interchange	5364	1	506								506	506	64								64	63	8								8	A	8	A	8	A
		1942	1	507								507		63								63		8								8	A	8	A		
		1803	1	507								507		63								63		8								8	A	8	A		
basic	ML - Spur Split to Westlake Ter/ Fernwood Rd	1266	2	1041	1320							2361	2361	63	63							63	63	17	21							19	C	19	C	19	C
diverge		709	3	996	996	367						2359	2359	63	63	63						63	63	16	16	6						13	B	13	B	13	B
basic	ML - Westlake Ter/Fernwood Rd interchange	851	2	1006	882							1888	1888	63	63							63	63	16	14							15	B	15	B	15	B
		1013	2	1018	871							1889		63	63							63		16	14							15	B	15	B		
diverge		276	3	68	930	896						1894	1894	53	62	63						59	59	1	15	14						10	B	10	B	10	B
basic		443	2	890	892							1782	1780	63	63							63	63	14	14							14	B	14	B	14	B
		628	2	890	888							1779		63	63							63		14	14							14	B	14	B		
merge	ML - Westlake Ter/Fernwood Rd to I-495	724	3	921	941	66						1928	1928	63	63	63						63	63	15	15	1						10	B	10	B	10	B
basic		1677	2	944	983							1927	1927	63	63							63	63	15	16							15	B	15	B	15	B
merge		972	3	343	1218	1163						2724	2724	57	62	63						61	61	6	20	19						15	B	15	B	15	B
basic		2160	2	1402	1315							2717	2717	62	63							63	63	23	21							22	C	22	C	22	C
		322	2	1392	1322							2714		63	63							63		22	21							22	C	22	C		

I-270 Northbound - 2045 Preferred Alternative - 6-7 AM

VISSIM Lookup Data				Volume									Speed									Density									
				Volume Per Lane							Across All Lanes	Overall Volume	Speed Per Lane							Across All Lanes	Overall Speed	Density Per Lane								Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)							Total Volume	Average Volume (veh/hr)	Speed (mph)							Average Speed	Average Speed (mph)	Combined Density (pcphpl)								Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Btw Watkins Mill Rd & MD 117	7479	4	575	779	758	609				2720	2720	59	61	62	54				59	59	10	13	12	11				12	B	12	B	12	B
diverge	Btw MD 117 & I-370	1357	5	944	711	770	664	591			3678	3678	58	60	61	63	54			59	59	17	12	13	11	11			13	B	14	B	14	B
basic		843	5	714	988	773	617	585			3678	3678	60	59	61	63	54			59	59	12	17	13	10	11			13	B	13	B	13	B
merge		531	6	2	502	1305	707	564	578		3659	3659	58	59	58	61	63	54		59	59	0	9	23	12	9	11		11	B	11	B	11	B
basic	I-370 interchange	1978	4	1055	876	546	587				3064	3064	57	62	63	54				59	59	19	14	9	11				13	B	13	B	13	B
merge		1545	4	844	1044	578	597				3064	3064	57	62	63	54				59	59	15	17	9	11				13	B	13	B	13	B
basic		1321	3	857	935	622					2414	2414	57	62	64					61	61	15	15	10					14	B	14	B	14	B
diverge		478	5	6	192	740	970	502			2411	2411	53	53	58	62	64			58	58	0	4	13	16	8			8	A	8	A	8	A
weave	Btw I-370 & Shady Grove Rd	619	6	408	524	399	500	617	462		2910	2915	60	55	59	63	64	64		61	61	7	10	7	8	10	7		8	A	8	A	8	A
		1789	6	363	581	467	532	515	459		2917		59	55	59	63	64	64		61		6	11	8	9	8	7		8	A	8	A		
basic	Shady Grove Rd interchange	327	5	845	468	514	510	456			2793	2793	56	60	63	64	64			61	61	15	8	8	8	7			9	A	9	A	9	A
merge		746	6	52	802	467	510	503	457		2791	2791	54	57	60	64	64	64		60	60	1	14	8	8	8	7		8	A	8	A	8	A
basic		859	5	791	460	506	504	455			2715	2712	57	60	64	64	64			62	62	14	8	8	8	7			9	A	9	A	9	A
		394	5	776	477	502	500	450			2705		57	60	64	64	64			62		14	8	8	8	7			9	A	9	A		
diverge	Btw Shady Grove Rd & MD 28	551	7	188	270	719	526	521	502	452	3176	3176	61	61	57	60	63	64	64	61	61	3	4	13	9	8	8	7	8	A	7	A	7	A
basic		428	6	455	573	562	591	543	457		3180	3176	60	56	61	64	64	64		62	61	8	10	9	9	9	7		9	A	9	A	9	A
		1160	6	402	476	558	606	602	531		3174		60	55	60	64	64	64		61		7	9	9	10	10	8		9	A	9	A		
basic		1897	5	863	599	594	592	534			3182	3181	56	60	64	64	64			62	62	16	10	10	9	9			11	B	11	B	11	B
		2067	5	737	679	612	608	546			3181		57	61	64	64	64			62		13	11	10	10	9			11	B	11	B		
		505	5	517	715	655	672	619			3179		55	61	64	64	64			61		10	12	10	11	10			11	B	11	B		
		483	5	527	724	648	665	616			3180		55	61	64	64	64			61		10	12	10	11	10			11	B	11	B		
merge		661	6	20	524	728	629	662	612		3175	3175	47	55	61	64	64	64		59	59	0	10	12	10	11	10		9	A	7	A	7	A
basic	MD 28 interchange	842	5	472	729	612	655	609			3078	3078	56	61	64	64	64			62	62	9	12	10	10	10			10	A	10	A	10	A
weave		462	6	532	672	750	592	642	606		3793	3793	49	54	61	64	64	64		59	59	11	13	13	9	10	10		11	B	11	B	11	B
basic		537	5	1183	747	577	637	605			3749	3749	56	61	64	64	64			62	62	21	12	9	10	10			13	B	13	B	13	B
weave	Btw MD 28 & MD 189	533	6	76	1197	754	559	631	603		3821	3822	62	57	61	64	64	64		62	62	1	22	12	9	10	10		11	B	11	B	11	B
		460	6	78	1198	770	548	624	603		3821		62	57	62	64	64	64		62		1	21	13	9	10	10		11	B	11	B		
		496	6	79	1195	787	535	616	601		3813		62	57	62	65	64	64		62		1	21	13	8	10	10		11	B	11	B		
		965	6	93	1168	831	519	615	600		3825		62	57	62	65	64	64		62		2	21	14	8	10	10		11	B	11	B		
		679	6	187	894	850	604	681	610		3826		55	58	62	65	64	64		61		3	16	14	10	11	10		11	B	11	B		
basic	MD 189 interchange	804	5	626	851	595	786	733			3591	3589	58	63	65	64	63			62	62	11	14	9	13	12			12	B	12	B	12	B
		153	5	634	853	583	782	732			3584		58	63	65	64	63			62		11	14	9	13	12			12	B	12	B		
		223	5	638	855	580	782	732			3587		58	63	65	64	63			62		11	14	9	13	12			12	B	12	B		
		155	5	640	858	576	780	731			3585		58	63	65	64	63			62		11	14	9	12	12			12	B	12	B		
		194	5	642	861	575	778	731			3587		58	63	65	63	63			62		11	14	9	12	12			12	B	12	B		
diverge	Btw MD 189 & Montrose Rd	405	6	138	699	870	569	775	729		3780	3780	59	58	62	65	63	63		62	62	2	12	14	9	12	12		10	B	10	B	10	B
basic		2720	5	866	871	535	780	739			3791	3792	58	63	65	63	63			63	63	15	14	8	12	12			12	B	12	B	12	B
		530	5	948	847	489	768	743			3795		58	63	65	63	64			63		16	14	8	12	12			12	B	12	B		
		1253	5	977	841	465	766	744			3793		59	63	65	63	64			63		17	14	7	12	12			12	B	12	B		
merge		515	6	107	917	767	428	792	768		3779	3779	49	59	63	66	63	64		61	61	2	16	12	7	13	12		10	B	10	B	10	B
basic	Montrose Rd interchange	232	5	741	676	408	802	785			3412	3406	63	64	66	63	64			64	64	12	11	6	13	13			11	B	11	B	11	B
		654	5	743	674	403	799	785			3404		63	64	66	63	64			64		12	11	6	13	13			11	B	11	B		
weave		597	6	54	762	671	397	800	785		3470	3470	54	63	64	66	63	64		62	62	1	12	11	6	13	13		9	A	9	A	9	A
basic		830	5	806	662	389	798	789			3445	3445	64	64	66	63	64			64	64	13	11	6	13	13			11	B	11	B	11	B
weave	Btw Montrose Rd & Spur Split	353	6	740	823	668	381	793	792		4196	4201	63	63	63	66	63	64		64	64	12	13	11	6	13	13		11	B	11	B	11	B
		937	6	734	843	665	369	794	794		4200		64	64	64	66	63	64		64		12	13	11	6	13	13		11	B	11	B		
		294	6	721	862	666	362	797	797		4205		64	64	64	66	63	64		64		12	14	11	6	13	13		11	B	11	B		
		444	6	704	872	671	357	798	798		4201		64	64	64	66	63	64		64		11	14	11	5	13	13		11	B	11	B		
		2310	6	563	851	706	391	854	838		4203		64	63	64	66	63	64		64		9	14	11	6	14	13		11	B	11	B		
		1029	6	345	612	754	450	1068	975		4204		65	64	64	66	63	64		64		5	10	12	7	17	16		11	B	11	B		
		1316	6	209	602	801	410	1149	1027		4199		66	64	64	66	63	64		64		3	10	13	6	18	16		11	B	11	B		
basic	Btw Spur Split & MD 187	795	3	200	608	822					1631	1627	66	64	63					64	64	3	10	13					9	A	9	A	9	A
		797	3	188	609	821					1619		66	64	63					64		3	10	13					9	A	9	A		
		747	3	179	619	834					1632		65	64	63					64		3	10	13					9	A	9	A		
merge		532	4	1	159	634	839				1633	1633	57	62	64	63				62	62	0	3	10	13				7	A	7	A	7	A
basic	MD 187 interchange	314	2	642	843						1485	1483	64	63						64	64	10	14						12	B	12	B	12	B
		1550	2	629	854						1482		64	64						64		10	14						12	B	12	B		
diverge		284	3	236	741	882					1859	1859	54	60	63					59	59	4	13	14					10	B	10	B	10	B
basic		1094	2	1015	841						1856	1856	63	64						63	63	16	13						15	B	15	B	15	B
diverge	Btw MD 187 & I-495	739	3	262	1067	849					2178	2178	64	63	64					63	63	4	17	14					12	B	12	B	12	B
basic		3593	2	1306	870						2176	2176	63	64						63	63	21	14						17	B	17	B	17	B
diverge		644	3	1197	979	229					2406	2406	63	63	64					63	63	19	16	4					13	B	13	B	13	B
basic		1125	3	1101	1076	227					2404	2404	63	63	64					63	63	18	17	4					13	B	13	B	13	B
merge		429	4	92	1151	1065	98				2406	2406	49	62	63	66				60	60	2	19	17	2				10	B	13	B	13	B
basic		386	3	1056	994	52					2102	2102	64	63	64					64	64	17	16	1					11	B	11	B	11	B
basic		500	2	1052	1051						2103	2103	59	59						59	59	18	18						18	C	18	C	18	C
basic	Btw Spur Split & Democracy Blvd	2096	3	370	1155	1042					2567	2567	65	63	63					64	64	6	19	17					14	B	14	B	14	B
merge		901	4	297	1170	997	99				2562	2562	65	63	63	56				62	62	5	19	16	2				10	B	12	B	12	B
basic		181	3	263	1049	865					2176	2176	65	63	64					64	64	4	17	14					12	B	12	B	12	B
merge		1211	4	13	248	1051	863				2175	2175	37	61	63	64				56	56	0	4	17	14				9	A	7	A	7	A
basic	Democracy Blvd interchange	286	3	122	1037	858					2017	2017	67	63	64					65	65	2	17	14					11	B	11	B	11	B
merge		939	3	95	1062	866					2024	2024	62	63	64					63	63	2	17	14					11	B	11	B	11	B
basic	Btw Democracy Blvd & I-495	575	2	1122	869						1991	1991	63	64						63	63	18	14						16	B	16	B	16	B
diverge		1024	3	513	1125	865					2504	2504	59	63	64					62	62	9	18	14					14	B	14	B	14	B
basic		562	3	514	1136	855					2505	2505	63	63	63					63	63	8	18	14					13	B	13	B	13	B
diverge		369	4	511	1161	897	139				2708	2708	63	62	62	59				62	62	8	19	15	2				11	B	14	B	14	B
basic		1331	3	647	1102	962					2711	2711	61	62	62					62	62	11	18	16					15	B	15	B	15	B
basic	ML - Btw I-370 & Gude Dr	619	1	645							645	644	63							63	63	10							10	A	10	A	10	A
		3066	1	644							644		63							63		10							10	A	10	A		
diverge		1040	2	636	380						1016	1016	63	63						63	63	10	6						8	A	8	A	8	A
basic		2258	2	574	444						1018	1017	64	64						64	64	9	7						8	A	8	A	8	A
		176	2	534	475						1009		64	63						63		9	8						8	A	8	A		
merge		504	3	522	433	51					1006	1006	64	64	61					63	63	8	7	1					5	A	5	A	5	A
basic	ML - Gude Dr interchange	3378	2	524	318						842	842	64	64						64	64	8	5						7	A	7	A	7	A
diverge	ML - Btw Gude Dr & Wootton Pkwy	300	3	555	521	401					1477	1477	62	55	54					57	57	9	10	8					9	A	9	A	9	A
basic		347	2	518	957						1475	1482	63	60						62	63	8	16						12	B	12	B	12	B
		3041	2	670	813						1483		64	63						63		11	13						12	B	12	B		
		848	2	768	713						1481		63	64						63		12	11						12	B	12	B		
		270	2	770	713						1483		63	64						63		12	11						12	B	12	B		
		1820	2	769	711						1480		63	64						63		12	11						12	B	12	B		
		3966	2	770	713						1483		63	63						63		12	11						12	B	12	B		
merge		504	3	720	670	96					1485	1485	63	63	59					62	62	12	11	2					8	A	8	A	8	A
basic	ML - Wootton Pkwy interchange	3248	2	687	465						1152	1152	64	64						64	64	11	7						9	A	9	A	9	A
diverge	ML - Btw Wootton Pkwy & Spur Split	280	3	699	543	160					1402	1402	63	59	53					59	59	11	9	3					8	A	8	A	8	A
basic		592	2	676	740						1416	1418	64	62						63	64	11	12						11	B	11	B	11	B
		616	2	675	743						1418		64	63						64		11	12						11	B	11	B		
		1076	2	755	663						1418		64	64						64		12	11						11	B	11	B		
		485	2	794	623						1417		64	64						64		13	10						11	B	11	B		
		1509	2	800	618						1418		64	64						64		13	10						11	B	11	B		
		3571	2	817	602						1419		64	64						64		13	10						11	B	11	B		
weave		1150	3	265	719	433					1417	1417	64	64	64					64	64	4	11	7					7	A	7	A	7	A
basic	ML - Spur Split through MD 187 interchange	6159	1	235							235	234	64							64	64	4							4	A	4	A	4	A
		1686	1	234							234		64							64		4							4	A	4	A		
		3677	1	232							232		64							64		4							4	A	4	A		
basic	ML - Spur Split to Westlake Ter/ Fernwood Rd	2180	2	474	708						1182	1182	64	64						64	64	7	11						9	A	9	A	9	A
merge		702	3	454	673	58					1184	1184	64	64	63					64	64	7	11	1					6	A	6	A	6	A
basic	ML - Westlake Ter/Fernwood Rd interchange	916	2	426	576						1002	1002	63	63						63	63	7	9						8	A	8	A	8	A
weave		954	3	254	471	666					1390	1391	55	60	62					59	62	5	8	11					8	A	8	A	8	A
		1081	3	233	384	775					1392		64	65	63					64		4	6	12					7	A	7	A		
basic		379	2	404	776						1180	1180	65	63						64	64	6	12						9	A	9	A	9	A
diverge	ML - Westlake Ter/Fernwood Rd to I-495	655	3	408	838	203					1449	1449	65	63	63					64	64	6	14	3					8	A	8	A	8	A
basic		1009	2	416	1033						1448	1448	65	63						64	64	7	17						12	B	12	B	12	B
		4147	2	450	997						1448		65	63						64		7	16						12	B	12	B		

I-270 Northbound - 2045 Preferred Alternative - 7-8 AM

VISSIM Lookup Data				Volume									Speed									Density												
				Volume Per Lane							Across All Lanes	Overall Volume	Speed Per Lane							Across All Lanes	Overall Speed	Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)							Total Volume	Average Volume (veh/hr)	Speed (mph)							Average Speed	Average Speed (mph)	Combined Density (pcphpl)							Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Btw Watkins Mill Rd & MD 117	7479	4	833	877	1098	708				3517	3517	60	57	62	56				59	59	14	16	18	13				15	B	15	B	15	B
diverge	Btw MD 117 & I-370	1357	5	1299	1020	965	962	626			4872	4872	54	59	57	62	55			58	58	24	18	17	16	11			17	B	20	C	20	C
basic		843	5	1038	1352	1020	873	590			4873	4873	57	58	57	62	55			58	58	18	24	18	14	11			17	B	17	B	17	B
merge		531	6	10	943	1685	883	766	563		4850	4850	56	57	56	57	62	55		57	57	0	17	31	16	13	10		14	B	16	B	16	B
basic	I-370 interchange	1978	4	1429	1024	733	557				3744	3744	54	58	62	55				57	57	27	18	12	10				17	B	17	B	17	B
merge		1545	4	1126	1271	820	538				3754	3754	54	59	63	55				58	58	21	22	13	10				17	B	15	B	15	B
basic		1321	3	1103	1201	923					3227	3227	54	59	63					59	59	21	21	15					19	C	19	C	19	C
diverge	Btw I-370 & Shady Grove Rd	478	5	157	404	963	1237	718			3478	3478	54	50	54	60	63			56	56	3	8	18	21	12			12	B	13	B	13	B
weave		619	6	723	890	729	592	805	641		4381	4399	58	54	55	60	63	64		59	59	13	17	13	10	13	10		13	B	13	B	13	B
		1789	6	655	969	823	628	702	629		4405		57	54	55	61	63	64		59		12	18	15	10	11	10		13	B	13	B		
basic	Shady Grove Rd interchange	327	5	1392	822	615	682	621			4132	4132	53	56	61	63	64			59	59	27	15	10	11	10			15	B	15	B	15	B
merge		746	6	135	1298	815	590	674	618		4129	4129	51	55	56	61	63	64		58	58	3	24	15	10	11	10		12	B	14	B	14	B
basic		859	5	1269	762	586	674	617			3907	3903	55	57	61	63	64			60	60	23	14	10	11	10			13	B	13	B	13	B
		394	5	1210	780	615	676	612			3894		55	57	61	63	64			60		22	14	10	11	10			13	B	13	B		
diverge	Btw Shady Grove Rd & MD 28	551	7	277	462	1089	800	691	709	622	4651	4651	59	59	55	57	61	63	64	60	60	5	8	20	14	11	11	10	11	B	12	B	12	B
basic		428	6	735	866	766	805	816	671		4659	4649	58	55	57	62	63	64		60	59	13	16	14	13	13	11		13	B	13	B	13	B
		1160	6	650	742	721	816	920	796		4645		57	54	56	61	63	64		59		12	14	13	14	15	13		13	B	13	B		
basic		1897	5	1360	787	829	904	788			4667	4681	54	56	61	63	64			60	60	25	14	14	15	13			16	B	16	B	16	B
		2067	5	1143	910	923	923	790			4689		55	57	61	63	64			60		21	16	15	15	13			16	B	16	B		
		505	5	840	931	1005	1032	879			4687		54	56	61	63	63			60		16	17	17	17	14			16	B	16	B		
		483	5	842	950	1008	1018	872			4691		54	56	61	63	63			60		16	17	17	16	14			16	B	16	B		
merge		661	6	55	822	952	998	998	859		4684	4684	46	54	56	62	63	63		57	57	1	16	17	16	16	14		11	B	11	B	11	B
basic	MD 28 interchange	842	5	687	923	1006	983	840			4440	4440	54	56	61	63	63			60	60	13	17	17	16	14			15	B	15	B	15	B
weave		462	6	804	981	987	1000	938	811		5521	5521	42	49	55	61	63	63		56	56	19	20	18	17	15	13		17	B	17	B	17	B
basic		537	5	1738	996	978	916	800			5429	5429	54	57	62	63	64			60	60	33	18	16	15	13			19	C	19	C	19	C
weave	Btw MD 28 & MD 189	533	6	178	1737	1033	963	897	791		5599	5609	59	54	58	62	64	64		60	60	3	33	18	16	14	13		16	B	16	B	16	B
		460	6	183	1720	1083	951	880	783		5600		60	54	58	62	63	64		60		3	32	19	15	14	13		16	B	16	B		
		496	6	188	1697	1132	941	859	774		5590		60	54	58	62	64	64		60		3	32	20	15	14	12		16	B	16	B		
		965	6	228	1649	1209	933	833	766		5616		58	54	58	62	64	64		60		4	31	21	15	13	12		16	B	16	B		
		679	6	466	1316	1173	986	897	787		5625		52	54	59	63	64	64		59		9	25	20	16	14	13		16	B	16	B		
basic	MD 189 interchange	804	5	967	1042	1027	1009	939			4983	4982	55	60	63	63	63			61	61	18	18	17	16	15			17	B	17	B	17	B
		153	5	965	1058	1023	997	933			4976		56	60	63	63	63			61		18	18	17	16	15			17	B	17	B		
		223	5	966	1069	1021	993	932			4981		56	60	63	63	63			61		18	18	16	16	15			17	B	17	B		
		155	5	964	1077	1021	989	928			4979		56	60	63	63	63			61		18	18	16	16	15			17	B	17	B		
		194	5	963	1089	1020	985	924			4981		56	60	63	63	63			61		18	18	16	16	15			17	B	17	B		
diverge	Btw MD 189 & Montrose Rd	405	6	285	1058	1131	1016	977	918		5385	5385	56	55	60	63	63	63		60	60	5	20	19	16	16	15		15	B	15	B	15	B
basic		2720	5	1322	1204	986	968	924			5404	5406	55	61	63	63	63			61	61	24	20	16	16	15			18	C	18	C	18	C
		530	5	1383	1286	904	926	912			5410		56	61	63	63	63			61		25	22	15	15	15			18	C	18	C		
		1253	5	1416	1339	856	900	899			5410		55	60	63	63	63			61		26	23	14	14	14			18	C	18	C		
merge		515	6	262	1332	1266	708	902	923		5393	5393	44	54	61	64	63	63		59	59	6	25	21	21	11	14	15	15	B	17	B	17	B
basic	Montrose Rd interchange	232	5	990	1060	662	907	946			4566	4558	61	63	65	63	63			63	63	17	17	10	15	15			15	B	15	B	15	B
		654	5	1013	1057	641	901	943			4555		61	63	65	63	63			63		17	17	10	14	15			15	B	15	B		
weave		597	6	141	1062	1034	600	894	940		4671	4671	49	61	63	65	63	63		61	61	3	18	17	9	14	15		13	B	13	B	13	B
basic		830	5	1119	947	584	889	942			4480	4480	63	63	65	63	63			64	64	18	15	9	14	15			14	B	14	B	14	B
weave	Btw Montrose Rd & Spur Split	353	6	1001	1159	951	573	894	940		5508	5546	62	62	62	65	63	63		63	64	16	19	15	9	14	15		15	B	15	B	15	B
		937	6	995	1187	955	560	880	944		5521		63	63	64	65	63	63		64		16	19	15	9	14	15		15	B	15	B		
		294	6	976	1210	966	553	880	950		5536		63	63	64	65	63	63		64		16	19	15	9	14	15		15	B	15	B		
		444	6	959	1223	971	551	878	951		5532		63	63	64	65	63	63		64		15	20	15	9	14	15		15	B	15	B		
		2310	6	871	1206	993	556	925	995		5546		63	63	63	65	63	63		64		14	20	16	9	15	16		15	B	15	B		
		1029	6	707	850	1027	638	1166	1172		5561		64	64	63	65	63	63		64		11	14	16	10	19	19		15	B	15	B		
		1316	6	456	828	1128	595	1302	1260		5570		65	64	63	65	63	63		64		7	13	18	9	21	20		15	B	15	B		
basic	Btw Spur Split & MD 187	795	3	446	834	1162					2443	2435	64	64	63					64	64	7	13	19					13	B	13	B	13	B
		797	3	432	829	1161					2422		64	64	63					64		7	13	19					13	B	13	B		
		747	3	419	842	1180					2441		63	63	63					63		7	14	19					13	B	13	B		
merge		532	4	19	421	841	1162				2442	2442	51	57	62	63				58	58	0	7	14	19				10	B	10	B	10	B
basic	MD 187 interchange	314	2	757	1153						1911	1910	64	63						64	63	12	19						15	B	15	B	15	B
		1550	2	738	1172						1910		64	63						63		12	19						15	B	15	B		
diverge		284	3	340	890	1224					2454	2454	52	58	63					58	58	7	16	20					14	B	14	B	14	B
basic		1094	2	1271	1182						2454	2454	62	63						62	62	21	19						20	C	20	C	20	C
diverge	Btw MD 187 & I-495	739	3	573	1410	1213					3196	3196	62	61	61					61	61	9	24	20					18	B	18	B	18	B
basic		3593	2	1850	1360						3210	3210	62	63						62	62	31	22						26	D	26	D	26	D
diverge		644	3	1724	1489	305					3519	3519	61	62	63					62	62	29	25	5					19	B	19	B	19	B
basic		1125	3	1560	1601	360					3520	3520	61	61	63					62	62	26	27	6					19	C	19	C	19	C
merge		429	4	250	1570	1541	166				3527	3527	48	60	63	65				59	59	5	27	25	3				15	B	19	B	19	B
basic		386	3	1387	1307	81					2775	2775	63	63	63					63	63	22	21	1					15	B	15	B	15	B
basic		500	2	1395	1384						2779	2779	59	58						59	59	24	24						24	C	24	C	24	C
basic	Btw Spur Split & Democracy Blvd	2096	3	540	1319	1277					3136	3136	65	63	63					64	64	8	21	21					17	B	17	B	17	B
merge		901	4	425	1347	1236	131				3138	3138	64	63	62	55				61	61	7	22	20	2				13	B	15	B	15	B
basic		181	3	380	1147	1100					2627	2627	65	63	63					64	64	6	18	18					14	B	14	B	14	B
merge		1211	4	17	356	1154	1103				2629	2629	38	61	63	63				56	56	0	6	19	18				11	B	8	A	8	A
basic	Democracy Blvd interchange	286	3	223	1130	1094					2447	2447	66	63	64					64	64	3	18	17					13	B	13	B	13	B
merge		939	3	186	1161	1102					2450	2450	59	63	63					62	62	3	19	18					13	B	13	B	13	B
basic		575	2	1238	1101						2339	2339	63	63						63	63	20	18						19	C	19	C	19	C
diverge	Btw Democracy Blvd & I-495	1024	3	916	1257	1089					3263	3263	59	63	63					62	62	16	20	18					18	B	18	B	18	B
basic		562	3	907	1281	1079					3267	3267	62	62	63					62	62	15	21	18					18	C	18	C	18	C
diverge		369	4	898	1315	1125	144				3482	3482	62	61	61	58				60	60	15	22	19	3				15	B	19	B	19	B
basic		1331	3	905	1320	1263					3489	3489	61	61	61					61	61	15	22	21					19	C	19	C	19	C
basic	ML - Btw I-370 & Gude Dr	619	1	528							528	527	64							64	64	8							8	A	8	A	8	A
		3066	1	527							527		64							64		8							8	A	8	A		
basic		1040	2	524	410						934	932	63	64						64	64	8	7						7	A	7	A	7	A
		2258	2	503	428						931		64	64						64		8	7						7	A	7	A		
		176	2	485	438						923		64	64						64		8	7						7	A	7	A		
merge		504	3	470	399	52					921	921	64	64	62					63	63	7	6	1					5	A	5	A	5	A
basic	ML - Gude Dr interchange	3378	2	469	275						744	744	64	64						64	64	7	4						6	A	6	A	6	A
diverge		300	3	495	499	429					1423	1423	62	55	54					57	57	8	9	8					8	A	8	A	8	A
basic	ML - Btw Gude Dr & Wootton Pkwy	347	2	460	959						1420	1430	63	60						62	63	7	16						12	B	12	B	11	B
		3041	2	640	791						1430		64	63						63		10	13						11	B	11	B		
		848	2	752	676						1427		63	64						64		12	11						11	B	11	B		
		270	2	753	677						1430		63	64						64		12	11						11	B	11	B		
		1820	2	750	679						1429		63	64						64		12	11						11	B	11	B		
		3966	2	747	685						1431		63	64						63		12	11						11	B	11	B		
merge		504	3	713	637	81					1431	1431	63	63	60					62	62	11	10	1					8	A	8	A	8	A
basic	ML - Wootton Pkwy interchange	3248	2	692	462						1154	1154	64	64						64	64	11	7						9	A	9	A	9	A
diverge	ML - Btw Wootton Pkwy & Spur Split	280	3	713	572	231					1517	1517	64	58	53					58	58	11	10	5					9	A	9	A	9	A
basic		592	2	682	850						1533	1537	64	62						63	64	11	14						12	B	12	B	12	B
		616	2	674	860						1534		64	63						63		11	14						12	B	12	B		
		1076	2	789	745						1534		64	64						64		13	12						12	B	12	B		
		485	2	843	691						1534		64	64						64		13	11						12	B	12	B		
		1509	2	848	690						1537		64	64						64		14	11						12	B	12	B		
		3571	2	865	675						1540		64	64						64		14	11						12	B	12	B		
weave		1150	3	293	748	504					1545	1545	64	64	64					64	64	5	12	8					8	A	8	A	8	A
basic	ML - Spur Split through MD 187 interchange	6159	1	291							291	292	64							64	64	5							5	A	5	A	5	A
		1686	1	292							292		64							64		5							5	A	5	A		
		3677	1	295							295		64							64		5							5	A	5	A		
basic	ML - Spur Split to Westlake Ter/ Fernwood Rd	2180	2	524	733						1257	1257	64	63						64	64	8	12						10	A	10	A	10	A
merge		702	3	498	703	56					1257	1257	64	63	63					64	64	8	11	1					7	A	7	A	7	A
basic	ML - Westlake Ter/Fernwood Rd interchange	916	2	466	618						1084	1084	62	62						62	62	8	10						9	A	9	A	9	A
weave		954	3	314	564	722					1600	1601	54	59	62					58	61	6	10	12					9	A	9	A	9	A
		1081	3	250	507	845					1602		64	64	63					64		4	8	14					9	A	9	A		
basic	ML - Westlake Ter/Fernwood Rd to I-495	379	2	536	847						1383	1383	64	63						64	64	8	14						11	B	11	B	11	B
diverge		655	3	540	914	230					1684	1684	64	63	63					63	63	9	15	4					9	A	9	A	9	A
basic		1009	2	544	1141						1685	1686	64	63						64	64	9	18						13	B	13	B	13	B
		4147	2	598	1089						1687		64	63						64		9	18						13	B	13	B		

I-270 Northbound - 2045 Preferred Alternative - 8-9 AM

VISSIM Lookup Data				Volume									Speed									Density													
				Volume Per Lane							Across All Lanes	Overall Volume	Speed Per Lane							Across All Lanes	Overall Speed	Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)							Total Volume	Average Volume (veh/hr)	Speed (mph)							Average Speed	Average Speed (mph)	Combined Density (pcphpl)							Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Btw Watkins Mill Rd & MD 117	7479	4	949	1007	1226	926				4109	4109	60	56	60	55				58	58	16	18	21	17				18	C	18	C	18	C
diverge	Btw MD 117 & I-370	1357	5	1681	1106	1104	1162	839			5891	5891	51	56	56	61	55			56	56	34	20	20	19	16			22	C	25	C	25	C
basic		843	5	1354	1512	1145	1084	806			5901	5901	56	57	56	61	55			57	57	24	27	21	18	15			21	C	21	C	21	C
merge		531	6	11	1163	1876	1048	996	782		5876	5876	53	57	54	56	61	55		56	56	0	21	35	19	17	14		18	B	19	B	19	B
basic	I-370 interchange	1978	4	1754	1250	973	774				4751	4751	53	57	61	55				56	56	34	22	16	14				22	C	22	C	22	C
merge		1545	4	1376	1508	1125	750				4759	4759	54	57	61	55				57	57	26	27	19	14				21	C	20	C	20	C
basic		1321	3	1298	1428	1309					4035	4035	53	57	61					57	57	25	26	22					24	C	24	C	24	C
diverge	Btw I-370 & Shady Grove Rd	478	5	266	548	1149	1464	1019			4446	4446	47	44	52	58	62			53	53	6	13	22	25	17			17	B	17	B	17	B
weave		619	6	893	1131	950	717	993	908		5592	5612	57	54	55	59	62	63		58	58	16	21	18	12	16	15		16	B	16	B	16	B
basic		1789	6	815	1214	1063	744	889	896		5619	5612	56	54	55	59	62	63		58	58	15	23	20	13	14	14		16	B	16	B	16	B
basic		327	5	1700	1071	723	863	881			5237	5237	51	55	59	62	63			58	58	34	20	12	14	14			19	C	19	C	19	C
merge	Shady Grove Rd interchange	746	6	205	1572	1056	685	844	874		5238	5238	50	53	56	60	62	63		57	57	4	30	19	12	14	14		15	B	18	B	18	B
basic		859	5	1515	990	694	836	873			4909	4902	55	56	60	62	63			59	59	28	18	12	14	14			17	B	17	B	17	B
		394	5	1417	1010	749	844	869			4889		55	56	60	62	63			59		26	18	13	14	14			17	B	17	B		
diverge		551	7	428	708	1251	1009	855	913	887	6052	6052	59	58	55	55	60	62	63	59	59	7	12	23	19	15	15	14	15	B	15	B	15	B
basic		428	6	1126	973	950	966	1068	980		6063	6051	57	55	56	60	62	63		59	59	20	18	17	16	17	16		17	B	17	B	17	B
		1160	6	991	828	911	955	1185	1177		6046		57	55	55	60	62	63		59		18	15	17	16	19	19		17	B	17	B		
basic	Btw Shady Grove Rd & MD 28	1897	5	1719	1038	972	1169	1168			6066	6078	54	55	60	62	63			59	59	33	19	17	19	19			21	C	21	C	21	C
		2067	5	1398	1151	1108	1239	1186			6082		54	56	59	62	63			59		26	21	19	20	19			21	C	21	C		
		505	5	941	1116	1260	1429	1343			6090		55	55	59	62	62			59		18	21	22	23	22			21	C	21	C		
		483	5	935	1135	1271	1425	1333			6100		54	55	59	62	62			59		17	21	22	23	22			21	C	21	C		
merge		661	6	77	894	1124	1272	1413	1313		6092	6092	44	54	55	60	62	63		56	56	2	17	21	22	23	21		18	B	13	B	13	B
basic		842	5	675	1070	1305	1415	1296			5761	5761	53	54	58	61	61			58	58	13	20	23	24	22			20	C	20	C	20	C
weave	MD 28 interchange	462	6	1065	1129	1223	1349	1364	1216		7345	7345	24	35	48	57	61	62		48	48	46	34	26	24	23	20		29	D	29	D	29	D
basic		537	5	2176	1274	1322	1308	1185			7265	7265	51	55	60	62	63			58	58	43	23	22	21	19			26	D	26	D	26	D
		533	6	311	2177	1323	1321	1283	1150		7565		58	52	55	60	62	63		58		5	43	25	22	21	19		22	C	22	C		
		460	6	323	2158	1381	1317	1260	1129		7568		59	52	56	61	63	63		59		6	42	25	22	20	18		22	C	22	C		
weave	Btw MD 28 & MD 189	496	6	336	2124	1430	1325	1235	1103		7553	7574	59	51	56	61	63	63		59	58	6	42	26	22	20	18		22	C	22	C	22	C
		965	6	399	2056	1532	1333	1184	1078		7582		57	51	55	61	63	63		58		7	41	28	22	19	17		23	C	23	C		
		679	6	662	1630	1512	1409	1270	1106		7587		51	53	58	62	63	63		58		13	31	27	23	21	18		22	C	22	C		
		804	5	1265	1259	1490	1459	1317			6789		55	58	62	63	63			60		23	22	25	24	21			23	C	23	C		
		153	5	1253	1281	1488	1448	1306			6776		55	58	62	63	63			60		23	22	25	23	21			23	C	23	C		
basic	MD 189 interchange	223	5	1250	1294	1490	1446	1303			6783	6786	55	58	62	63	63			60	60	23	23	25	23	21			23	C	23	C	23	C
		155	5	1244	1300	1496	1444	1296			6781		55	58	61	63	63			60		23	23	25	23	21			23	C	23	C		
		194	5	1227	1321	1504	1439	1295			6785		55	58	61	63	63			60		23	23	25	23	21			23	C	23	C		
diverge		405	6	455	1338	1397	1523	1426	1285		7424	7424	55	54	58	61	63	63		59	59	8	25	25	25	23	21		21	C	19	B	19	B
basic	Btw MD 189 & Montrose Rd	2720	5	1712	1531	1530	1406	1279			7458	7469	54	58	62	63	63			60	59	32	27	25	23	21			25	C	25	C	26	D
		530	5	1763	1650	1486	1336	1245			7480		54	59	61	62	63			60		33	29	25	22	20			26	D	26	D		
		1253	5	1767	1772	1469	1289	1189			7487		52	56	59	61	62			58		35	32	25	21	20			27	D	27	D		
merge		515	6	463	1637	1859	1215	1177	1118		7469	7469	26	45	57	60	62	63		52	52	19	37	33	33	20	19	18	25	C	30	D	30	D
basic	Montrose Rd interchange	232	5	1294	1591	1097	1158	1139			6279	6268	59	62	64	63	63			62	62	22	26	18	19	18			20	C	20	C	20	C
		654	5	1335	1591	1068	1140	1130			6265		59	62	64	63	63			62		23	26	17	18	18			20	C	20	C		
weave		597	6	241	1410	1593	975	1118	1126		6463	6463	48	59	62	64	63	63		60	60	5	24	26	15	18	18		18	B	18	B	18	B
basic		830	5	1566	1420	949	1113	1123			6172	6172	63	63	64	63	63			63	63	25	23	15	18	18			20	C	20	C	20	C
		353	6	1136	1606	1430	945	1106	1112		7335		62	61	62	64	63	63		62		19	27	23	15	18	18		20	C	20	C		
		937	6	1125	1643	1449	926	1095	1111		7350		63	63	63	64	64	63		63		18	27	23	15	17	18		20	C	20	C		
weave	Btw Montrose Rd & Spur Split	294	6	1104	1669	1466	925	1091	1113		7366	7365	63	63	63	65	64	63		63	63	18	27	24	15	17	18		20	C	20	C	20	C
		444	6	1080	1682	1481	922	1083	1113		7361		63	63	63	64	64	63		63		17	27	24	15	17	18		20	C	20	C		
		2310	6	1066	1662	1527	853	1110	1147		7365		63	62	63	64	63	63		63		17	27	25	13	18	18		20	C	20	C		
		1029	6	1037	1283	1523	883	1337	1311		7373		63	63	63	64	63	63		63		17	21	25	14	21	21		20	C	20	C		
		1316	6	758	1249	1699	836	1444	1392		7278		64	63	63	64	63	63		64		12	20	27	13	23	22		20	C	20	C		
basic	Btw Spur Split & MD 187	795	3	743	1253	1788					3784	3777	64	63	63					63	63	12	20	29					20	C	20	C	20	C
		797	3	713	1254	1790					3756		64	63	63					63		11	20	29					20	C	20	C		
		747	3	683	1279	1829					3791		62	62	63					62		11	21	30					21	C	21	C		
merge		532	4	29	644	1297	1821				3791	3791	46	53	61	63				55	55	1	12	22	30				16	B	16	B	16	B
basic	MD 187 interchange	314	2	1232	1807						3038	3037	63	63						63	63	20	29						24	C	24	C	24	C
		1550	2	1200	1837						3036		63	63						63		19	30						24	C	24	C		
diverge		284	3	464	1369	1943					3776	3776	52	57	62					57	57	9	24	32					22	C	22	C	22	C
basic		1094	2	1881	1897						3778	3778	60	62						61	61	32	31						32	D	32	D	32	D
diverge		739	3	496	1971	1949					4417	4417	61	58	59					59	59	8	35	34					25	C	25	C	25	C
basic	Btw MD 187 & I-495	3593	2	2357	2075						4433	4433	55	57						56	56	43	37						40	E	40	E	40	E
diverge		644	3	2224	2119	494					4837	4837	43	46	51					47	47	54	48	10					37	E	37	E	37	E
basic		1125	3	2030	2134	686					4851	4851	48	50	53					50	50	46	46	15					36	E	36	E	36	E
merge		429	4	395	1946	2080	443				4864	4864	41	51	56	55				51	51	14	43	40	13				28	D	32	D	32	D
basic		386	3	1902	1766	205					3874	3874	59	60	56					58	58	33	30	5					23	C	23	C	23	C
basic		500	2	1930	1951						3881	3881	58	58						58	58	34	34						34	D	34	D	34	D
basic		2096	3	739	1450	1412					3601	3601	64	63	63					63	63	12	23	23					19	C	19	C	19	C
merge	Btw Spur Split & Democracy Blvd	901	4	621	1484	1361	131				3598	3598	64	62	62	53				60	60	10	24	22	3				15	B	16	B	16	B
basic		181	3	564	1254	1310					3127	3127	64	63	63					63	63	9	20	21					17	B	17	B	17	B
merge		1211	4	31	525	1263	1308				3127	3127	38	60	63	63				56	56	1	9	20	21				13	B	10	B	10	B
basic	Democracy Blvd interchange	286	3	325	1211	1296					2832	2832	65	63	63					64	64	5	19	21					15	B	15	B	15	B
merge		939	3	270	1254	1318					2841	2841	58	63	63					61	61	5	20	21					15	B	15	B	15	B
basic		575	2	1359	1327						2686	2686	62	62						62	62	22	22						22	C	22	C	22	C
diverge	Btw Democracy Blvd & I-495	1024	3	1159	1384	1318					3861	3861	57	61	62					60	60	21	23	22					22	C	22	C	22	C
basic		562	3	1146	1413	1310					3868	3868	60	60	61					60	60	20	24	22					22	C	22	C	22	C
diverge		369	4	1133	1468	1368	219				4188	4188	58	57	58	57				57	57	20	26	24	4				19	B	23	C	23	C
basic		1331	3	1111	1494	1594					4200	4200	53	53	55					54	54	21	29	30					27	D	27	D	27	D
basic	ML - Btw I-370 & Gude Dr	619	1	720							720	722	63							63	63	12							12	B	12	B	12	B
		3066	1	722							722		63							63		12							12	B	12	B		
basic		1040	2	718	563						1281	1282	63	63						63	63	12	9						10	A	10	A	10	A
		2258	2	701	582						1283		63	63						63		11	9						10	A	10	A		
		176	2	686	585						1271		63	63						63		11	9						10	A	10	A		
merge		504	3	669	539	58					1267	1267	63	63	61					62	62	11	9	1					7	A	7	A	7	A
basic	ML - Gude Dr interchange	3378	2	669	414						1083	1083	64	64						64	64	11	7						9	A	9	A	9	A
diverge		300	3	717	653	479					1848	1848	61	54	54					56	56	12	12	9					11	B	11	B	11	B
basic	ML - Btw Gude Dr & Wootton Pkwy	347	2	674	1172						1846	1862	63	59						61	63	11	20						15	B	15	B	15	B
		3041	2	847	1012						1859		63	63						63		14	16						15	B	15	B		
		848	2	964	895						1859		63	63						63		15	14						15	B	15	B		
		270	2	968	895						1863		63	63						63		16	14						15	B	15	B		
		1820	2	972	890						1862		63	63						63		16	14						15	B	15	B		
		3966	2	978	888						1866		63	63						63		16	14						15	B	15	B		
merge		504	3	929	835	105					1869	1869	63	62	58					61	61	15	14	2					10	B	10	B	10	B
basic	ML - Wootton Pkwy interchange	3248	2	893	632						1524	1524	63	64						64	64	14	10						12	B	12	B	12	B
diverge	ML - Btw Wootton Pkwy & Spur Split	280	3	922	769	285					1977	1977	62	57	53					57	57	15	14	6					11	B	11	B	11	B
basic		592	2	876	1122						1998	1999	63	61						62	63	14	19						16	B	16	B	16	B
		616	2	866	1133						1999		64	63						63		14	18						16	B	16	B		
		1076	2	993	1004						1997		63	63						63		16	16						16	B	16	B		
		485	2	1051	945						1996		63	63						63		17	15						16	B	16	B		
		1509	2	1052	946						1998		63	63						63		17	15						16	B	16	B		
		3571	2	1067	932						2000		63	63						63		17	15						16	B	16	B		
weave		1150	3	383	920	699					2001	2001	64	64	63					64	64	6	15	11					11	B	11	B	11	B
basic	ML - Spur Split through MD 187 interchange	6159	1	384							384	384	64							64	63	6							6	A	6	A	6	A
		1686	1	384							384		64							64		6							6	A	6	A		
		3677	1	383							383		63							63		6							6	A	6	A		
basic	ML - Spur Split to Westlake Ter/ Fernwood Rd	2180	2	685	938						1622	1623	64	63						64	64	11	15						13	B	13	B	13	B
merge		702	3	645	885	94					1623		64	63	63					63	63	10	14	1					9	A	9	A	9	A
basic	ML - Westlake Ter/Fernwood Rd interchange	916	2	588	755						1343	1821	61	62						61	60	10	12						11	B	11	B	11	B
weave		954	3	340	642	840					1821		51	57	61					56		7	11	14					11	B	11	B	10	B
		1081	3	344	536	940					1821		64	64	63					64		5	8	15					10	B	10	B		
basic	ML - Westlake Ter/Fernwood Rd to I-495	379	2	556	940						1496	1496	64	63						64	64	9	15						12	B	12	B	12	B
diverge		655	3	561	994	191					1746	1746	64	63	63					64	64	9	16	3					9	A	9	A	9	A
basic		1009	2	561	1185						1745	1746	64	63						64	64	9	19						14	B	14	B	14	B
		4147	2	609	1137						1746		64	63						64		10	18						14	B	14	B		

I-270 Northbound - 2045 Preferred Alternative - 9-10 AM

| VISSIM Lookup Data | | | | Volume | | | | | | | | | Speed | | | | | | | | | Density | | | | | | | | |

Arterial Segments - 2045 Preferred Alternative - 6-7 AM

VISSIM Lookup Data				Volume									Speed								Density									
				Volume Per Lane							Across All Lanes	Overall Volume	Speed Per Lane							Across All Lanes	Overall Speed	Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)							Total Volume	Average Volume (veh/hr)	Speed (mph)							Average Speed	Average Speed (mph)	Combined Density (pcphpl)							Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
diverge	MD 117 Eastbound at I-270	495	3	606	780	403					1790	1790	32	32	32					32	32	19	25	13					19	B	19	B	19	B
diverge	I-370 Eastbound at I-270	300	4	629	113	115	72				929	929	51	49	46	49				49	49	13	2	3	2				5	A	2	A	2	A
weave		605	4	578	208	72	48				906	906	49	53	53	53				52	52	12	4	1	1				5	A	5	A	5	A
diverge		600	3	159	28	5					192	192	55	53	53					53	53	3	1	0					1	A	1	A	1	A
merge		375	3	104	251	3					359	359	52	52	41					48	48	2	5	0					2	A	2	A	2	A
weave		921	5	321	829	461	362	61			2034	2034	52	52	53	53	56			53	53	6	16	9	7	1			8	A	8	A	8	A
diverge	I-370 Westbound at I-270	460	4	668	347	1187	1230				3432	3432	52	51	53	53				52	52	13	7	23	24				17	B	14	B	14	B
diverge		1407	3	51	1035	1436					2523	2523	54	53	52					53	53	1	20	28					16	B	16	B	16	B
weave		655	4	212	71	110	49				442	442	53	54	52	53				53	53	4	1	2	1				2	A	2	A	2	A
diverge	Shady Grove Rd Eastbound at I-270	248	4	100	257	178	152				687	687	37	37	38	37				37	37	3	7	5	4				5	A	5	A	5	A
diverge		482	4	81	171	232	226				710	710	37	37	37	37				37	37	2	5	6	6				5	A	4	A	4	A
merge		271	4	63	317	237	217				835	835	35	37	37	37				37	37	2	9	6	6				6	A	6	A	6	A
diverge	Shady Grove Rd Westbound at I-270	490	4	430	236	128	107				901	901	17	21	21	21				20	20	26	11	6	5				12	B	14	B	14	B
weave		615	4	572	131	187	201				1092	1092	32	35	35	35				34	34	18	4	5	6				8	A	8	A	8	A
diverge	MD 28 Eastbound at I-270	1745	3	922	409	78					1409	1409	26	27	28					27	27	36	15	3					18	B	18	B	18	B
diverge		581	3	43	395	279					718	718	27	27	27					27	27	2	15	11					9	A	9	A	9	A
diverge	MD 28 Westbound at I-270	320	3	50	114	3					167	167	16	17	11					15	15	3	7	0					3	A	3	A	3	A
		112	3	50	104	13					167	167	24	24	21					23	23	2	4	1					2	A	2	A		
		43	3	68	231	16					314	314	24	19	26					23	23	3	12	1					5	A	5	A		
weave		631	3	200	582	160					942	942	23	22	25					23	23	9	27	7					14	B	14	B	14	B
merge		235	3	491	274	93					857	857	22	24	24					23	23	23	12	4					13	B	13	B	13	B
diverge	MD 189 Eastbound at I-270	271	3	139	162	289					590	590	27	27	25					26	26	5	6	12					8	A	8	A	8	A
diverge		223	3	187	206	145					538	538	22	22	22					22	22	9	10	7					8	A	8	A	8	A
diverge	MD 189 Westbound at I-270	382	3	88	117	200					405	405	27	27	25					26	26	3	4	8					5	A	5	A	5	A
diverge		237	3	43	85	262					390	390	23	22	20					22	22	2	4	13					6	A	6	A	6	A
merge		523	3	43	330	40					413	413	28	27	29					28	28	2	12	1					5	A	5	A	5	A
diverge	Montrose Rd Eastboundat I-270	816	3	80	42	2					123	123	38	38	38					38	38	2	1	0					1	A	1	A	1	A
weave		434	3	182	700	43					924	924	37	37	39					38	38	5	19	1					8	A	8	A	8	A
merge		1393	3	473	639	391					1503	1503	37	36	37					37	37	13	18	11					14	B	14	B	14	B
diverge	Montrose Rd Westbound at I-270	300	3	367	518	456					1341	1341	36	34	34					35	35	10	15	14					13	B	13	B	13	B
weave		490	3	120	722	191					1034	1034	37	35	36					36	36	3	21	5					10	B	10	B	10	B
merge		191	3	63	278	195					536	536	32	36	37					35	35	2	8	5					5	A	5	A	5	A
diverge	MD 187 Northbound at I-270 East Spur	284	6	131	105	70	38	8	0		353	353	7	7	8	8	7	22		10	10	19	14	9	5	1	0		8	A	14	B	14	B
merge		263	5	83	285	120	123	93			705	705	35	37	38	38	38			37	37	2	8	3	3	3			4	A	4	A	4	A
diverge	MD 187 Southbound at I-270 East Spur	302	4	161	242	197	246				845	845	37	38	38	38				38	38	4	7	5	7				6	A	5	A	5	A
diverge		165	5	223	180	192	202	42			839	839	35	37	37	37	38			37	37	6	5	5	6	1			5	A	6	A	6	A
diverge		161	6	229	177	192	162	59	26		846	846	29	34	35	34	37	36		34	34	8	5	6	5	2	1		4	A	6	A	6	A
diverge	Democracy Blvd Eastbound at I-270 West Spur	2296	3	249	68	25					342	342	41	40	41					41	41	6	2	1					3	A	3	A	3	A
diverge		605	3	108	113	112					333	333	30	28	29					29	29	4	4	4					4	A	4	A	4	A
diverge	Democracy Blvd Westbound at I-270 West Spur	857	4	145	39	8	9				201	201	43	43	43	43				43	43	3	1	0	0				1	A	2	A	2	A
merge		2121	4	70	69	65	56				260	260	41	43	43	43				42	42	2	2	2	1				2	A	2	A	2	A
merge	VA 193 Eastbound at I-270 East Spur	299	3	449	620	67					1135	1135	25	32	34					30	30	18	20	2					13	B	13	B	13	B
merge	VA 193 Westbound at I-270 East Spur	452	2	254	172						426	426	30	33						31	31	9	5						7	A	7	A	7	A
merge	G.W. Memorial Pkwy Eastbound at I-495	855	2	1079	967						2046	2046	42	43						43	43	26	23						24	C	24	C	24	C
merge		695	3	1087	1274	1078					3440	3440	45	47	47					46	46	24	28	23					25	C	25	C	25	C
diverge	G.W. Memorial Pkwy Westbound at I-495	3002	2	1789	591						2380	2380	45	48						46	46	40	13						26	C	26	C	26	C
diverge		1285	2	443	323						766	766	46	48						47	47	10	7						8	A	8	A	8	A
diverge		741	2	152	170						322	322	45	44						45	45	3	4						4	A	4	A	4	A
weave	Clara Barton Pkwy Eastbound at I-495	6436	2	149	237						385	385	48	48						48	48	3	5						4	A	4	A	4	A
diverge	Clara Barton Pkwy Westbound at I-495	3047	2	161	4						166	166	48	48						48	48	3	0						2	A	2	A	2	A
merge		3435	2	205	113						318	318	48	48						48	48	4	2						3	A	3	A	3	A
diverge	MD 190 Westbound at I-495	542	3	423	239	314					976	976	41	38	40					40	40	10	6	8					8	A	8	A	8	A
diverge	MD 187 Northbound at I-495	790	3	190	168	199					557	557	29	25	11					22	22	7	10	36					18	B	18	B	18	B
merge		1654	3	252	142	28					422	422	37	38	39					38	38	7	4	1					4	A	4	A	4	A
diverge	MD 187 Southbound at I-495	1642	3	707	475	516					1698	1698	30	29	28					29	29	24	17	19					20	C	20	C	20	C
merge		796	3	635	640	450					1725	1725	36	37	37					37	37	18	18	12					16	B	16	B	16	B
weave	MD 355 Northbound at I-495	1654	3	58	66	271					394	394	36	36	34					35	35	2	2	8					4	A	4	A	4	A
weave		370	4	206	619	45	22				891	891	43	43	44	43				43	43	5	15	1	1				5	A	5	A	5	A
diverge	MD 355 Southbound at I-495	204	4	817	489	508	330				2144	2144	42	43	40	38				41	41	20	12	13	9				13	B	11	B	11	B
merge		781	4	982	774	598	519				2874	2874	23	22	22	23				23	23	43	35	27	23				32	D	35	E	35	E

Arterial Segments - 2045 Preferred Alternative - 7-8 AM

VISSIM Lookup Data				Volume									Speed									Density							
				Volume Per Lane							Across All Lanes	Overall Volume	Speed Per Lane							Across All Lanes	Overall Speed	Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)							Total Volume	Average Volume (veh/hr)	Speed (mph)							Average Speed	Average Speed (mph)	Combined Density (pcphpl)							Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
diverge	MD 117 Eastbound at I-270	495	3	721	840	549					2111	2111	27	26	28					27	27	29	35	21					29	D	29	D	29	D
diverge	I-370 Eastbound	300	4	853	474	487	94				1908	1908	48	46	46	48				47	47	18	11	11	2				10	B	8	A	8	A
weave		605	4	585	520	415	412				1933	1933	49	54	53	53				52	52	12	10	8	8				9	A	9	A	9	A
diverge		600	3	909	275	62					1247	1247	46	28	43					39	39	20	10	1					11	B	11	B	11	B
merge		375	3	360	867	18					1245	1245	51	52	43					48	48	7	17	1					8	A	8	A	8	A
weave		921	5	424	1027	746	1018	289			3504	3504	52	52	52	52	55			53	53	8	20	15	20	5			14	B	14	B	14	B
diverge	I-370 Westbound at I-270	460	4	1154	609	1270	1292				4324	4324	44	44	52	53				48	48	28	15	25	25				23	C	23	C	23	C
diverge		1407	3	152	1178	1389					2720	2720	54	53	53					53	53	3	23	27					17	B	17	B	17	B
weave		655	4	249	193	318	137				897	897	53	54	52	53				53	53	5	4	6	3				4	A	4	A	4	A
diverge	Shady Grove Rd Eastbound at I-270	248	4	207	439	221	204				1070	1070	36	35	36	36				36	36	6	13	6	6				8	A	8	A	8	A
diverge		482	4	225	206	316	350				1097	1097	35	36	36	36				36	36	7	6	9	10				8	A	7	A	7	A
merge		271	4	74	400	320	316				1109	1109	35	37	37	37				36	36	2	11	9	9				8	A	7	A	7	A
diverge	Shady Grove Rd Westbound at I-270	490	4	394	298	268	261				1220	1220	18	20	20	19				19	19	22	15	14	14				16	B	17	B	17	B
weave		615	4	470	298	384	415				1567	1567	34	34	34	33				34	34	14	9	12	13				12	A	12	A	12	A
diverge	MD 28 Eastbound at I-270	1745	3	1147	712	301					2160	2160	26	26	27					26	26	45	28	11					28	D	28	D	28	D
diverge		581	3	94	586	533					1212	1212	27	26	27					27	27	3	22	20					15	B	15	B	15	B
diverge	MD 28 Westbound at I-270	320	3	207	262	24					494	494	11	12	6					10	10	20	23	4					16	B	16	B	13	B
		112	3	178	228	60					466	466	24	24	22					23	23	8	10	3					7	A	7	A		
		43	3	206	408	67					681	681	24	20	27					24	24	9	21	3					11	B	11	B		
weave		631	3	306	847	355					1508	1508	23	21	24					23	23	14	40	15					23	B	23	B	23	B
merge		235	3	686	466	185					1337	1337	21	24	24					23	23	33	20	8					20	C	20	C	20	C
diverge	MD 189 Eastbound at I-270	271	3	471	394	662					1528	1528	27	24	18					23	23	18	17	37					24	C	24	C	24	C
diverge		223	3	378	353	395					1125	1125	20	20	19					20	20	19	18	21					19	B	19	B	19	B
diverge	MD 189 Westbound at I-270	382	3	220	429	474					1123	1123	27	25	22					25	25	8	17	22					16	B	16	B	16	B
diverge		237	3	338	241	462					1042	1042	21	20	18					20	20	16	12	26					18	B	18	B	18	B
merge		523	3	74	570	272					915	915	27	26	27					27	27	3	22	10					12	B	12	B	12	B
diverge	Montrose Rd Eastboundat I-270	816	3	484	329	109					922	922	37	38	38					38	38	13	9	3					8	A	8	A	8	A
weave		434	3	326	740	120					1185	1185	36	37	38					37	37	9	20	3					11	A	11	A	11	A
merge		1393	3	507	599	381					1488	1488	37	36	37					37	37	14	17	11					14	B	14	B	14	B
diverge	Montrose Rd Westbound at I-270	300	3	824	697	688					2209	2209	32	33	34					33	33	26	21	21					23	C	23	C	23	C
weave		490	3	278	926	286					1489	1489	35	34	36					35	35	8	28	8					15	B	15	B	15	B
merge		191	3	45	278	264					587	587	33	36	37					35	35	1	8	7					6	A	6	A	6	A
diverge	MD 187 Northbound at I-270 East Spur	284	6	250	215	215	286	167	32		1164	1164	7	7	6	8	6	2		6	6	35	33	34	37	27	14		30	D	34	D	34	D
merge		263	5	124	466	267	271	263			1391	1391	34	36	36	37	37			36	36	4	13	7	7	7			8	A	8	A	8	A
diverge	MD 187 Southbound at I-270 East Spur	302	4	434	688	625	723				2470	2470	34	33	33	33				33	33	13	21	19	22				19	B	18	B	18	B
diverge		165	5	642	531	569	603	104			2450	2450	29	23	24	24	33			26	26	23	24	25	26	3			20	C	24	C	24	C
diverge		161	6	686	512	542	540	133	50		2464	2464	20	9	9	9	35	33		19	19	35	60	61	60	4	2		37	E	52	F	52	F
diverge	Democracy Blvd Eastbound at I-270 West Spur	2296	3	541	249	215					1006	1006	39	37	37					38	38	14	7	6					9	A	9	A	9	A
diverge		605	3	272	295	301					867	867	25	24	24					24	24	11	12	13					12	B	12	B	12	B
diverge	Democracy Blvd Westbound at I-270 West Spur	857	4	169	82	36	63				350	350	43	43	43	43				43	43	4	2	1	1				2	A	2	A	2	A
merge		2121	4	66	112	112	105				395	395	41	43	43	43				42	42	2	3	3	3				2	A	2	A	2	A
merge	VA 193 Eastbound at I-270 East Spur	299	3	674	916	162					1752	1752	25	31	33					30	30	27	30	5					21	C	21	C	21	C
merge	VA 193 Westbound at I-270 East Spur	452	2	392	450						842	842	30	32						31	31	13	14						14	B	14	B	14	B
merge	G.W. Memorial Pkwy Eastbound at I-495	855	2	1036	907						1943	1943	42	43						43	43	25	21						23	C	23	C	23	C
merge		695	3	793	1111	1018					2922	2922	45	47	47					47	47	18	24	22					21	C	21	C	21	C
diverge	G.W. Memorial Pkwy Westbound at I-495	3002	2	1979	817						2796	2796	32	42						37	37	65	21						43	F	43	F	43	F
diverge		1285	2	472	390						863	863	45	47						46	46	11	8						9	A	9	A	9	A
diverge		741	2	196	189						385	385	45	44						45	45	4	4						4	A	4	A	4	A
weave	Clara Barton Pkwy Eastbound at I-495	6436	2	513	576						1089	1089	48	47						48	48	11	12						12	B	12	B	12	B
diverge	Clara Barton Pkwy Westbound at I-495	3047	2	327	16						343	343	48	48						48	48	7	0						4	A	4	A	4	A
merge		3435	2	236	150						387	387	48	47						48	48	5	3						4	A	4	A	4	A
diverge	MD 190 Westbound at I-495	542	3	710	428	457					1595	1595	41	39	40					40	40	18	11	12					13	B	13	B	13	B
diverge	MD 187 Northbound at I-495	790	3	646	364	225					1236	1236	10	6	2					6	6	77	99	147					108	F	108	F	108	F
merge		1654	3	617	328	74					1019	1019	37	38	39					38	38	17	9	2					9	A	9	A	9	A
diverge	MD 187 Southbound at I-495	1642	3	1123	797	815					2735	2735	25	25	25					25	25	45	32	33					37	E	37	E	37	E
merge		796	3	873	966	778					2618	2618	36	37	36					36	36	25	27	22					24	C	24	C	24	C
weave	MD 355 Northbound at I-495	1654	3	286	366	773					1424	1424	35	35	33					34	34	8	11	24					14	B	14	B	14	B
weave		370	4	244	799	301	223				1567	1567	42	42	43	43				43	43	6	19	7	5				9	A	9	A	9	A
diverge	MD 355 Southbound at I-495	204	4	826	588	637	604				2655	2655	42	42	36	35				39	39	20	14	18	18				17	B	17	B	17	B
merge		781	4	978	796	630	528				2932	2932	23	22	22	22				22	22	43	36	29	24				33	D	36	E	36	E

Arterial Segments - 2045 Preferred Alternative - 8-9 AM

VISSIM Lookup Data				Volume									Speed								Density							
				Volume Per Lane							Across All Lanes	Overall Volume	Speed Per Lane							Across All Lanes	Overall Speed	Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)							Total Volume	Average Volume (veh/hr)	Speed (mph)							Average Speed	Average Speed (mph)	Combined Density (pcphpl)							Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
diverge	MD 117 Eastbound at I-270	495	3	710	842	568					2121	2121	30	29	30					29	29	25	30	20					25	C	25	C	25	C
diverge	I-370 Eastbound	300	4	822	455	455	66				1798	1798	48	48	49	49				48	48	17	10	10	1				9	A	7	A	7	A
weave		605	4	554	507	416	402				1878	1878	49	54	53	53				52	52	12	10	8	8				9	A	9	A	9	A
diverge		600	3	895	270	61					1226	1226	46	29	45					40	40	20	9	1					10	B	10	B	10	B
merge		375	3	347	840	19					1206	1206	51	51	41					48	48	7	17	1					8	A	8	A	8	A
weave		921	5	480	1149	858	1011	281			3778	3778	52	52	52	52	55			53	53	9	23	17	20	5			15	B	15	B	15	B
diverge	I-370 Westbound at I-270	460	4	1295	764	1356	1517				4932	4932	30	31	46	50				39	39	49	29	31	31				35	E	36	E	36	E
diverge		1407	3	189	1242	1572					3003	3003	53	52	52					52	52	4	24	31					20	C	20	C	20	C
weave		655	4	497	297	470	203				1467	1467	53	54	52	52				53	53	10	6	9	4				7	A	7	A	7	A
diverge	Shady Grove Rd Eastbound at I-270	248	4	265	581	294	286				1427	1427	35	31	35	35				34	34	8	19	9	8				11	B	12	B	12	B
diverge		482	4	334	266	404	452				1455	1455	34	35	35	35				35	35	10	8	12	13				11	B	10	B	10	B
merge		271	4	78	457	413	415				1364	1364	34	37	37	36				36	36	2	13	11	12				10	B	9	A	9	A
diverge	Shady Grove Rd Westbound at I-270	490	4	488	347	301	293				1429	1429	17	20	20	20				19	19	29	18	15	15				19	B	21	C	21	C
weave		615	4	584	400	492	538				2015	2015	33	31	31	31				32	32	18	13	16	18				16	B	16	B	16	B
diverge	MD 28 Eastbound at I-270	1745	3	1045	734	440					2219	2219	26	26	26					26	26	41	28	17					29	D	29	D	29	D
diverge		581	3	87	647	680					1414	1414	27	26	26					26	26	3	25	26					18	B	18	B	18	B
diverge	MD 28 Westbound at I-270	320	3	274	463	101					838	838	8	10	5					8	8	35	48	21					35	E	35	E	28	D
		112	3	258	389	175					822	822	24	25	24					24	24	11	16	8					12	B	12	B		
		43	3	286	599	192					1077	1077	24	21	27					24	24	12	29	7					16	B	16	B		
weave		631	3	427	1161	731					2319	2319	21	20	23					21	21	21	58	32					37	E	37	E	37	E
merge		235	3	1019	788	344					2151	2151	21	23	24					23	23	49	35	14					33	D	33	D	33	D
diverge	MD 189 Eastbound at I-270	271	3	521	457	784					1762	1762	27	23	15					22	22	20	20	53					31	D	31	D	31	D
diverge		223	3	417	369	499					1284	1284	20	20	18					19	19	21	19	29					23	C	23	C	23	C
diverge	MD 189 Westbound at I-270	382	3	232	428	499					1160	1160	27	25	21					24	24	9	17	24					17	B	17	B	17	B
diverge		237	3	342	264	500					1107	1107	21	20	17					19	19	16	14	30					20	C	20	C	20	C
merge		523	3	73	583	270					927	927	27	26	27					27	27	3	22	10					12	B	12	B	12	B
diverge	Montrose Rd Eastboundat I-270	816	3	596	566	283					1444	1444	35	37	38					37	37	17	16	8					13	B	13	B	13	B
weave		434	3	457	925	354					1736	1736	36	36	37					36	36	13	26	10					16	B	16	B	16	B
merge		1393	3	601	813	683					2098	2098	37	36	37					37	37	16	23	19					19	B	19	B	19	B
diverge	Montrose Rd Westbound at I-270	300	3	1141	702	800					2642	2642	28	33	34					31	31	42	22	24					29	D	29	D	29	D
weave		490	3	283	998	388					1669	1669	35	34	36					35	35	8	30	11					16	B	16	B	16	B
merge		191	3	40	367	391					798	798	32	36	37					35	35	1	10	11					7	A	7	A	7	A
diverge	MD 187 Northbound at I-270 East Spur	284	6	359	324	323	373	146	31		1555	1555	6	6	6	7	6	3		6	6	57	55	56	58	25	11		44	F	56	F	56	F
merge		263	5	123	535	393	395	404			1850	1850	33	35	36	37	37			35	35	4	15	11	11	11			11	B	10	B	10	B
diverge	MD 187 Southbound at I-270 East Spur	302	4	448	801	772	896				2918	2918	33	27	26	27				28	28	14	31	31	35				28	D	25	C	25	C
diverge		165	5	654	662	694	743	135			2888	2888	28	14	15	16	31			21	21	24	50	50	50	4			36	E	41	F	41	F
diverge		161	6	698	641	667	665	163	62		2895	2895	20	7	8	8	34	31		18	18	36	92	91	90	5	2		53	F	73	F	73	F
diverge	Democracy Blvd Eastbound at I-270 West Spur	2296	3	733	416	393					1542	1542	34	32	31					32	32	22	13	13					16	B	16	B	16	B
diverge		605	3	500	514	545					1559	1559	21	20	21					21	21	25	26	27					26	C	26	C	26	C
diverge	Democracy Blvd Westbound at I-270 West Spur	857	4	259	320	198	286				1063	1063	43	43	43	43				43	43	6	8	5	7				6	A	6	A	6	A
merge		2121	4	123	268	273	217				881	881	42	42	43	43				42	42	3	6	7	5				5	A	5	A	5	A
merge	VA 193 Eastbound at I-270 East Spur	299	3	449	639	76					1163	1163	25	32	34					30	30	18	21	2					14	B	14	B	14	B
merge	VA 193 Westbound at I-270 East Spur	452	2	396	411						807	807	30	32						31	31	14	13						13	B	13	B	13	B
merge	G.W. Memorial Pkwy Eastbound at I-495	855	2	820	652						1473	1473	42	44						43	43	20	15						18	B	18	B	18	B
merge		695	3	605	868	777					2249	2249	45	47	48					47	47	14	19	17					16	B	16	B	16	B
diverge	G.W. Memorial Pkwy Westbound at I-495	3002	2	2054	1003						3057	3057	36	44						40	40	60	24						42	E	42	E	42	E
diverge		1285	2	428	733						1161	1161	45	47						46	46	10	16						13	B	13	B	13	B
diverge		741	2	464	265						730	730	45	44						44	44	11	6						8	A	8	A	8	A
weave	Clara Barton Pkwy Eastbound at I-495	6436	2	453	537						990	990	48	47						48	48	10	12						11	B	11	B	11	B
diverge	Clara Barton Pkwy Westbound at I-495	3047	2	461	28						489	489	47	48						48	48	10	1						5	A	5	A	5	A
merge		3435	2	117	110						228	228	48	47						48	48	2	2						2	A	2	A	2	A
diverge	MD 190 Westbound at I-495	542	3	911	511	577					1999	1999	40	39	40					39	39	23	13	15					17	B	17	B	17	B
diverge	MD 187 Northbound at I-495	790	3	662	293	152					1108	1108	5	2	1					3	3	130	161	206					166	F	166	F	166	F
merge		1654	3	707	305	74					1086	1086	37	38	39					38	38	19	8	2					10	B	10	B	10	B
diverge	MD 187 Southbound at I-495	1642	3	1136	858	935					2929	2929	24	24	24					24	24	47	36	39					41	F	41	F	41	F
merge		796	3	1026	1006	624					2656	2656	36	37	37					36	36	29	28	17					25	C	25	C	25	C
weave	MD 355 Northbound at I-495	1654	3	368	455	928					1751	1751	35	34	32					34	34	11	14	29					18	B	18	B	18	B
weave		370	4	241	816	355	255				1668	1668	42	42	43	43				43	43	6	20	8	6				10	B	10	B	10	B
diverge	MD 355 Southbound at I-495	204	4	923	718	712	637				2990	2990	42	42	36	35				39	39	22	18	20	19				20	C	19	B	19	B
merge		781	4	1094	899	755	634				3382	3382	22	22	22	22				22	22	50	42	34	29				39	E	42	F	42	F

Arterial Segments - 2045 Preferred Alternative - 9-10 AM

VISSIM Lookup Data				Volume									Speed								Density							
				Volume Per Lane							Across All Lanes	Overall Volume	Speed Per Lane							Across All Lanes	Overall Speed	Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)							Total Volume	Average Volume (veh/hr)	Speed (mph)							Average Speed	Average Speed (mph)	Combined Density (pcphpl)							Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
diverge	MD 117 Eastbound at I-270	495	3	598	753	478					1829	1829	32	32	32					32	32	19	24	15					19	B	19	B	19	B
diverge	I-370 Eastbound	300	4	716	378	377	60				1531	1531	49	48	49	49				49	49	15	8	8	1				8	A	6	A	6	A
weave		605	4	523	464	344	326				1658	1658	49	54	53	53				52	52	11	9	7	6				8	A	8	A	8	A
diverge		600	3	798	217	46					1061	1061	49	37	48					45	45	17	6	1					8	A	8	A	8	A
merge		375	3	294	707	12					1013	1013	51	52	42					48	48	6	14	0					7	A	7	A	7	A
weave		921	5	438	1072	847	892	222			3471	3471	52	52	52	52	56			53	53	9	21	17	17	4			14	B	14	B	14	B
diverge	I-370 Westbound at I-270	460	4	1170	660	1305	1361				4496	4496	40	41	49	51				45	45	30	18	27	27				25	C	25	C	25	C
diverge		1407	3	203	1177	1477					2857	2857	54	53	52					53	53	4	23	29					18	B	18	B	18	B
weave		655	4	471	305	443	197				1416	1416	53	54	52	52				53	53	9	6	9	4				7	A	7	A	7	A
diverge	Shady Grove Rd Eastbound at I-270	248	4	270	551	274	269				1364	1364	35	33	35	35				35	35	8	17	8	8				10	B	11	B	11	B
diverge		482	4	292	260	385	420				1358	1358	35	35	35	35				35	35	9	8	11	12				10	B	9	A	9	A
merge		271	4	103	493	401	385				1383	1383	35	37	37	36				36	36	3	14	11	11				10	B	9	A	9	A
diverge	Shady Grove Rd Westbound at I-270	490	4	468	297	234	221				1220	1220	17	21	20	20				19	19	28	15	12	11				17	B	18	B	18	B
weave		615	4	557	312	385	414				1668	1668	33	33	32	32				32	32	17	10	12	13				13	B	13	B	13	B
diverge	MD 28 Eastbound at I-270	1745	3	956	577	271					1803	1803	26	26	27					26	26	37	22	10					23	C	23	C	23	C
diverge		581	3	25	592	538					1155	1155	27	26	27					27	27	1	23	21					15	B	15	B	15	B
diverge	MD 28 Westbound at I-270	320	3	309	631	197					1138	1138	9	9	5					8	8	37	69	39					48	E	48	F	38	E
		112	3	286	542	296					1123	1123	24	25	25					24	24	12	22	12					16	B	16	B		
		43	3	309	769	319					1398	1398	24	22	27					24	24	13	36	12					20	C	20	C		
weave		631	3	469	1119	848					2436	2436	21	20	23					21	21	23	57	38					39	E	39	E		
merge		235	3	1025	853	362					2241	2241	21	23	25					23	23	50	37	15					34	D	34	D	34	D
diverge	MD 189 Eastbound at I-270	271	3	402	403	693					1498	1498	27	24	17					22	22	15	17	42					25	C	25	C	25	C
diverge		223	3	382	346	433					1161	1161	20	20	19					20	20	19	18	24					20	C	20	C	20	C
diverge	MD 189 Westbound at I-270	382	3	193	398	407					998	998	27	25	23					25	25	7	16	18					14	B	14	B	14	B
diverge		237	3	353	232	384					969	969	21	21	19					20	20	17	11	21					16	B	16	B	16	B
merge		523	3	70	557	285					912	912	27	26	27					27	27	3	21	11					12	B	12	B	12	B
diverge	Montrose Rd Eastboundat I-270	816	3	538	593	322					1453	1453	37	37	38					37	37	15	16	9					13	B	13	B	13	B
weave		434	3	457	1061	463					1981	1981	35	36	37					36	36	13	30	13					19	B	19	B	19	B
merge		1393	3	564	919	811					2293	2293	38	36	37					37	37	15	26	22					21	C	21	C	21	C
diverge	Montrose Rd Westbound at I-270	300	3	965	787	781					2533	2533	32	34	34					33	33	31	23	23					26	C	26	C	26	C
weave		490	3	241	991	439					1672	1672	35	35	36					35	35	7	29	13					16	B	16	B	16	B
merge		191	3	58	411	428					896	896	32	36	36					35	35	2	12	12					8	A	8	A	8	A
diverge	MD 187 Northbound at I-270 East Spur	284	6	368	329	329	375	157	29		1587	1587	7	7	7	7	7	3		6	6	52	51	51	52	23	9		40	E	51	F	51	F
merge		263	5	100	504	388	388	378			1758	1758	33	35	36	37	37			36	36	3	15	11	11	10			10	B	10	B	10	B
diverge	MD 187 Southbound at I-270 East Spur	302	4	364	684	625	760				2433	2433	36	33	32	32				33	33	10	21	20	24				19	B	17	B	17	B
diverge		165	5	538	555	576	630	123			2423	2423	31	23	23	25	34			27	27	18	25	25	26	4			19	B	22	C	22	C
diverge		161	6	573	543	562	555	162	59		2455	2455	23	9	9	9	35	32		20	20	25	60	61	61	5	2		36	E	49	F	49	F
diverge	Democracy Blvd Eastbound at I-270 West Spur	2296	3	656	347	330					1333	1333	34	32	32					33	33	19	11	10					14	B	14	B	14	B
diverge		605	3	431	435	463					1329	1329	24	22	23					23	23	19	20	21					20	C	20	C	20	C
diverge	Democracy Blvd Westbound at I-270 West Spur	857	4	269	245	165	268				947	947	43	43	43	43				43	43	6	6	4	6				6	A	5	A	5	A
merge		2121	4	182	270	239	187				877	877	41	43	43	43				42	42	5	6	6	4				5	A	6	A	6	A
merge	VA 193 Eastbound at I-270 East Spur	299	3	381	607	77					1064	1064	26	32	34					30	30	15	19	2					12	B	12	B	12	B
merge	VA 193 Westbound at I-270 East Spur	452	2	331	317						648	648	30	32						31	31	11	10						11	B	11	B	11	B
merge	G.W. Memorial Pkwy Eastbound at I-495	855	2	743	601						1344	1344	42	44						43	43	18	14						16	B	16	B	16	B
merge		695	3	593	811	710					2114	2114	45	47	48					47	47	13	17	15					15	B	15	B	15	B
diverge	G.W. Memorial Pkwy Westbound at I-495	3002	2	1925	625						2549	2549	44	47						46	46	45	13						29	D	29	D	29	D
diverge		1285	2	433	341						773	773	46	48						47	47	9	7						8	A	8	A	8	A
diverge		741	2	147	192						339	339	45	44						45	45	3	4						4	A	4	A	4	A
weave	Clara Barton Pkwy Eastbound at I-495	6436	2	181	329						510	510	48	47						48	48	4	7						5	A	5	A	5	A
diverge	Clara Barton Pkwy Westbound at I-495	3047	2	389	21						411	411	48	48						48	48	8	0						4	A	4	A	4	A
merge		3435	2	67	51						118	118	48	48						48	48	1	1						1	A	1	A	1	A
diverge	MD 190 Westbound at I-495	542	3	927	492	594					2013	2013	40	38	39					39	39	24	13	15					17	B	17	B	17	B
diverge	MD 187 Northbound at I-495	790	3	792	384	215					1391	1391	6	3	1					3	3	132	155	199					162	F	162	F	162	F
merge		1654	3	764	417	98					1279	1279	37	38	39					38	38	21	11	3					12	B	12	B	12	B
diverge	MD 187 Southbound at I-495	1642	3	957	620	681					2258	2258	29	27	27					28	28	34	23	25					28	D	28	D	28	D
merge		796	3	663	737	492					1892	1892	36	37	37					37	37	19	20	13					17	B	17	B	17	B
weave	MD 355 Northbound at I-495	1654	3	300	379	780					1459	1459	35	34	33					34	34	9	11	24					15	B	15	B	15	B
weave		370	4	208	706	315	241				1472	1472	42	42	43	43				43	43	5	17	8	6				9	A	9	A	9	A
diverge	MD 355 Southbound at I-495	204	4	909	642	638	483				2672	2672	42	42	38	36				40	40	22	15	17	14				17	B	15	B	15	B
merge		781	4	947	811	675	566				3000	3000	24	23	23	23				23	23	41	35	29	25				33	D	35	E	35	E

I-495 Inner Loop - 2045 Preferred Alternative - 3-4 PM

VISSIM Lookup Data				Volume									Speed									Density									
				Volume Per Lane							Across All Lanes	Overall Volume	Speed Per Lane							Across All Lanes	Overall Speed	Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)							Total Volume	Average Volume (veh/hr)	Speed (mph)							Average Speed	Average Speed (mph)	Combined Density (pcphpl)							Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Btw VA 267 & VA 193	2184	5	218	1259	1046	793	744			4060	4060	59	59	59	59	59			59	59	4	22	18	14	13			14	B	14	B	14	B
diverge		1468	5	296	1319	987	758	700			4060	4060	59	58	58	59	59			58	58	5	23	17	13	12			14	B	15	B	15	B
basic	VA 193 interchange	2206	4	1263	941	775	713				3692	3692	58	59	59	59				59	59	22	16	13	12				16	B	16	B	16	B
merge	Btw VA 193 & GWMP	354	6	77	617	1450	1225	787	717		4874	4874	41	47	56	58	59	59		53	53	2	14	26	21	13	12		15	B	14	B	14	B
basic		1017	5	114	1582	1556	928	720			4899	4899	51	54	57	59	59			56	56	2	30	28	16	12			18	C	18	C	18	C
diverge		1233	5	78	1470	1545	1125	663			4881	4881	59	54	57	58	59			57	57	1	27	28	20	11			17	B	19	B	19	B
basic	GWMP interchange	386	4	1521	1578	954	687				4740	4776	54	57	58	59				57	57	28	28	17	12				21	C	21	C	22	C
		965	4	1473	1607	981	722				4784		53	56	58	59				56		28	29	17	12				22	C	22	C		
		527	4	1660	1335	1022	769				4787		54	56	58	59				57		31	24	18	13				22	C	22	C		
weave	Btw GWMP & Clara Barton Pkwy	366	5	1583	1673	1250	1028	785			6319	6332	51	54	57	59	59			56	56	32	31	22	18	13			23	C	23	C	23	C
		2006	5	717	1760	1749	1259	849			6335		56	52	54	58	59			56		13	34	33	22	15			23	C	23	C		
basic	Clara Barton Pkwy interchange	107	4	1627	1622	1398	948				5594	5595	53	54	58	59				56	56	31	30	25	16				26	D	26	D	26	D
		652	4	1617	1585	1421	971				5595		53	54	58	59				56		31	30	25	17				26	D	26	D		
merge	Btw Clara Barton Pkwy & MD 190	1411	5	46	1579	1655	1483	1040			5803	5803	52	53	54	57	59			55	55	1	30	31	26	18			21	C	21	C	21	C
basic		204	4	1593	1592	1522	1101				5808	5802	53	54	57	59				56	55	31	30	27	19				27	D	27	D	27	D
		504	4	1581	1568	1524	1122				5794		53	54	57	59				56		30	30	27	19				27	D	27	D		
		530	4	1554	1509	1512	1134				5709		53	54	57	58				56		30	28	27	20				26	D	26	D		
		4439	4	1682	1427	1485	1220				5814		53	54	57	58				55		32	27	26	21				27	D	27	D		
diverge		1109	5	260	1426	1331	1454	1318			5790	5790	56	53	53	57	58			55	55	5	27	25	26	23			21	C	19	B	19	B
basic	MD 190 interchange	1071	4	1401	1310	1447	1355				5513	5513	53	53	57	58				55	55	27	25	26	24				25	C	25	C	25	C
merge		1281	5	1392	1288	1413	1343	909			6345	6345	53	53	57	58	54			55	55	27	24	25	23	17			23	C	25	C	25	C
basic		552	5	1398	1283	1395	1372	940			6387	6387	53	53	57	58	54			55	55	27	24	25	24	17			24	C	24	C	24	C
merge	Btw MD 190 & I-270 West Spur	806	6	368	1821	1809	1437	1381	955		7772	7772	50	52	52	56	58	54		54	54	8	36	35	26	24	18		24	C	26	C	26	C
basic		908	5	1535	1942	2033	1536	688			7735	7748	51	52	55	57	55			54	53	30	38	38	28	13			29	D	29	D	30	D
		2009	5	1264	1998	2055	1816	623			7755		53	51	53	55	56			54		24	40	39	34	11			30	D	30	D		
		694	5	1262	1808	2240	1719	716			7745		51	50	51	53	55			52		25	37	45	33	13			31	D	31	D		
weave		2475	5	1466	1720	2155	1376	968			7685	7685	45	45	46	53	55			49	49	34	40	49	27	18			33	D	33	D	33	D
basic	Btw I-270 West Spur & MD 187	1210	3	1507	1508	1308					4324	4324	37	36	36					36	36	45	48	42					45	F	45	F	45	F
merge		2526	4	1479	1595	1561	135				4769	4769	30	30	31	39				33	33	54	58	55	4				43	F	39	E	39	E
basic		2754	3	1516	1517	1537					4569	4530	24	24	24					24	23	67	68	67					67	F	67	F	70	F
		1173	3	1651	1415	1371					4437		24	19	18					20		72	79	78					76	F	76	F		
diverge		305	4	293	1369	1366	1348				4376	4376	44	19	17	17				24	24	7	73	84	82				62	F	55	F	55	F
basic	MD 187 interchange	2021	3	1285	1284	1308					3876	3876	16	14	15					15	15	81	94	90					89	F	89	F	89	F
merge	Btw MD 187 & I-270 East Spur	440	4	174	1335	1241	1276				4026	4026	21	16	12	13				16	16	9	87	103	98				74	F	66	F	66	F
diverge		659	3	1118	1348	1539					4005	3968	18	13	14					15	16	63	110	109					94	F	94	F	88	F
		1113	3	673	1534	1739					3946		18	14	17					16		38	111	106					85	F	85	F		
basic	I-270 East Spur interchange	1519	2	1666	1822						3488	3488	18	21						19	19	95	88						92	F	92	F	92	F
weave		1951	4	1560	1601	1686	1687				6534	6534	14	17	23	25				20	20	111	97	76	70				88	F	88	F	88	F
weave		513	6	417	1421	1638	1873	1740	662		7751	7751	14	12	16	21	21	45		22	22	30	119	103	90	83	15		73	F	73	F	73	F
basic	Btw I-270 East Spur & MD 185	1013	5	1807	1792	1937	1749	450			7734	7684	19	22	23	19	29			22	21	97	84	87	92	16			75	F	75	F	77	F
		1002	5	1857	1881	1880	1732	330			7680		19	21	21	18	27			21		97	90	93	98	12			78	F	78	F		
		522	5	1869	1909	1904	1706	203			7592		20	22	20	18	20			20		96	89	96	98	10			78	F	78	F		
basic		1603	4	1912	1905	1909	1848				7574	7574	21	22	22	22				22	22	91	87	88	88				88	F	88	F	89	F
		252	4	1987	1875	1877	1830				7569		23	21	21	21				22		87	90	91	90				90	F	90	F		
basic	ML - Btw VA 267 & GWMP	2189	2	1355	1358						2713	2712	64	64						64	63	22	22						22	C	22	C	22	C
		1496	2	1354	1359						2713		64	63						63		22	22						22	C	22	C		
		2215	2	1353	1359						2712		63	63						63		22	22						22	C	22	C		
		928	2	1306	1405						2711		63	63						63		21	23						22	C	22	C		
diverge		812	3	1302	1267	144					2713	2713	63	63	63					63	63	21	20	2					14	B	14	B	14	B
basic	ML - GWMP interchange	2564	2	1302	1273						2575	2574	63	63						63	63	21	20						21	C	21	C	21	C
		1301	2	1298	1274						2572		63	63						63		21	20						21	C	21	C		
merge	ML - Btw GWMP & MD 190	1240	3	1466	1541	107					3113	3113	63	62	60					62	62	24	25	2					17	B	17	B	17	B
basic		2780	2	1541	1578						3119	3112	63	63						63	63	25	26						25	C	25	C	25	C
		218	2	1540	1561						3101		63	63						63		25	25						25	C	25	C		
		2291	2	1546	1567						3112		63	63						63		25	25						25	C	25	C		
		266	2	1546	1563						3109		63	63						63		25	25						25	C	25	C		
		2591	2	1502	1604						3106		63	63						63		24	26						25	C	25	C		
diverge		1047	3	1371	1345	370					3086	3086	63	63	64					63	63	22	22	6					17	B	17	B	17	B
basic	ML - MD 190 interchange	934	2	1355	1289						2644	2644	63	63						63	63	22	21						21	C	21	C	21	C
merge		1007	3	1158	1362	1304					3824	3828	63	63	63					63	63	19	22	21					21	C	21	C	21	C
		1051	3	1384	1643	804					3831		63	63	63					63		22	27	13					21	C	21	C		
merge	ML - Btw MD 190 & I-270 West Spur	696	4	1531	1781	668	41				4020	4020	62	62	63	58				61	61	25	29	11	1				16	B	14	B	14	B
basic		225	3	1562	1817	605					3984	4013	62	62	63					63	63	25	30	10					22	C	22	C	22	C
		3622	3	1612	1820	584					4015		63	63	64					63		26	30	9					22	C	22	C		
diverge		498	3	1621	1800	577					3999	3999	63	63	61					62	62	26	29	10					22	C	22	C	22	C
basic	ML - Btw I-270 West Spur & MD 187	2205	1	580							580	580	59							59	59	10							10	A	10	A	10	A
		772	1	579							579		58							58		10							10	A	10	A		

I-495 Inner Loop - 2045 Preferred Alternative - 4-5 PM

VISSIM Lookup Data			Volume									Speed									Density									
				Volume Per Lane						Across All Lanes	Overall Volume	Speed Per Lane							Across All Lanes	Overall Speed	Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)						Total Volume	Average Volume (veh/hr)	Speed (mph)							Average Speed	Average Speed (mph)	Combined Density (pcphpl)							Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Btw VA 267 & VA 193	2184	5	235	1294	1104	844	783		4261	4261	59	59	58	59	59			59	59	4	22	19	14	13			15	B	15	B	15	B
diverge		1468	5	330	1364	1031	801	741		4267	4267	58	58	58	59	59			58	58	6	24	18	14	13			15	B	16	B	16	B
basic	VA 193 interchange	2206	4	1299	982	813	756			3849	3849	58	59	59	59				59	59	23	17	14	13				17	B	17	B	17	B
merge	Btw VA 193 & GWMP	354	6	87	676	1494	1291	821	760	5128	5128	41	47	56	58	59	59		54	54	2	15	27	22	14	13		16	B	15	B	15	B
basic		1017	5	136	1635	1659	968	755		5154	5154	50	54	57	59	59			56	56	3	31	30	17	13			19	C	19	C	19	C
diverge		1233	5	89	1521	1647	1225	627		5107	5107	59	52	55	56	56			56	56	2	30	31	22	12			19	B	21	C	21	C
basic	GWMP interchange	386	4	1655	1687	932	650			4924	4909	50	53	53	54				52	48	34	33	19	13				25	C	25	C	28	D
		965	4	1593	1716	936	683			4928		44	48	50	50				48		38	37	20	15				27	D	27	D		
		527	4	1801	1342	979	741			4863		40	42	45	44				43		47	35	23	19				31	D	31	D		
weave	Btw GWMP & Clara Barton Pkwy	366	5	1642	1755	1199	977	762		6335	6240	37	38	38	40	39			38	34	47	50	35	27	22			36	E	36	E	41	E
		2006	5	1013	1650	1564	1157	838		6223		37	32	33	33	32			33		30	57	53	39	30			42	E	42	E		
basic	Clara Barton Pkwy interchange	107	4	1424	1434	1256	941			5055	5009	27	28	30	30				29	27	59	59	48	37				51	F	51	F	53	F
		652	4	1397	1385	1256	965			5002		25	25	28	27				26		62	62	51	40				54	F	54	F		
merge	Btw Clara Barton Pkwy & MD 190	1411	5	119	1227	1378	1263	1023		5011	5011	6	18	20	22	21			17	17	26	76	72	62	50			57	F	58	F	58	F
basic		204	4	1254	1313	1266	1060			4892	4516	17	18	20	20				19	14	79	76	68	56				70	F	70	F	89	F
		504	4	1228	1288	1251	1071			4837		16	17	19	19				18		81	78	70	58				72	F	72	F		
		530	4	1176	1224	1218	1075			4693		15	16	18	18				17		85	80	73	61				75	F	75	F		
		4439	4	1143	1085	1105	1107			4441		12	12	13	15				13		105	97	91	78				93	F	93	F		
diverge		1109	5	153	866	931	985	1127		4063	4063	51	7	8	9	12			18	18	3	126	116	111	93			90	F	82	F	82	F
basic	MD 190 interchange	1071	4	795	877	925	1154			3751	3751	6	7	8	12				8	8	136	125	122	100				121	F	121	F	121	F
merge		1281	5	704	811	831	1018	1106		4470	4470	5	6	6	9	12			7	7	150	138	138	117	97			128	F	142	F	142	F
basic		552	5	641	768	772	994	1179		4354	4354	4	5	5	8	11			7	7	164	150	151	129	106			140	F	140	F	140	F
merge	Btw MD 190 & I-270 West Spur	806	6	494	766	925	740	973	1224	5124	5124	5	5	6	5	7	11		7	7	104	156	158	161	136	111		137	F	139	F	139	F
basic		908	5	1096	895	803	1017	1159		4970	4846	10	6	5	7	12			8	8	117	161	171	138	96			137	F	137	F	136	F
		2009	5	1081	803	698	1077	1170		4830		10	5	4	8	16			9		105	173	184	143	73			136	F	136	F		
		694	5	1043	741	676	1074	1197		4731		9	5	4	8	18			9		125	165	179	132	68			134	F	134	F		
weave		2475	5	992	693	586	827	1532		4630	4630	7	4	3	8	28			10	10	154	186	188	101	55			137	F	137	F	137	F
basic	Btw I-270 West Spur & MD 187	1210	3	993	778	793				2564	2564	6	4	5					5	5	159	181	176					172	F	172	F	172	F
merge		2526	4	1010	878	833	387			3108	3108	7	5	5	19				9	9	158	175	166	21				130	F	121	F	121	F
basic		2754	3	1073	997	1031				3101	3100	7	6	7					7	7	153	160	156					156	F	156	F	157	F
		1173	3	1293	909	898				3100		10	5	5					7		138	169	168					158	F	158	F		
diverge		305	4	293	1068	833	876			3070	3070	33	7	5	5				13	13	9	148	174	169				125	F	110	F	110	F
basic	MD 187 interchange	2021	3	1057	782	867				2706	2706	7	4	5					6	6	155	180	170					169	F	169	F	169	F
merge	Btw MD 187 & I-270 East Spur	440	4	271	1054	773	869			2966	2966	14	7	4	5				8	8	20	150	181	169				130	F	117	F	117	F
diverge		659	3	1209	819	948				2976	2968	11	5	6					7	8	108	176	167					150	F	150	F	134	F
		1113	3	776	943	1245				2964		12	6	9					9		68	158	146					124	F	124	F		
basic	I-270 East Spur interchange	1519	2	1258	1440					2698	2698	9	12						11	11	137	127						132	F	132	F	132	F
weave		1951	4	1183	1362	1636	1755			5935	5935	8	11	16	18				13	13	146	131	104	98				120	F	120	F	120	F
weave		513	6	442	1097	1425	1779	1664	735	7141	7141	12	8	11	16	16	44		18	18	38	144	127	112	107	17		91	F	91	F	91	F
basic	Btw I-270 East Spur & MD 185	1013	5	1565	1661	1768	1592	593		7179	7177	14	17	17	14	28			18	17	116	102	108	116	22			93	F	93	F	93	F
		1002	5	1673	1781	1692	1580	466		7191		15	17	15	14	27			18		113	106	113	119	18			94	F	94	F		
		522	5	1712	1821	1777	1531	304		7145		16	18	16	13	19			16		110	103	112	117	17			92	F	92	F		
basic		1603	4	1775	1820	1813	1748			7155	7155	18	19	19	18				18	18	102	98	98	99				99	F	99	F	99	F
		252	4	1867	1778	1776	1735			7157		20	18	18	18				18		97	101	100	101				100	F	100	F		
basic	ML - Btw VA 267 & GWMP	2189	2	1362	1373					2735	2737	63	63						63	63	22	22						22	C	22	C	22	C
		1496	2	1360	1380					2740		63	63						63		22	22						22	C	22	C		
		2215	2	1359	1377					2736		63	63						63		22	22						22	C	22	C		
		928	2	1322	1413					2735		63	63						63		21	23						22	C	22	C		
diverge		812	3	1320	1287	129				2736	2736	63	63	63					63	63	21	21	2					15	B	15	B	15	B
basic	ML - GWMP interchange	2564	2	1323	1294					2617	2616	63	63						63	63	21	21						21	C	21	C	21	C
		1301	2	1315	1299					2614		63	63						63		21	21						21	C	21	C		
merge	ML - Btw GWMP & MD 190	1240	3	1478	1544	104				3125	3125	63	62	61					62	62	24	25	2					17	B	17	B	17	B
basic		2780	2	1545	1590					3134	3139	63	63						63	63	25	26						25	C	25	C	25	C
		218	2	1546	1577					3123		63	63						63		25	26						25	C	25	C		
		2291	2	1556	1584					3141		63	63						63		25	26						25	C	25	C		
		266	2	1556	1585					3142		63	63						63		25	26						25	C	25	C		
		2591	2	1511	1631					3143		63	63						63		24	26						25	C	25	C		
diverge		1047	3	1379	1375	376				3130	3130	63	63	64					63	63	22	22	6					17	B	17	B	17	B
basic	ML - MD 190 interchange	934	2	1370	1313					2682	2682	63	63						63	63	22	21						22	C	22	C	22	C
merge		1007	3	1201	1389	1332				3921	3922	63	63	63					63	63	20	22	22					21	C	21	C	21	C
		1051	3	1454	1678	791				3923		63	63	63					63		24	27	13					21	C	21	C		
merge	ML - Btw MD 190 & I-270 West Spur	696	4	1648	1822	668	54			4193	4193	62	62	63	57				61	61	27	30	11	1				17	B	14	B	14	B
basic		225	3	1677	1893	584				4155	4182	62	62	63					62	63	27	31	9					23	C	23	C	23	C
		3622	3	1732	1895	557				4184		63	62	64					63		28	31	9					23	C	23	C		
diverge		498	3	1737	1877	548				4162	4162	63	63	64					63	63	28	30	9					22	C	22	C	22	C
basic	ML - Btw I-270 West Spur & MD 187	2205	1	548						548	549	59							59	59	9							9	A	9	A	9	A
		772	1	550						550		58							58		10							10	A	10	A		

I-495 Inner Loop - 2045 Preferred Alternative - 5-6 PM

VISSIM Lookup Data			Volume									Speed									Density									
				Volume Per Lane						Across All Lanes	Overall Volume	Speed Per Lane							Across All Lanes	Overall Speed	Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)						Total Volume	Average Volume (veh/hr)	Speed (mph)							Average Speed	Average Speed (mph)	Combined Density (pcphpl)							Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Btw VA 267 & VA 193	2184	5	286	1034	907	777	798		3802	3802	23	22	21	21	23			22	22	24	72	70	60	55			56	F	56	F	56	F
diverge		1468	5	270	891	792	803	878		3634	3634	24	17	17	19	21			19	19	27	110	99	86	76			80	F	79	F	79	F
basic	VA 193 interchange	2206	4	656	691	839	963			3149	3149	8	9	12	15				11	11	145	126	108	95				119	F	119	F	119	F
merge	Btw VA 193 & GWMP	354	6	240	382	468	690	853	1074	3707	3707	2	2	3	5	7	10		5	5	142	174	184	163	139	120		154	F	167	F	167	F
basic		1017	5	413	451	723	868	1139		3594	3594	4	3	5	6	10			5	5	116	194	177	153	129			154	F	154	F	154	F
diverge		1233	5	279	380	632	951	1191		3434	3434	3	2	4	7	12			5	5	117	204	189	159	112			156	F	167	F	167	F
basic	GWMP interchange	386	4	551	593	807	1271			3222	3215	3	4	6	14				7	8	198	179	145	99				155	F	155	F	138	F
		965	4	535	659	788	1234			3216		3	4	8	17				8		189	170	108	78				136	F	136	F		
		527	4	556	638	824	1191			3208		3	5	9	17				8		188	155	96	79				129	F	129	F		
weave	Btw GWMP & Clara Barton Pkwy	366	5	691	513	602	882	1104		3793	3770	4	3	4	9	11			6	5	191	193	146	109	105			149	F	149	F	163	F
		2006	5	817	511	600	829	1009		3766		7	3	3	5	7			5		131	194	183	166	153			165	F	165	F		
basic	Clara Barton Pkwy interchange	107	4	510	532	797	986			2825	2823	3	3	5	7				4	4	197	201	178	162				184	F	184	F	185	F
		652	4	530	518	792	982			2823		3	3	5	7				4		198	202	178	162				185	F	185	F		
merge		1411	5	301	274	573	783	974		2905	2905	3	1	3	5	7			4	4	110	215	200	180	163			174	F	175	F	175	F
basic	Btw Clara Barton Pkwy & MD 190	204	4	482	646	779	974			2882	2857	3	4	5	7				4	4	201	194	182	164				185	F	185	F	187	F
		504	4	486	633	774	976			2869		3	3	5	7				4		204	195	182	163				186	F	186	F		
		530	4	479	619	758	969			2824		3	3	5	7				4		200	193	180	162				184	F	184	F		
		4439	4	515	641	735	967			2858		3	4	4	6				4		203	194	185	166				187	F	187	F		
diverge		1109	5	133	399	621	705	990		2849	2849	44	2	3	4	7			12	12	3	211	195	187	165			152	F	136	F	136	F
basic	MD 190 interchange	1071	4	385	611	691	1034			2721	2721	2	3	4	7				4	4	212	197	190	164				191	F	191	F	191	F
merge		1281	5	373	585	586	796	1122		3462	3462	2	3	3	5	8			4	4	214	198	197	178	146			186	F	203	F	203	F
basic		552	5	361	590	557	781	1180		3468	3468	2	3	3	5	9			4	4	216	200	201	181	149			189	F	189	F	189	F
merge	Btw MD 190 & I-270 West Spur	806	6	453	449	654	537	763	1203	4057	4057	3	2	4	3	5	9		4	4	137	194	197	202	184	149		177	F	176	F	176	F
basic		908	5	921	630	525	789	1163		4028	4018	7	4	3	5	10			5	6	148	193	203	180	131			171	F	171	F	162	F
		2009	5	955	610	499	830	1132		4024		8	3	3	5	13			6		120	196	205	177	102			160	F	160	F		
		694	5	908	611	521	837	1109		3986		7	4	3	6	13			6		135	179	195	163	96			153	F	153	F		
weave		2475	5	804	636	502	668	1328		3939	3939	5	3	3	6	21			8	8	174	193	198	133	72			154	F	154	F	154	F
basic	Btw I-270 West Spur & MD 187	1210	3	797	724	689				2210	2210	5	4	4					4	4	178	189	188					185	F	185	F	185	F
merge		2526	4	805	788	739	331			2663	2663	5	4	4	13				7	7	178	185	178	32				143	F	132	F	132	F
basic		2754	3	851	854	971				2676	2680	5	5	6					5	5	175	175	163					171	F	171	F	172	F
		1173	3	1034	811	846				2691		7	5	5					6		163	181	174					173	F	173	F		
diverge		305	4	304	801	749	827			2680	2680	33	5	4	5				12	12	9	171	184	175				135	F	121	F	121	F
basic	MD 187 interchange	2021	3	788	713	839				2340	2340	5	4	5					5	5	180	188	175					181	F	181	F	181	F
merge	Btw MD 187 & I-270 East Spur	440	4	348	813	721	846			2728	2746	7	5	4	5				5	5	60	166	189	173				147	F	138	F	138	F
diverge		659	3	1076	742	924				2742		10	4	6					7	7	114	186	172					157	F	157	F	143	F
		1113	3	705	871	1173				2749		9	5	8					8		80	168	154					134	F	134	F		
basic	I-270 East Spur interchange	1519	2	1147	1355					2502	2502	8	11						9	9	147	135						141	F	141	F	141	F
weave		1951	4	945	1152	1465	1613			5175	5175	6	8	14	17				11	11	167	146	107	99				130	F	130	F	130	F
weave		513	6	388	879	1174	1660	1508	860	6469	6469	7	6	9	14	13	42		15	15	66	163	140	118	118	21		104	F	104	F	104	F
basic	Btw I-270 East Spur & MD 185	1013	5	1338	1434	1624	1392	713		6500	6499	10	13	14	11	23			14	14	134	114	117	130	32			106	F	106	F	106	F
		1002	5	1445	1600	1533	1348	585		6511		11	14	13	10	21			14		130	117	123	135	29			107	F	107	F		
		522	5	1494	1653	1621	1299	406		6473		12	15	14	10	13			13		125	114	122	131	33			105	F	105	F		
basic		1603	4	1576	1637	1651	1642			6507	6511	14	15	16	16				15	15	117	111	108	105				110	F	110	F	110	F
		252	4	1699	1581	1623	1637			6539		16	14	15	16				15		108	115	110	107				110	F	110	F		
basic	ML - Btw VA 267 & GWMP	2189	2	1285	1287					2571	2576	64	64						64	64	21	20						20	C	20	C	21	C
		1496	2	1284	1289					2573		64	64						64		21	21						21	C	21	C		
		2215	2	1283	1294					2578		63	63						63		21	21						21	C	21	C		
		928	2	1244	1340					2584		63	63						63		20	21						21	C	21	C		
diverge		812	3	1240	1215	130				2585	2585	63	63	63					63	63	20	19	2					14	B	14	B	14	B
basic	ML - GWMP interchange	2564	2	1241	1213					2454	2453	63	63						63	63	20	19						20	C	20	C	20	C
		1301	2	1239	1211					2451		63	63						63		20	19						20	C	20	C		
merge		1240	3	1306	1329	45				2680	2680	63	63	61					62	62	21	21	1					14	B	14	B	14	B
basic	ML - Btw GWMP & MD 190	2780	2	1334	1349					2683	2685	63	63						63	63	21	22						22	C	22	C	22	C
		218	2	1330	1338					2668		63	63						63		21	22						21	C	21	C		
		2291	2	1339	1346					2685		63	63						63		22	22						22	C	22	C		
		266	2	1339	1347					2687		63	63						63		22	22						22	C	22	C		
		2591	2	1291	1397					2688		63	63						63		21	23						22	C	22	C		
diverge		1047	3	1144	1127	402				2674	2674	63	63	64					63	63	18	18	6					14	B	14	B	14	B
basic	ML - MD 190 interchange	934	2	1130	1067					2196	2196	63	63						63	63	18	17						18	C	18	C	18	C
merge		1007	3	1126	1175	1094				3395	3401	63	63	63					63	63	18	19	18					18	B	18	B	18	B
		1051	3	1286	1460	661				3406		63	63	63					63		21	24	11					18	B	18	B		
merge	ML - Btw MD 190 & I-270 West Spur	696	4	1465	1604	608	64			3741	3741	62	62	62	56				61	61	24	26	10	1				15	B	12	B	12	B
basic		225	3	1508	1701	499				3708	3736	62	62	63					62	63	25	28	8					20	C	20	C	20	C
		3622	3	1558	1707	472				3738		63	62	64					63		25	28	8					20	C	20	C		
diverge		498	3	1571	1691	461				3722	3722	63	63	64					63	63	25	27	7					20	C	20	C	20	C
basic	ML - Btw I-270 West Spur & MD 187	2205	1	465						465	465	50							50	47	12							12	B	12	B	16	B
		772	1	465						465		37							37		27							27	D	27	D		

I-495 Inner Loop - 2045 Preferred Alternative - 6-7 PM

VISSIM Lookup Data			Volume									Speed									Density									
				Volume Per Lane						Across All Lanes	Overall Volume	Speed Per Lane							Across All Lanes	Overall Speed	Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)						Total Volume	Average Volume (veh/hr)	Speed (mph)							Average Speed	Average Speed (mph)	Combined Density (pcphpl)							Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Btw VA 267 & VA 193	2184	5	351	600	519	633	811		2914	2914	17	14	14	15	17			16	16	69	143	146	128	112			120	F	120	F	120	F
diverge		1468	5	274	557	552	713	889		2986	2986	15	13	14	16	18			15	15	82	159	148	130	115			127	F	130	F	130	F
basic	VA 193 interchange	2206	4	496	595	801	966			2859	2859	6	8	10	13				9	9	173	150	132	119				143	F	143	F	143	F
merge	Btw VA 193 & GWMP	354	6	343	419	377	651	842	1071	3704	3704	2	2	3	5	7	10		5	5	166	194	186	173	149	131		167	F	182	F	182	F
basic		1017	5	527	469	742	894	1149		3780	3780	4	3	5	7	10			6	6	140	190	179	156	132			160	F	160	F	160	F
diverge		1233	5	378	479	750	1024	1220		3851	3851	3	3	5	7	13			6	6	124	195	181	153	100			150	F	163	F	163	F
basic	GWMP interchange	386	4	696	751	908	1327			3682	3757	4	5	7	16				8	9	183	168	133	89				143	F	143	F	128	F
		965	4	718	848	905	1289			3760		5	6	9	17				9		170	153	103	79				126	F	126	F		
		527	4	777	799	957	1275			3809		5	6	11	17				10		167	138	92	79				119	F	119	F		
weave	Btw GWMP & Clara Barton Pkwy	366	5	886	752	758	982	1229		4607	4709	6	5	6	10	14			8	8	174	172	129	98	95			134	F	134	F	137	F
		2006	5	884	754	818	1050	1221		4728		7	5	6	9	11			8		124	161	149	132	124			138	F	138	F		
basic	Clara Barton Pkwy interchange	107	4	673	798	1063	1191			3725	3758	5	5	8	10				7	7	154	160	142	133				147	F	147	F	151	F
		652	4	744	779	1053	1188			3763		5	5	8	10				7		160	166	146	136				152	F	152	F		
merge		1411	5	333	498	868	1083	1224		4006	4006	4	3	6	8	10			6	6	88	179	166	146	134			142	F	144	F	144	F
basic	Btw Clara Barton Pkwy & MD 190	204	4	760	971	1124	1252			4108	4343	5	7	8	10				8	8	163	156	144	133				149	F	149	F	149	F
		504	4	774	970	1131	1258			4133		5	7	9	11				8		164	157	143	131				149	F	149	F		
		530	4	779	959	1121	1260			4119		5	7	9	11				8		161	155	140	129				146	F	146	F		
		4439	4	915	1038	1138	1315			4405		6	7	8	11				8		165	156	145	130				149	F	149	F		
diverge		1109	5	243	746	1002	1163	1417		4572	4572	47	4	6	8	11			15	15	5	177	162	149	129			124	F	115	F	115	F
basic	MD 190 interchange	1071	4	722	996	1170	1513			4400	4400	4	6	8	13				8	8	182	164	151	125				156	F	156	F	156	F
merge		1281	5	679	948	1045	1250	1429		5351	5351	4	6	7	9	13			8	8	185	166	158	138	115			153	F	170	F	170	F
basic		552	5	651	972	1025	1246	1551		5445	5445	4	6	6	9	13			8	8	190	167	162	143	122			157	F	157	F	157	F
merge	Btw MD 190 & I-270 West Spur	806	6	610	747	1109	1019	1240	1603	6329	6329	5	5	7	6	9	14		8	8	136	170	161	164	144	118		149	F	156	F	156	F
basic		908	5	1321	1143	1012	1301	1562		6339	6418	12	8	6	10	16			10	12	111	153	165	139	102			134	F	134	F	126	F
		2009	5	1386	1123	971	1375	1571		6427		15	7	6	11	21			12		96	155	167	133	77			125	F	125	F		
		694	5	1385	1109	1020	1373	1608		6494		13	8	7	12	23			13		107	140	157	117	70			118	F	118	F		
weave		2475	5	1221	1111	1106	1266	1851		6555	6555	9	8	8	17	33			15	15	139	151	148	78	58			115	F	115	F	115	F
basic	Btw I-270 West Spur & MD 187	1210	3	1210	1169	1222				3601	3601	9	8	9					8	8	143	149	142					145	F	145	F	145	F
merge		2526	4	1252	1258	1280	302			4092	4092	9	9	10	28				14	14	140	147	135	11				108	F	98	F	98	F
basic		2754	3	1295	1348	1438				4081	4089	10	10	12					10	11	138	134	126					133	F	133	F	133	F
		1173	3	1596	1280	1231				4107		14	9	9					11		119	141	142					134	F	134	F		
diverge		305	4	514	1269	1160	1167			4110	4110	37	11	8	8				16	16	14	122	148	146				108	F	95	F	95	F
basic	MD 187 interchange	2021	3	1275	1076	1146				3497	3497	9	7	8					8	8	139	156	148					148	F	148	F	148	F
merge	Btw MD 187 & I-270 East Spur	440	4	270	1273	1087	1156			3787	3793	16	10	7	8				10	10	18	136	158	147				114	F	104	F	104	F
diverge		659	3	1360	1181	1266				3807		14	8	9					10	12	96	152	146					131	F	131	F	115	F
		1113	3	872	1322	1591				3785		16	10	13					13		58	134	125					106	F	106	F		
basic	I-270 East Spur interchange	1519	2	1498	1782					3280	3280	14	19						16	16	114	98						106	F	106	F	106	F
weave		1951	4	1176	1396	1616	1744			5931	5931	8	12	19	23				16	16	146	123	87	77				108	F	108	F	108	F
weave		513	6	171	1091	1333	1841	1723	724	6883	6883	13	7	11	18	18	45		19	19	14	152	126	104	100	16		86	F	86	F	86	F
basic	Btw I-270 East Spur & MD 185	1013	5	1438	1508	1822	1604	576		6948	6960	11	15	18	14	27			17	17	129	102	102	114	21			94	F	94	F	94	F
		1002	5	1589	1696	1712	1533	449		6979		14	16	16	13	25			17		120	106	111	121	18			95	F	95	F		
		522	5	1670	1764	1750	1465	298		6947		15	17	16	12	17			16		113	105	113	121	18			94	F	94	F		
basic		1603	4	1771	1756	1758	1687			6971	6972	17	18	18	17				17	17	104	102	101	103				102	F	102	F	102	F
		252	4	1907	1711	1693	1664			6974		21	17	17	16				18		94	105	104	106				102	F	102	F		
basic	ML - Btw VA 267 & GWMP	2189	2	1144	1139					2284	2284	64	64						64	64	18	18						18	C	18	C	18	C
		1496	2	1145	1139					2284		64	64						64		18	18						18	C	18	C		
		2215	2	1140	1143					2284		64	64						64		18	18						18	C	18	C		
		928	2	1102	1182					2284		64	63						63		18	19						18	C	18	C		
diverge		812	3	1094	1065	126				2284	2284	64	64	62					63	63	17	17	2					12	B	12	B	12	B
basic	ML - GWMP interchange	2564	2	1096	1060					2156	2156	63	63						63	63	18	17						17	B	17	B	17	B
		1301	2	1091	1067					2158		63	63						63		17	17						17	B	17	B		
merge		1240	3	1203	1278	72				2552	2552	63	63	60					62	62	19	21	1					14	B	14	B	14	B
basic	ML - Btw GWMP & MD 190	2780	2	1259	1297					2556	2551	63	63						63	63	20	21						21	C	21	C	21	C
		218	2	1255	1289					2544		63	63						63		20	21						20	C	20	C		
		2291	2	1262	1289					2551		63	63						63		20	21						21	C	21	C		
		266	2	1265	1285					2549		63	63						63		20	21						21	C	21	C		
		2591	2	1218	1329					2547		63	63						63		20	21						21	C	21	C		
diverge		1047	3	1068	1058	407				2533	2533	63	63	64					63	63	17	17	7					14	B	14	B	14	B
basic	ML - MD 190 interchange	934	2	1051	992					2043	2043	63	63						63	63	17	16						16	B	16	B	16	B
merge		1007	3	1140	1131	1029				3299	3300	62	63	63					63	63	19	18	17					18	B	18	B	18	B
		1051	3	1250	1405	647				3301		63	63	63					63		20	23	10					18	B	18	B		
merge	ML - Btw MD 190 & I-270 West Spur	696	4	1373	1516	598	46			3532	3532	63	62	63	57				61	61	22	25	10	1				14	B	12	B	12	B
basic		225	3	1392	1583	526				3501	3527	62	62	63					63	63	23	26	8					19	C	19	C	19	C
		3622	3	1441	1588	500				3529		63	63	64					63		23	26	8					19	C	19	C		
diverge		498	3	1446	1574	491				3511	3511	63	63	64					63	63	23	25	8					19	B	19	B	19	B
basic	ML - Btw I-270 West Spur & MD 187	2205	1	492						492	492	59							59	59	8							8	A	8	A	8	A
		772	1	491						491		58							58		9							9	A	9	A		

I-495 Outer Loop - 2045 Preferred Alternative - 3-4 PM

VISSIM Lookup Data				Volume								Speed								Density									
				Volume Per Lane						Across All Lanes	Overall Volume	Speed Per Lane						Across All Lanes	Overall Speed	Density Per Lane						Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)						Total Volume	Average Volume (veh/hr)	Speed (mph)						Average Speed	Average Speed (mph)	Combined Density (pcphpl)						Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Btw VA 267 & VA 193	613	5	1405	1503	1636	1586	1462		7592	7553	53	53	53	53	53		53	53	27	29	31	30	28		29	D	29	D	29	D
		345	5	1387	1483	1614	1557	1442		7483		52	52	53	53	53		53		27	29	31	30	28		29	D	29	D		
merge		842	6	105	1357	1476	1610	1583	1456	7587	7587	52	53	53	53	53	53	53	53	2	26	28	31	30	28	24	C	19	B	19	B
merge	VA 193 interchange & GWMP interchange	1316	5	1000	1330	1624	1580	1455		6989	6989	54	54	53	54	54		54	54	19	25	31	30	27		26	C	25	C	25	C
basic		728	4	1391	1647	1584	1442			6064	6083	53	53	53	53			53	53	27	32	30	27			29	D	29	D	29	D
		755	4	1378	1678	1599	1445			6101		53	53	53	53			53		26	32	30	28			29	D	29	D		
diverge		593	5	598	1454	1722	1601	1428		6804	6804	54	53	53	53	53		53	53	11	28	33	30	27		26	C	24	C	24	C
basic		1851	4	2037	1805	1598	1384			6825	6825	51	52	53	53			52	52	41	35	30	26			33	D	33	D	33	D
diverge		717	5	1426	2188	1818	1468	1294		8195	8195	45	49	52	54	54		51	51	33	45	35	28	25		33	D	38	E	38	E
basic	Btw GWMP & Clara Barton Pkwy	490	5	1686	2144	1724	1360	1274		8188	8215	52	52	53	54	54		53	53	33	42	33	26	24		32	D	32	D	32	D
		2472	5	2269	1774	1474	1394	1309		8220		50	52	54	54	54		53		46	34	28	26	25		32	D	32	D		
merge		459	6	102	1734	1640	1650	1599	1446	8172	8172	36	46	51	54	54	54	49	49	3	38	33	31	30	27	27	C	25	C	25	C
basic	Clara Barton Pkwy interchange	1073	4	2261	1811	1559	1407			7039	7039	46	51	53	53			51	51	50	36	30	27			36	E	36	E	36	E
diverge	Btw Clara Barton Pkwy & MD 190	405	5	60	2209	1842	1562	1401		7074	7074	54	50	52	53	53		52	52	1	45	36	30	27		28	D	28	D	28	D
basic		1881	4	1824	1859	1772	1661			7116	7114	52	53	53	53			53	53	36	36	34	32			34	D	34	D	34	D
		230	4	1815	1869	1775	1661			7120		52	53	53	53			53		35	36	34	32			34	D	34	D		
		2242	4	1837	1868	1765	1639			7108		52	53	53	53			53		36	36	34	31			34	D	34	D		
		457	4	1848	1896	1767	1614			7126		51	52	53	53			52		37	37	34	31			35	E	35	E		
merge		1597	5	176	1792	1899	1688	1569		7125	7125	53	52	52	53	53		52	52	3	35	37	32	30		28	D	25	C	25	C
basic	MD 190 interchange	2456	4	1656	1657	1598	1542			6454	6454	54	53	53	53			53	53	31	32	31	30			31	D	31	D	31	D
diverge		1092	5	174	1683	1653	1579	1516		6605	6605	55	53	53	53	53		53	53	3	32	32	30	29		25	C	22	C	22	C
diverge	Btw MD 190 & I-270 West Spur	138	6	675	178	1715	1628	1576	1492	7264	7322	53	42	50	48	50	51	49	53	13	4	35	35	32	30	25	C	17	B	17	B
		1000	6	572	235	1791	1691	1573	1467	7330		54	55	53	52	53	53	53		11	4	35	33	30	28	23	C	17	B		
basic		490	5	675	1881	1735	1574	1445		7310	7334	54	53	53	53	53		53	53	13	36	33	30	28		28	D	28	D	28	D
		2914	5	739	1723	1766	1598	1511		7339		55	53	53	53	53		53		14	33	34	31	29		28	D	28	D		
weave		620	6	223	1395	1275	1361	1551	1543	7348	7325	55	56	56	53	53	53	54	54	4	25	23	26	30	30	23	C	23	C	23	C
		279	6	941	992	904	1352	1554	1543	7286		56	58	56	53	52	52	54		17	17	16	26	30	30	23	C	23	C		
		239	6	952	1002	796	1439	1571	1551	7310		56	58	56	53	53	53	55		17	18	15	28	30	30	23	C	23	C		
basic	Btw I-270 West Spur & MD 187	2789	3	1489	1607	1543				4638	4638	52	52	52				52	52	29	31	30				30	D	30	D	30	D
diverge		852	4	1460	1666	1542	374			5041	5041	53	53	53	54			53	53	28	32	30	7			24	C	23	C	23	C
basic		4047	3	1518	1680	1862				5060	5057	53	53	52				53	53	29	32	36				32	D	32	D	32	D
		1079	3	1575	1717	1752				5044		52	52	53				52		31	33	34				33	D	33	D		
merge		406	4	194	1459	1679	1710			5042	5042	51	53	53	53			52	52	4	28	32	33			24	C	21	C	21	C
basic	MD 187 interchange	2022	3	1200	1542	1714				4456	4456	54	53	53				53	53	23	29	33				28	D	28	D	28	D
diverge	Btw MD 187 & I-270 East Spur	325	4	198	1285	1570	1723			4777	4777	53	53	53	53			53	53	4	25	30	33			23	C	20	C	20	C
basic		1192	3	1479	1572	1722				4774	4774	53	53	53				53	53	28	30	33				30	D	30	D	30	D
		913	3	1475	1571	1729				4774		53	53	53				53		28	30	33				30	D	30	D		
		494	3	1353	1614	1809				4776		53	53	52				53		26	31	35				31	D	31	D		
merge		910	4	948	1706	2004	109			4766	4766	50	49	48	48			49	49	19	36	42	2			25	C	27	C	27	C
basic	I-270 East Spur interchange	288	3	692	1555	1908				4155	4155	54	53	53				53	53	13	30	37				27	D	27	D	27	D
weave		1593	4	1495	2216	1633	1953			7298	7298	53	53	53	53			53	53	28	43	31	37			35	E	35	E	35	E
diverge	Btw I-270 East Spur & MD 185	402	5	811	1674	2321	1641	1960		8406	8406	52	51	51	53	53		52	52	16	33	46	31	37		33	D	32	D	32	D
basic		1045	4	2441	2365	1646	1967			8420	8406	49	51	53	53			51	42	51	48	32	38			42	E	42	E	55	F
		2087	4	2340	2300	1795	1975			8409		40	40	45	51			44		59	58	40	39			49	F	49	F		
		1257	4	2146	2162	2229	1868			8405		25	30	38	45			35		86	72	60	42			65	F	65	F		
		526	4	1895	2092	2174	2207			8368		19	24	30	38			28		101	89	74	59			81	F	81	F		
basic	ML - Btw VA 267 & GWMP	873	2	851	890					1740	1737	63	63					63	63	14	14					14	B	14	B	14	B
		2286	2	849	890					1739		63	63					63		14	14					14	B	14	B		
		787	2	846	887					1733		63	63					63		14	14					14	B	14	B		
		954	2	847	889					1736		62	62					62		14	15					14	B	14	B		
merge		303	3	594	912	223				1729	1729	63	59	46				56	56	10	16	5				10	B	10	B	10	B
basic	ML - GWMP interchange to MD 190 interchange	2900	2	502	659					1161	1161	64	64					64	64	8	10					9	A	9	A	9	A
diverge		694	3	499	1064	703				2266	2266	64	63	64				63	63	8	17	11				12	B	12	B	12	B
basic		603	2	1537	735					2272	2273	62	64					63	63	25	12					18	C	18	C	18	C
		1042	2	1526	750					2276		62	63					63		25	12					18	C	18	C		
		3677	2	1159	1116					2275		63	63					63		19	18					18	C	18	C		
		510	2	1161	1114					2275		63	63					63		19	18					18	C	18	C	18	C
		2288	2	1158	1114					2272		63	63					63		19	18					18	C	18	C		
		1730	2	1157	1112					2270		63	63					63		19	18					18	C	18	C		
		1098	2	1153	1112					2266		63	63					63		19	18					18	C	18	C		
merge		800	3	1108	1076	82				2266	2266	63	63	57				61	61	18	17	1				12	B	12	B	12	B
basic	ML - MD 190 interchange	905	2	994	819					1813	1813	64	64					64	64	16	13					14	B	14	B	14	B
diverge		509	3	280	997	809				2086	2086	64	63	64				64	64	4	16	13				11	B	11	B	11	B
basic		1241	3	292	1012	790				2094	2094	64	63	63				64	64	5	16	13				11	B	11	B	11	B
diverge	ML - Btw MD 190 & I-270 West Spur	583	4	607	794	782	286			2470	2470	64	64	63	63			64	64	10	13	13	5			10	B	10	B	10	B
basic		287	3	643	791	1049				2482	2477	64	64	63				64	64	10	13	17				13	B	13	B	13	B
		3232	3	580	887	1010				2477		64	64	63				64		9	14	16				13	B	13	B		
merge		708	3	452	1034	974				2460	2460	64	64	63				64	64	7	17	16				13	B	13	B	13	B
basic	ML - Btw I-270 West Spur & MD 187	809	1	415						415	415	63						63	59	7						7	A	7	A	7	A
		1619	1	415						415		56						56		8						8	A	8	A		
		832	1	416						416		60						60		7						7	A	7	A		

I-495 Outer Loop - 2045 Preferred Alternative - 4-5 PM

VISSIM Lookup Data				Volume								Speed									Density									
				Volume Per Lane						Across All Lanes	Overall Volume	Speed Per Lane							Across All Lanes	Overall Speed	Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)						Total Volume	Average Volume (veh/hr)	Speed (mph)							Average Speed	Average Speed (mph)	Combined Density (pcphpl)							Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Btw VA 267 & VA 193	613	5	1431	1550	1686	1589	1476		7732	7691	53	53	53	53	53			53	53	28	30	32	30	28			30	D	30	D	30	D
		345	5	1410	1539	1666	1551	1456		7620		52	52	53	53	53			53		28	30	32	30	28			29	D	29	D		
merge		842	6	106	1391	1527	1657	1573	1475	7728	7728	52	53	53	53	54	53		53	53	2	27	29	32	30	28		25	C	19	B	19	B
merge	VA 193 interchange & GWMP interchange	1316	5	1018	1368	1664	1590	1465		7104	7104	54	54	53	54	54			54	54	19	26	32	30	28			27	C	26	C	26	C
basic		728	4	1428	1680	1594	1452			6154	6173	53	53	53	53				53	53	27	32	30	28				29	D	29	D	29	D
		755	4	1413	1710	1614	1455			6191		53	53	53	53				53		27	33	31	28				29	D	29	D		
diverge		593	5	571	1477	1763	1621	1433		6865	6865	54	53	53	53	53			53	53	11	28	34	31	27			26	C	24	C	24	C
basic		1851	4	2040	1841	1615	1391			6887	6887	51	52	53	53				52	52	41	36	31	27				33	D	33	D	33	D
diverge		717	5	1503	2197	1857	1487	1279		8323	8323	46	48	52	54	54			51	51	33	47	36	28	24			34	D	39	E	39	E
basic	Btw GWMP & Clara Barton Pkwy	490	5	1760	2170	1776	1359	1247		8313	8334	52	51	53	54	54			53	52	34	43	34	25	24			32	D	32	D	33	D
		2472	5	2324	1862	1513	1370	1269		8338		49	52	54	54	54			52		49	37	29	26	24			33	D	33	D		
merge		459	6	126	1856	1772	1611	1532	1387	8284	8284	35	44	50	54	54	54		48	48	4	44	36	30	29	26		28	D	28	D	28	D
basic	Clara Barton Pkwy interchange	1073	4	2234	1751	1481	1343			6809	6809	46	51	53	54				51	51	49	35	28	25				34	D	34	D	34	D
diverge	Btw Clara Barton Pkwy & MD 190	405	5	50	2161	1784	1500	1336		6832	6832	54	50	52	53	53			53	53	1	44	35	28	25			27	C	27	C	27	C
basic		1881	4	1739	1801	1716	1622			6877	6873	52	53	53	53				53	53	34	35	33	31				33	D	33	D	33	D
		230	4	1735	1807	1719	1624			6884		53	53	53	53				53		34	35	33	31				33	D	33	D		
		2242	4	1758	1804	1707	1598			6867		53	53	53	53				53		34	35	33	31				33	D	33	D		
		457	4	1775	1821	1706	1579			6882		52	53	53	53				53		35	35	33	30				33	D	33	D		
merge		1597	5	137	1716	1827	1642	1544		6866	6866	53	52	53	53	53			53	53	3	33	35	31	30			26	C	24	C	24	C
basic	MD 190 interchange	2456	4	1664	1648	1576	1508			6396	6396	54	53	53	53				53	53	31	31	30	29				30	D	30	D	30	D
diverge		1092	5	187	1704	1644	1560	1461		6557	6557	53	53	53	53	53			53	53	4	32	32	30	28			25	C	23	C	23	C
diverge	Btw MD 190 & I-270 West Spur	138	6	644	188	1731	1622	1552	1436	7174	7228	53	46	51	49	52	52		51	53	12	4	34	34	31	28		24	C	17	B	16	B
		1000	6	550	242	1793	1683	1551	1418	7236		54	55	53	53	53	53		54		10	4	34	32	30	27		23	C	16	B		
basic		490	5	666	1882	1724	1545	1398		7216	7237	54	53	53	53	53			54	53	12	36	33	29	27			27	D	27	D	28	D
		2914	5	765	1749	1752	1551	1423		7240		55	53	53	53	53			53		14	33	34	30	27			28	D	28	D		
weave		620	6	243	1472	1336	1311	1450	1433	7246	7226	55	56	55	53	53	53		54	54	5	27	24	25	28	27		23	C	23	C	23	C
		279	6	1025	1073	920	1289	1456	1426	7190		56	58	56	53	52	52		54		19	19	17	25	28	28		22	C	22	C		
		239	6	1036	1089	837	1350	1470	1433	7214		56	58	56	53	53	53		55		19	19	15	26	28	28		22	C	22	C		
basic	Btw I-270 West Spur & MD 187	2789	3	1387	1513	1411				4311	4311	52	52	52					52	52	27	30	28					28	D	28	D	28	D
diverge		852	4	1367	1570	1397	384			4718	4718	53	53	53	54				53	53	26	30	27	7				23	C	21	C	21	C
basic		4047	3	1429	1588	1706				4724	4719	53	53	53					53	53	27	30	33					30	D	30	D	30	D
		1079	3	1505	1613	1580				4698		52	53	53					53		29	31	30					30	D	30	D		
merge		406	4	212	1395	1550	1532			4689	4689	50	53	53	53				52	52	4	27	30	29				23	C	20	C	20	C
basic	MD 187 interchange	2022	3	1094	1413	1535				4042	4042	54	53	53					53	53	21	27	29					26	D	26	D	26	D
diverge	Btw MD 187 & I-270 East Spur	325	4	212	1187	1437	1546			4381	4381	53	53	53	53				53	53	4	23	27	30				21	C	18	B	18	B
basic		1192	3	1394	1436	1547				4377	4379	53	53	53					53	53	27	27	30					28	D	28	D	28	D
		913	3	1390	1435	1557				4382		53	53	53					53		27	27	30					28	D	28	D		
		494	3	1273	1475	1630				4378		53	53	53					53		24	28	31					28	D	28	D		
merge		910	4	929	1589	1779	67			4365	4365	50	49	48	48				49	49	19	33	37	1				23	C	24	C	24	C
basic	I-270 East Spur interchange	288	3	720	1538	1685				3943	3943	53	53	53					53	53	14	29	32					25	C	25	C	25	C
weave		1593	4	1518	2233	1609	1719			7079	7079	53	53	53	53				53	53	29	43	31	33				34	D	34	D	34	D
diverge	Btw I-270 East Spur & MD 185	402	5	772	1695	2335	1619	1714		8134	8134	52	52	52	53	53			52	52	15	33	46	31	33			32	D	31	D	31	D
basic		1045	4	2427	2368	1636	1713			8144	8114	49	50	53	53				51	46	51	48	31	33				41	E	41	E	47	F
		2087	4	2348	2381	1744	1655			8127		43	44	48	52				47		55	55	37	32				45	F	45	F		
		1257	4	2319	2212	2146	1421			8099		35	40	45	50				42		69	57	48	29				51	F	51	F		
		526	4	2067	2216	2040	1716			8039		32	36	40	44				38		68	63	52	40				56	F	56	F		
basic	ML - Btw VA 267 & GWMP	873	2	856	838					1694	1690	64	63						63	63	14	13						14	B	14	B	14	B
		2286	2	851	842					1693		64	63						63		14	14						14	B	14	B		
		787	2	838	846					1684		64	63						63		13	14						14	B	14	B		
		954	2	833	851					1685		63	62						62		13	14						14	B	14	B		
merge		303	3	584	878	215				1676	1676	63	59	47					56	56	9	15	5					10	B	10	B	10	B
basic	ML - GWMP interchange to MD 190 interchange	2900	2	500	630					1129	1129	64	64						64	64	8	10						9	A	9	A	9	A
diverge		694	3	418	1049	675				2143	2143	64	63	64					64	64	7	17	11					11	B	11	B	11	B
basic		603	2	1444	706					2150	2153	62	64						63	63	24	11						17	B	17	B	17	B
		1042	2	1432	720					2151		62	64						63		23	12						17	B	17	B		
		3677	2	1102	1052					2154		63	63						63		18	17						17	B	17	B		
		510	2	1104	1050					2154		63	63						63		18	17						17	B	17	B		
		2288	2	1103	1052					2155		63	63						63		18	17						17	B	17	B		
		1730	2	1103	1049					2152		63	63						63		18	17						17	B	17	B		
		1098	2	1102	1053					2155		63	63						63		18	17						17	B	17	B		
merge		800	3	1072	1021	62				2155	2155	63	63	57					61	61	17	17	1					12	B	12	B	12	B
basic	ML - MD 190 interchange	905	2	991	824					1815	1815	64	64						64	64	16	13						14	B	14	B	14	B
diverge		509	3	389	993	819				2201	2201	64	64	64					64	64	6	16	13					12	B	12	B	12	B
basic		1241	3	401	1007	803				2210	2210	64	64	64					64	64	6	16	13					12	B	12	B	12	B
diverge	ML - Btw MD 190 & I-270 West Spur	583	4	715	786	810	321			2632	2632	64	64	63	63				64	64	11	13	13	5				11	B	10	B	10	B
basic		287	3	749	784	1114				2647	2647	64	64	63					64	64	12	12	18					14	B	14	B	14	B
		3232	3	660	894	1093				2647		64	64	63					64		10	14	18					14	B	14	B		
merge		708	3	477	1068	1093				2639	2639	64	64	63					64	64	8	17	18					14	B	14	B	14	B
basic	ML - Btw I-270 West Spur & MD 187	809	1	430						430	429	63							63	59	7							7	A	7	A	7	A
		1619	1	429						429		56							56		8							8	A	8	A		
		832	1	429						429		60							60		7							7	A	7	A		

I-495 Outer Loop - 2045 Preferred Alternative - 5-6 PM

VISSIM Lookup Data				Volume								Speed									Density											
				Volume Per Lane						Across All Lanes	Overall Volume	Speed Per Lane							Across All Lanes	Overall Speed	Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/In)						Total Volume	Average Volume (veh/hr)	Speed (mph)							Average Speed	Average Speed (mph)	Combined Density (pcphpl)							Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Btw VA 267 & VA 193	613	5	1065	1339	1566	1457	1316		6743	6709	54	53	53	53	53			53	53	20	26	30	28	25			26	D	26	D	26	D
		345	5	1041	1323	1551	1428	1306		6648		53	53	53	53	53			53		20	26	30	27	25			25	C	25	C		
merge		842	6	74	1007	1315	1567	1454	1323	6741	6741	53	54	53	53	54	54		53	53	1	19	25	30	28	25		21	C	15	B	15	B
merge	VA 193 interchange & GWMP interchange	1316	5	651	1246	1591	1460	1316		6265	6265	55	54	53	54	54			54	54	12	24	30	28	25			24	C	22	C	22	C
basic		728	4	1341	1612	1464	1308			5725	5741	53	53	54	54				53	53	26	31	28	25				27	D	27	D	27	D
		755	4	1325	1645	1474	1314			5757		53	53	54	54				53		25	31	28	25				27	D	27	D		
diverge		593	5	654	1413	1694	1481	1295		6536	6536	54	53	53	54	54			54	54	12	27	32	28	24			25	C	24	C	24	C
basic		1851	4	2062	1779	1476	1241			6558	6558	51	53	54	54				53	53	41	34	28	23				32	D	32	D	32	D
diverge		717	5	1390	2223	1779	1343	1139		7874	7874	47	49	53	54	54			51	51	30	46	34	25	21			31	D	37	E	37	E
basic	Btw GWMP & Clara Barton Pkwy	490	5	1662	2187	1673	1225	1118		7864	7891	52	51	53	54	54			53	53	33	43	32	23	21			30	D	30	D	31	D
		2472	5	2281	1810	1405	1241	1159		7896		49	52	54	54	54			53		47	35	26	23	22			31	D	31	D		
merge		459	6	118	1779	1691	1540	1422	1304	7854	7854	36	45	51	54	54	54		49	49	3	40	34	29	27	24		26	C	26	C	26	C
basic	Clara Barton Pkwy interchange	1073	4	2141	1660	1383	1272			6456	6456	47	51	53	54				51	51	46	33	26	24				32	D	32	D	32	D
diverge		405	5	42	2060	1681	1411	1272		6467	6467	54	50	52	53	54			53	53	1	42	33	27	24			25	C	25	C	25	C
basic	Btw Clara Barton Pkwy & MD 190	1881	4	1647	1706	1609	1536			6497	6491	53	53	53	53				53	53	32	33	31	29				31	D	31	D	31	D
		230	4	1640	1708	1616	1530			6494		53	53	53	53				53		32	33	31	29				31	D	31	D		
		2242	4	1669	1707	1608	1502			6486		53	53	53	53				53		32	33	31	29				31	D	31	D		
		457	4	1688	1721	1606	1475			6490		52	53	53	53				53		33	33	31	28				31	D	31	D		
merge		1597	5	119	1634	1726	1558	1449		6487	6487	54	53	53	53	53			53	53	2	32	33	30	28			25	C	22	C	22	C
basic	MD 190 interchange	2456	4	1595	1564	1501	1414			6075	6075	54	53	53	53				53	53	30	30	29	27				29	D	29	D	29	D
diverge		1092	5	210	1637	1562	1478	1374		6260	6260	55	54	53	53	53			54	54	4	31	30	28	26			24	C	22	C	22	C
diverge	Btw MD 190 & I-270 West Spur	138	6	690	211	1669	1535	1464	1362	6930	6980	53	46	51	48	51	52		50	53	13	5	34	33	29	27		23	C	17	B	16	B
		1000	6	584	268	1743	1605	1457	1331	6987		54	55	53	53	53	53		54		11	5	33	31	28	25		22	C	16	B		
basic		490	5	715	1835	1651	1458	1307		6966	6989	54	53	53	53	53			53	53	13	35	32	28	25			26	D	26	D	27	D
		2914	5	759	1705	1690	1483	1356		6993		55	53	53	53	53			53		14	33	33	28	26			27	D	27	D		
weave		620	6	245	1413	1303	1264	1414	1372	7010	6992	54	56	55	53	53	53		54	54	5	26	24	24	27	26		22	C	22	C	22	C
		279	6	987	1006	938	1246	1412	1370	6958		56	58	55	53	53	52		54		18	18	17	24	27	27		22	C	22	C		
		239	6	1000	1013	864	1302	1425	1379	6984		56	58	55	53	53	53		55		18	18	16	25	27	26		22	C	22	C		
basic		2789	3	1349	1452	1357				4159	4159	52	52	52					52	52	26	28	26					27	D	27	D	27	D
diverge		852	4	1343	1492	1334	273			4442	4442	53	53	53	54				53	53	26	29	25	5				21	C	20	C	20	C
basic	Btw I-270 West Spur & MD 187	4047	3	1387	1503	1566				4457	4453	53	53	53					53	53	27	29	30					28	D	28	D	29	D
		1079	3	1446	1531	1461				4438		52	53	53					53		28	30	28					29	D	29	D		
merge		406	4	221	1340	1467	1409			4437	4437	50	53	53	53				52	52	5	26	28	27				21	C	20	C	20	C
basic	MD 187 interchange	2022	3	1023	1321	1416				3761	3761	54	53	53					53	53	19	25	27					24	C	24	C	24	C
diverge		325	4	213	1124	1343	1429			4108	4108	53	53	53	53				53	53	4	22	26	27				20	C	17	B	17	B
basic	Btw MD 187 & I-270 East Spur	1192	3	1334	1345	1429				4108	4110	53	53	53					53	53	26	26	27					26	D	26	D	26	D
		913	3	1332	1344	1435				4111		53	53	53					53		26	26	27					26	D	26	D		
		494	3	1214	1397	1501				4113		53	53	53					53		23	27	29					26	D	26	D		
merge		910	4	919	1514	1607	61			4101	4101	50	49	49	49				49	49	19	31	33	1				21	C	22	C	22	C
basic	I-270 East Spur interchange	288	3	746	1477	1487				3710	3710	53	53	53					53	53	14	28	28					24	C	24	C	24	C
weave		1593	4	1478	2246	1552	1511			6787	6787	53	53	53	53				53	53	28	43	30	29				32	D	32	D	32	D
diverge		402	5	815	1665	2354	1564	1503		7901	7901	52	52	52	53	53			53	53	16	32	46	30	29			31	D	31	D	31	D
basic	Btw I-270 East Spur & MD 185	1045	4	2440	2404	1571	1499			7915	7908	49	51	53	53				52	49	51	48	30	28				39	E	39	E	42	E
		2087	4	2390	2453	1656	1408			7907		45	47	51	53				49		54	54	33	27				42	E	42	E		
		1257	4	2455	2227	2077	1156			7915		41	46	50	53				48		61	49	42	22				43	E	43	E		
		526	4	2190	2290	1970	1430			7880		46	49	52	53				50		49	48	39	27				41	E	41	E		
basic	ML - Btw VA 267 & GWMP	873	2	590	650					1240	1234	64	64						64	63	9	10						10	A	10	A	10	A
		2286	2	586	651					1237		64	63						64		9	10						10	A	10	A		
		787	2	580	648					1228		64	63						64		9	10						10	A	10	A		
		954	2	581	648					1228		63	63						63		9	10						10	A	10	A		
merge		303	3	488	658	78				1223	1223	64	61	46					57	57	8	11	2					7	A	7	A	7	A
basic	ML - GWMP interchange to MD 190 interchange	2900	2	457	574					1031	1031	64	64						64	64	7	9						8	A	8	A	8	A
diverge		694	3	415	919	605				1938	1938	64	63	64					64	64	7	15	10					10	B	10	B	10	B
basic		603	2	1316	628					1943	1944	62	64						63	63	21	10						16	B	16	B	16	B
		1042	2	1299	647					1946		62	64						63		21	10						16	B	16	B		
		3677	2	975	973					1948		63	63						63		16	16						16	B	16	B		
		510	2	975	972					1947		63	63						63		16	16						16	B	16	B		
		2288	2	975	970					1945		63	63						63		16	16						16	B	16	B		
		1730	2	967	972					1939		63	63						63		15	16						16	B	16	B		
		1098	2	960	977					1937		63	63						63		15	16						16	B	16	B		
merge		800	3	935	949	52				1936	1936	63	63	58					62	62	15	15	1					10	B	10	B	10	B
basic	ML - MD 190 interchange	905	2	874	772					1647	1647	64	64						64	64	14	12						13	B	13	B	13	B
diverge		509	3	281	880	759				1920	1920	64	64	64					64	64	4	14	12					10	B	10	B	10	B
basic		1241	3	289	892	744				1926	1926	64	64	63					64	64	5	14	12					10	A	10	A	10	A
diverge	ML - Btw MD 190 & I-270 West Spur	583	4	547	702	766	294			2309	2309	64	64	63	63				64	64	9	11	12	5				9	A	9	A	9	A
basic		287	3	573	696	1052				2321	2316	64	64	63					64	64	9	11	17					12	B	12	B	12	B
		3232	3	500	790	1026				2315		64	64	63					64		8	13	17					12	B	12	B		
merge		708	3	346	943	1011				2299	2299	64	64	63					64	64	5	15	16					12	B	12	B	12	B
basic	ML - Btw I-270 West Spur & MD 187	809	1	299						299	298	63							63	59	5							5	A	5	A	5	A
		1619	1	298						298		56							56		5							5	A	5	A		
		832	1	298						298		60							60		5							5	A	5	A		

I-495 Outer Loop - 2045 Preferred Alternative - 6-7 PM

VISSIM Lookup Data				Volume								Speed									Density									
				Volume Per Lane						Across All Lanes	Overall Volume	Speed Per Lane							Across All Lanes	Overall Speed	Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)						Total Volume	Average Volume (veh/hr)	Speed (mph)							Average Speed	Average Speed (mph)	Combined Density (pcphpl)							Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Btw VA 267 & VA 193	613	5	846	1187	1379	1227	1112		5751	5721	54	53	53	54	54			54	54	16	23	26	23	21			22	C	22	C	22	C
		345	5	816	1174	1371	1211	1095		5668		54	53	53	54	54			53		15	23	26	23	21			22	C	22	C		
merge		842	6	37	791	1184	1395	1234	1101	5742	5742	53	54	53	53	54	54		54	54	1	15	23	27	23	21		18	B	13	B	13	B
merge	VA 193 interchange & GWMP interchange	1316	5	598	1161	1408	1235	1091		5493	5493	55	54	53	55	55			54	54	11	22	27	23	20			21	C	20	C	20	C
basic		728	4	1228	1433	1232	1077			4970	4985	53	53	54	54				54	54	24	27	23	20				24	C	24	C	24	C
		755	4	1222	1459	1246	1073			5000		53	53	54	54				54		23	28	23	20				24	C	24	C		
diverge		593	5	565	1313	1497	1244	1049		5669	5669	54	53	53	54	54			54	54	11	25	29	23	20			22	C	22	C	22	C
basic		1851	4	1885	1558	1236	1002			5681	5681	51	53	54	54				53	53	37	30	23	19				27	D	27	D	27	D
diverge		717	5	1158	2011	1569	1123	912		6772	6772	48	50	53	55	54			52	52	25	41	30	21	17			27	C	32	D	32	D
basic	Btw GWMP & Clara Barton Pkwy	490	5	1405	1973	1478	1017	889		6762	6766	53	52	54	55	54			54	53	27	39	28	19	17			26	D	26	D	26	D
		2472	5	2024	1591	1206	1032	914		6767		51	53	54	55	54			53		41	31	23	19	17			26	D	26	D		
merge		459	6	98	1557	1506	1330	1188	1034	6712	6712	36	47	51	54	55	55		50	50	3	34	30	25	22	19		22	C	22	C	22	C
basic	Clara Barton Pkwy interchange	1073	4	1894	1412	1157	1014			5477	5477	49	53	54	54				53	53	39	27	22	19				27	D	27	D	27	D
diverge	Btw Clara Barton Pkwy & MD 190	405	5	58	1798	1440	1195	1025		5516	5516	54	51	53	54	54			53	53	1	36	27	22	19			21	C	21	C	21	C
basic		1881	4	1466	1481	1377	1224			5547	5537	53	53	54	54				53	53	28	28	26	23				26	D	26	D	26	D
		230	4	1473	1491	1378	1213			5554		53	53	54	54				53		29	28	26	23				26	D	26	D		
		2242	4	1502	1497	1348	1182			5529		53	53	54	54				53		29	28	25	22				26	D	26	D		
		457	4	1521	1522	1335	1153			5531		52	53	54	54				53		30	29	25	22				26	D	26	D		
merge		1597	5	135	1484	1519	1270	1113		5520	5520	53	53	53	54	54			53	53	3	29	29	24	21			21	C	20	C	20	C
basic	MD 190 interchange	2456	4	1345	1301	1187	1064			4896	4896	54	54	54	54				54	54	25	25	22	20				23	C	23	C	23	C
diverge		1092	5	123	1407	1299	1154	1008		4990	4990	55	54	54	54	54			54	54	2	26	25	22	19			19	B	18	B	18	B
diverge	Btw MD 190 & I-270 West Spur	138	6	477	127	1429	1294	1135	983	5444	5486	54	46	53	52	53	53		52	54	9	3	27	25	22	19		18	B	13	B	13	B
		1000	6	410	170	1490	1327	1128	966	5492		55	55	54	54	54	54		54		8	3	28	25	21	18		17	B	13	B		
basic		490	5	503	1561	1359	1110	943		5477	5479	55	54	54	54	54			54	54	9	29	26	21	18			21	C	21	C	21	C
		2914	5	632	1472	1360	1077	938		5480		56	54	54	54	53			54		12	27	26	20	18			21	C	21	C		
weave		620	6	211	1312	1128	916	973	927	5467	5448	55	56	55	54	54	53		55	55	4	24	21	17	18	18		17	B	17	B	17	B
		279	6	876	955	821	884	963	920	5418		56	58	55	53	53	53		55		16	17	15	17	18	18		17	B	17	B		
		239	6	884	973	794	896	967	921	5435		57	58	55	53	53	53		55		16	17	15	17	18	18		17	B	17	B		
basic	Btw I-270 West Spur & MD 187	2789	3	933	952	912				2798	2798	52	53	52					52	52	18	18	18					18	C	18	C	18	C
diverge		852	4	954	929	923	243			3050	3050	53	53	53	54				54	54	18	18	18	5				14	B	13	B	13	B
basic		4047	3	1008	942	1088				3038	3031	53	54	53					53	53	19	18	21					19	C	19	C	19	C
		1079	3	1070	943	988				3001		53	53	53					53		20	18	19					19	C	19	C		
merge		406	4	212	950	866	961			2989	2989	52	53	53	53				53	53	4	18	16	18				14	B	13	B	13	B
basic	MD 187 interchange	2022	3	519	789	961				2270	2270	54	54	53					54	54	10	15	18					14	B	14	B	14	B
diverge		325	4	132	574	800	965			2471	2471	53	54	53	53				53	53	3	11	15	18				12	B	10	B	10	B
basic	Btw MD 187 & I-270 East Spur	1192	3	698	799	963				2460	2454	54	54	53					54	54	13	15	18					16	B	16	B	16	B
		913	3	688	796	967				2451		54	54	53					54		13	15	18					15	B	15	B		
		494	3	598	836	1010				2444		54	54	53					54		11	16	19					15	B	15	B		
merge		910	4	364	850	1182	35			2431	2431	51	50	49	49				49	49	7	17	25	1				13	B	14	B	14	B
basic	I-270 East Spur interchange	288	3	222	728	1243				2193	2193	52	51	51					52	52	4	14	25					14	B	14	B	14	B
weave		1593	4	801	1110	837	1351			4098	4098	6	8	18	47				20	20	155	149	47	29				95	F	95	F	95	F
diverge	Btw I-270 East Spur & MD 185	402	5	373	909	1122	882	1363		4650	4650	44	7	8	15	42			23	23	9	149	144	64	33			80	F	101	F	101	F
basic		1045	4	1236	1146	956	1367			4705	4860	9	8	15	33				16	14	149	146	72	43				102	F	102	F	110	F
		2087	4	1207	1184	1093	1340			4825		9	9	14	26				14		151	145	84	54				109	F	109	F		
		1257	4	1205	1184	1392	1192			4973		9	9	14	21				13		153	140	110	61				116	F	116	F		
		526	4	1115	1281	1318	1318			5032		9	11	14	19				13		146	134	109	75				116	F	116	F		
basic	ML - Btw VA 267 & GWMP	873	2	579	631					1210	1208	64	64						64	64	9	10						10	A	10	A	10	A
		2286	2	573	635					1209		64	64						64		9	10						10	A	10	A		
		787	2	567	638					1205		64	64						64		9	10						10	A	10	A		
		954	2	567	641					1208		63	63						63		9	10						10	A	10	A		
merge		303	3	502	641	60				1203	1203	64	62	47					58	58	8	11	1					7	A	7	A	7	A
basic	ML - GWMP interchange to MD 190 interchange	2900	2	480	575					1056	1056	64	64						64	64	8	9						8	A	8	A	8	A
diverge		694	3	339	922	608				1869	1869	64	63	64					64	64	5	15	10					10	B	10	B	10	B
basic		603	2	1250	626					1876	1881	62	64						63	63	20	10						15	B	15	B	15	B
		1042	2	1237	640					1877		62	64						63		20	10						15	B	15	B		
		3677	2	957	925					1883		63	63						63		15	15						15	B	15	B		
		510	2	955	929					1884		63	63						63		15	15						15	B	15	B		
		2288	2	951	929					1880		63	63						63		15	15						15	B	15	B		
		1730	2	949	932					1881		63	63						63		15	15						15	B	15	B		
		1098	2	948	935					1883		63	63						63		15	15						15	B	15	B		
merge		800	3	920	907	56				1883	1883	63	63	58					61	61	15	15	1					10	B	10	B	10	B
basic	ML - MD 190 interchange	905	2	847	722					1568	1568	64	64						64	64	13	12						12	B	12	B	12	B
diverge		509	3	204	851	713				1768	1768	64	64	64					64	64	3	14	11					9	A	9	A	9	A
basic		1241	3	214	860	699				1773	1773	64	64	64					64	64	3	14	11					9	A	9	A	9	A
diverge	ML - Btw MD 190 & I-270 West Spur	583	4	455	688	710	247			2099	2099	64	64	63	63				64	64	7	11	11	4				8	A	9	A	9	A
basic		287	3	478	687	946				2112	2106	64	64	63					64	64	8	11	15					11	B	11	B	11	B
		3232	3	422	770	914				2105		65	64	63					64		7	12	15					11	B	11	B		
merge		708	3	309	898	887				2093	2093	64	64	64					64	64	5	14	14					11	B	11	B	11	B
basic	ML - Btw I-270 West Spur & MD 187	809	1	276						276	276	64							64	59	4							4	A	4	A	5	A
		1619	1	276						276		56							56		5							5	A	5	A		
		832	1	277						277		60							60		5							5	A	5	A		

I-270 Southbound- 2045 Preferred Alternative - 3-4 PM

VISSIM Lookup Data				Volume										Speed										Density													
				Volume Per Lane								Across All Lanes	Overall Volume	Speed Per Lane								Across All Lanes	Overall Speed	Density Per Lane								Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)								Total Volume	Average Volume (veh/hr)	Speed (mph)								Average Speed	Average Speed (mph)	Combined Density (pcphpl)								Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Through MD 117 interchange	658	4	1342	1703	1407	1027					5479	5513	61	62	63	64					63	63	22	28	23	16					22	C	22	C	22	C
		3062	4	1335	1667	1432	1086					5520		63	63	63	64					63		22	27	23	17					22	C	22	C		
merge	Btw MD 117 & I-370	1569	5	622	1752	1941	1481	1096				6891	6891	56	60	62	63	64				61	61	11	30	32	24	18				23	C	24	C	24	C
basic		1152	6	507	961	1714	1336	1082	1312			6911	6913	63	63	61	62	63	63			63	63	8	15	28	22	17	21			19	C	19	C	19	C
		411	6	799	1107	1426	1129	1028	1432			6921		63	63	62	63	64	62			63		13	18	23	18	16	23			19	C	19	C		
diverge		892	6	892	1135	1341	1098	1046	1418			6930	6925	63	63	62	63	64	63			63	63	14	18	22	18	17	23			19	B	18	B	18	B
		76	6	965	1120	1225	1088	1057	1408			6862		63	62	56	59	62	62			61		16	18	22	19	17	23			19	B	19	B		
basic	I-370 interchange	1039	4	1210	1095	1071	1427					4803	4803	63	63	64	63					63	63	20	18	17	23					19	C	19	C	19	C
		1983	4	1197	1102	1080	1425					4803		63	64	64	62					63		19	18	17	23					19	C	19	C		
diverge		201	5	1191	1119	1245	844	396				4795	4795	63	63	62	50	46				57	57	19	18	20	17	9				17	B	15	B	15	B
basic		168	4	1193	1135	1214	555					4098	4098	63	63	63	62					63	63	19	18	19	9					16	B	16	B	16	B
basic		943	5	75	1126	1124	1178	592				4096	4096	69	63	64	64	64				65	65	1	18	18	19	9				13	B	13	B	13	B
merge	Btw I-370 & Shady Grove Rd	705	7	201	1121	702	1084	1025	1055	562		5751	5751	53	53	58	63	64	64	64		60	60	4	21	12	17	16	17	9		14	B	14	B	14	B
diverge		1678	6	709	1309	1223	985	976	550			5750	5750	54	54	60	63	64	64			60	60	13	24	21	16	16	9			16	B	20	C	20	C
basic	Shady Grove Rd interchange	507	5	1084	1183	1117	998	580				4963	4963	53	58	62	63	64				60	60	21	21	18	16	9				17	B	17	B	17	B
merge		1022	6	95	1285	1358	1232	1024	613			5606	5606	40	52	57	63	64	64			57	57	2	25	24	20	16	10			16	B	17	B	17	B
basic		222	5	1270	1304	1323	1059	623				5579	5579	53	56	62	63	64				60	60	24	24	22	17	10				19	C	19	C	19	C
merge	Btw Shady Grove Rd & MD 28	503	6	138	1397	1431	1351	1093	634			6044	6044	40	51	55	62	64	64			56	56	3	28	26	22	17	10			18	B	19	B	19	B
basic		1473	5	1511	1375	1389	1163	672				6110	6109	53	55	61	63	64				59	59	29	25	23	19	11				21	C	21	C	21	C
		603	5	1720	1290	1263	1146	695				6113		53	55	61	63	64				59		33	24	21	18	11				21	C	21	C		
		1534	5	1739	1222	1226	1183	734				6103		53	55	61	63	64				59		34	23	21	19	12				21	C	21	C		
		2441	5	1701	1138	1182	1274	817				6112		53	54	60	63	64				59		33	21	20	21	13				21	C	21	C		
diverge		527	6	519	1162	1078	1132	1334	872			6099	6099	57	54	54	60	63	64			59	59	9	22	20	19	21	14			18	B	17	B	17	B
basic	MD 28 interchange	1448	5	1034	1041	1091	1363	914				5444	5444	53	54	60	63	64				59	59	20	20	19	22	15				19	C	19	C	19	C
merge		670	6	290	1007	1030	1040	1391	950			5708	5708	50	53	54	60	63	64			58	58	6	19	19	18	22	15			17	B	15	B	15	B
basic		292	6	313	982	1029	1025	1407	959			5715	5715	56	53	54	59	63	64			58	58	6	19	19	18	23	15			17	B	17	B	17	B
		288	6	333	948	1038	1013	1410	971			5714		56	53	54	59	62	63			58		6	18	20	17	23	16			17	B	17	B		
merge	Btw MD 28 & MD 189	500	7	293	786	945	1347	1021	1313	929		6633	6633	50	53	53	54	60	63	64		57	57	6	15	18	25	17	21	15		17	B	13	B	13	B
basic		316	6	479	1534	1487	1045	1257	907			6709	6715	53	52	53	59	63	64			57	58	9	30	28	18	20	14			20	C	20	C	20	C
		774	6	495	1542	1444	1047	1260	927			6714		54	52	53	58	63	63			57		9	30	28	18	20	15			20	C	20	C		
		603	6	591	1507	1380	1010	1275	951			6715		56	53	54	58	63	64			58		11	29	26	18	21	15			20	C	20	C		
		720	6	682	1466	1332	985	1288	965			6718		56	53	54	58	63	64			58		12	28	25	17	21	15			20	C	20	C		
diverge		486	6	721	1421	1315	973	1308	981			6719	6719	55	52	53	58	63	64			57	57	13	28	25	17	21	16			20	C	22	C	22	C
basic	MD 189 interchange	931	5	1373	1289	968	1322	1021				5974	5978	53	53	57	62	63				58	58	26	25	17	22	16				21	C	21	C	21	C
		1886	5	1342	1265	938	1336	1099				5980		53	53	57	62	63				58		26	24	17	22	18				21	C	21	C		
merge	Btw MD 189 & Montrose Rd	722	6	231	1447	1557	924	1346	1145			6651	6651	53	53	53	57	62	64			57	57	4	28	30	16	22	18			20	C	21	C	21	C
basic		978	5	1787	1525	1056	1240	1064				6672	6667	51	53	57	62	63				57	57	35	29	19	20	17				24	C	24	C	24	C
		196	5	2030	1541	997	1108	996				6673		51	53	57	62	64				57		41	29	18	18	16				24	C	24	C		
		413	5	2079	1543	962	1087	1001				6672		51	53	57	62	63				57		42	29	17	18	16				24	C	24	C		
		1105	5	2124	1507	929	1089	1012				6661		50	53	56	62	63				57		43	29	17	18	16				24	C	24	C		
diverge	Montrose Rd interchange	381	6	215	1895	1396	962	1113	1037			6617	6617	44	50	49	53	61	63			53	53	5	39	29	18	19	17			21	C	24	C	24	C
basic		847	5	1801	1360	952	1144	1091				6348	6348	53	53	56	61	63				57	57	35	26	17	19	18				23	C	23	C	23	C
weave		646	6	916	1457	1641	993	1157	1109			7272	7272	42	48	52	55	61	63			54	54	22	31	32	18	19	18			23	C	23	C	23	C
basic		828	5	1279	1581	1151	1212	1156				6379	6379	53	53	55	61	63				57	57	25	30	21	20	19				23	C	23	C	23	C
weave	Btw Montrose Rd & Spur Split	795	6	286	1174	1613	1155	1221	1205			6654	6652	57	55	53	55	61	63			57	57	5	22	31	21	20	20			20	C	20	C	20	C
		1095	6	286	953	1454	1473	1240	1253			6659		60	56	54	54	60	63			58		5	17	27	28	21	20			20	C	20	C		
		3722	6	295	482	1212	1595	1676	1397			6658		60	57	54	54	56	60			57		5	9	23	30	30	24			20	C	20	C		
		694	6	323	560	1026	1683	1546	1500			6638		60	58	56	55	55	57			57		6	10	18	31	29	27			20	C	20	C		
		386	6	354	631	1060	1593	1528	1457			6623		60	58	56	55	55	57			57		6	11	19	30	28	26			20	C	20	C		
		570	6	387	670	1066	1545	1529	1446			6643		60	58	56	55	55	57			57		7	12	19	29	28	26			20	C	20	C		
basic	Spur Split through MD 187 interchange	715	3	942	1334	1405						3681	3681	57	58	58						58	58	17	24	25						22	C	22	C	21	C
		1098	3	984	1314	1394						3692	3692	58	58	58						58		17	23	24						21	C	21	C		
diverge		474	4	365	631	1303	1383					3681	3681	59	59	58	58					59	59	6	11	23	24					16	B	13	B	13	B
basic		2372	2	1315	1388							2703	2703	58	58							58	58	23	24							24	C	24	C	24	C
merge		507	3	129	1411	1549						3090	3090	42	55	57						51	51	3	26	27						19	B	19	B	19	B
basic		752	2	1468	1634							3103	3103	57	57							57	57	26	29							28	D	28	D	28	D
merge	Btw MD 187 & I-495	957	3	89	1647	1815						3551	3551	45	58	60						54	54	2	29	31						21	C	21	C	21	C
basic		1892	2	1712	1843							3555	3555	61	62							61	61	29	30							29	D	29	D	29	D
merge		1955	3	1680	1713	658						4052	4052	62	63	64						63	63	27	28	11						22	C	22	C	22	C
diverge		1491	3	1616	1555	887						4058	4058	61	61	63						62	62	27	26	14						23	C	23	C	23	C
basic		1568	2	1564	1588							3152	3152	48	51							49	49	34	32							33	D	33	D	33	D
basic	Spur Split to Democracy Blvd	2663	4	862	627	797	672					2958	2958	58	59	59	59					59	59	15	11	14	12					13	B	13	B	13	B
diverge		1139	4	658	805	855	640					2958	2958	57	59	59	59					58	58	12	14	15	11					13	B	13	B	13	B
merge	Democracy Blvd to I-495	1019	4	688	934	1258	114					2993	2993	59	58	56	56					57	57	12	16	23	2					13	B	14	B	14	B
basic		647	3	594	875	1533						3001	2991	59	58	55						58	58	10	15	28						18	C	18	C	18	C
		491	3	606	854	1512						2972		59	59	56						58		10	15	28						18	C	18	C		
		437	3	622	858	1517						2997		59	59	55						58		11	15	28						18	C	18	C		
diverge		603	4	639	829	886	629					2984	2984	59	58	54	57					57	57	11	15	17	11					13	B	14	B	14	B
basic		453	3	657	813	689						2159	2159	59	58	55						57	57	11	14	13						13	B	13	B	13	B
merge		695	4	103	981	914	700					2698	2698	54	56	58	55					56	56	2	18	16	13					12	B	12	B	12	B
basic		1707	3	982	984	733						2699	2699	56	58	55						56	56	18	17	13						16	B	16	B	16	B
basic	ML - I-370 interchange	284	1	700								700	700	53								53	60	13								13	B	13	B	12	B
		331	1	700								700		60								60		12								12	B	12	B		
		2052	1	699								699		62								62		12								12	B	12	B		
merge	ML - Btw I-370 & Gude Dr	1091	2	765	947							1712	1712	63	62							63	63	12	15							14	B	14	B	14	B
basic		2505	2	722	991							1713	1713	64	63							63	63	12	16							14	B	14	B	14	B
diverge		81	2	666	1008	0						1674	1689	63	61	0						42	58	11	17	0						9	A	9	A	9	A
		314	3	668	732	293						1692		63	62	62						62		11	12	5						9	A	9	A		
basic	ML - Gude Dr interchange	3713	2	663	706							1369	1369	64	63							64	64	11	11							11	B	11	B	11	B
merge	ML - Btw Gude Dr & Wootton Pkwy	451	3	793	1116	244						2153	2153	63	62	58						61	61	13	18	4						12	B	12	B	12	B
basic		2928	2	962	1198							2160	2164	63	62							63	63	16	19							18	C	18	C	17	B
		849	2	981	1172							2153		63	63							63		16	19							17	B	17	B		
		449	2	987	1172							2159		63	63							63		16	19							17	B	17	B		
		1667	2	992	1172							2164		63	63							63		16	19							17	B	17	B		
		3774	2	953	1217							2170		63	63							63		15	20							17	B	17	B		
diverge		410	3	887	1018	262						2167	2167	63	62	62						62	62	14	17	4						12	B	12	B	12	B
basic	ML - Wootton Pkwy interchange	3372	2	866	906							1772	1772	63	63							63	63	14	14							14	B	14	B	14	B
merge	ML - Btw Wootton Pkwy & Spur Split	876	3	1056	1267	185						2509	2509	63	62	59						61	61	17	21	3						14	B	14	B	14	B
basic		746	2	1165	1346							2511	2512	62	61							62	63	19	22							21	C	21	C	20	C
		1132	2	1185	1327							2512		63	62							63		19	22							20	C	20	C		
		420	2	1190	1320							2510		63	63							63		19	21							20	C	20	C		
		1519	2	1196	1317							2512		63	63							63		19	21							20	C	20	C		
		4212	2	1259	1253							2513		63	63							63		20	20							20	C	20	C		
diverge		1049	3	428	974	1107						2509	2509	64	63	63						63	63	7	16	18						13	B	13	B	13	B
basic	ML - Spur Split through MD 187 interchange	5712	1	505								505	505	64								64	64	8								8	A	8	A	8	A
		1961	1	506								506		63								63		8								8	A	8	A		
		1845	1	505								505		63								63		8								8	A	8	A		
basic	ML - Spur Split to Westlake Ter/ Fernwood Rd	1604	2	877	1127							2004	2004	64	63							63	63	14	18							16	B	16	B	16	B
diverge		705	3	1053	667	289						2009	2009	63	63	63						63	63	17	11	5						11	B	11	B	11	B
basic	ML - Westlake Ter/Fernwood Rd interchange	1888	2	1053	575							1627	1627	62	64							63	63	17	9							13	B	13	B	13	B
diverge		275	3	411	558	654						1623	1623	53	54	63						57	57	8	10	10						10	B	10	B	10	B
basic		1045	2	328	629							957	957	64	64							64	64	5	10							8	A	8	A	8	A
merge	ML - Westlake Ter/Fernwood Rd to I-495	721	3	382	767	62						1211	1211	64	63	63						63	63	6	12	1						6	A	6	A	6	A
basic		1116	2	428	800							1228	1228	64	63							64	64	7	13							10	A	10	A	10	A
		589	2	439	791							1229		64	63							64		7	13							10	A	10	A		
merge		971	3	130	1013	910						2054	2054	59	63	63						62	62	2	16	15						11	B	11	B	11	B
basic		1600	2	1081	974							2055	2054	63	63							63	63	17	16							16	B	16	B	16	B
		802	2	1074	977							2051		63	63							63		17	16							16	B	16	B		

I-270 Southbound- 2045 Preferred Alternative - 4-5 PM

VISSIM Lookup Data				Volume										Speed										Density																	
				Volume Per Lane								Across All Lanes	Overall Volume	Speed Per Lane								Across All Lanes	Overall Speed	Density Per Lane								Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)								Total Volume	Average Volume (veh/hr)	Speed (mph)								Average Speed	Average Speed (mph)	Combined Density (pcphpl)								Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Through MD 117 interchange	658	4	1383	1788	1532	1169					5871	5906	61	62	63	63					62	63	23	29	25	19					24	C	24	C	24	C
		3062	4	1371	1749	1553	1240					5913		62	63	63	63					63		22	28	25	20					24	C	24	C		
merge		1569	5	787	1823	2074	1644	1239				7568	7568	55	59	61	63	63				60	60	15	32	34	27	20				25	C	27	C	27	C
basic	Btw MD 117 & I-370	1152	6	641	1094	1829	1414	1156	1447			7581	7583	63	63	61	62	63	62			62	62	10	18	31	23	19	24			21	C	21	C	21	C
		411	6	1041	1263	1469	1142	1084	1590			7589		62	63	62	63	64	62			63		17	20	24	18	17	26			21	C	21	C		
diverge		892	6	1149	1306	1356	1115	1103	1573			7601	7595	63	63	62	63	64	62			63	62	19	21	22	18	18	26			21	C	21	C	21	C
		76	6	1214	1300	1226	1104	1121	1560			7526		62	61	55	59	62	62			60		20	22	23	19	18	26			21	C	21	C		
basic	I-370 interchange	1039	4	1212	1107	1138	1583					5040	5041	63	63	64	63					63	63	20	18	18	26					20	C	20	C	20	C
		1983	4	1209	1114	1145	1573					5042		63	64	64	61					63		19	18	18	26					20	C	20	C		
diverge		201	5	1210	1127	1345	875	484				5041	5041	63	63	63	49	45				57	57	19	18	22	18	11				18	B	17	B	17	B
basic		168	4	1213	1143	1301	539					4196	4196	63	63	63	61					63	63	20	18	21	9					17	B	17	B	17	B
basic		943	5	86	1134	1137	1253	584				4196	4196	69	63	64	64	64				65	65	1	18	18	20	9				13	B	13	B	13	B
merge	Btw I-370 & Shady Grove Rd	705	7	209	1169	752	1085	1041	1128	559		5942	5942	53	53	58	63	64	64	64		60	60	4	22	13	17	17	18	9		14	B	14	B	14	B
diverge		1678	6	723	1364	1255	1001	1047	548			5939	5939	54	54	60	63	64	64			60	60	13	26	21	16	17	9			17	B	20	C	20	C
basic	Shady Grove Rd interchange	507	5	1115	1219	1139	1072	578				5124	5124	53	58	62	63	64				60	60	21	21	19	17	9				17	B	17	B	17	B
merge		1022	6	101	1312	1410	1263	1092	617			5795	5795	40	52	57	63	64	64			57	57	3	26	25	21	17	10			17	B	18	B	18	B
basic		222	5	1311	1335	1361	1131	628				5766	5766	53	56	62	63	64				60	60	25	24	22	18	10				20	C	20	C	20	C
merge		503	6	170	1450	1512	1404	1158	642			6335	6335	39	50	55	62	64	64			56	56	4	29	28	23	19	10			19	B	21	C	21	C
basic	Btw Shady Grove Rd & MD 28	1473	5	1556	1451	1458	1242	689				6397	6393	52	54	60	63	64				59	59	30	27	25	20	11				23	C	23	C	23	C
		603	5	1760	1368	1324	1228	718				6398		52	55	60	63	64				59		34	25	22	20	11				23	C	23	C		
		1534	5	1768	1296	1278	1280	768				6389		53	54	60	63	64				59		34	24	22	21	12				23	C	23	C		
		2441	5	1716	1222	1209	1380	865				6392		53	54	60	63	64				59		33	23	21	22	14				23	C	23	C		
diverge		527	6	495	1206	1170	1146	1426	932			6375	6375	57	54	54	60	63	64			59	59	9	23	22	19	23	15			18	B	18	B	18	B
basic	MD 28 interchange	1448	5	1087	1143	1098	1449	979				5756	5756	53	54	59	63	64				58	58	21	22	19	24	16				20	C	20	C	20	C
merge		670	6	264	1044	1133	1041	1463	1028			5972	5972	51	53	54	59	63	64			58	58	5	20	21	18	24	16			17	B	15	B	15	B
basic		292	6	298	1016	1128	1025	1474	1039			5980	5980	57	53	54	59	62	64			58	58	5	19	21	18	24	17			17	B	17	B	17	B
		288	6	320	982	1133	1013	1478	1054			5979		57	53	53	58	62	63			58		6	19	22	18	24	17			17	B	17	B		
merge		500	7	304	817	981	1432	1030	1378	999		6940	6940	50	52	53	54	59	63	64		56	56	6	16	19	27	18	22	16		18	B	14	B	14	B
basic	Btw MD 28 & MD 189	316	6	518	1586	1567	1062	1313	974			7019	7018	52	52	53	59	63	64			57	57	10	31	30	18	21	16			21	C	21	C	21	C
		774	6	537	1597	1515	1068	1314	987			7018		54	52	53	58	62	63			57		10	31	29	19	21	16			21	C	21	C		
		603	6	636	1561	1443	1036	1326	1013			7015		56	53	54	58	63	64			58		12	30	27	18	21	16			21	C	21	C		
		720	6	730	1525	1385	1002	1344	1033			7020		56	53	54	58	63	64			58		13	29	26	18	22	17			21	C	21	C		
diverge		486	6	779	1469	1359	994	1359	1056			7017	7017	55	52	53	57	62	64			57	57	14	29	26	18	22	17			21	C	23	C	23	C
basic	MD 189 interchange	931	5	1406	1330	994	1370	1100				6200	6201	53	53	57	62	63				57	58	27	25	18	22	18				22	C	22	C	22	C
		1886	5	1381	1307	965	1372	1177				6202		53	53	57	62	63				58		27	25	17	22	19				22	C	22	C		
merge		722	6	235	1467	1601	955	1373	1225			6856	6856	53	53	53	57	62	64			57	57	5	28	31	17	22	20			20	C	21	C	21	C
basic	Btw MD 189 & Montrose Rd	978	5	1810	1561	1097	1274	1138				6880	6871	51	53	56	62	63				57	57	36	30	20	21	18				25	C	25	C	25	C
		196	5	2032	1590	1057	1132	1067				6877		51	53	56	62	63				57		41	30	19	19	17				25	C	25	C		
		413	5	2095	1578	1021	1111	1071				6875		51	53	56	62	63				57		42	30	18	18	17				25	C	25	C		
		1105	5	2138	1542	976	1115	1090				6861		50	53	56	62	63				57		43	30	18	18	18				25	C	25	C		
diverge		381	6	227	1891	1445	1004	1123	1121			6811	6811	44	49	50	53	60	63			53	53	5	39	30	19	19	18			22	C	25	C	25	C
basic	Montrose Rd interchange	847	5	1813	1395	1003	1151	1163				6525	6525	53	53	55	61	63				57	57	35	27	18	19	19				24	C	24	C	24	C
weave		646	6	921	1456	1687	1052	1155	1188			7458	7458	41	46	51	54	61	63			53	53	23	32	33	20	19	19			24	C	24	C	24	C
basic		828	5	1274	1625	1209	1213	1242				6562	6562	53	52	54	60	62				56	56	25	31	23	21	20				24	C	24	C	24	C
weave	Btw Montrose Rd & Spur Split	795	6	369	1189	1671	1213	1224	1285			6951	6951	56	55	53	55	60	62			57	57	7	22	32	22	21	21			21	C	21	C	21	C
		1095	6	354	981	1502	1544	1254	1324			6958		59	56	54	54	60	62			57		6	18	28	29	21	22			21	C	21	C		
		3722	6	352	521	1266	1673	1726	1417			6956		60	57	54	54	56	60			57		6	9	24	32	31	24			21	C	21	C		
		694	6	379	630	1139	1783	1546	1461			6938		60	58	56	54	55	57			56		7	11	21	34	29	26			21	C	21	C		
		386	6	414	717	1168	1691	1507	1423			6920		60	58	56	54	55	57			57		7	13	21	32	28	25			21	C	21	C		
		570	6	453	760	1170	1641	1501	1414			6940		60	58	56	55	55	56			57		8	13	21	31	28	25			21	C	21	C		
basic	Spur Split through MD 187 interchange	715	3	951	1302	1368						3622	3622	57	58	58						58	58	17	23	24						21	C	21	C	21	C
		1098	3	994	1272	1359						3625		58	58	58						58		17	22	24						21	C	21	C		
diverge		474	4	372	633	1261	1347					3613	3613	59	59	58	58					59	59	6	11	22	23					16	B	13	B	13	B
basic		2372	2	1273	1357							2631	2631	58	58							58	58	22	24							23	C	23	C	23	C
merge		507	3	153	1378	1550						3081	3081	40	54	57						50	50	4	26	28						19	B	19	B	19	B
basic		752	2	1452	1641							3093	3093	57	56							56	56	26	30							28	D	28	D	28	D
merge	Btw MD 187 & I-495	957	3	94	1639	1825						3559	3559	44	58	59						54	54	2	29	31						21	C	21	C	21	C
basic		1892	2	1708	1850							3558	3558	61	61							61	61	29	31							30	D	30	D	30	D
merge		1955	3	1686	1749	670						4106	4106	62	62	64						63	63	28	28	11						22	C	22	C	22	C
diverge		1491	3	1626	1600	888						4114	4114	51	52	63						55	55	33	32	14						26	C	26	C	26	C
basic		1568	2	1572	1648							3220	3220	32	36							34	34	53	49							51	F	51	F	51	F
basic	Spur Split to Democracy Blvd	2663	4	1033	711	817	744					3306	3306	58	59	59	59					59	59	18	12	14	13					14	B	14	B	14	B
diverge		1139	4	853	897	863	693					3307	3307	57	59	59	59					58	58	15	16	15	12					14	B	15	B	15	B
merge	Democracy Blvd to I-495	1019	4	785	970	1272	117					3144	3144	59	58	56	57					57	57	14	17	23	2					14	B	14	B	14	B
basic		647	3	705	920	1525						3150	3142	59	58	55						58	58	12	16	28						19	C	19	C	19	C
		491	3	716	915	1491						3121		59	59	56						58		12	16	27						18	C	18	C		
		437	3	737	933	1482						3152		59	58	56						58		13	16	27						19	C	19	C		
diverge		603	4	749	914	909	561					3134	3134	59	58	55	58					57	57	13	16	17	10					14	B	14	B	14	B
basic		453	3	763	897	738						2398	2398	59	58	55						57	57	13	16	14						14	B	14	B	14	B
merge		695	4	106	1073	1011	746					2936	2936	53	56	58	56					56	56	2	19	18	14					13	B	13	B	13	B
basic		1707	3	1062	1079	789						2929	2929	56	58	56						56	56	19	19	14						18	C	18	C	18	C
basic	ML - I-370 interchange	284	1	847								847	847	51								51	59	17								17	B	17	B	15	B
		331	1	847								847		58								58		15								15	B	15	B		
		2052	1	847								847		60								60		14								14	B	14	B		
merge	ML - Btw I-370 & Gude Dr	1091	2	863	982							1845	1845	63	62							63	63	14	16							15	B	15	B	15	B
basic		2505	2	821	1023							1844	1844	63	63							63	63	13	17							15	B	15	B	15	B
diverge		81	2	767	1034	0						1801	1817	63	61	0						42	58	12	17	0						10	B	10	B	10	B
		314	3	772	770	279						1822		63	62	61						62		12	13	5						10	B	10	B		
basic	ML - Gude Dr interchange	3713	2	769	749							1519	1519	64	63							64	64	12	12							12	B	12	B	12	B
merge	ML - Btw Gude Dr & Wootton Pkwy	451	3	911	1188	262						2361	2361	63	62	58						61	61	15	20	5						13	B	13	B	13	B
basic		2928	2	1105	1279							2383	2382	63	62							62	63	18	21							19	C	19	C	19	C
		849	2	1126	1260							2386		63	63							63		18	20							19	C	19	C		
		449	2	1131	1258							2389		63	63							63		18	20							19	C	19	C		
		1667	2	1135	1252							2387		63	63							63		18	20							19	C	19	C		
		3774	2	1095	1281							2377		63	63							63		18	21							19	C	19	C		
diverge		410	3	1032	1100	230						2362	2362	63	62	62						62	62	17	18	4						13	B	13	B	13	B
basic	ML - Wootton Pkwy interchange	3372	2	1009	1017							2026	2026	63	63							63	63	16	16							16	B	16	B	16	B
merge	ML - Btw Wootton Pkwy & Spur Split	876	3	1211	1373	206						2789	2789	62	62	59						61	61	20	23	4						15	B	15	B	15	B
basic		746	2	1321	1470							2791	2777	62	61							61	63	22	25							23	C	23	C	23	C
		1132	2	1341	1448							2789		63	62							62		22	24							23	C	23	C		
		420	2	1347	1436							2783		63	63							63		22	23							23	C	23	C		
		1519	2	1350	1429							2780		63	63							63		22	23							22	C	22	C		
		4212	2	1410	1359							2770		63	63							63		23	22							22	C	22	C		
diverge		1049	3	482	1080	1211						2774	2774	64	63	63						63	63	8	17	20						15	B	15	B	15	B
basic	ML - Spur Split through MD 187 interchange	5712	1	564								564	563	64								64	63	9								9	A	9	A	9	A
		1961	1	562								562		63								63		9								9	A	9	A		
		1845	1	559								559		63								63		9								9	A	9	A		
basic	ML - Spur Split to Westlake Ter/ Fernwood Rd	1604	2	970	1230							2201	2201	63	63							63	63	15	20							18	C	18	C	18	C
diverge		705	3	1124	781	298						2203	2203	63	62	63						63	63	18	13	5						12	B	12	B	12	B
basic	ML - Westlake Ter/Fernwood Rd interchange	1888	2	1121	677							1798	1798	62	64							63	63	18	11							15	B	15	B	15	B
diverge		275	3	410	632	751						1793	1793	53	55	63						57	57	8	12	12						11	B	11	B	11	B
basic		1045	2	404	723							1126	1126	64	64							64	64	6	12							9	A	9	A	9	A
merge	ML - Westlake Ter/Fernwood Rd to I-495	721	3	486	898	86						1470	1470	64	63	62						63	63	8	14	1						8	A	8	A	8	A
basic		1116	2	546	940							1486	1487	64	63							63	64	9	15							12	B	12	B	12	B
		589	2	561	928							1489		64	63							64		9	15							12	B	12	B		
merge		971	3	125	1057	1042						2224	2224	60	63	63						62	62	2	17	17						12	B	12	B	12	B
basic		1600	2	1128	1097							2225	2223	63	63							63	63	18	18							18	C	18	C	18	C
		802	2	1121	1098							2219		63	63							63		18	18							18	C	18	C		

I-270 Southbound- 2045 Preferred Alternative - 5-6 PM

| VISSIM Lookup Data | | | | Volume | | | | | | | | | | Speed | | | | | | | | | | Density | | | | | | | | | |

I-270 Southbound- 2045 Preferred Alternative - 6-7 PM

| VISSIM Lookup Data | | | | Volume | | | | | | | | | | Speed | | | | | | | | | | Density | | | | | | | | | |

VISSIM Lookup Data				Volume									Speed									Density									
				Volume Per Lane							Across All Lanes	Overall Volume	Speed Per Lane							Across All Lanes	Overall Speed	Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)							Total Volume	Average Volume (veh/hr)	Speed (mph)							Average Speed	Average Speed (mph)	Combined Density (pcphpl)							Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
basic	Btw Watkins Mill Rd & MD 117	7479	4	1332	1509	1576	1835				6252	6252	14	18	20	50				25	25	98	86	81	37				76	F	76	F	76	F
diverge		1357	5	1119	1490	1598	1572	1761			7540	7540	45	18	20	20	45			30	30	25	84	81	80	39			62	F	63	F	63	F
basic	Btw MD 117 & I-370	843	5	1006	1694	1705	1613	1591			7609	7609	33	24	23	23	40			28	28	32	74	78	71	40			59	F	59	F	59	F
merge		531	6	88	1066	1911	1587	1412	1525		7589	7589	28	25	25	21	22	42		27	27	4	46	80	80	67	37		53	F	53	F	53	F
basic	I-370 interchange	393	4	1672	1314	1389	1598				5974	6044	23	20	24	48				29	31	79	70	62	33				61	F	61	F	56	F
		1580	4	1572	1449	1465	1575				6061		23	25	29	50				32		73	62	54	32				55	F	55	F		
merge		1532	4	1488	1513	1373	1806				6179	6179	31	33	36	43				36	36	55	52	42	43				48	F	46	F	46	F
basic		1312	3	1434	1480	1708					4622	4622	40	41	42					41	41	39	39	43					40	E	40	E	40	E
diverge		473	5	888	1407	1715	1602	1334			6946	6946	54	53	44	43	42			47	47	17	27	41	40	35			32	D	31	D	31	D
weave	Btw I-370 & Shady Grove Rd	477	6	1101	1266	1452	1736	1651	1284		8490	8522	53	53	53	46	45	44		49	50	21	24	28	40	39	32		31	D	31	D	30	D
		785	6	897	1446	1522	1739	1657	1255		8517		54	53	52	47	47	46		50		17	28	30	38	37	29		30	D	30	D		
		484	6	536	1824	1686	1646	1646	1201		8539		54	52	52	49	48	48		51		10	36	33	35	35	27		29	D	29	D		
		467	6	583	1999	1618	1628	1545	1174		8546		51	52	52	50	49	49		51		12	39	31	34	32	25		29	D	29	D		
basic	Shady Grove Rd interchange	413	5	2022	1523	1628	1545	1133			7850	7850	49	51	51	51	51			51	51	42	30	33	31	23			32	D	32	D	32	D
merge		745	6	146	2023	1494	1581	1491	1077		7812	7812	48	50	52	52	52	53		51	51	3	41	29	31	29	21		26	C	25	C	25	C
basic		884	5	1689	1461	1665	1452	1030			7298	7299	51	52	52	53	53			52	52	34	29	33	28	20			29	D	29	D	28	D
		347	5	1739	1464	1361	1370	1366			7300		52	53	53	53	53			53		34	28	26	26	26			28	D	28	D		
diverge		554	7	666	402	1117	1478	1511	1545	1593	8312	8312	54	54	53	53	53	53	53	53	53	13	8	21	28	29	29	30	23	C	17	B	17	B
basic	Btw Shady Grove Rd & MD 28	436	6	1073	992	1512	1544	1614	1642		8378	8373	54	54	53	53	53	53		53	54	20	19	29	29	31	31		27	D	27	D	26	D
		1154	6	959	1061	1550	1549	1611	1641		8372		54	54	53	53	53	53		54		18	20	29	29	31	31		26	D	26	D		
basic		1827	5	1975	1597	1544	1610	1642			8367	8373	51	53	53	53	53			53	52	39	31	29	31	31			32	D	32	D	32	D
		2124	5	1781	1610	1598	1686	1700			8376		50	52	53	53	53			52		36	31	31	32	33			33	D	33	D		
		521	5	1055	1557	1836	1986	1942			8376		53	53	52	52	51			52		20	30	36	39	38			33	D	33	D		
		458	5	1024	1570	1840	1995	1947			8376		53	53	53	53	53			53		20	30	35	38	37			32	D	32	D		
merge		662	6	90	949	1550	1822	1991	1939		8341	8341	38	51	53	53	53	53		50	50	2	19	30	35	38	37		27	C	17	B	17	B
basic	MD 28 interchange	840	5	718	1448	1835	2008	1946			7955	7955	52	53	53	53	53			53	53	14	28	35	39	38			31	D	31	D	31	D
weave		462	6	1031	983	1517	1846	2019	1944		9340	9340	32	41	51	52	52	52		47	47	34	25	30	36	39	38		34	D	34	D	34	D
basic		566	5	1855	1501	1855	2054	1943			9208	9208	40	45	48	50	50			47	47	48	34	39	42	40			40	E	40	E	40	E
weave	Btw MD 28 & MD 189	533	6	627	1702	1508	1959	2006	1800		9602	9597	18	14	25	39	47	50		32	40	39	124	62	51	43	37		59	F	59	F	48	F
		460	6	825	1644	1605	1929	1899	1694		9595		37	15	37	47	51	52		40		23	120	44	42	38	33		50	F	50	F		
		494	6	706	1845	1635	1895	1859	1671		9611		46	20	37	48	52	52		42		16	110	45	41	37	32		47	F	47	F		
		942	6	714	1994	1837	1820	1696	1539		9600		44	22	35	45	51	52		41		17	105	56	42	34	30		47	F	47	F		
		681	6	762	2081	2032	1816	1543	1346		9581		44	29	38	46	51	53		44		18	78	55	40	31	26		41	E	41	E		
basic	MD 189 interchange	764	5	1796	2042	1830	1565	1460			8695	8690	45	49	52	53	53			50	51	41	42	36	30	28			35	E	35	E	34	D
		160	5	1818	2056	1812	1549	1446			8681		51	52	53	53	53			53		36	40	35	30	28			34	D	34	D		
		286	5	1818	2068	1817	1551	1447			8701		52	53	53	53	53			53		35	40	35	30	28			33	D	33	D		
		142	5	1796	2065	1819	1542	1438			8661		53	53	53	53	53			53		35	40	35	29	28			33	D	33	D		
		161	5	1779	2083	1829	1548	1442			8680		53	52	53	53	53			53		34	40	35	30	28			33	D	33	D		
diverge	Btw MD 189 & Montrose Rd	403	6	428	1868	2122	1851	1559	1454		9282	9282	53	52	52	53	53	53		53	53	8	36	41	35	30	28		30	D	29	D	29	D
basic		2735	5	2272	2149	1859	1556	1448			9285	9279	52	53	53	53	53			53	52	45	41	35	30	28			36	E	36	E	36	E
		530	5	2285	2153	1852	1536	1420			9245		50	52	53	53	53			52		47	42	35	29	27			36	E	36	E		
		1264	5	2294	2213	1861	1502	1411			9282		46	50	52	53	53			51		50	45	36	29	27			37	E	37	E		
merge		517	6	445	1981	2278	1669	1450	1431		9254	9254	36	41	49	52	53	53		47	47	13	49	48	33	28	27		33	D	37	E	37	E
basic	Montrose Rd interchange	215	5	1662	1884	1598	1455	1448			8047	8050	52	52	53	53	53			53	53	33	36	30	28	28			31	D	31	D	31	D
		380	5	1670	1891	1590	1453	1446			8050		53	53	53	53	53			53		32	36	30	28	28			31	D	31	D		
		294	5	1654	1942	1566	1445	1445			8052		52	53	53	53	53			53		32	38	30	27	28			31	D	31	D		
weave		601	6	388	1637	1949	1508	1436	1440		8358	8358	47	52	53	54	54	54		52	52	9	32	37	28	27	27		27	C	27	C	27	C
basic		821	5	1863	1709	1492	1433	1438			7935	7935	53	53	53	53	53			53	53	36	33	28	27	27			30	D	30	D	30	D
weave	Btw Montrose Rd & Spur Split	352	6	929	1878	1713	1492	1421	1424		8856	8873	53	50	50	52	53	53		52	53	18	38	34	29	27	27		29	D	29	D	29	D
		569	6	928	1886	1719	1476	1403	1410		8822		53	52	53	53	53	53		53		18	37	33	28	27	27		28	D	28	D		
		321	6	923	1896	1731	1472	1400	1410		8832		53	52	53	53	53	53		53		18	37	33	28	27	27		28	D	28	D		
		764	6	903	1928	1748	1465	1400	1406		8850		53	52	53	53	53	53		53		17	38	34	28	27	27		28	D	28	D		
		1125	6	847	2034	1814	1432	1364	1404		8894		53	49	51	53	53	53		52		16	42	36	27	26	27		29	D	29	D		
		1203	6	1143	1866	1722	1306	1399	1461		8898		52	51	52	53	53	53		53		22	37	33	25	27	28		29	D	29	D		
		966	6	1217	1534	1602	1367	1552	1609		8882		53	53	53	53	53	52		53		23	30	31	26	30	31		29	D	29	D		
		1314	6	1033	1543	1675	1329	1618	1675		8873		54	53	53	54	53	53		53		19	29	32	25	31	32		28	D	28	D		
basic	Btw Spur Split & MD 187	825	3	999	1555	1740					4294	4306	56	56	55					56	57	18	28	32					26	D	26	D	26	D
		721	3	976	1579	1759					4314		58	58	58					58		17	28	31					25	C	25	C		
		851	3	947	1601	1763					4311		56	57	58					57		17	29	31					26	D	26	D		
merge		529	4	86	936	1612	1681				4314	4314	34	41	54	58				47	47	3	23	30	29				21	C	19	B	19	B
basic	MD 187 interchange	235	2	1519	1610						3130	3128	57	58						57	58	27	28						28	D	28	D	28	D
		1636	2	1506	1622						3128		58	58						58		27	29						28	D	28	D		
diverge		553	3	127	1505	1630					3262	3262	59	59	59					59	59	2	26	28					19	B	19	B	19	B
basic		798	2	1627	1659						3286	3286	57	57						57	57	29	30						29	D	29	D	29	D
diverge	Btw MD 187 & I-495	728	3	374	1687	1692					3753	3753	59	58	58					58	58	6	30	30					22	C	22	C	22	C
basic		3652	2	1991	1775						3767	3767	57	57						57	57	36	31						33	D	33	D	33	D
diverge		620	3	1982	1767	501					4249	4249	56	57	58					57	57	36	32	9					25	C	25	C	25	C
basic		1136	3	1967	1748	533					4248	4248	55	56	58					57	57	36	31	9					26	D	26	D	26	D
merge		429	4	429	1888	1748	200				4246	4246	49	55	58	61				56	56	9	34	31	3				19	B	25	C	25	C
basic		386	3	1504	1476	71					3051	3051	58	58	63					60	60	26	26	1					18	C	18	C	18	C
basic		500	2	1505	1550						3055	3055	56	56						56	56	27	28						28	D	28	D	28	D
basic	Btw Spur Split & Democracy Blvd	1490	3	1254	1623	1692					4569	4569	54	53	53					53	53	24	31	32					29	D	29	D	29	D
		672	3	1150	1656	1764					4570		54	52	51					52		22	32	35					30	D	30	D		
merge		808	4	969	1652	1639	304				4564	4564	54	53	53	56				54	54	18	31	31	5				22	C	23	C	23	C
basic		239	3	915	1308	1134					3358	3358	54	54	54					54	54	17	25	21					21	C	21	C	21	C
merge		1210	4	85	883	1288	1094				3350	3350	34	51	53	55				48	48	3	18	24	20				16	B	15	B	15	B
basic	Democracy Blvd interchange	256	3	304	1057	1040					2401	2401	57	54	55					55	55	5	20	19					15	B	15	B	15	B
merge		920	3	244	1087	1062					2393	2393	55	54	55					55	55	5	20	20					15	B	15	B	15	B
basic		609	2	1189	1076						2265	2265	54	55						54	54	22	20						21	C	21	C	21	C
diverge	Btw Democracy Blvd & I-495	1048	3	746	1202	1065					3013	3013	53	54	55					54	54	14	23	20					19	B	19	B	19	B
		442	3	740	1225	1050					3016		54	54	55					54		14	23	19					19	B	19	B		
diverge		366	4	732	1258	1102	173				3265	3265	54	53	53	54				54	54	14	24	21	3				16	B	20	C	20	C
basic		1401	3	820	1219	1227					3266	3266	54	54	54					54	54	15	23	23					20	C	20	C	20	C
basic	ML - Btw I-370 & Gude Dr	562	1	1628							1628	1640	48							48	56	36							36	E	36	E	30	D
		3178	1	1642							1642		58							58		29							29	D	29	D		
diverge		193	2	1646	1265						2911	2911	62	63						62	62	27	20						24	C	24	C	24	C
basic		758	2	1644	1266						2910	2910	61	62						62	62	27	21						24	C	24	C	24	C
		2263	2	1602	1310						2912		61	62						62		26	21						24	C	24	C		
		226	2	1562	1325						2887		63	63						63		25	22						23	C	23	C		
merge		505	3	1541	1283	83					2907	2907	63	63	60					62	62	25	21	1					16	B	16	B	16	B
basic	ML - Gude Dr interchange	3340	2	1499	1137						2636	2636	63	63						63	63	24	18						21	C	21	C	21	C
diverge		351	3	1562	1297	456					3315	3315	62	60	58					60	60	25	22	8					19	B	19	B	19	B
basic	ML - Btw Gude Dr & Wootton Pkwy	346	2	1545	1785						3330	3340	63	61						62	63	25	30						27	D	27	D	27	D
		3038	2	1621	1723						3345		63	62						63		26	28						27	D	27	D		
		828	2	1745	1596						3341		63	63						63		28	26						27	D	27	D		
		291	2	1746	1593						3339		63	63						63		28	26						27	D	27	D		
		1864	2	1748	1590						3338		63	63						63		28	26						27	D	27	D		
		3945	2	1758	1579						3337		63	63						63		28	26						27	D	27	D		
merge		506	3	1737	1500	97					3333	3333	63	63	59					62	62	28	24	2					18	B	18	B	18	B
basic	ML - Wootton Pkwy interchange	3242	2	1674	1346						3020	3020	63	63						63	63	27	22						24	C	24	C	24	C
diverge		366	3	1737	1444	334					3515	3515	63	62	61					62	62	28	24	6					19	B	19	B	19	B
basic	ML - Btw Wootton Pkwy & Spur Split	1145	2	1732	1787						3518	3515	63	63						63	63	28	29						28	D	28	D	28	D
		1064	2	1731	1786						3517		63	63						63		28	29						28	D	28	D		
		484	2	1724	1785						3509		63	63						63		28	29						28	D	28	D		
		1518	2	1712	1803						3515		63	62						63		28	29						28	D	28	D		
		3551	2	1857	1658						3515		62	63						63		30	27						29	D	29	D		
weave		1152	3	292	1769	1442					3504	3504	63	63	62					63	63	5	29	24					19	B	19	B	19	B
basic	ML - Spur Split through MD 187 interchange	6147	1	486							486	485	63							63	63	8							8	A	8	A	8	A
		5440	1	483							483		63							63		8							8	A	8	A		
basic	ML - Spur Split to Westlake Ter/ Fernwood Rd	2145	2	1450	1580						3030	3030	62	62						62	62	24	26						25	C	25	C	25	C
merge		697	3	1315	1505	218					3038	3038	62	61	54					59	59	21	25	4					17	B	17	B	17	B
basic	ML - Westlake Ter/Fernwood Rd interchange	986	2	1076	1231						2307	2307	63	63						63	63	17	20						19	C	19	C	19	C
weave		2067	3	1139	1148	1237					3524	3524	63	63	63					63	63	18	19	20					19	B	19	B	19	B
basic		340	2	1984	1276						3260	3260	61	63						62	62	33	21						27	D	27	D	27	D
diverge	ML - Westlake Ter/Fernwood Rd to I-495	652	3	1814	1490	132					3437	3437	62	63	63					63	63	29	24	2					19	B	19	B	19	B
basic		1096	2	1619	1826						3444	3439	63	63						63	63	26	30						28	D	28	D	28	D
		4032	2	1638	1799						3438		63	63						63		26	29						28	D	28	D		

I-270 Northbound - 2045 Preferred Alternative - 4-5 PM

VISSIM Lookup Data				Volume								Speed								Density													
				Volume Per Lane							Across All Lanes	Overall Volume	Speed Per Lane							Across All Lanes	Overall Speed	Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)							Total Volume	Average Volume (veh/hr)	Speed (mph)							Average Speed	Average Speed (mph)	Combined Density (pc/mi/ln)							Average Density	LOS	Average Density	LOS	Average Density (pc/mi/ln)	LOS
basic	Btw Watkins Mill Rd & MD 117	7479	4	1221	1398	1489	1990				6098	6098	11	14	16	44				21	21	119	105	97	46				92	F	92	F	92	F
diverge		1357	5	1039	1338	1428	1461	1943			7210	7210	37	10	11	12	30			20	20	29	133	127	124	67			96	F	96	F	96	F
basic	Btw MD 117 & I-370	843	5	1165	1379	1408	1489	1787			7228	7228	22	12	11	12	25			16	16	55	120	130	122	74			100	F	100	F	100	F
merge		531	6	188	1372	1280	1235	1382	1742		7200	7200	23	15	10	9	11	25		15	15	11	94	132	146	129	71		97	F	95	F	95	F
basic		393	4	1229	1173	1427	1723				5552	5579	9	9	12	29				15	17	142	139	123	62				117	F	117	F	113	F
	I-370 interchange	1580	4	1053	1234	1615	1684				5586		7	9	15	38				17		156	134	113	46				112	F	112	F		
merge		1532	4	1026	1238	1490	1834				5588	5588	7	9	14	21				13	13	156	139	110	87				123	F	112	F	112	F
basic		1312	3	1192	1343	1541					4075	4075	10	13	15					13	13	121	108	102					111	F	111	F	111	F
diverge		473	5	1317	831	1414	1363	1253			6178	6178	50	39	12	11	10			24	24	27	21	122	129	134			87	F	75	F	75	F
		477	6	1399	1543	912	1400	1336	1244		7833		52	50	38	12	11	10		29		28	32	24	120	128	127		76	F	76	F		
weave	Btw I-370 & Shady Grove Rd	785	6	1278	1659	1120	1310	1258	1228		7853	7872	51	46	32	12	11	11		27	27	25	37	36	122	132	122		79	F	79	F	79	F
		484	6	1059	1896	1356	1214	1163	1203		7891		50	43	31	12	11	13		27		22	45	46	121	134	116		81	F	81	F		
		467	6	987	2038	1386	1202	1125	1189		7927		48	43	31	12	11	13		26		21	48	47	119	131	114		80	F	80	F		
basic		413	5	2137	1483	1210	1120	1168			7118	7118	36	28	13	12	14			20	20	61	58	117	127	110			94	F	94	F	94	F
merge	Shady Grove Rd interchange	745	6	253	2022	1393	1213	1133	1134		7147	7147	39	31	26	15	13	15		23	23	7	69	58	107	114	98		75	F	44	F	44	F
basic		884	5	1685	1345	1308	1212	1152			6702	6719	29	25	19	19	21			23	22	62	61	88	85	70			73	F	73	F	75	F
		347	5	1560	1312	1226	1278	1387			6763		22	20	20	21	24			21		88	84	83	80	73			82	F	82	F		
diverge		554	7	573	321	1120	1276	1355	1449	1563	7657	7657	54	54	19	20	21	22	25	31	31	11	6	97	96	91	85	77	66	F	52	F	52	F
basic		436	6	898	1064	1323	1399	1506	1577		7767	7813	53	20	21	22	24	26		28	30	17	90	91	87	82	75		74	F	74	F	65	F
		1154	6	816	1121	1418	1448	1509	1519		7831		51	24	26	27	28	30		31		16	70	75	73	69	64		61	F	61	F		
basic	Btw Shady Grove Rd & MD 28	1827	5	1820	1551	1506	1529	1511			7918	8007	37	35	35	35	36			36	39	56	55	56	55	52			55	F	55	F	49	F
		2124	5	1637	1568	1606	1639	1596			8046		37	39	40	41	42			40		53	48	47	46	45			48	F	48	F		
		521	5	1076	1536	1804	1877	1785			8077		40	42	43	44	44			43		33	41	45	46	44			42	E	42	E		
		458	5	1036	1549	1817	1903	1797			8101		41	43	45	46	46			44		31	40	44	45	43			40	E	40	E		
merge		662	6	108	937	1534	1812	1911	1799		8101	8101	32	42	45	47	48	48		44	44	6	27	37	41	42	40		32	D	23	C	23	C
basic		840	5	716	1439	1842	1940	1803			7740	7740	45	48	50	51	50			49	49	18	32	38	39	37			33	D	33	D	33	D
weave	MD 28 interchange	462	6	1116	1005	1529	1875	1943	1794		9263	9263	29	36	48	50	51	51		44	44	41	30	33	38	39	36		36	E	36	E	36	E
basic		566	5	1942	1538	1894	1943	1781			9098	9098	38	44	49	50	50			46	46	52	36	40	39	36			41	E	41	E	41	E
		533	6	558	1903	1548	1912	1853	1679		9453		24	18	30	43	50	51		36		27	115	52	45	38	34		52	F	52	F		
		460	6	791	1854	1591	1830	1769	1617		9453		38	21	39	49	52	53		42		22	108	41	38	34	31		46	F	46	F		
weave	Btw MD 28 & MD 189	494	6	731	1985	1586	1802	1753	1612		9468	9455	44	25	39	49	52	53		44	41	18	101	41	37	34	31		44	F	44	F	46	F
		942	6	745	2033	1771	1734	1656	1523		9461		42	26	36	45	51	52		42		19	103	54	40	33	30		47	F	47	F		
		681	6	799	2022	1968	1800	1521	1331		9441		43	30	38	45	50	52		43		19	84	58	42	31	26		44	F	44	F		
		764	5	1743	1993	1829	1525	1418			8508		42	47	50	51	52			48		45	44	38	30	28			37	E	37	E		
basic	MD 189 interchange	160	5	1767	2020	1809	1497	1398			8490	8501	48	50	51	52	52			51	50	39	41	36	29	27			35	E	35	E	35	E
		286	5	1770	2033	1818	1495	1394			8511		49	51	52	52	52			51		37	41	36	29	27			34	D	34	D		
		142	5	1757	2034	1814	1489	1379			8472		51	52	52	53	53			52		36	40	35	29	27			33	D	33	D		
		161	5	1745	2054	1820	1494	1377			8491		51	52	53	53	53			52		35	40	35	29	26			33	D	33	D		
diverge		403	6	437	1843	2098	1839	1499	1387		9103	9103	53	52	52	53	53	53		53	53	8	36	41	35	28	27		29	D	28	D	28	D
basic	Btw MD 189 & Montrose Rd	2735	5	2264	2128	1845	1496	1375			9108	9105	52	53	53	53	53			53	52	45	41	35	28	26			35	E	35	E	36	E
		530	5	2272	2146	1831	1475	1350			9074		50	52	53	53	53			52		47	42	35	28	26			35	E	35	E		
		1264	5	2281	2195	1854	1452	1331			9113		51	49	52	53	53			51		51	45	36	28	26			37	E	37	E		
merge		517	6	518	1972	2288	1652	1340	1327		9097	9097	32	37	47	51	53	53		46	46	17	55	50	33	26	25		34	D	41	E	41	E
		215	5	1680	1896	1553	1317	1341			7788		51	52	53	54	53			53		34	37	30	25	26			30	D	30	D		
basic	Montrose Rd interchange	380	5	1692	1902	1548	1306	1340			7788	7788	52	53	53	54	53			53	53	33	37	29	25	26			30	D	30	D	30	D
		264	5	1680	1947	1528	1296	1335			7787		52	52	53	53	53			53		33	38	29	25	26			30	D	30	D		
weave		601	6	368	1670	1964	1464	1283	1328		8077	8077	46	51	53	54	54	54		52	52	8	33	38	28	24	25		26	C	26	C	26	C
basic		821	5	1881	1737	1448	1280	1322			7668	7668	53	53	53	53	53			53	53	36	33	28	24	25			29	D	29	D	29	D
		352	6	857	1895	1748	1449	1260	1304		8513		53	51	51	53	53	53		52		16	38	35	28	24	25		28	D	28	D		
		569	6	857	1905	1752	1430	1244	1287		8475		53	52	53	53	53	53		53		16	37	34	27	24	25		27	C	27	C		
		321	6	851	1915	1765	1425	1237	1285		8480		53	52	53	53	53	53		53		16	37	34	27	23	25		27	C	27	C		
weave	Btw Montrose Rd & Spur Split	764	6	839	1941	1784	1421	1225	1280		8490	8522	53	51	53	53	54	53		53	53	16	38	34	27	23	25		27	C	27	C	27	C
		1125	6	808	2060	1841	1368	1179	1272		8527		53	49	51	53	54	53		52		16	43	36	26	22	24		28	D	28	D		
		1203	6	1186	1931	1748	1177	1179	1313		8535		52	51	52	54	53	53		53		23	38	34	22	22	25		28	D	28	D		
		966	6	1378	1624	1629	1177	1289	1442		8540		52	52	53	53	53	53		53		27	31	31	22	25	28		27	C	27	C		
		1314	6	1216	1566	1737	1099	1325	1513		8546		54	53	53	54	54	53		53		23	32	33	21	25	29		27	C	27	C		
basic		825	3	1184	1677	1829					4690		56	55	55					55		22	31	33					29	D	29	D		
	Btw Spur Split & MD 187	721	3	1170	1694	1843					4707	4699	57	58	58					58	56	21	30	32					28	D	28	D	28	D
		851	3	1151	1702	1848					4702		55	57	57					56		21	31	33					28	D	28	D		
merge		529	4	132	1152	1691	1728				4703	4703	32	39	53	57				45	45	4	30	32	31				24	C	22	C	22	C
basic		235	2	1544	1628						3172	3172	57	57						57	58	27	29						28	D	28	D	28	D
	MD 187 interchange	1636	2	1533	1640						3173		58	58						58		27	29						28	D	28	D		
diverge		553	3	146	1529	1652					3327	3327	59	59	59					59	59	3	27	29					19	B	19	B	19	B
basic		798	2	1662	1691						3353	3353	56	56						56	56	30	30						30	D	30	D	30	D
diverge		728	3	358	1712	1730					3801	3801	59	58	58					58	58	6	30	30					22	C	22	C	22	C
basic		3652	2	2005	1804						3809	3809	57	57						57	57	36	32						34	D	34	D	34	D
diverge		620	3	1987	1794	502					4282	4282	55	56	58					56	56	36	33	9					26	C	26	C	26	C
basic	Btw MD 187 & I-495	1136	3	1972	1770	543					4286	4286	55	56	58					56	56	36	32	10					26	D	26	D	26	D
merge		429	4	440	1878	1753	211				4282	4282	49	55	57	61				56	56	9	35	31	4				20	C	25	C	25	C
basic		386	3	1500	1474	77					3052	3052	58	58	58	63				60	60	26	26	1					18	C	18	C	18	C
basic		500	2	1511	1544						3055	3055	56	56						56	56	27	28						28	D	28	D	28	D
basic		1490	3	985	1332	1525					3842	3841	54	54	53					53	53	19	25	29					24	C	24	C	24	C
	Btw Spur Split & Democracy Blvd	672	3	915	1348	1577					3840		54	53	52					53		17	26	31					25	C	25	C		
merge		808	4	786	1296	1473	277				3832	3832	54	54	53	57				55	55	15	24	28	5				18	B	19	B	19	B
basic		239	3	747	993	878					2619	2619	54	54	54					54	54	14	19	16					16	B	16	B	16	B
merge		1210	4	80	766	947	821				2613	2613	33	49	54	54				48	48	2	16	18	15				13	B	12	B	12	B
basic		256	3	159	624	744					1528	1528	58	56	54					56	56	3	11	14					9	A	9	A	9	A
merge	Democracy Blvd interchange	920	3	134	636	753					1523	1523	54	56	54					55	55	3	12	14					9	A	9	A	9	A
basic		609	2	655	759						1414	1414	56	54						55	55	12	14						13	B	13	B	13	B
diverge		1048	3	399	654	758					1811	1810	54	56	55					55	55	8	12	14					11	B	11	B	11	B
	Btw Democracy Blvd & I-495	442	3	398	649	761					1808		55	55	54					55		7	12	14					11	B	11	B		
diverge		366	4	397	652	810	121				1980	1980	55	55	54	54				54	54	7	12	15	2				9	A	12	B	12	B
basic		1401	3	347	648	986					1981	1981	53	54	53					53	53	7	12	19					13	B	13	B	13	B
basic		562	1	1547							1547	1563	14							14	20	111							111	F	111	F	89	F
		3178	1	1565							1565		21							21		86							86	F	86	F		
diverge		193	2	1584	1255						2839	2839	34	58						46	46	66	22						44	F	44	F	44	F
basic	ML - Btw I-370 & Gude Dr	758	2	1578	1270						2848	2868	36	55						45	44	65	24						45	F	45	F	47	F
		2263	2	1514	1360						2873		42	46						44		58	39						48	F	48	F		
		226	2	1515	1360						2875		45	45						45		49	43						46	F	46	F		
merge		505	3	1492	1292	117					2902	2902	45	45	45					45	45	49	43	4					32	D	32	D	32	D
basic	ML - Gude Dr interchange	3340	2	1497	1166						2663	2663	54	53						53	53	31	25						28	D	28	D	28	D
diverge		351	3	1583	1311	448					3341	3341	62	59	59					60	60	26	23	8					19	B	19	B	19	B
		346	2	1572	1786						3358		63	61						62		25	30						28	D	28	D		
basic	ML - Btw Gude Dr & Wootton Pkwy	3038	2	1658	1717						3374	3374	63	62						63	63	27	28						27	D	27	D	27	D
		828	2	1781	1591						3371		63	63						63		29	26						27	D	27	D		
		291	2	1783	1586						3369		63	63						63		29	26						27	D	27	D		
		1864	2	1786	1587						3373		63	63						63		29	26						27	D	27	D		
		3945	2	1793	1584						3376		63	63						63		29	26						27	D	27	D		
merge		506	3	1763	1499	107					3369	3369	63	63	59					61	61	28	24	2					18	B	18	B	18	B
basic	ML - Wootton Pkwy interchange	3242	2	1689	1334						3023	3023	63	63						63	63	27	21						24	C	24	C	24	C
diverge		366	3	1765	1442	381					3587	3587	63	62	60					62	62	28	24	6					20	C	20	C	20	C
		1145	2	1759	1835						3594		63	62						63		28	30						29	D	29	D		
basic	ML - Btw Wootton Pkwy & Spur Split	1064	2	1758	1836						3594	3595	63	63						63	63	28	30						29	D	29	D	29	D
		484	2	1757	1831						3588		63	63						63		28	30						29	D	29	D		
		1518	2	1740	1853						3593		63	62						63		28	30						29	D	29	D		
		3551	2	1914	1684						3597		62	62						62		31	28						29	D	29	D		
weave		1152	3	293	1825	1458					3576	3576	63	62	62					62	62	5	30	24					19	B	19	B	19	B
basic	ML - Spur Split through MD 187 interchange	6147	1	478							478	478	63							63	63	8							8	A	8	A	8	A
		5440	1	478							478		63							63		8							8	A	8	A		
basic	ML - Spur Split to Westlake Ter/ Fernwood Rd	2145	2	1464	1639						3103	3103	62	62						62	62	24	27						25	C	25	C	25	C
merge		697	3	1326	1564	222					3112	3112	62	61	56					60	60	22	26	4					17	B	17	B	17	B
basic	ML - Westlake Ter/Fernwood Rd interchange	986	2	1097	1261						2359	2359	63	63						63	63	18	20						19	C	19	C	19	C
weave		2067	3	1129	1176	1275					3579	3579	63	63	63					63	63	18	19	20					19	B	19	B	19	B
basic		340	2	2051	1350						3401	3401	61	63						62	62	34	22						28	D	28	D	28	D
diverge	ML - Westlake Ter/Fernwood Rd to I-495	652	3	1882	1576	170					3628	3628	62	62	63					62	62	31	26	3					20	C	20	C	20	C
basic		1096	2	1710	1923						3633	3631	63	63						63	63	28	31						29	D	29	D	29	D
		4032	2	1750	1880						3630		63	63						63		28	30						29	D	29	D		

I-270 Northbound - 2045 Preferred Alternative - 5-6 PM

| VISSIM Lookup Data | | | | Volume | | | | | | | | | Speed | | | | | | | | | Density | | | | | | | | |

I-270 Northbound - 2045 Preferred Alternative - 6-7 PM

VISSIM Lookup Data				Volume									Speed									Density									
				Volume Per Lane							Across All Lanes	Overall Volume	Speed Per Lane							Across All Lanes	Overall Speed	Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)							Total Volume	Average Volume (veh/hr)	Speed (mph)							Average Speed	Average Speed (mph)	Combined Density (pc/hr/ln)							Average Density	LOS	Average Density	LOS	Average Density (pc/hr/ln)	LOS
basic	Btw Watkins Mill Rd & MD 117	7479	4	1042	1266	1386	1995				5689	5689	8	11	13	34				17	17	134	115	105	60				103	F	103	F	103	F
diverge		1357	5	1029	1115	1246	1319	1923			6631	6631	31	8	9	10	23			16	16	34	149	141	133	85			108	F	108	F	108	F
basic	Btw MD 117 & I-370	843	5	1168	1172	1223	1313	1757			6632	6632	19	9	9	10	20			13	13	64	135	143	134	91			113	F	113	F	113	F
merge		531	6	151	1306	1123	1085	1221	1674		6561	6561	22	14	8	7	9	18		13	13	8	97	140	155	139	94		106	F	100	F	100	F
basic		393	4	1114	1023	1268	1676				5081	5091	8	7	9	19				11	12	151	153	137	91				133	F	133	F	128	F
	I-370 interchange	1580	4	899	1081	1448	1665				5093		6	8	12	25				12		168	146	124	69				127	F	127	F		
merge		1532	4	842	1097	1378	1750				5067	5067	5	7	12	19				11	11	172	151	118	95				134	F	121	F	121	F
basic		1312	3	984	1208	1435					3627	3627	7	10	13					10	10	144	123	112					126	F	126	F	126	F
diverge		473	5	1274	475	1204	1181	1130			5263	5263	50	27	9	8	8			20	20	26	19	140	149	152			97	F	83	F	83	F
		477	6	1135	1402	568	1165	1120	1119		6509		52	50	28	8	7	8		25		22	29	21	143	155	149		86	F	86	F		
weave	Btw I-370 & Shady Grove Rd	785	6	1104	1501	775	1008	986	1111		6486	6479	51	42	20	7	6	7		22	22	22	36	40	153	168	151		95	F	95	F	98	F
		484	6	1080	1684	923	851	833	1096		6467		47	35	17	5	5	7		19		24	49	57	163	179	152		104	F	104	F		
		467	6	1053	1774	967	796	774	1087		6450		45	35	17	5	4	7		19		24	52	61	169	184	153		107	F	107	F		
basic		413	5	1969	1109	767	730	1077			5652	5652	29	15	5	4	7			12	12	69	76	173	188	154			132	F	132	F	132	F
merge		745	6	256	1844	1042	717	694	1052		5605	5605	36	25	13	4	4	7		15	15	7	76	81	176	188	153		113	F	55	F	55	F
basic	Shady Grove Rd interchange	884	5	1564	1062	766	741	1002			5134	5125	21	12	5	5	8			10	9	78	93	156	160	129			123	F	123	F	127	F
		347	5	1295	1044	855	848	1060			5102		11	8	6	6	8			8		125	133	149	151	135			138	F	138	F		
diverge		554	7	364	176	951	944	951	1015	1178	5578	5578	53	54	6	6	6	7	9	20	20	7	3	164	162	160	154	141	113	F	84	F	84	F
basic		436	6	543	919	945	959	1044	1197		5608	5593	53	6	6	6	7	9		14	14	10	167	166	164	156	144		135	F	135	F	133	F
		1154	6	518	938	955	960	1036	1180		5587		46	6	6	6	7	8		13		11	161	163	162	156	143		133	F	133	F		
basic	Btw Shady Grove Rd & MD 28	1827	5	1314	1068	989	1029	1157			5557	5523	11	8	7	7	9			9	8	118	139	146	141	129			135	F	135	F	137	F
		2124	5	1111	1069	1065	1092	1186			5523		8	8	8	8	10			8		135	136	136	134	125			133	F	133	F		
		521	5	868	990	1103	1212	1304			5477		6	7	8	9	11			8		159	151	141	133	126			142	F	142	F		
		458	5	858	982	1095	1200	1301			5436		5	6	7	8	10			7		165	162	153	145	138			152	F	152	F		
merge		662	6	442	481	893	1084	1201	1303		5405	5405	3	3	5	7	9	10		6	6	130	189	169	151	143	135		153	F	162	F	162	F
basic		840	5	612	795	1066	1212	1328			5014	5014	4	5	7	9	10			7	7	178	168	148	140	133			153	F	153	F	153	F
weave	MD 28 interchange	462	6	888	663	833	1085	1234	1351		6053	6053	11	4	6	8	9	11		8	8	79	162	154	140	135	128		133	F	133	F	133	F
basic		566	5	1188	903	1123	1297	1421			5932	5932	9	8	10	11	12			10	10	129	120	122	125	124			124	F	124	F	124	F
		533	6	552	661	696	1212	1492	1552		6166		4	3	5	11	13	13		8		137	193	151	111	115	120		138	F	138	F		
		460	6	700	442	615	1085	1596	1705		6143		6	2	4	11	17	18		10		126	213	163	100	97	103		134	F	134	F		
weave	Btw MD 28 & MD 189	494	6	686	376	534	940	1698	1896		6131	6122	5	2	3	11	22	23		11	10	155	220	175	91	80	88		135	F	135	F	138	F
		942	6	706	302	415	890	1729	2070		6111		5	1	2	9	24	28		12		135	226	196	108	75	77		136	F	136	F		
		681	6	727	259	378	953	1643	2124		6083		6	1	2	7	17	28		10		131	228	201	141	97	78		146	F	146	F		
		764	5	230	424	946	1639	2099			5338		1	2	6	14	24			9		230	209	166	118	91			163	F	163	F		
basic	MD 189 interchange	160	5	237	471	989	1636	1996			5328	5333	1	2	6	14	21			9	9	228	204	163	118	96			162	F	162	F	162	F
		286	5	245	492	1020	1621	1962			5341		1	2	7	14	21			9		229	204	161	118	98			162	F	162	F		
		142	5	255	513	1029	1591	1925			5313		1	3	7	14	20			9		226	201	158	118	98			160	F	160	F		
		161	5	265	532	1036	1579	1909			5321		1	3	7	13	19			9		226	200	158	120	100			161	F	161	F		
diverge		403	6	475	334	567	1051	1564	1886		5877	5877	26	2	3	7	13	19		12	12	20	214	198	157	121	101		135	F	144	F	144	F
basic	Btw MD 189 & Montrose Rd	2735	5	647	716	1165	1570	1779			5877	5875	3	4	8	14	18			10	10	193	178	143	117	103			147	F	147	F	144	F
		530	5	517	709	1258	1618	1751			5853		3	5	11	16	18			10		203	158	122	105	100			137	F	137	F		
		1264	5	492	719	1184	1640	1845			5880		2	5	9	16	20			10		206	163	128	104	96			139	F	139	F		
merge		517	6	249	339	668	1123	1587	1907		5873	5873	1	2	4	8	14	20		8	8	199	205	190	151	117	98		160	F	198	F	198	F
basic		215	5	336	634	1109	1597	1890			5565		2	3	7	14	19			9		222	195	156	119	101			159	F	159	F		
	Montrose Rd interchange	380	5	346	653	1112	1589	1862			5562	5562	2	3	7	14	19			9	9	219	193	156	119	101			158	F	158	F	158	F
		264	5	361	660	1126	1582	1829			5559		2	4	8	14	18			9		216	192	154	119	102			157	F	157	F		
weave		601	6	339	272	669	1117	1567	1778		5743	5743	2	1	4	8	14	18		8	8	168	214	188	151	116	100		156	F	156	F	156	F
basic		821	5	354	702	1129	1543	1707			5435	5435	2	4	9	16	19			10	10	202	167	132	102	90			139	F	139	F	139	F
		352	6	621	333	667	1179	1532	1677		6011		5	2	4	9	15	19		9		126	215	177	133	105	92		141	F	141	F		
		569	6	628	322	672	1189	1516	1647		5974		5	2	4	9	15	18		9		137	217	173	131	105	93		143	F	143	F		
		321	6	631	322	661	1200	1512	1637		5963		5	2	4	10	15	18		9		139	218	167	129	104	93		142	F	142	F		
weave	Btw Montrose Rd & Spur Split	764	6	622	333	622	1222	1511	1634		5944	5849	4	2	4	10	15	18		9	8	145	216	170	126	105	94		143	F	143	F	150	F
		1125	6	593	396	602	1154	1536	1640		5920		4	2	4	9	15	18		9		148	210	170	126	102	94		142	F	142	F		
		1203	6	626	476	613	997	1456	1670		5837		4	2	4	7	14	19		8		169	200	178	140	105	91		147	F	147	F		
		966	6	525	518	685	976	1366	1666		5737		3	3	4	7	12	18		8		200	196	179	153	118	96		157	F	157	F		
		1314	6	470	534	720	992	1361	1624		5702		2	3	4	6	11	15		7		208	204	187	161	130	110		167	F	167	F		
basic		825	3	490	566	789					1845		3	3	5					3		204	200	180					195	F	195	F		
	Btw Spur Split & MD 187	721	3	500	581	781					1862	1863	3	3	5					3	3	203	198	180					194	F	194	F	193	F
		851	3	503	595	783					1882		3	3	5					4		199	196	179					191	F	191	F		
merge		529	4	216	321	585	785				1906	1906	2	2	3	5				3	3	94	206	196	177				168	F	165	F	165	F
basic		235	2	536	776						1311	1328	3	5						4	4	195	171						183	F	183	F	181	F
	MD 187 interchange	1636	2	551	779						1331		3	5						4		191	169						180	F	180	F		
diverge		553	3	80	572	793					1446	1446	42	3	5					17	17	2	188	171					121	F	121	F	121	F
basic		798	2	668	815						1483	1483	4	5						5	5	180	165						172	F	172	F	172	F
diverge		728	3	136	692	839					1667	1667	46	4	6					19	19	3	174	161					113	F	113	F	113	F
basic		3652	2	844	905						1748	1748	5	6						6	6	164	154						159	F	159	F	159	F
diverge		620	3	874	756	439					2069	2069	6	5	5					5	5	167	164	87					139	F	139	F	139	F
basic	Btw MD 187 & I-495	1136	3	836	715	582					2133	2133	5	4	6					5	5	167	172	102					147	F	147	F	147	F
merge		429	4	257	671	765	523				2216	2216	2	4	5	4				4	4	135	164	167	140				152	F	156	F	156	F
basic		386	3	626	748	383					1756	1756	4	5	3					4	4	171	154	119					148	F	148	F	148	F
basic		500	2	711	1072						1784	1784	5	9						7	7	163	133						148	F	148	F	148	F
basic		1490	3	1016	1334	1518					3868	3875	11	17	21					16	18	111	92	81					95	F	95	F	89	F
	Btw Spur Split & Democracy Blvd	672	3	1040	1359	1490					3889		18	22	25					22		85	77	70					77	F	77	F		
merge		808	4	933	1324	1163	481				3900	3900	23	26	23	21				23	23	69	72	82	45				67	F	67	F	67	F
basic		239	3	857	1074	966					2897	2897	28	29	27					28	28	56	61	68					62	F	62	F	62	F
merge		1210	4	130	770	1035	984				2919	2919	25	27	30	29				28	28	7	50	55	58				43	F	38	E	38	E
basic		256	3	361	841	986					2189	2189	37	37	37					37	37	35	44	47					42	E	42	E	42	E
merge	Democracy Blvd interchange	920	3	307	884	1019					2211	2211	36	38	38					37	37	30	41	44					38	E	38	E	38	E
basic		609	2	1042	1081						2123	2123	43	40						41	41	34	40						37	E	37	E	37	E
diverge		1048	3	675	1032	1098					2806	2809	48	46	45					46	46	16	32	35					27	C	27	C	27	C
	Btw Democracy Blvd & I-495	442	3	679	1025	1113					2817		50	47	46					47		15	29	31					25	C	25	C		
diverge		366	4	684	1030	1157	128				2999	2999	49	46	46	52				48	48	15	28	31	3				19	B	25	C	25	C
basic		1401	3	654	1010	1343					3007	3007	47	46	46					46	46	16	27	34					25	C	25	C	25	C
basic		562	1	1431							1431	1430	12							12	12	126							126	F	126	F	125	F
	ML - Btw I-370 & Gude Dr	3178	1	1430							1430		12							12		125							125	F	125	F		
diverge		193	2	1410	1046						2456	2456	11	43						27	27	127	25						76	F	76	F	76	F
basic		758	2	1368	1090						2458	2455	10	34						22	13	133	33						83	F	83	F	114	F
		2263	2	1148	1309						2457		8	14						11		149	94						122	F	122	F		
		226	2	1156	1273						2429		8	10						9		143	130						136	F	136	F		
merge		505	3	1096	1100	249					2445	2445	7	8	17					11	11	154	147	15					105	F	105	F	105	F
basic	ML - Gude Dr interchange	3340	2	1062	1126						2188	2188	7	8						8	8	149	143						146	F	146	F	146	F
diverge		351	3	1118	1162	467					2747	2747	8	10	37					19	19	138	124	13					92	F	92	F	92	F
basic		346	2	1206	1557						2763	2830	9	15						12	18	134	111						123	F	123	F	103	F
	ML - Btw Gude Dr & Wootton Pkwy	3038	2	1368	1416						2784		12	12						12		120	120						120	F	120	F		
		828	2	1447	1347						2794		13	12						13		115	120						118	F	118	F		
		291	2	1444	1351						2795		14	12						13		114	118						116	F	116	F		
		1864	2	1462	1361						2823		15	14						14		106	109						108	F	108	F		
		3945	2	1510	1375						2884		27	26						27		83	82						83	F	83	F		
merge		506	3	1467	1237	188					2892	2892	33	32	32					32	32	77	77	12					55	F	55	F	55	F
basic	ML - Wootton Pkwy interchange	3242	2	1437	1152						2589	2589	38	37						37	37	58	55						56	F	56	F	56	F
diverge		366	3	1512	1192	227					2931	2931	53	52	57					54	54	36	32	4					24	C	24	C	24	C
basic		1145	2	1525	1414						2939	2947	55	55						55	59	34	32						33	D	33	D	27	D
	ML - Btw Wootton Pkwy & Spur Split	1064	2	1530	1414						2944		56	56						56		31	29						30	D	30	D		
		484	2	1529	1412						2941		57	57						57		29	27						28	D	28	D		
		1518	2	1531	1418						2949		58	58						58		27	26						27	D	27	D		
		3551	2	1665	1285						2951		63	63						63		27	21						24	C	24	C		
weave		1152	3	251	1610	1073					2934	2934	63	63	62					63	63	4	26	18					16	B	16	B	16	B
basic	ML - Spur Split through MD 187 interchange	6147	1	241							241	240	64							64	63	4							4	A	4	A	4	A
		5440	1	238							238		61							61		4							4	A	4	A		
basic	ML - Spur Split to Westlake Ter/ Fernwood Rd	2145	2	1320	1380						2700	2700	62	62						62	62	21	23						22	C	22	C	22	C
merge		697	3	1202	1316	192					2710	2710	62	61	51					58	58	20	22	4					15	B	15	B	15	B
basic	ML - Westlake Ter/Fernwood Rd interchange	986	2	934	1057						1991	1991	62	62						62	62	15	17						16	B	16	B	16	B
weave		2067	3	941	1017	1077					3035	3035	45	57	61					54	54	28	19	18					22	C	22	C	22	C
basic		340	2	1752	1097						2849	2849	61	63						62	62	29	18						23	C	23	C	23	C
diverge		652	3	1595	1300	139					3034	3034	62	62	63					62	62	26	21	2					17	B	17	B	17	B
basic	ML - Westlake Ter/Fernwood Rd to I-495	1096	2	1427	1612						3039	3036	63	63						63	63	23	26						25	C	25	C	24	C
		4032	2	1460	1576						3035		63	63						63		23	25						24	C	24	C		

Arterial Segments - 2045 Preferred Alternative - 3-4 PM

VISSIM Lookup Data				Volume									Speed									Density							
				Volume Per Lane							Across All Lanes	Overall Volume	Speed Per Lane							Across All Lanes	Overall Speed	Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)							Total Volume	Average Volume (veh/hr)	Speed (mph)							Average Speed	Average Speed (mph)	Combined Density (pcphpl)							Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
diverge	MD 117 Eastbound at I-270	495	3	535	691	611					1837	1837	32	31	31					32	32	17	22	20					20	C	20	C	20	C
diverge	I-370 Eastbound at I-270	301	4	833	455	409	52				1749	1749	48	48	49	49				48	48	18	10	9	1				9	A	6	A	6	A
weave		648	4	734	638	409	376				2158	2158	47	52	53	53				51	51	16	12	8	7				11	B	11	B	11	B
diverge		557	3	545	521	278					1344	1344	49	48	50					49	49	11	11	6					9	A	9	A	9	A
merge		376	3	297	930	390					1617	1617	47	51	52					50	50	6	18	8					11	B	11	B	11	B
weave		922	5	421	1047	1017	1052	630			4168	4168	52	52	52	52	53			52	52	8	20	20	20	12			16	B	16	B	16	B
diverge	I-370 Westbound at I-270	455	4	1233	773	1233	1326				4565	4565	28	29	45	50				38	38	49	33	29	27				34	D	37	E	37	E
diverge		1555	3	281	971	1462					2715	2715	54	53	52					53	53	5	19	28					17	B	17	B	17	B
weave		652	4	569	447	707	261				1984	1984	52	53	52	52				52	52	11	9	14	5				10	B	10	B	10	B
diverge	Shady Grove Rd Eastbound at I-270	248	4	323	867	328	339				1857	1857	36	35	37	38				37	37	9	25	9	9				13	B	14	B	14	B
diverge		478	4	543	256	404	462				1665	1665	35	37	37	37				37	37	16	7	11	13				12	B	11	B	11	B
merge		271	4	187	649	446	430				1712	1712	34	37	37	37				36	36	6	18	12	12				12	B	12	B	12	B
diverge	Shady Grove Rd Westbound at I-270	490	4	580	293	155	149				1177	1177	27	28	28	30				28	28	22	11	6	5				11	B	13	B	13	B
weave		616	4	624	126	198	238				1187	1187	36	36	36	36				36	36	18	4	6	7				8	A	8	A	8	A
diverge	MD 28 Eastbound at I-270	1745	3	982	636	171					1789	1789	26	27	28					27	27	38	24	6					23	C	23	C	23	C
diverge		576	3	126	581	499					1206	1206	27	27	27					27	27	5	22	19					15	B	15	B	15	B
diverge	MD 28 Westbound at I-270	320	3	340	563	77					980	980	11	13	5					9	9	33	46	16					31	D	31	D	30	D
		115	3	302	449	195					946	946	11	12	9					11	11	28	37	21					29	D	29	D		
		43	3	341	702	224					1267	1267	24	21	26					24	24	14	35	9					19	B	19	B		
weave		634	3	408	1229	612					2250	2250	25	25	25					25	25	17	50	24					30	C	30	C	30	C
merge		235	3	1077	737	317					2131	2131	25	26	27					26	26	44	29	12					28	D	28	D	28	D
diverge	MD 189 Eastbound at I-270	249	3	116	306	715					1136	1136	27	27	22					25	25	4	12	33					16	B	16	B	16	B
diverge		214	3	431	348	443					1223	1223	22	22	19					21	21	20	16	24					20	C	20	C	20	C
diverge	MD 189 Westbound at I-270	378	3	342	404	495					1240	1240	27	26	26					26	26	13	16	19					16	B	16	B	16	B
diverge		242	3	338	267	448					1053	1053	22	22	19					21	21	15	12	24					17	B	17	B	17	B
merge		543	3	78	613	304					994	994	27	26	26					26	26	3	24	12					13	B	13	B	13	B
diverge	Montrose Rd Eastboundat I-270	816	3	154	717	249					1120	1120	38	37	38					38	38	4	19	7					10	B	10	B	10	B
weave		433	3	549	1040	341					1930	1930	36	37	38					37	37	15	29	9					18	B	18	B	18	B
merge		1393	3	512	857	705					2074	2074	38	36	37					37	37	14	24	19					19	B	19	B	19	B
diverge	Montrose Rd Westbound at I-270	288	3	1068	871	894					2832	2832	33	33	34					33	33	33	27	27					29	D	29	D	29	D
weave		493	3	794	736	544					2075	2075	34	36	36					35	35	24	21	15					20	C	20	C	20	C
merge		191	3	118	706	590					1414	1414	30	36	36					34	34	4	20	17					14	B	14	B	14	B
diverge	MD 187 Northbound at I-270 East Spur	292	6	516	458	446	424	389	94		2326	2326	6	5	5	5	10	4		6	6	97	95	92	92	42	25		74	F	95	F	95	F
merge		263	5	74	575	534	561	614			2358	2358	31	35	35	36	36			34	34	2	17	15	16	17			14	B	12	B	12	B
diverge	MD 187 Southbound at I-270 East Spur	303	4	340	555	479	597				1972	1972	37	37	38	37				37	37	9	15	13	16				13	B	12	B	12	B
diverge		166	5	496	422	445	510	82			1954	1954	36	36	36	36	37			36	36	14	12	13	14	2			11	B	13	B	13	B
diverge		161	6	527	411	440	430	130	38		1977	1977	30	14	14	14	37	36		24	24	18	31	32	32	4	1		20	C	27	C	27	C
diverge	Democracy Blvd Eastbound at I-270 West Spur	2296	3	474	289	262					1024	1024	35	33	33					34	34	14	9	8					10	B	10	B	10	B
diverge		605	3	359	365	377					1101	1101	32	31	30					31	31	12	12	13					12	B	12	B	12	B
diverge	Democracy Blvd Westbound at I-270 West Spur	857	4	685	671	515	605				2477	2477	41	40	42	42				41	41	17	17	13	14				15	B	16	B	16	B
merge		2127	4	311	579	547	458				1896	1896	42	42	42	42				42	42	8	14	13	11				11	B	12	B	12	B
merge	VA 193 Eastbound at I-270 East Spur	299	3	271	447	30					748	748	26	32	35					31	31	10	14	1					9	A	9	A	9	A
merge	VA 193 Westbound at I-270 East Spur	452	2	444	511						956	956	30	32						31	31	15	16						16	B	16	B	16	B
merge	G.W. Memorial Pkwy Eastbound at I-495	504	2	1223	936						2159	2159	40	41						40	40	31	23						27	C	27	C	27	C
merge		673	3	130	989	1094					2213	2213	49	47	47					48	48	3	21	23					16	B	16	B	16	B
diverge	G.W. Memorial Pkwy Westbound at I-495	2326	2	1962	1207						3169	3169	43	40						42	42	46	31						38	E	38	E	38	E
diverge		1323	2	493	1128						1620	1620	43	46						45	45	12	25						18	B	18	B	18	B
diverge		811	2	632	508						1140	1140	44	43						44	44	15	12						13	B	13	B	13	B
weave	Clara Barton Pkwy Eastbound at I-495	6436	2	196	285						481	481	48	48						48	48	4	6						5	A	5	A	5	A
diverge	Clara Barton Pkwy Westbound at I-495	2920	2	830	58						889	889	47	48						47	47	18	1						10	B	10	B	10	B
merge		3456	2	422	273						695	695	46	43						44	44	9	7						8	A	8	A	8	A
diverge	MD 190 Westbound at I-495	617	3	1231	691	742					2664	2664	40	40	41					40	40	32	18	18					22	C	22	C	22	C
diverge	MD 187 Northbound at I-495	790	3	768	753	805					2326	2326	23	23	22					23	23	33	34	36					34	D	34	D	34	D
merge		1654	3	911	893	656					2460	2460	36	37	37					37	37	25	25	18					23	C	23	C	23	C
diverge	MD 187 Southbound at I-495	1642	3	783	553	622					1959	1959	30	28	28					29	29	27	20	23					23	C	23	C	23	C
merge		796	3	602	669	405					1676	1676	36	37	37					37	37	17	18	11					15	B	15	B	15	B
weave	MD 355 Northbound at I-495	1654	3	516	547	1095					2158	2158	33	29	31					31	31	16	19	36					24	B	24	B	24	B
weave		370	4	302	984	452	300				2038	2038	42	42	43	43				42	42	7	24	11	7				12	B	12	B	12	B
diverge	MD 355 Southbound at I-495	204	4	624	348	528	485				1985	1985	43	42	38	38				40	40	15	8	14	13				13	B	12	B	12	B
merge		781	4	802	670	385	265				2122	2122	25	25	24	23				24	24	32	27	16	12				22	C	25	C	25	C

Arterial Segments - 2045 Preferred Alternative - 4-5 PM

VISSIM Lookup Data				Volume									Speed								Density									
				Volume Per Lane							Across All Lanes	Overall Volume	Speed Per Lane							Across All Lanes	Overall Speed	Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)							Total Volume	Average Volume (veh/hr)	Speed (mph)							Average Speed	Average Speed (mph)	Combined Density (pcphpl)							Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
diverge	MD 117 Eastbound at I-270	495	3	655	810	613					2079	2079	31	31	31					31	31	21	27	20					23	C	23	C	23	C
diverge	I-370 Eastbound	301	4	904	552	509	42				2007	2007	48	47	49	49				48	48	19	12	11	1				11	B	8	A	8	A
weave		648	4	792	778	509	493				2573	2573	47	52	52	52				51	51	17	15	10	10				13	B	13	B	13	B
diverge		557	3	662	658	389					1709	1709	45	44	46					45	45	15	15	9					13	B	13	B	13	B
merge		376	3	313	1019	525					1858	1858	47	51	52					50	50	7	20	10					12	B	12	B	12	B
weave		922	5	510	1223	1191	1166	771			4860	4860	52	52	52	52	53			52	52	10	24	23	23	15			19	B	19	B	19	B
diverge	I-370 Westbound at I-270	455	4	1230	840	1411	1420				4901	4901	37	41	50	52				45	45	35	22	29	28				28	D	29	D	29	D
diverge		1555	3	438	1159	1551					3148	3148	54	53	52					53	53	8	22	30					20	C	20	C	20	C
weave		652	4	656	642	835	307				2440	2440	52	53	51	52				52	52	13	12	16	6				12	B	12	B	12	B
diverge	Shady Grove Rd Eastbound at I-270	248	4	394	887	338	337				1955	1955	36	34	36	38				36	36	11	26	9	9				14	B	16	B	16	B
diverge		478	4	541	248	412	468				1669	1669	35	37	37	37				37	37	16	7	11	13				12	B	11	B	11	B
merge		271	4	163	594	437	443				1637	1637	34	37	37	37				36	36	5	17	12	12				11	B	11	B	11	B
diverge	Shady Grove Rd Westbound at I-270	490	4	620	313	159	139				1231	1231	27	27	28	30				28	28	23	12	6	5				11	B	14	B	14	B
weave		616	4	643	109	174	203				1130	1130	36	36	36	36				36	36	18	3	5	6				8	A	8	A	8	A
diverge	MD 28 Eastbound at I-270	1745	3	1024	627	195					1846	1846	26	27	28					27	27	40	24	7					24	C	24	C	24	C
diverge		576	3	158	554	518					1230	1230	27	27	27					27	27	6	21	20					16	B	16	B	16	B
diverge	MD 28 Westbound at I-270	320	3	374	672	132					1178	1178	9	11	5					8	8	46	61	28					45	F	45	F	41	F
		115	3	325	508	299					1131	1131	10	12	11					11	11	35	42	28					35	E	35	E		
		43	3	369	813	345					1527	1527	19	19	26					21	21	23	43	13					27	C	27	C		
weave		634	3	411	1359	840					2610	2610	24	23	23					23	23	17	61	37					38	E	38	E	38	E
merge		235	3	1202	912	400					2514	2514	25	25	27					26	26	50	37	15					34	D	34	D	34	D
diverge	MD 189 Eastbound at I-270	249	3	88	328	696					1112	1112	27	26	22					25	25	3	13	32					16	B	16	B	16	B
diverge		214	3	461	375	399					1234	1234	22	22	19					21	21	21	17	21					20	C	20	C	20	C
diverge	MD 189 Westbound at I-270	378	3	424	500	574					1498	1498	25	25	25					25	25	17	20	23					20	C	20	C	20	C
diverge		242	3	439	347	465					1251	1251	22	22	19					21	21	20	16	25					20	C	20	C	20	C
merge		543	3	100	724	407					1231	1231	27	25	25					26	26	4	29	17					17	B	17	B	17	B
diverge	Montrose Rd Eastboundat I-270	816	3	236	701	268					1206	1206	38	37	38					38	38	6	19	7					11	B	11	B	11	B
weave		433	3	553	1006	348					1907	1907	36	37	38					37	37	16	28	9					18	B	18	B	18	B
merge		1393	3	488	830	702					2020	2020	38	36	37					37	37	13	23	19					19	B	19	B	19	B
diverge	Montrose Rd Westbound at I-270	288	3	1062	827	911					2800	2800	23	32	34					30	30	50	26	27					35	E	35	E	35	E
weave		493	3	801	702	528					2031	2031	34	36	36					35	35	24	20	15					20	C	20	C	20	C
merge		191	3	125	677	559					1361	1361	30	36	36					34	34	4	19	16					13	B	13	B	13	B
diverge	MD 187 Northbound at I-270 East Spur	292	6	548	503	441	294	444	219		2449	2449	5	5	5	4	3	2		4	4	112	106	96	82	132	111		107	F	105	F	105	F
merge		263	5	74	548	536	557	624			2339	2339	29	35	35	36	36			34	34	3	16	15	16	17			13	B	11	B	11	B
diverge	MD 187 Southbound at I-270 East Spur	303	4	372	594	517	633				2116	2116	37	37	38	37				37	37	10	16	14	17				14	B	13	B	13	B
diverge		166	5	542	449	481	542	83			2097	2097	35	35	35	36	37			36	36	16	13	14	16	2			12	B	14	B	14	B
diverge		161	6	580	435	473	460	131	39		2118	2118	28	12	12	12	37	36		23	23	21	38	40	41	4	1		24	C	33	D	33	D
diverge	Democracy Blvd Eastbound at I-270 West Spur	2296	3	416	279	251					946	946	33	31	31					32	32	13	9	8					10	B	10	B	10	B
diverge		605	3	385	391	414					1190	1190	34	33	32					33	33	12	12	13					12	B	12	B	12	B
diverge	Democracy Blvd Westbound at I-270 West Spur	857	4	768	710	561	657				2696	2696	39	39	41	42				40	40	20	19	14	16				17	B	17	B	17	B
merge		2127	4	349	573	512	406				1840	1840	42	42	42	42				42	42	9	14	12	10				11	B	12	B	12	B
merge	VA 193 Eastbound at I-270 East Spur	299	3	293	442	29					763	763	26	32	35					31	31	11	14	1					9	A	9	A	9	A
merge	VA 193 Westbound at I-270 East Spur	452	2	411	442						852	852	30	32						31	31	14	14						14	B	14	B	14	B
merge	G.W. Memorial Pkwy Eastbound at I-495	504	2	1251	865						2116	2116	39	41						40	40	32	22						27	C	27	C	27	C
merge		673	3	134	971	1076					2181	2181	49	47	47					48	48	3	21	23					16	B	16	B	16	B
diverge	G.W. Memorial Pkwy Westbound at I-495	2326	2	1950	1214						3163	3163	40	37						38	38	50	33						42	E	42	E	42	E
diverge		1323	2	456	1118						1574	1574	44	46						45	45	10	25						18	B	18	B	18	B
diverge		811	2	639	486						1125	1125	44	43						44	44	15	11						13	B	13	B	13	B
weave	Clara Barton Pkwy Eastbound at I-495	6436	2	137	274						411	411	48	47						48	48	3	6						4	A	4	A	4	A
diverge	Clara Barton Pkwy Westbound at I-495	2920	2	1169	108						1278	1278	46	47						47	47	26	2						14	B	14	B	14	B
merge		3456	2	582	353						936	936	46	43						44	44	13	8						11	B	11	B	11	B
diverge	MD 190 Westbound at I-495	617	3	584	427	585					1596	1596	4	3	5					4	4	159	148	131					146	F	146	F	146	F
diverge	MD 187 Northbound at I-495	790	3	928	913	969					2811	2811	21	21	20					21	21	45	45	48					46	F	46	F	46	F
merge		1654	3	1094	1043	775					2912	2912	36	37	37					37	37	31	29	21					27	C	27	C	27	C
diverge	MD 187 Southbound at I-495	1642	3	787	540	623					1949	1949	30	28	28					28	28	27	20	23					23	C	23	C	23	C
merge		796	3	572	631	347					1550	1550	37	37	37					37	37	16	17	10					14	B	14	B	14	B
weave	MD 355 Northbound at I-495	1654	3	654	650	1156					2460	2460	34	30	31					32	32	20	22	38					27	C	27	C	27	C
weave		370	4	301	1045	582	411				2340	2340	42	42	42	43				42	42	7	25	14	10				14	B	14	B	14	B
diverge	MD 355 Southbound at I-495	204	4	654	371	531	456				2012	2012	42	42	38	38				40	40	16	9	14	12				13	B	12	B	12	B
merge		781	4	809	683	404	282				2179	2179	28	27	26	26				27	27	30	25	15	11				20	C	24	C	24	C

Arterial Segments - 2045 Preferred Alternative - 5-6 PM

VISSIM Lookup Data				Volume									Speed								Density									
				Volume Per Lane							Across All Lanes	Overall Volume	Speed Per Lane							Across All Lanes	Overall Speed	Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)							Total Volume	Average Volume (veh/hr)	Speed (mph)							Average Speed	Average Speed (mph)	Combined Density (pcphpl)							Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
diverge	MD 117 Eastbound at I-270	495	3	749	887	778					2414	2414	30	29	29					29	29	25	32	27					28	D	28	D	28	D
diverge	I-370 Eastbound	301	4	1121	822	788	41				2772	2772	45	44	47	48				46	46	25	19	17	1				16	B	12	B	12	B
weave		648	4	868	1039	810	801				3518	3518	39	40	39	41				40	40	25	32	26	24				27	C	27	C	27	C
diverge		557	3	881	913	817					2612	2612	15	15	18					16	16	63	66	49					59	F	59	F	59	F
merge		376	3	269	1082	860					2210	2210	39	50	51					47	47	7	22	17					15	B	15	B	15	B
weave		922	5	496	1192	1000	1166	1026			4879	4879	52	52	52	52	52			52	52	10	23	19	23	20			19	B	19	B	19	B
diverge	I-370 Westbound at I-270	455	4	1262	890	1472	1508				5132	5132	38	40	49	52				45	45	35	24	31	30				30	D	30	D	30	D
diverge		1555	3	501	1192	1652					3345	3345	54	53	52					53	53	10	23	32					22	C	22	C	22	C
weave		652	4	624	690	883	307				2504	2504	53	53	52	52				52	52	12	13	17	6				12	B	12	B	12	B
diverge	Shady Grove Rd Eastbound at I-270	248	4	527	1000	308	291				2126	2126	35	33	35	38				35	35	15	31	9	8				16	B	18	B	18	B
diverge		478	4	641	204	368	424				1636	1636	34	37	37	37				36	36	19	6	10	12				12	B	12	B	12	B
merge		271	4	102	446	382	398				1328	1328	35	37	37	38				37	37	3	12	10	11				9	A	9	A	9	A
diverge	Shady Grove Rd Westbound at I-270	490	4	746	369	205	194				1515	1515	26	23	21	29				24	24	30	17	10	7				16	B	19	B	19	B
weave		616	4	816	114	175	239				1344	1344	35	36	36	37				36	36	23	3	5	7				10	B	10	B	10	B
diverge	MD 28 Eastbound at I-270	1745	3	1182	767	339					2287	2287	26	26	27					26	26	47	30	13					30	D	30	D	30	D
diverge		576	3	131	727	711					1568	1568	27	26	27					27	27	5	28	27					20	C	20	C	20	C
diverge	MD 28 Westbound at I-270	320	3	331	561	123					1015	1015	3	10	4					6	6	115	60	30					69	F	69	F	62	F
		115	3	290	407	283					980	980	4	10	10					8	8	71	42	28					47	F	47	F		
		43	3	340	687	332					1358	1358	5	11	25					14	14	74	64	13					50	F	50	F		
weave		634	3	284	858	593					1734	1734	24	24	24					24	24	12	37	25					24	C	24	C	24	C
merge		235	3	817	620	244					1681	1681	25	25	27					26	26	34	25	9					22	C	22	C	22	C
diverge	MD 189 Eastbound at I-270	249	3	91	358	618					1066	1066	27	17	10					18	18	3	26	66					32	D	32	D	32	D
diverge		214	3	559	345	322					1226	1226	18	5	5					9	9	32	80	69					60	F	60	F	60	F
diverge	MD 189 Westbound at I-270	378	3	276	366	545					1187	1187	4	6	10					7	7	73	65	58					65	F	65	F	65	F
diverge		242	3	325	285	457					1067	1067	22	22	18					21	21	15	13	25					18	B	18	B	18	B
merge		543	3	110	760	334					1204	1204	27	26	25					26	26	4	30	13					16	B	16	B	16	B
diverge	Montrose Rd Eastboundat I-270	816	3	190	620	250					1060	1060	32	31	34					32	32	8	23	8					13	B	13	B	13	B
weave		433	3	467	1023	427					1917	1917	10	28	31					23	23	51	37	14					34	D	34	D	34	D
merge		1393	3	426	850	767					2044	2044	38	36	37					37	37	12	24	21					19	B	19	B	19	B
diverge	Montrose Rd Westbound at I-270	288	3	605	508	908					2021	2021	4	11	31					15	15	152	59	30					80	F	80	F	80	F
weave		493	3	494	516	574					1583	1583	35	36	36					36	36	14	15	16					15	B	15	B	15	B
merge		191	3	137	613	598					1349	1349	30	36	36					34	34	5	17	17					13	B	13	B	13	B
diverge	MD 187 Northbound at I-270 East Spur	292	6	639	608	567	431	456	170		2870	2870	5	5	5	4	5	2		4	4	131	130	124	114	89	72		110	F	128	F	128	F
merge		263	5	68	625	636	669	716			2714	2714	30	35	36	36	36			35	35	2	18	18	19	20			15	B	13	B	13	B
diverge	MD 187 Southbound at I-270 East Spur	303	4	389	668	586	657				2299	2299	36	30	30	30				32	32	11	29	27	30				24	C	23	C	23	C
diverge		166	5	566	526	537	582	59			2270	2270	35	18	18	18	35			25	25	16	44	45	46	2			30	D	35	E	35	E
diverge		161	6	606	512	528	536	83	26		2291	2291	27	7	7	7	37	36		20	20	23	89	90	90	2	1		49	F	67	F	67	F
diverge	Democracy Blvd Eastbound at I-270 West Spur	2296	3	402	275	249					926	926	32	30	30					31	31	13	9	8					10	B	10	B	10	B
diverge		605	3	401	408	442					1251	1251	31	31	30					31	31	13	14	15					14	B	14	B	14	B
diverge	Democracy Blvd Westbound at I-270 West Spur	857	4	788	664	515	623				2590	2590	38	38	41	42				40	40	21	18	13	15				17	B	17	B	17	B
merge		2127	4	385	569	475	368				1797	1797	41	42	42	42				42	42	9	14	11	9				11	B	12	B	12	B
merge	VA 193 Eastbound at I-270 East Spur	299	3	196	428	32					655	655	26	32	36					31	31	8	14	1					7	A	7	A	7	A
merge	VA 193 Westbound at I-270 East Spur	452	2	405	364						769	769	30	32						31	31	14	11						13	B	13	B	13	B
merge	G.W. Memorial Pkwy Eastbound at I-495	504	2	1155	835						1989	1989	39	41						40	40	30	21						25	C	25	C	25	C
merge		673	3	94	920	1013					2026	2026	49	47	47					48	48	2	20	22					14	B	14	B	14	B
diverge	G.W. Memorial Pkwy Westbound at I-495	2326	2	552	680						1232	1232	3	5						4	4	201	150						176	F	176	F	176	F
diverge		1323	2	162	427						588	588	43	44						44	44	4	10						7	A	7	A	7	A
diverge		811	2	255	170						425	425	44	43						44	44	6	4						5	A	5	A	5	A
weave	Clara Barton Pkwy Eastbound at I-495	6436	2	32	204						236	236	49	47						48	48	1	4						3	A	3	A	3	A
diverge	Clara Barton Pkwy Westbound at I-495	2920	2	1105	94						1199	1199	46	47						47	47	24	2						13	B	13	B	13	B
merge		3456	2	566	298						864	864	46	43						44	44	13	7						10	B	10	B	10	B
diverge	MD 190 Westbound at I-495	617	3	284	319	524					1127	1127	1	2	3					2	2	225	217	194					212	F	212	F	212	F
diverge	MD 187 Northbound at I-495	790	3	898	864	912					2675	2675	20	20	19					20	20	46	45	48					46	F	46	F	46	F
merge		1654	3	1003	975	733					2711	2711	36	37	37					37	37	28	27	20					25	C	25	C	25	C
diverge	MD 187 Southbound at I-495	1642	3	864	595	676					2135	2135	29	27	27					28	28	30	22	25					26	C	26	C	26	C
merge		796	3	626	684	396					1706	1706	36	37	37					37	37	18	19	11					16	B	16	B	16	B
weave	MD 355 Northbound at I-495	1654	3	773	763	1216					2752	2752	33	29	30					31	31	24	27	41					30	C	30	C	30	C
weave		370	4	325	1141	716	498				2680	2680	42	42	42	43				42	42	8	28	17	12				16	B	16	B	16	B
diverge	MD 355 Southbound at I-495	204	4	650	385	580	535				2150	2150	43	42	38	37				40	40	16	9	16	15				14	B	13	B	13	B
merge		781	4	918	704	431	280				2332	2332	28	27	27	26				27	27	34	26	16	11				22	C	25	C	25	C

Arterial Segments - 2045 Preferred Alternative - 6-7 PM

VISSIM Lookup Data				Volume									Speed									Density									
				Volume Per Lane							Across All Lanes	Overall Volume	Speed Per Lane							Across All Lanes	Overall Speed	Density Per Lane							Across All Lanes		Influenced Lanes		Overall LOS	
Segment Type	Description	Link Length	Number of Lanes	Combined Volume (veh/hr/ln)							Total Volume	Average Volume (veh/hr)	Speed (mph)							Average Speed	Average Speed (mph)	Combined Density (pcphpl)							Average Density	LOS	Average Density	LOS	Average Density (pcphpl)	LOS
diverge	MD 117 Eastbound at I-270	495	3	537	688	611					1836	1836	32	31	31					32	32	17	22	20					20	C	20	C	20	C
diverge	I-370 Eastbound	301	4	850	511	464	43				1868	1868	48	48	49	49				48	48	18	11	10	1				10	B	7	A	7	A
weave		648	4	736	756	489	458				2439	2439	44	46	45	46				45	45	17	17	11	10				14	B	14	B	14	B
diverge		557	3	687	616	377					1680	1680	32	31	32					32	32	24	21	13					19	B	19	B	19	B
merge		376	3	259	894	482					1636	1636	47	51	52					50	50	6	18	9					11	B	11	B	11	B
weave		922	5	400	1008	856	989	683			3935	3935	52	52	52	52	53			52	52	8	20	17	19	13			15	B	15	B	15	B
diverge	I-370 Westbound at I-270	455	4	1210	760	1327	1306				4602	4602	44	45	51	52				48	48	29	18	27	25				25	C	24	C	24	C
diverge		1555	3	381	1044	1502					2927	2927	54	53	52					53	53	7	20	29					19	B	19	B	19	B
weave		652	4	610	537	726	269				2142	2142	52	53	52	52				52	52	12	10	14	5				10	B	10	B	10	B
diverge	Shady Grove Rd Eastbound at I-270	248	4	316	714	214	214				1457	1457	36	36	37	38				37	37	9	20	6	6				10	B	12	B	12	B
diverge		478	4	468	156	285	315				1223	1223	36	37	38	37				37	37	13	4	8	9				8	A	8	A	8	A
merge		271	4	103	392	298	298				1092	1092	35	37	38	38				37	37	3	11	8	8				7	A	7	A	7	A
diverge	Shady Grove Rd Westbound at I-270	490	4	636	304	142	133				1215	1215	27	27	29	31				29	29	24	11	5	4				11	B	13	B	13	B
weave		616	4	681	76	126	166				1048	1048	36	36	37	37				36	36	19	2	3	5				7	A	7	A	7	A
diverge	MD 28 Eastbound at I-270	1745	3	1034	569	162					1765	1765	26	27	28					27	27	41	22	6					23	C	23	C	23	C
diverge		576	3	87	571	491					1150	1150	27	27	27					27	27	3	22	19					15	B	15	B	15	B
diverge	MD 28 Westbound at I-270	320	3	382	835	245					1462	1462	6	10	5					7	7	68	88	51					69	F	69	F	60	F
		115	3	321	642	461					1424	1424	7	13	13					11	11	49	51	36					45	F	45	F		
		43	3	344	897	516					1758	1758	9	18	25					17	17	42	52	21					38	E	38	E		
weave		634	3	428	1119	884					2432	2432	21	20	21					21	21	22	56	44					41	F	41	F	41	F
merge		235	3	1079	855	350					2284	2284	25	25	27					26	26	44	34	13					31	D	31	D	31	D
diverge	MD 189 Eastbound at I-270	249	3	100	396	556					1052	1052	27	14	8					17	17	4	41	120					55	F	55	F	55	F
diverge		214	3	602	322	312					1235	1235	16	4	3					8	8	42	130	109					94	F	94	F	94	F
diverge	MD 189 Westbound at I-270	378	3	248	305	609					1162	1162	2	2	5					3	3	176	164	140					160	F	160	F	160	F
diverge		242	3	373	356	405					1134	1134	16	16	18					17	17	26	25	24					25	C	25	C	25	C
merge		543	3	87	652	381					1119	1119	26	25	24					25	25	3	27	16					15	B	15	B	15	B
diverge	Montrose Rd Eastboundat I-270	816	3	182	250	532					965	965	1	2	5					3	3	151	183	113					149	F	149	F	149	F
weave		433	3	352	588	794					1735	1735	2	10	24					12	12	176	65	36					92	F	92	F	92	F
merge		1393	3	297	645	810					1751	1751	38	37	36					37	37	8	18	23					16	B	16	B	16	B
diverge	Montrose Rd Westbound at I-270	288	3	132	136	413					681	681	1	2	28					10	10	217	72	15					101	F	101	F	101	F
weave		493	3	277	233	185					695	695	34	36	35					35	35	8	7	5					7	A	7	A	7	A
merge		191	3	137	384	225					745	745	33	36	35					35	35	4	11	7					7	A	7	A	7	A
diverge	MD 187 Northbound at I-270 East Spur	292	6	632	506	399	235	265	141		2178	2178	9	8	7	5	2	1		5	5	77	69	61	50	169	146		96	F	69	F	69	F
merge		263	5	34	582	576	547	517			2257	2257	31	36	36	37	36			35	35	1	16	16	15	14			13	B	11	B	11	B
diverge	MD 187 Southbound at I-270 East Spur	303	4	129	255	249	425				1059	1059	3	2	2	4				3	3	68	155	133	108				116	F	119	F	119	F
diverge		166	5	180	185	231	411	21			1028	1028	1	1	2	4	32			8	8	140	172	135	111	1			112	F	149	F	149	F
diverge		161	6	189	168	217	414	28	8		1025	1025	1	1	2	5	37	37		14	14	165	163	123	81	1	0		89	F	150	F	150	F
diverge	Democracy Blvd Eastbound at I-270 West Spur	2296	3	367	232	193					792	792	36	35	34					35	35	10	7	6					8	A	8	A	8	A
diverge		605	3	323	317	337					977	977	32	30	29					30	30	11	11	12					11	B	11	B	11	B
diverge	Democracy Blvd Westbound at I-270 West Spur	857	4	503	469	446	682				2101	2101	12	12	13	18				14	14	99	96	81	59				84	F	92	F	92	F
merge		2127	4	293	495	484	430				1702	1702	42	42	42	42				42	42	7	12	12	10				10	B	10	B	10	B
merge	VA 193 Eastbound at I-270 East Spur	299	3	138	344	28					510	510	26	32	36					31	31	5	11	1					6	A	6	A	6	A
merge	VA 193 Westbound at I-270 East Spur	452	2	366	314						679	679	30	32						31	31	12	10						11	B	11	B	11	B
merge	G.W. Memorial Pkwy Eastbound at I-495	504	2	976	704						1680	1680	40	41						40	40	25	17						21	C	21	C	21	C
merge		673	3	93	785	858					1737	1737	48	47	48					48	48	2	17	18					12	B	12	B	12	B
diverge	G.W. Memorial Pkwy Westbound at I-495	2326	2	657	724						1382	1382	4	5						4	4	196	154						175	F	175	F	175	F
diverge		1323	2	251	410						660	660	43	45						44	44	6	9						8	A	8	A	8	A
diverge		811	2	264	138						402	402	44	44						44	44	6	3						5	A	5	A	5	A
weave	Clara Barton Pkwy Eastbound at I-495	6436	2	197	294						491	491	48	47						48	48	4	6						5	A	5	A	5	A
diverge	Clara Barton Pkwy Westbound at I-495	2920	2	902	66						968	968	47	48						47	47	20	1						10	B	10	B	10	B
merge		3456	2	529	333						861	861	45	42						44	44	12	8						10	B	10	B	10	B
diverge	MD 190 Westbound at I-495	617	3	452	498	746					1696	1696	2	3	4					3	3	208	200	175					194	F	194	F	194	F
diverge	MD 187 Northbound at I-495	790	3	742	709	782					2233	2233	21	20	19					20	20	36	36	41					38	E	38	E	38	E
merge		1654	3	910	873	551					2334	2334	37	37	37					37	37	25	24	15					21	C	21	C	21	C
diverge	MD 187 Southbound at I-495	1642	3	778	530	569					1877	1877	30	28	27					28	28	27	19	21					22	C	22	C	22	C
merge		796	3	540	622	454					1615	1615	36	37	37					37	37	15	17	12					15	B	15	B	15	B
weave	MD 355 Northbound at I-495	1654	3	540	382	538					1460	1460	7	4	5					5	5	87	106	122					105	F	105	F	105	F
weave		370	4	143	607	382	227				1358	1358	42	42	42	43				42	42	3	15	9	5				8	A	8	A	8	A
diverge	MD 355 Southbound at I-495	204	4	651	349	522	456				1978	1978	43	42	38	38				40	40	16	8	14	12				12	B	11	B	11	B
merge		781	4	742	679	391	285				2098	2098	24	24	22	21				23	23	32	29	18	14				23	C	26	C	26	C

Lane Changes

AM Peak Period - 2027 No-build - Number of Vehicle Lane Changes on Weave Segments

Corridor	Name	No. of Lanes	Length (ft)	Number of lane changes				
				3-4 PM	4-5 PM	5-6 PM	6-7 PM	TOTAL
I-270 NB GP Lanes	Btw Shady Grove Rd & MD 28	5	4480	1757	2540	4183	4083	12564
	MD 28 Interchange	5	2045	1189	2509	3003	2816	9517
	Btw Montrose Rd & Spur Split	7	4265	4437	6048	9151	8404	28040
		6	445	2828	3695	5015	4796	16334
	I-270 East Spur btw MD 187 and I-270 Split	5	625	271	703	1229	1036	3238
I-270 SB GP Lanes	Btw Montrose Rd & Spur Split	7	4430	18605	23386	20893	18339	81222
		8	400	1232	1268	1425	1439	5363
		7	335	222	275	269	239	1005
I-270 NB CD Lanes	MD 117 Interchange	3	600	726	1302	1909	1621	5558
	Btw I-370 and MD 117	3	1980	1654	2671	3621	3271	11217
	Shady Grove Interchange	4	355	447	565	904	894	2811
	Btw MD 28 and Shady Grove	3	275	98	277	396	403	1174
		4	175	94	109	222	214	639
	MD 28 Interchange	3	260	621	1053	1460	1305	4439
	Btw MD 189 and MD 28	4	710	1340	2594	3394	3440	10768
	Montrose Rd Interchange	3	340	169	495	746	640	2050
I-270 SB CD Lane	Btw I-370 and Shady Grove	4	795	3284	4760	4535	3849	16428
	Btw MD 189 and Montrose Rd	3	2650	5073	4966	4586	4765	19390
	Montrose Rd Interchange	3	420	2129	2393	2470	2451	9443
	I-270 West Spur btw I-270 Split and Democracy	5	960	645	658	490	335	2129
I-495 IL GP Lanes	Btw GWMP and Clara Barton Pkwy	6	675	5382	5526	5680	5798	22386
		5	1295	3250	3365	3477	3661	13753
	Btw MD 190 and I-270 West Spur	6	3240	5985	6893	10688	12999	36564
	MD 355 Interchange	4	1950	1525	1994	1752	1528	6800
		6	515	995	1602	1779	1517	5893
I-495 OL GP Lanes	Btw GWMP and Clara Barton Pkwy	5	1525	3763	4733	5345	5159	19001
	Btw MD 190 and I-270 West Spur	6	555	1006	1976	2158	1748	6889
	MD 355 Interchange	4	1595	188	193	576	509	1466

PM Peak Period - 2027 No-build - Number of Vehicle Lane Changes on Weave Segments

Corridor	Name	No. of Lanes	Length (ft)	Number of lane changes				
				3-4 PM	4-5 PM	5-6 PM	6-7 PM	TOTAL
I-270 NB GP Lanes	Btw Shady Grove Rd & MD 28	5	4480	6553	7246	6524	8229	28552
	MD 28 Interchange	5	2045	3215	3100	2651	3153	12119
	Btw Montrose Rd & Spur Split	7	4265	9241	9741	9535	12659	41176
		6	445	5205	5260	3477	3393	17335
	I-270 East Spur btw MD 187 and I-270 Split	5	625	2284	2263	1243	1172	6962
I-270 SB GP Lanes	Btw Montrose Rd & Spur Split	7	4430	14749	15481	14087	15854	60172
		8	400	889	916	872	939	3617
		7	335	502	511	459	541	2013
I-270 NB CD Lanes	MD 117 Interchange	3	600	1723	1277	1205	1840	6045
	Btw I-370 and MD 117	3	1980	4738	3472	3108	4152	15471
	Shady Grove Interchange	4	355	1034	1101	1017	1418	4570
	Btw MD 28 and Shady Grove	3	275	860	750	643	617	2870
		4	175	488	478	270	362	1598
	MD 28 Interchange	3	260	1552	1771	1228	1597	6148
	Btw MD 189 and MD 28	4	710	4146	4309	3221	3699	15374
	Montrose Rd Interchange	3	340	955	921	766	823	3465
I-270 SB CD Lane	Btw I-370 and Shady Grove	4	795	2166	1879	2270	2651	8965
	Btw MD 189 and Montrose Rd	3	2650	3791	3786	4038	3822	15437
	Montrose Rd Interchange	3	420	2013	2024	1710	1977	7723
	I-270 West Spur btw I-270 Split and Democracy	5	960	366	369	310	359	1404
I-495 IL GP Lanes	Btw GWMP and Clara Barton Pkwy	6	675	6150	7094	6012	5393	24648
		5	1295	1481	1721	1601	1255	6057
	Btw MD 190 and I-270 West Spur	6	3240	8048	7879	7049	9185	32162
	MD 355 Interchange	4	1950	2701	3018	2874	4531	13124
		6	515	2696	2123	1506	1898	8222
I-495 OL GP Lanes	Btw GWMP and Clara Barton Pkwy	5	1525	6179	7711	8193	6085	28169
	Btw MD 190 and I-270 West Spur	6	555	1038	901	1151	420	3508
	MD 355 Interchange	4	1595	209	216	1208	1561	3194

AM Peak Period - 2027 Preferred Alternative - Number of Vehicle Lane Changes on Weave Segments

Corridor	Name	No. of Lanes	Length (ft)	Number of lane changes				
				3-4 PM	4-5 PM	5-6 PM	6-7 PM	TOTAL
I-270 NB GP Lanes	Btw I-370 & Shady Grove	6	2310	1558	2774	3586	3431	11350
	MD 28 Interchange	6	460	717	1340	2081	1694	5832
	Btw MD 189 & MD 28	6	3120	1885	3879	6276	5750	17790
	Montrose Rd Interchange	6	600	164	611	1175	977	2928
	Btw Montrose Rd & Spur Split	6	6680	4437	6620	9772	8646	29475
I-270 SB GP Lanes	Montrose Rd Interchange	6	645	2444	3175	3220	3146	11986
	Btw Montrose Rd & Spur Split	6	7300	19573	28027	25337	18067	91004
	I-270 East Spur btw MD 187 & MD 355	3	3475	2159	2660	2689	2277	9785
I-270 NB CD Lanes	MD 117 Interchange	3	600	837	1388	2028	1808	6061
	Btw I-370 and MD 117	3	1970	1615	2575	3179	3072	10441
I-270 NB ML	Btw Montrose Rd & Spur Split	3	1150	812	909	1276	1120	4117
	I-270 West Spur btw Spur Split & Democracy	3	2050	846	1193	1309	1098	4446
I-495 IL GP Lanes	Btw GWMP and Clara Barton Pkwy	5	2390	4526	5969	5894	5319	21707
	Btw MD 190 and I-270 West Spur	5	3190	6296	8733	10178	8038	33245
	MD 355 Interchange	4	1950	1782	1742	1168	1749	6441
		6	510	997	1120	625	602	3344
I-495 OL GP Lanes	Btw MD 190 and I-270 West Spur	6	1140	10072	9867	7605	5270	32815
	MD 355 Interchange	4	1590	203	213	288	224	927

PM Peak Period - 2027 Preferred Alternative - Number of Vehicle Lane Changes on Weave Segments

Corridor	Name	No. of Lanes	Length (ft)	Number of lane changes				
				3-4 PM	4-5 PM	5-6 PM	6-7 PM	TOTAL
I-270 NB GP Lanes	Btw I-370 & Shady Grove	6	2310	3650	6067	6250	6274	22241
	MD 28 Interchange	6	460	1716	2068	1491	1841	7116
	Btw MD 189 & MD 28	6	3120	8767	11085	9703	10055	39610
	Montrose Rd Interchange	6	600	1401	1398	1220	779	4797
	Btw Montrose Rd & Spur Split	6	6680	9383	9677	9305	10298	38663
I-270 SB GP Lanes	Montrose Rd Interchange	6	645	2714	2596	2534	1628	9471
	Btw Montrose Rd & Spur Split	6	7300	14190	15090	14937	13255	57472
	I-270 East Spur btw MD 187 & MD 355	3	3475	2931	2999	3315	2658	11904
I-270 NB CD Lanes	MD 117 Interchange	3	600	1599	1766	1226	1487	6077
	Btw I-370 and MD 117	3	1970	4560	4671	4125	4300	17657
I-270 NB ML	Btw Montrose Rd & Spur Split	3	1150	2700	2637	2448	2285	10071
	I-270 West Spur btw Spur Split & Democracy	3	2050	1531	1678	1564	1276	6048
I-495 IL GP Lanes	Btw GWMP and Clara Barton Pkwy	5	2390	4975	5614	5328	5761	21677
	Btw MD 190 and I-270 West Spur	5	3190	7876	7439	6506	9163	30983
	MD 355 Interchange	4	1950	3534	3074	3619	4560	14787
		6	510	2673	2042	1996	1900	8610
I-495 OL GP Lanes	Btw MD 190 and I-270 West Spur	6	1140	2118	2141	2135	1771	8165
	MD 355 Interchange	4	1590	246	238	223	561	1267

AM Peak Period - 2045 No-build - Number of Vehicle Lane Changes on Weave Segments

Corridor	Name	No. of Lanes	Length (ft)	Number of lane changes				
				3-4 PM	4-5 PM	5-6 PM	6-7 PM	TOTAL
I-270 NB GP Lanes	Btw Shady Grove Rd & MD 28	5	4480	2213	2750	4298	4667	13928
	MD 28 Interchange	5	2045	1335	2568	3126	2976	10005
	Btw Montrose Rd & Spur Split	7	4265	4782	6480	8936	8702	28900
		6	445	2869	3790	4802	4838	16299
	I-270 East Spur btw MD 187 and I-270 Split	5	625	279	812	1353	1159	3604
I-270 SB GP Lanes	Btw Montrose Rd & Spur Split	7	4430	19614	28097	26187	19430	93328
		8	400	1340	1484	1577	1445	5846
		7	335	244	294	346	279	1163
I-270 NB CD Lanes	MD 117 Interchange	3	600	719	1270	1820	1653	5462
	Btw I-370 and MD 117	3	1980	2157	3371	4238	3851	13617
	Shady Grove Interchange	4	355	525	628	927	930	3010
	Btw MD 28 and Shady Grove	3	275	130	329	449	481	1389
		4	175	128	139	250	264	781
	MD 28 Interchange	3	260	678	1096	1404	1353	4531
	Btw MD 189 and MD 28	4	710	1745	2950	3746	3708	12149
	Montrose Rd Interchange	3	340	171	495	728	628	2022
I-270 SB CD Lane	Btw I-370 and Shady Grove	4	795	3634	5014	5042	3944	17634
	Btw MD 189 and Montrose Rd	3	2650	5511	5470	5101	4941	21024
	Montrose Rd Interchange	3	420	2184	2569	2522	2497	9772
	I-270 West Spur btw I-270 Split and Democracy	5	960	699	731	618	343	2391
I-495 IL GP Lanes	Btw GWMP and Clara Barton Pkwy	6	675	5818	5626	5726	5664	22834
		5	1295	3368	3456	3502	3250	13576
	Btw MD 190 and I-270 West Spur	6	3240	6057	6854	10966	12803	36680
	MD 355 Interchange	4	1950	1557	1908	1609	1503	6576
		6	515	1016	1646	1864	1537	6063
I-495 OL GP Lanes	Btw GWMP and Clara Barton Pkwy	5	1525	3891	4846	5553	5117	19407
	Btw MD 190 and I-270 West Spur	6	555	988	1803	2044	2342	7177
	MD 355 Interchange	4	1595	207	261	713	717	1898

PM Peak Period - 2045 No-build - Number of Vehicle Lane Changes on Weave Segments

Corridor	Name	No. of Lanes	Length (ft)	Number of lane changes				
				3-4 PM	4-5 PM	5-6 PM	6-7 PM	TOTAL
I-270 NB GP Lanes	Btw Shady Grove Rd & MD 28	5	4480	6816	7263	6917	5289	26285
	MD 28 Interchange	5	2045	3366	3057	2848	3134	12404
	Btw Montrose Rd & Spur Split	7	4265	9618	8505	7815	8493	34431
		6	445	5166	4430	3508	1700	14804
	I-270 East Spur btw MD 187 and I-270 Split	5	625	2686	2039	1481	433	6639
I-270 SB GP Lanes	Btw Montrose Rd & Spur Split	7	4430	16751	15161	13890	17373	63175
		8	400	1075	942	897	1228	4143
		7	335	626	523	469	688	2305
I-270 NB CD Lanes	MD 117 Interchange	3	600	1836	1253	1288	1914	6291
	Btw I-370 and MD 117	3	1980	4782	3006	3109	5709	16605
	Shady Grove Interchange	4	355	1022	644	347	2022	4035
	Btw MD 28 and Shady Grove	3	275	896	618	238	536	2288
		4	175	552	427	359	498	1836
	MD 28 Interchange	3	260	1650	1639	908	1374	5571
	Btw MD 189 and MD 28	4	710	4805	4152	2533	3159	14649
	Montrose Rd Interchange	3	340	993	797	651	737	3177
I-270 SB CD Lane	Btw I-370 and Shady Grove	4	795	2847	2103	2409	3735	11094
	Btw MD 189 and Montrose Rd	3	2650	4176	3578	4058	4674	16485
	Montrose Rd Interchange	3	420	2173	1947	1552	1459	7132
	I-270 West Spur btw I-270 Split and Democracy	5	960	379	380	338	427	1524
I-495 IL GP Lanes	Btw GWMP and Clara Barton Pkwy	6	675	6302	5997	4094	4844	21237
		5	1295	1622	1486	1086	1131	5324
	Btw MD 190 and I-270 West Spur	6	3240	8126	7116	5459	8241	28942
	MD 355 Interchange	4	1950	3120	2317	2520	4710	12666
		6	515	2690	1685	1578	1818	7771
I-495 OL GP Lanes	Btw GWMP and Clara Barton Pkwy	5	1525	7545	6712	8242	7467	29966
	Btw MD 190 and I-270 West Spur	6	555	1396	2093	3575	751	7814
	MD 355 Interchange	4	1595	227	261	985	891	2364

AM Peak Period - 2045 Preferred Alternative - Number of Vehicle Lane Changes on Weave Segments

Corridor	Name	No. of Lanes	Length (ft)	Number of lane changes				
				3-4 PM	4-5 PM	5-6 PM	6-7 PM	TOTAL
I-270 NB GP Lanes	Btw I-370 & Shady Grove	6	2310	2005	3189	4047	3821	13062
	MD 28 Interchange	6	460	932	1685	2847	2012	7476
	Btw MD 189 & MD 28	6	3120	2538	4897	7993	6711	22138
	Montrose Rd Interchange	6	600	147	604	1061	855	2667
	Btw Montrose Rd & Spur Split	6	6680	5057	7555	9607	8895	31114
I-270 SB GP Lanes	Montrose Rd Interchange	6	645	2367	3155	3305	3252	12079
	Btw Montrose Rd & Spur Split	6	7300	21201	30410	28318	19704	99633
	I-270 East Spur btw MD 187 & MD 355	3	3475	2183	2694	2902	2469	10248
I-270 NB CD Lanes	MD 117 Interchange	3	600	961	1456	2130	1788	6335
	Btw I-370 and MD 117	3	1970	1490	2940	3481	3284	11195
I-270 NB ML	Btw Montrose Rd & Spur Split	3	1150	894	978	1349	1247	4469
	I-270 West Spur btw Spur Split & Democracy	3	2050	1103	1416	1547	1446	5512
I-495 IL GP Lanes	Btw GWMP and Clara Barton Pkwy	5	2390	4692	6313	6241	5727	22973
	Btw MD 190 and I-270 West Spur	5	3190	7241	10242	11337	10699	39519
	MD 355 Interchange	4	1950	2008	1761	1111	1523	6403
		6	510	1021	1103	653	586	3363
I-495 OL GP Lanes	Btw MD 190 and I-270 West Spur	6	1140	10797	9636	8114	5238	33785
	MD 355 Interchange	4	1590	188	203	326	218	935

PM Peak Period - 2045 Preferred Alternative - Number of Vehicle Lane Changes on Weave Segments

Corridor	Name	No. of Lanes	Length (ft)	Number of lane changes				
				3-4 PM	4-5 PM	5-6 PM	6-7 PM	TOTAL
I-270 NB GP Lanes	Btw I-370 & Shady Grove	6	2310	3805	5727	5711	6178	21421
	MD 28 Interchange	6	460	1973	2068	1265	1753	7059
	Btw MD 189 & MD 28	6	3120	11180	10360	9157	10564	41261
	Montrose Rd Interchange	6	600	1394	1244	1019	1038	4696
	Btw Montrose Rd & Spur Split	6	6680	9594	8459	8885	10000	36938
I-270 SB GP Lanes	Montrose Rd Interchange	6	645	3134	2923	2546	1817	10420
	Btw Montrose Rd & Spur Split	6	7300	15309	14556	15258	13404	58526
	I-270 East Spur btw MD 187 & MD 355	3	3475	3288	3092	3452	2725	12557
I-270 NB CD Lanes	MD 117 Interchange	3	600	1779	1576	1105	1382	5842
	Btw I-370 and MD 117	3	1970	4899	4395	4241	4214	17750
I-270 NB ML	Btw Montrose Rd & Spur Split	3	1150	2832	2623	2585	2466	10505
	I-270 West Spur btw Spur Split & Democracy	3	2050	2062	1862	1853	1826	7603
I-495 IL GP Lanes	Btw GWMP and Clara Barton Pkwy	5	2390	4877	5209	4466	5658	20210
	Btw MD 190 and I-270 West Spur	5	3190	8322	6134	6050	9472	29978
	MD 355 Interchange	4	1950	3778	2959	3931	5349	16017
		6	510	2947	2283	2344	2061	9635
I-495 OL GP Lanes	Btw MD 190 and I-270 West Spur	6	1140	2069	2001	2099	1765	7934
	MD 355 Interchange	4	1590	257	220	224	951	1651

Queues

2017 Existing - Ramp Queues

Ramp Location	Available Storage (feet)	2017 Existing								2017 Existing							
		6-7 AM		7-8 AM		8-9 AM		9-10 AM		3-4 PM		4-5 PM		5-6 PM		6-7 PM	
		Avg. (feet)	Max. (feet)	Avg. (feet)	Max. (feet)	Avg. (feet)	Max. (feet)	Avg. (feet)	Max. (feet)	Avg. (feet)	Max. (feet)	Avg. (feet)	Max. (feet)	Avg. (feet)	Max. (feet)	Avg. (feet)	Max. (feet)
I-270 at MD 117																	
MD 117 EB On-Ramp to I-270 SB	1,920	26	946	227	1,622	281	1,840	26	726	0	0	0	0	0	0	0	0
MD 117 WB On-Ramp to I-270 SB	1,490	25	828	130	1,159	163	1,211	10	300	0	0	0	0	0	0	0	0
I-270 NB GP Off-Ramp to MD 117	1,300	11	121	12	134	19	153	15	146	0	0	0	0	0	0	0	0
I-270 at I-370																	
MD 370 EB On-Ramp to I-270 SB GP	2,340	0	0	544	1,308	770	1,304	145	1,042	0	0	0	0	0	0	0	0
MD 370 WB On-Ramp to I-270 SB GP	3,000	0	0	3,475	6,420	5,704	6,425	2,341	6,154	0	0	0	0	0	0	0	0
I-270 SB Off-Ramp to I-370 EB	6,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
I-270 NB GP Off-Ramp to I-370 EB	2,300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
I-370 EB On-Ramp to I-270 NB GP	2,400	0	0	0	0	0	0	0	0	0	0	0	0	34	646	68	728
I-370 WB On-Ramp to I-270 NB GP	2,780	0	0	0	0	0	0	0	0	0	0	0	0	219	1,650	189	1,773
I-270 SB Off-Ramp to I-370 WB	2,750	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
I-270 NB GP Off-Ramp to I-370 WB	3,320	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MD 370 EB On-Ramp to I-270 SB ML	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MD 370 WB On-Ramp to I-270 SB ML	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
I-270 NB ML Off-Ramp to I-370 EB GP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
I-370 WB at I-270 NB ML off-ramp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
I-270 at Shady Grove Road																	
Shady Grove Rd EB On-Ramp to I-270 SB GP	1,120	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Shady Grove Rd EB On-Ramp to I-270 NB GP	1,650	0	0	0	0	0	0	0	0	0	0	0	14	1	113	1	105
I-270 NB GP Off-Ramp to Shady Grove Rd EB	1,750	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
I-270 NB GP Off-Ramp to Shady Grove Rd WB	1,600	38	174	65	292	140	477	108	460	50	215	53	251	73	274	37	212
Shady Grove Rd WB On-Ramp to I-270 NB GP	1,150	0	0	0	0	0	0	0	0	0	0	0	56	2	164	0	28
Shady Grove Rd WB On-Ramp to I-270 SB	1,600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
I-270 SB GP Off-Ramp to Shady Grove Rd	1,250	61	229	102	500	109	512	101	450	30	130	31	122	36	134	30	123
I-270 at Gude Drive																	
I-270 SB ML Off-Ramp to Gude Dr	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
I-270 NB ML Off-Ramp to Gude Dr	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gude Dr On-Ramp to I-270 ML NB	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gude Dr On-Ramp to I-270 ML SB	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
I-270 at MD 28																	
MD 28 EB On-Ramp to I-270 SB GP	1,950	690	2,179	2,675	3,851	3,682	3,854	2,684	3,855	0	0	0	0	0	0	0	0
MD 28 EB On-Ramp to I-270 NB GP	1,050	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
I-270 NB GP Off-Ramp to MD 28	1,040	2	59	19	149	31	192	27	174	38	208	34	210	42	242	43	232
MD 28 WB On-Ramp to I-270 NB GP	1,370	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
I-270 NB GP Off-Ramp to MD 28 WB	1,150	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MD 28 WB On-Ramp to I-270 SB GP	1,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
I-270 SB GP Off-Ramp to MD 28	900	18	178	26	234	37	244	48	295	26	194	32	232	41	249	28	227
I-270 at MD 189																	
MD 189 WB On-Ramp to I-270 NB	1,080	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MD 189 EB On-Ramp to I-270 NB	910	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
I-270 NB GP Off-Ramp to MD 189 WB	720	3	49	11	91	9	70	13	89	25	122	25	137	33	170	28	161
I-270 NB GP Off-Ramp to MD 189 EB	920	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MD 189 WB On-Ramp to I-270 SB GP	1,910	0	0	14	417	113	920	10	407	0	0	0	0	0	0	0	0
MD 189 EB On-Ramp to I-270 SB GP	2,060	0	0	14	417	113	915	10	407	0	0	0	0	0	0	0	0
I-270 SB GP Off-Ramp to MD 189 EB	900	35	204	45	258	49	249	50	253	64	322	71	364	90	412	90	419
I-270 SB GP Off-Ramp to MD 189 WB	1,150	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
I-270 at Wootton Parkway																	
I-270 NB ML Off-Ramp to Wootton Pkwy	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
I-270 SB ML Off-Ramp to Wootton Pkwy	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wootton Pkwy On-Ramp to I-270 NB ML	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wootton Pkwy On-Ramp to I-270 SB ML	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
I-270 at Montrose Road																	
Montrose Rd EB On-Ramp to I-270 SB GP	1,960	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
I-270 SB GP Off-Ramp to Montrose Rd EB	1,340	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Montrose Rd EB On-Ramp to I-270 NB GP	1,150	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
I-270 NB GP Off-Ramp Montrose Rd EB	1,980	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Montrose Rd On-Ramp to I-270 NB GP	680	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Montrose Rd WB On-Ramp to I-270 NB GP	1,950	0	0	0	0	0	0	0	0	0	0	1	150	1	116	0	7
I-270 NB Off-Ramp to Montrose Rd WB	1,520	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Montrose Rd WB On-Ramp to I-270 SB GP	1,200	0	0	0	0	0	37	0	0	0	0	0	0	0	0	0	0
I-270 SB GP Off-Ramp to Montrose Rd WB	1,600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
I-270 NB Off-Ramp Tower Oaks Blvd	2,100	2	54	4	101	9	126	9	117	4	102	6	98	6	101	4	102
I-270 at MD 187 / Rockledge Drive																	
I-270 SB East Spur Off-Ramp to Rockledge Dr / MD 187	1,700	0	27	2	120	34	276	4	122	1	81	4	123	38	236	5	142
I-270 NB East Spur Off-Ramp to MD 187 SB	915	15	134	46	292	36	208	19	143	18	147	25	161	7	84	13	102
I-270 NB East Spur Off-Ramp to MD 187 NB	1,050	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
I-270 East Spur NB Off-Ramp to Rockledge Dr	960	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MD 187 On-Ramp to I-270 East Spur SB	780	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rockledge Dr / MD 187 On-Ramp to I-270 NB East Spur	1,300	0	0	0	0	0	0	0	0	0	0	2	171	9	569	0	54
I-270 at Westlake Terrace																	
I-270 SB ML Off-Ramp to Westlake Terrace	1,550	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Westlake Terrace On-Ramp to I-270 NB ML	1,350	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
I-270 NB ML Off-Ramp to Westlake Terrace	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Westlake Terrace On-Ramp to I-270 SB ML	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Highlighted cells indicate locations where average or maximum queue lengths exceed available storage

2017 Existing - Ramp Queues

Ramp Location	Available Storage (feet)	2017 Existing								2017 Existing							
		6-7 AM		7-8 AM		8-9 AM		9-10 AM		3-4 PM		4-5 PM		5-6 PM		6-7 PM	
		Avg. (feet)	Max. (feet)	Avg. (feet)	Max. (feet)	Avg. (feet)	Max. (feet)	Avg. (feet)	Max. (feet)	Avg. (feet)	Max. (feet)	Avg. (feet)	Max. (feet)	Avg. (feet)	Max. (feet)	Avg. (feet)	Max. (feet)
I-270 at Democracy Boulevard																	
I-270 NB GP Off-Ramp to Democracy Blvd WB	1,330	9	75	16	99	15	106	19	118	24	141	21	137	20	118	22	131
I-270 NB GP Off-Ramp to Democracy Blvd EB	1,550	54	232	71	304	93	399	84	342	25	128	31	152	43	198	29	155
I-270 West Spur SB Off-Ramp to Democracy Blvd GP EB	1,300	23	121	34	168	51	227	51	204	29	143	38	148	53	201	34	176
I-270 West Spur GP SB Off-Ramp to Democracy Blvd WB	1,430	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Democracy Blvd On-Ramp to I-495 Outer Loop GP	1,130	0	0	0	0	0	0	0	0	0	0	0	0	0	29	1	49
I-495 at MD 355																	
I-270 East Spur SB Off-Ramp to MD 355 SB	1,940	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
I-495 Inner Loop Off-Ramp to MD 355 SB	2,300	33	213	32	258	30	197	27	164	79	284	60	248	65	214	90	392
MD 355 NB On-Ramp to I-495 Inner Loop	875	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MD 355 SB On-Ramp to I-495 Inner Loop	2,160	0	0	0	0	0	23	0	0	0	0	0	0	0	0	0	0
I-495 Outer Loop Off-Ramp to MD 355 NB	1,360	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MD 355 NB On-Ramp to I-495 Outer Loop	1,360	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MD 355 NB ramp to I-270 East Spur NB	1,450	0	0	0	0	0	0	0	0	0	0	0	0	328	1,426	991	1,954
I-495 at MD 187																	
I-495 Inner Loop GP Off-Ramp to MD 187 NB	950	3	45	4	64	4	97	6	62	42	330	43	297	54	411	359	1,509
I-495 Inner Loop GP Off-Ramp to MD 187 SB	1,030	5	166	29	394	45	426	5	209	1	77	0	69	0	65	4	201
MD 187 On-Ramp to I-495 Inner Loop GP	1,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
I-495 Outer Loop GP Off-Ramp to MD 187	1,015	60	391	179	784	233	838	106	608	44	371	213	609	442	1,156	218	1,153
I-495 Outer Loop GP Off-Ramp to MD 187 NB	1,250	6	192	152	842	258	1,009	98	689	38	394	327	813	622	1,387	242	1,354
MD 187 On-Ramp to I-495 Outer Loop GP	1,000	0	0	0	0	0	0	0	0	0	0	0	0	4	101	172	435
I-495 at MD 190/Cabin John Parkway																	
Cabin John Pkwy GP ramp to MD-190	770	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cabin John Pkwy On-Ramp to I-495 Inner Loop GP	1,230	0	0	0	0	0	0	0	0	9	508	9	507	6	449	5	372
MD 190 EB On-Ramp to I-495 Outer Loop GP	1,180	0	0	0	0	51	744	1	89	0	0	0	0	0	0	0	0
MD 190 WB On-Ramp to I-495 Outer Loop GP	990	0	0	0	14	1	92	0	0	0	17	0	0	0	13	0	11
I-495 Outer Loop GP Off-Ramp to MD 190	850	31	128	53	317	73	561	43	185	60	495	53	275	57	328	50	354
I-495 Inner Loop GP Off-Ramp to MD 190	1,675	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	76
MD 190 EB On-Ramp to I-495 Inner Loop GP	1,750	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MD-190 WB On-Ramp to I-495 Inner Loop GP	2,100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
I-495 Outer Loop ML Off-Ramp to MD 190	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
I-495 Inner Loop ML Off-Ramp to MD 190	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MD-190 On-Ramp to I-495 Outer Loop ML	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MD 190 On-Ramp to I-495 Inner Loop ML	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
I-495 Outer Loop ML Off-Ramp to Cabin John Pkwy	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cabin John Pkwy On-Ramp to I-495 Inner Loop ML	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
I-495 at Clara Barton Parkway																	
I-495 Inner Loop GP Off-Ramp to Clara Barton Pkwy EB	2,670	0	0	0	36	0	7	0	0	0	0	0	0	0	0	0	4
I-495 Inner Loop GP Off-Ramp to Clara Barton Pkwy WB	1,750	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Clara Barton Pkwy EB On-Ramp to I-495 Inner Loop GP	2,950	0	0	0	0	0	0	0	0	0	17	0	14	0	46	0	19
I-495 Outer Loop GP Off-Ramp to Clara Barton Pkwy WB	1,500	0	0	0	9	0	0	0	0	0	0	0	0	0	0	0	9
Clara Barton EB On-Ramp to I-495 Outer Loop GP	1,550	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Clara Barton WB On-Ramp to I-495 Outer Loop GP	2,160	0	0	0	0	0	0	0	0	0	0	0	81	0	41	0	0
I-495 at George Washington Parkway																	
I-495 Inner Loop GP Off-Ramp to GWMP	1,230	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GWMP WB On-Ramp to I-495 Inner Loop GP	2,200	32	750	3,655	4,556	4,292	4,557	4,366	4,556	297	3,319	1,814	4,398	3,848	4,552	3,695	4,555
I-495 Outer Loop GP Off-Ramp to GWMP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
I-495 Inner Loop ML Off-Ramp to GWMP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GWMP WB On-Ramp to I-495 Outer Loop ML	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
I-495 Outer Loop ML Off-Ramp to GWMP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GWMP WB On-Ramp to I-495 Outer Loop C-D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
I-495 Outer Loop ML ramp to I-495 Outer Loop C-D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
I-495 Inner Loop ML Off-Ramp to GWMP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
I-495 Inner Loop GP ramp to I-495 Inner Loop ML	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GWMP WB On-Ramp to I-495 Inner Loop ML	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
I-495 at VA 193																	
I-495 Inner Loop GP Off-Ramp to VA 193	1,130	14	99	20	144	37	168	50	241	27	176	27	157	28	232	38	245
VA 193 NB On-Ramp to I-495 Inner Loop GP	1,050	0	0	3	122	530	1,419	357	1,362	0	0	857	2,291	2,487	2,529	2,505	2,529
I-495 Outer Loop GP slip ramp to VA 193	700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
VA 193 On-Ramp to I-495 Outer Loop GP	1,170	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
VA 193 On-Ramp to I-495 Outer Loop GP	900	75	366	102	424	104	393	106	435	84	413	91	396	91	480	92	452

Highlighted cells indicate locations where average or maximum queue lengths exceed available storage

Intersection Delay

6-7 AM - 2017 Existing Conditions - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
MD 117 at I-270 NB Off Ramp	9.1	MD 117 Eastbound	10.6	Left	42	68.2	105
				Through	272	1.7	105
		MD 117 Westbound	5.2	Through	657	5.2	165
				Right	44	6.2	195
		I-270 NB Off Ramp Southbound	18.0	Left	52	68.6	135
				Right	208	5.4	140
MD 117 at I-270 SB On Ramp	1.6	MD 117 Eastbound	1.3	Through	312	0.5	0
				Right**	1345	1.6	115
		MD 117 Westbound	2.0	Left	360	4.5	155
				Through	506	0.2	135
Shady Grove Rd at I-270 NB Off Ramp	13.2	Shady Grove Rd Eastbound	8.9	Through	586	10.2	145
				Right**	90	0.5	0
		Shady Grove Rd Westbound	9.7	Through	785	9.7	245
		I-270 NB Off Ramp Northbound	23.8	Left	281	44.8	180
				Right**	251	0.3	0
Shady Grove Rd at I-270 SB Off Ramp	16.0	Shady Grove Rd Eastbound	3.9	Through	482	5.2	100
				Right**	168	0.3	0
		Shady Grove Rd Westbound	2.9	Through	555	2.9	70
				Right**	510	2.9	40
		I-270 SB Off Ramp Southbound	54.9	Left	193	51.8	240
				Right	368	56.5	240
MD 28 at I-270 NB Off Ramp	6.1	MD 28 Eastbound	4.2	Left	68	8.0	170
				Through	630	3.8	170
		MD 28 Westbound	3.9	Through	126	3.9	65
				Right	0	0.0	100
		I-270 NB Off Ramp Northbound	18.6	Through	19	55.0	70
				Right	55	6.1	70
		Nelson St Southbound	9.6	Left	12	39.2	80
				Right	175	7.6	80
MD 28 at I-270 SB Off Ramp	14.1	MD 28 Eastbound	10.4	Through	353	5.5	105
				Right**	902	12.3	855
		MD 28 Westbound	5.5	Through	752	5.5	125
		I-270 SB Off Ramp Southbound	37.3	Left	405	43.3	240
				Right*	73	4.0	220

6-7 AM - 2017 Existing Conditions - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
MD 189 at I-270 Ramps	16.0	MD 189 Eastbound	7.9	Left	101	14.6	100
				Through	132	14.3	100
				Right**	198	0.2	0
		MD 189 Westbound	37.8	Left	278	47.2	170
				Through	0	0.0	170
				Right**	70	0.3	0
		I-270 NB Off Ramp Northbound	6.9	Left	39	46.1	60
				Right**	240	0.6	0
		I-270 SB Off Ramp Southbound	13.3	Left	148	50.4	215
				Right**	423	0.3	0
Montrose Rd at Tower Oaks Blvd	12.0	Montrose Rd Eastbound	6.5	Left	105	13.8	140
				Through	848	5.6	140
		Montrose Rd Westbound	15.4	Through	870	15.4	450
				Right	0	0.0	450
		Tower Oaks Blvd Southbound	35.6	Left	0	0.0	0
				Right*	98	35.6	85
Democracy Blvd at I-270 NB Off Ramp	31.7	Democracy Blvd Eastbound	12.7	Through	262	12.7	75
		I-270 NB Off Ramp Northbound	42.0	Right*	486	42.0	245
Democracy Blvd at I-270 NB Off Ramp	13.9	Democracy Blvd Eastbound	5.9	Through	263	5.9	70
		Democracy Blvd Westbound	5.1	Through	102	5.1	65
		I-270 NB Off Ramp Northbound	41.0	Left	110	41.0	95
Democracy Blvd at I-270 SB On Ramp	8.3	Democracy Blvd Eastbound	0.8	Through	301	0.8	40
		Democracy Blvd Westbound	19.2	Left	79	50.5	85
				Through	130	0.1	65
Democracy Blvd at I-270 SB Off Ramp	12.2	Democracy Blvd Eastbound	1.3	Through	131	2.5	45
				Right**	150	0.2	0
		Democracy Blvd Westbound	0.5	Through	131	0.5	25
		I-270 SB Off Ramp Southbound	25.3	Left	170	50.6	130
				Right**	179	1.2	0

6-7 AM - 2017 Existing Conditions - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
MD 190 at I-495 Outer Loop Off Ramp	10.2	MD 190 Eastbound	2.2	Through	559	2.2	105
		MD 190 Westbound	2.4	Through	398	2.4	75
		I-495 Outer Loop Off Ramp Northbound	72.1	Left	123	72.1	135
MD 190 at I-495 Inner Loop On Ramp	0.8	MD 190 Eastbound	0.5	Left	153	1.8	35
				Through	1038	0.3	20
		MD 190 Westbound	1.9	Through	402	1.9	95
VA 193 at I-495 Outer Loop Ramps	20.2	VA 193 Eastbound	12.8	Through	882	13.2	325
				Right**	33	1.7	230
		VA 193 Westbound	70.2	Left	54	132.0	95
				Through	48	0.6	95
		I-495 Outer Loop Off Ramp Southbound	22.9	Left	209	66.8	370
				Through	0	0.0	370
				Right**	440	2.0	350
VA 193 at I-495 Inner Loop Ramps	16.6	VA 193 Eastbound	19.0	Left	657	27.8	425
				Through	413	4.9	425
		VA 193 Westbound	16.0	Through	62	44.1	80
				Right**	118	1.3	80
		I-495 Inner Loop Off Ramp Northbound	9.7	Left	44	63.6	105
				Through	0	0.0	105
				Right**	304	2.0	105
MD 187 at I-495 Outer Loop Ramps	16.9	I-495 Outer Loop Off Ramp Westbound	39.9	Left	163	63.1	395
				Through	0	0.0	395
				Right*	162	16.5	345
		MD 187 Northbound	20.0	Left	171	38.8	180
				Through	174	1.6	185
		MD 187 Southbound	10.6	Through	1028	12.9	230
				Right*	322	3.2	185
MD 187 at I-495 Inner Loop Ramps	24.0	I-495 Inner Loop Off Ramp Eastbound	8.8	Left	59	31.9	55
				Right*	412	5.5	55
		MD 187 Northbound	25.5	Through	290	31.5	210
				Right*	95	7.4	40
		MD 187 Southbound	29.5	Left	88	69.9	345
				Through	1110	26.3	345

6-7 AM - 2017 Existing Conditions - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
MD 187 at I-270 NB Ramps	12.4	I-270 NB Off Ramp Westbound	11.5	Left	82	44.1	145
				Right**	282	2.0	15
		MD 187 Northbound	17.2	Left	33	74.7	105
				Through	247	9.6	105
		MD 187 Southbound	11.1	Through	522	14.9	125
				Right*	211	1.5	30
MD 187 at I-270 SB Ramps	28.9	I-270 SB Off Ramp Eastbound	47.1	Left	62	40.1	70
				Right*	527	47.9	580
		MD 187 Northbound	19.8	Through	219	23.1	85
				Right*	38	0.4	0
		MD 187 Southbound	15.1	Left	117	44.3	160
				Through	487	8.1	160
Rockledge Blvd at I-270 NB Ramps	15.9	I-270 NB Ramps Westbound	17.1	Left	483	16.9	200
				Through	80	18.3	200
		Rockledge Blvd Northbound	0.7	Left	47	0.7	0
Rockledge Blvd at I-270 SB Ramps	13.2	I-270 SB Off Ramp Eastbound	13.0	Left	0	0.0	165
				Through	379	28.1	165
				Right**	514	1.8	0
		Rockledge Blvd Northbound	25.7	Through	47	24.1	145
				Right	287	26.0	145
		Rockledge Blvd Southbound	5.0	Through	483	5.0	60
MD 355 at I-495 Inner Loop Off Ramp	11.1	I-495 Inner Loop Off Ramp Eastbound	22.2	Right*	505	22.2	220
		MD 355 Southbound	9.0	Through	2576	9.0	265

* Channelized right turn

** Free-flow channelized right turn

7-8 AM - 2017 Existing Conditions - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
MD 117 at I-270 NB Off Ramp	8.5	MD 117 Eastbound	7.0	Left	34	69.9	110
				Through	490	2.6	110
		MD 117 Westbound	5.8	Through	780	5.8	195
				Right	5	6.7	225
		I-270 NB Off Ramp Southbound	17.6	Left	58	65.4	140
				Right	270	7.3	140
MD 117 at I-270 SB On Ramp	8.8	MD 117 Eastbound	12.2	Through	525	3.8	0
				Right**	1503	15.1	370
		MD 117 Westbound	2.2	Left	314	6.8	160
				Through	732	0.2	140
Shady Grove Rd at I-270 NB Off Ramp	14.4	Shady Grove Rd Eastbound	9.1	Through	827	11.5	200
				Right**	253	1.4	0
		Shady Grove Rd Westbound	9.1	Through	1120	9.1	215
		I-270 NB Off Ramp Northbound	30.1	Left	467	47.2	300
				Right**	270	0.3	65
Shady Grove Rd at I-270 SB Off Ramp	18.8	Shady Grove Rd Eastbound	10.2	Through	717	14.7	235
				Right**	339	0.7	10
		Shady Grove Rd Westbound	8.5	Through	1130	11.0	275
				Right**	452	2.3	45
		I-270 SB Off Ramp Southbound	41.7	Left	364	34.8	510
				Right	749	45.0	510
MD 28 at I-270 NB Off Ramp	12.0	MD 28 Eastbound	9.6	Left	171	16.3	255
				Through	817	8.2	255
		MD 28 Westbound	7.8	Through	414	7.9	160
				Right	18	7.6	200
		I-270 NB Off Ramp Northbound	29.7	Through	102	47.9	160
				Right	81	6.8	160
		Nelson St Southbound	15.3	Left	27	55.1	100
				Right	234	10.7	100
MD 28 at I-270 SB Off Ramp	39.0	MD 28 Eastbound	64.0	Through	635	11.5	2115
				Right**	880	101.9	1980
		MD 28 Westbound	7.1	Through	1207	7.1	210
		I-270 SB Off Ramp Southbound	40.6	Left	458	44.3	295
				Right*	48	5.1	285

7-8 AM - 2017 Existing Conditions - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
MD 189 at I-270 Ramps	18.0	MD 189 Eastbound	11.8	Left	352	18.5	285
				Through	322	20.4	285
				Right**	455	0.6	25
		MD 189 Westbound	36.0	Left	500	45.1	265
				Through	277	45.5	265
				Right**	206	1.2	25
		I-270 NB Off Ramp Northbound	8.4	Left	102	41.7	105
				Right**	462	1.1	0
		I-270 SB Off Ramp Southbound	11.5	Left	195	46.1	265
				Right**	621	0.6	0
Montrose Rd at Tower Oaks Blvd	13.0	Montrose Rd Eastbound	6.4	Left	82	15.5	165
				Through	800	5.4	165
		Montrose Rd Westbound	16.5	Through	1534	16.5	830
				Right	0	0.0	830
		Tower Oaks Blvd Southbound	41.8	Left	0	0.0	0
				Right*	17	41.8	50
Democracy Blvd at I-270 NB Off Ramp	24.8	Democracy Blvd Eastbound	8.6	Through	629	8.6	75
		I-270 NB Off Ramp Northbound	40.9	Right*	630	40.9	320
Democracy Blvd at I-270 NB Off Ramp	14.1	Democracy Blvd Eastbound	9.6	Through	629	9.6	160
		Democracy Blvd Westbound	7.7	Through	211	7.7	135
		I-270 NB Off Ramp Northbound	36.7	Left	188	36.7	115
Democracy Blvd at I-270 SB On Ramp	8.7	Democracy Blvd Eastbound	2.4	Through	744	2.4	110
		Democracy Blvd Westbound	20.5	Left	165	48.9	135
				Through	231	0.1	115
Democracy Blvd at I-270 SB Off Ramp	10.1	Democracy Blvd Eastbound	2.3	Through	500	3.4	70
				Right**	305	0.5	15
		Democracy Blvd Westbound	0.5	Through	231	0.5	35
		I-270 SB Off Ramp Southbound	31.5	Left	244	50.2	175
				Right**	150	1.2	0

7-8 AM - 2017 Existing Conditions - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
MD 190 at I-495 Outer Loop Off Ramp	11.7	MD 190 Eastbound	4.3	Through	1115	4.3	210
		MD 190 Westbound	3.9	Through	623	3.9	130
		I-495 Outer Loop Off Ramp Northbound	69.4	Left	228	69.4	325
MD 190 at I-495 Inner Loop On Ramp	1.3	MD 190 Eastbound	0.7	Left	304	2.7	65
				Through	1731	0.4	50
		MD 190 Westbound	2.9	Through	777	2.9	140
VA 193 at I-495 Outer Loop Ramps	27.0	VA 193 Eastbound	22.2	Through	1194	23.0	465
				Right**	60	7.0	370
		VA 193 Westbound	44.0	Left	182	104.4	240
				Through	262	2.1	240
		I-495 Outer Loop Off Ramp Southbound	25.0	Left	288	65.8	430
				Through	0	0.0	430
				Right**	517	2.3	405
VA 193 at I-495 Inner Loop Ramps	17.3	VA 193 Eastbound	14.1	Left	797	21.7	440
				Through	703	5.5	440
		VA 193 Westbound	29.1	Through	392	49.6	270
				Right**	329	4.6	270
		I-495 Inner Loop Off Ramp Northbound	9.9	Left	52	63.5	150
				Through	4	77.2	150
				Right**	442	3.0	150
MD 187 at I-495 Outer Loop Ramps	26.7	I-495 Outer Loop Off Ramp Westbound	67.9	Left	198	88.3	790
				Through	0	0.0	790
				Right*	247	51.6	740
		MD 187 Northbound	26.8	Left	258	86.9	360
				Through	681	4.0	360
		MD 187 Southbound	18.8	Through	1773	20.6	560
				Right*	541	12.8	520
MD 187 at I-495 Inner Loop Ramps	24.4	I-495 Inner Loop Off Ramp Eastbound	14.5	Left	72	36.0	75
				Right*	511	11.5	255
		MD 187 Northbound	32.7	Through	884	35.7	350
				Right*	214	20.3	180
		MD 187 Southbound	22.6	Left	167	60.3	535
				Through	1804	19.2	535

7-8 AM - 2017 Existing Conditions - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
MD 187 at I-270 NB Ramps	19.8	I-270 NB Off Ramp Westbound	16.9	Left	192	47.6	300
				Right**	428	3.1	170
		MD 187 Northbound	21.3	Left	151	71.7	250
				Through	709	10.5	250
		MD 187 Southbound	20.0	Through	1452	26.4	395
				Right*	793	8.3	305
MD 187 at I-270 SB Ramps	24.3	I-270 SB Off Ramp Eastbound	50.0	Left	122	41.9	105
				Right*	532	51.9	575
		MD 187 Northbound	23.0	Through	757	27.3	190
				Right*	148	1.2	15
		MD 187 Southbound	14.7	Left	194	47.2	370
				Through	1452	10.4	370
Rockledge Blvd at I-270 NB Ramps	23.8	I-270 NB Ramps Westbound	25.0	Left	1211	24.5	765
				Through	271	27.3	765
		Rockledge Blvd Northbound	1.0	Left	79	1.0	0
Rockledge Blvd at I-270 SB Ramps	16.3	I-270 SB Off Ramp Eastbound	19.6	Left	0	0.0	240
				Through	516	44.1	240
				Right**	743	2.6	0
		Rockledge Blvd Northbound	36.0	Through	79	33.2	210
				Right	331	36.7	210
		Rockledge Blvd Southbound	6.1	Through	1205	6.1	100
MD 355 at I-495 Inner Loop Off Ramp	10.9	I-495 Inner Loop Off Ramp Eastbound	20.9	Right*	525	20.9	265
		MD 355 Southbound	8.9	Through	2582	8.9	275

* Channelized right turn

** Free-flow channelized right turn

8-9 AM - 2017 Existing Conditions - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
MD 117 at I-270 NB Off Ramp	9.8	MD 117 Eastbound	7.9	Left	32	79.8	130
				Through	538	3.6	130
		MD 117 Westbound	7.4	Through	952	7.4	265
				Right	36	7.7	295
		I-270 NB Off Ramp Southbound	16.6	Left	74	60.7	165
				Right	442	9.2	170
MD 117 at I-270 SB On Ramp	8.2	MD 117 Eastbound	12.5	Through	569	4.2	0
				Right**	1416	15.8	535
		MD 117 Westbound	2.0	Left	278	9.0	200
				Through	1114	0.3	180
Shady Grove Rd at I-270 NB Off Ramp	19.0	Shady Grove Rd Eastbound	9.0	Through	1059	11.2	225
				Right**	343	2.0	0
		Shady Grove Rd Westbound	9.9	Through	1246	9.9	270
		I-270 NB Off Ramp Northbound	43.3	Left	777	58.2	485
				Right**	269	0.3	250
Shady Grove Rd at I-270 SB Off Ramp	19.3	Shady Grove Rd Eastbound	12.9	Through	956	18.0	350
				Right**	413	1.1	105
		Shady Grove Rd Westbound	10.7	Through	1513	13.3	360
				Right**	513	2.7	125
		I-270 SB Off Ramp Southbound	39.1	Left	446	32.7	525
				Right	875	42.3	525
MD 28 at I-270 NB Off Ramp	14.7	MD 28 Eastbound	14.5	Left	260	27.1	280
				Through	794	10.4	280
		MD 28 Westbound	9.2	Through	751	9.3	215
				Right	14	4.9	250
		I-270 NB Off Ramp Northbound	24.2	Through	151	44.8	200
				Right	195	8.2	200
		Nelson St Southbound	18.4	Left	21	56.1	155
				Right	287	15.7	155
MD 28 at I-270 SB Off Ramp	48.0	MD 28 Eastbound	105.4	Through	629	17.4	2120
				Right**	729	181.4	1985
		MD 28 Westbound	9.5	Through	1889	9.5	435
		I-270 SB Off Ramp Southbound	39.9	Left	545	45.9	305
				Right*	114	11.3	315

8-9 AM - 2017 Existing Conditions - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
MD 189 at I-270 Ramps	17.6	MD 189 Eastbound	14.2	Left	499	21.9	315
				Through	360	22.9	315
				Right**	509	0.6	15
		MD 189 Westbound	37.0	Left	581	47.2	305
				Through	243	45.4	305
				Right**	228	2.2	85
		I-270 NB Off Ramp Northbound	5.8	Left	83	43.0	80
				Right**	713	1.4	0
		I-270 SB Off Ramp Southbound	10.9	Left	205	47.3	260
				Right**	741	0.8	0
Montrose Rd at Tower Oaks Blvd	15.1	Montrose Rd Eastbound	7.0	Left	139	16.2	205
				Through	1280	6.0	205
		Montrose Rd Westbound	20.8	Through	2001	20.8	875
				Right	0	0.0	875
		Tower Oaks Blvd Southbound	0.0	Left	0	0.0	0
				Right*	0	49.2	10
Democracy Blvd at I-270 NB Off Ramp	19.7	Democracy Blvd Eastbound	6.6	Through	1172	6.6	75
		I-270 NB Off Ramp Northbound	38.0	Right*	845	38.0	415
Democracy Blvd at I-270 NB Off Ramp	13.6	Democracy Blvd Eastbound	11.9	Through	1175	11.9	290
		Democracy Blvd Westbound	10.2	Through	602	10.2	175
		I-270 NB Off Ramp Northbound	31.0	Left	229	31.0	125
Democracy Blvd at I-270 SB On Ramp	8.6	Democracy Blvd Eastbound	4.8	Through	1340	4.8	215
		Democracy Blvd Westbound	14.8	Left	254	47.7	155
				Through	577	0.3	135
Democracy Blvd at I-270 SB Off Ramp	10.4	Democracy Blvd Eastbound	4.5	Through	965	5.8	180
				Right**	368	1.1	90
		Democracy Blvd Westbound	2.3	Through	577	2.3	65
		I-270 SB Off Ramp Southbound	31.0	Left	380	48.4	235
				Right**	224	1.5	0
90 at I-495 Loop Off Ramp	14.1	MD 190 Eastbound	5.2	Through	1054	5.2	230
		MD 190 Westbound	4.6	Through	569	4.6	125

8-9 AM - 2017 Existing Conditions - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
MD 193 Outer R		I-495 Outer Loop Off Ramp Northbound	67.6	Left	279	67.6	770

8-9 AM - 2017 Existing Conditions - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
MD 190 at I-495 Inner Loop On Ramp	1.8	MD 190 Eastbound	1.0	Left	400	3.0	90
				Through	1344	0.4	75
		MD 190 Westbound	3.6	Through	898	3.6	250
VA 193 at I-495 Outer Loop Ramps	35.5	VA 193 Eastbound	36.5	Through	1142	38.3	515
				Right**	75	10.1	415
		VA 193 Westbound	51.7	Left	273	84.7	355
				Through	200	6.7	355
		I-495 Outer Loop Off Ramp Southbound	25.0	Left	269	66.7	400
				Through	30	59.4	400
				Right**	541	2.3	375
VA 193 at I-495 Inner Loop Ramps	30.2	VA 193 Eastbound	27.0	Left	941	33.6	440
				Through	453	13.2	440
		VA 193 Westbound	40.0	Through	398	51.1	425
				Right**	394	28.9	425
		I-495 Inner Loop Off Ramp Northbound	20.6	Left	83	73.5	170
				Through	6	83.6	170
				Right**	257	2.0	170
MD 187 at I-495 Outer Loop Ramps	39.3	I-495 Outer Loop Off Ramp Westbound	81.4	Left	179	106.0	845
				Through	5	106.7	845
				Right*	317	67.1	795
		MD 187 Northbound	36.2	Left	248	146.5	455
				Through	945	7.3	455
		MD 187 Southbound	31.7	Through	1869	35.0	805
				Right*	450	18.0	765
MD 187 at I-495 Inner Loop Ramps	39.3	I-495 Inner Loop Off Ramp Eastbound	17.4	Left	72	36.4	110
				Right*	517	14.8	295
		MD 187 Northbound	55.8	Through	1159	58.7	585
				Right*	148	32.9	410
		MD 187 Southbound	35.0	Left	196	137.5	540
				Through	1830	24.1	540
MD 187 at I-270 NB Ramps	25.3	I-270 NB Off Ramp Westbound	15.4	Left	149	49.4	220
				Right**	390	2.5	85
		MD 187 Northbound	21.7	Left	214	75.7	345
				Through	1160	11.8	345
		MD 187 Southbound	29.2	Through	1817	38.0	700
				Right*	816	9.6	590

8-9 AM - 2017 Existing Conditions - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
MD 187 at I-270 SB Ramps	28.2	I-270 SB Off Ramp Eastbound	55.4	Left	128	45.6	340
				Right*	674	57.2	750
		MD 187 Northbound	29.5	Through	1246	32.4	285
				Right*	145	4.0	0
		MD 187 Southbound	16.1	Left	231	53.2	375
				Through	1735	11.2	375
Rockledge Blvd at I-270 NB Ramps	29.1	I-270 NB Ramps Westbound	30.9	Left	1238	30.1	1015
				Through	543	32.6	1015
		Rockledge Blvd Northbound	1.4	Left	118	1.4	10
Rockledge Blvd at I-270 SB Ramps	23.2	I-270 SB Off Ramp Eastbound	31.4	Left	0	0.0	440
				Through	648	69.8	440
				Right**	902	3.9	0
		Rockledge Blvd Northbound	35.7	Through	117	32.6	205
				Right	346	36.8	205
		Rockledge Blvd Southbound	8.2	Through	1239	8.2	120
MD 355 at I-495 Inner Loop Off Ramp	10.7	I-495 Inner Loop Off Ramp Eastbound	22.4	Right*	441	22.4	200
		MD 355 Southbound	9.0	Through	2965	9.0	335

* Channelized right turn
** Free-flow channelized right turn

9-10 AM - 2017 Existing Conditions - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
MD 117 at I-270 NB Off Ramp	7.8	MD 117 Eastbound	4.2	Left	10	74.9	95
				Through	475	2.7	95
		MD 117 Westbound	5.0	Through	856	5.0	195
				Right	5	5.3	225
		I-270 NB Off Ramp Southbound	16.2	Left	66	62.8	160
				Right	443	9.3	160
MD 117 at I-270 SB On Ramp	2.7	MD 117 Eastbound	3.8	Through	485	1.5	0
				Right**	1275	4.7	365
		MD 117 Westbound	1.3	Left	262	5.6	130
				Through	1040	0.2	105
Shady Grove Rd at I-270 NB Off Ramp	17.1	Shady Grove Rd Eastbound	9.4	Through	1034	11.7	275
				Right**	312	1.7	40
		Shady Grove Rd Westbound	9.6	Through	1081	9.6	255
		I-270 NB Off Ramp Northbound	34.8	Left	685	53.2	465
				Right**	366	0.4	235
Shady Grove Rd at I-270 SB Off Ramp	18.7	Shady Grove Rd Eastbound	12.1	Through	910	17.3	315
				Right**	418	1.0	85
		Shady Grove Rd Westbound	8.6	Through	1246	11.1	290
				Right**	523	2.7	65
		I-270 SB Off Ramp Southbound	40.1	Left	437	35.3	460
				Right	803	42.7	460
MD 28 at I-270 NB Off Ramp	19.7	MD 28 Eastbound	25.2	Left	288	62.2	460
				Through	982	14.3	460
		MD 28 Westbound	10.4	Through	1044	10.4	250
				Right	18	10.9	290
		I-270 NB Off Ramp Northbound	23.9	Through	123	49.6	185
				Right	220	9.6	185
		Nelson St Southbound	23.8	Left	29	54.0	240
				Right	293	20.8	240
MD 28 at I-270 SB Off Ramp	27.7	MD 28 Eastbound	38.1	Through	818	11.7	2115
				Right**	1343	54.1	1985
		MD 28 Westbound	11.7	Through	2000	11.7	570
		I-270 SB Off Ramp Southbound	40.9	Left	622	45.3	360
				Right*	96	12.4	360

9-10 AM - 2017 Existing Conditions - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
MD 189 at I-270 Ramps	17.9	MD 189 Eastbound	14.2	Left	434	21.4	300
				Through	365	19.8	300
				Right**	381	0.5	0
		MD 189 Westbound	36.1	Left	438	46.7	275
				Through	278	43.9	275
				Right**	198	1.7	50
		I-270 NB Off Ramp Northbound	7.3	Left	95	46.6	100
				Right**	616	1.2	0
		I-270 SB Off Ramp Southbound	12.2	Left	205	47.9	260
				Right**	636	0.7	0
Montrose Rd at Tower Oaks Blvd	14.5	Montrose Rd Eastbound	7.8	Left	190	18.1	260
				Through	1614	6.6	260
		Montrose Rd Westbound	20.7	Through	1930	20.7	820
				Right	0	0.0	820
		Tower Oaks Blvd Southbound	0.0	Left	0	0.0	0
				Right*	0	0.0	0
Democracy Blvd at I-270 NB Off Ramp	20.8	Democracy Blvd Eastbound	7.4	Through	1014	7.4	80
		I-270 NB Off Ramp Northbound	38.0	Right*	790	38.0	355
Democracy Blvd at I-270 NB Off Ramp	14.5	Democracy Blvd Eastbound	12.0	Through	1014	12.0	290
		Democracy Blvd Westbound	9.7	Through	498	9.7	170
		I-270 NB Off Ramp Northbound	34.4	Left	248	34.4	135
Democracy Blvd at I-270 SB On Ramp	9.4	Democracy Blvd Eastbound	4.5	Through	1189	4.5	165
		Democracy Blvd Westbound	17.2	Left	259	49.0	165
				Through	485	0.3	145
Democracy Blvd at I-270 SB Off Ramp	10.3	Democracy Blvd Eastbound	4.1	Through	799	5.2	140
				Right**	289	0.8	40
		Democracy Blvd Westbound	2.0	Through	485	2.0	60
		I-270 SB Off Ramp Southbound	23.8	Left	390	47.3	215
				Right**	421	2.0	0

9-10 AM - 2017 Existing Conditions - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
MD 190 at I-495 Outer Loop Off Ramp	10.6	MD 190 Eastbound	3.6	Through	951	3.6	165
		MD 190 Westbound	3.2	Through	590	3.2	95
		I-495 Outer Loop Off Ramp Northbound	69.2	Left	188	69.2	190
MD 190 at I-495 Inner Loop On Ramp	1.8	MD 190 Eastbound	0.9	Left	355	2.7	60
				Through	1251	0.4	45
		MD 190 Westbound	3.5	Through	880	3.5	230
VA 193 at I-495 Outer Loop Ramps	28.7	VA 193 Eastbound	21.6	Through	973	23.8	430
				Right**	126	4.7	330
		VA 193 Westbound	55.8	Left	197	94.6	280
				Through	153	5.9	280
		I-495 Outer Loop Off Ramp Southbound	26.5	Left	287	64.8	440
				Through	16	66.4	440
				Right**	476	2.2	415
VA 193 at I-495 Inner Loop Ramps	25.5	VA 193 Eastbound	18.7	Left	772	26.9	440
				Through	505	6.1	440
		VA 193 Westbound	36.2	Through	257	48.3	430
				Right**	425	29.0	430
		I-495 Inner Loop Off Ramp Northbound	29.9	Left	92	82.8	245
				Through	12	89.8	245
				Right**	202	2.3	245
MD 187 at I-495 Outer Loop Ramps	23.7	I-495 Outer Loop Off Ramp Westbound	47.7	Left	150	74.6	615
				Through	5	92.6	615
				Right*	289	33.0	565
		MD 187 Northbound	30.9	Left	225	127.7	440
				Through	916	7.1	440
		MD 187 Southbound	13.3	Through	1398	15.3	350
				Right*	421	6.6	310
MD 187 at I-495 Inner Loop Ramps	31.9	I-495 Inner Loop Off Ramp Eastbound	12.0	Left	90	35.4	75
				Right*	332	5.7	85
		MD 187 Northbound	57.4	Through	1062	60.2	495
				Right*	130	34.0	85
		MD 187 Southbound	17.9	Left	150	74.4	405
				Through	1419	11.9	405

9-10 AM - 2017 Existing Conditions - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
MD 187 at I-270 NB Ramps	21.6	I-270 NB Off Ramp Westbound	12.2	Left	94	47.7	155
				Right**	336	2.2	20
		MD 187 Northbound	20.8	Left	197	71.2	330
				Through	1169	12.3	330
		MD 187 Southbound	24.0	Through	1616	31.1	490
				Right*	601	5.1	380
MD 187 at I-270 SB Ramps	24.5	I-270 SB Off Ramp Eastbound	49.4	Left	153	43.7	115
				Right*	534	51.1	645
		MD 187 Northbound	24.6	Through	1200	27.5	245
				Right*	158	2.4	10
		MD 187 Southbound	14.4	Left	199	48.7	375
				Through	1499	9.8	375
Rockledge Blvd at I-270 NB Ramps	18.8	I-270 NB Ramps Westbound	20.3	Left	936	20.0	665
				Through	399	21.1	665
		Rockledge Blvd Northbound	1.3	Left	110	1.3	0
Rockledge Blvd at I-270 SB Ramps	16.9	I-270 SB Off Ramp Eastbound	20.9	Left	0	0.0	285
				Through	608	41.7	285
				Right**	670	2.1	0
		Rockledge Blvd Northbound	35.4	Through	110	35.9	180
				Right	219	35.1	180
		Rockledge Blvd Southbound	5.0	Through	938	5.0	105
MD 355 at I-495 Inner Loop Off Ramp	10.2	I-495 Inner Loop Off Ramp Eastbound	21.9	Right*	409	21.9	170
		MD 355 Southbound	8.4	Through	2617	8.4	285

* Channelized right turn

** Free-flow channelized right turn

3-4 PM - 2017 Existing - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
MD 117 at I-270 NB Off Ramp	0.7	MD 117 Eastbound	0.5	Left	4	13.3	0
				Through	609	0.5	0
		MD 117 Westbound	0.6	Through	1103	0.6	15
				Right	10	1.1	25
		I-270 NB Off Ramp Southbound	1.0	Left	344	0.7	0
				Right	1119	1.0	0
MD 117 at I-270 SB On Ramp	1.2	MD 117 Eastbound	0.9	Through	614	0.8	0
				Right**	1060	1.0	0
		MD 117 Westbound	1.4	Left	255	7.1	120
				Through	1968	0.7	100
Shady Grove Rd at I-270 NB Off Ramp	11.3	Shady Grove Rd Eastbound	7.6	Through	818	11.8	195
				Right**	641	2.2	15
		Shady Grove Rd Westbound	11.0	Through	930	11.0	370
		I-270 NB Off Ramp Northbound	16.8	Left	361	46.4	220
				Right**	671	0.9	0
Shady Grove Rd at I-270 SB Off Ramp	7.2	Shady Grove Rd Eastbound	2.9	Through	1346	3.5	270
				Right**	506	1.3	70
		Shady Grove Rd Westbound	2.6	Through	622	1.2	55
				Right**	670	3.8	45
		I-270 SB Off Ramp Southbound	60.1	Left	113	61.7	140
				Right	152	58.9	140
MD 28 at I-270 NB Off Ramp	19.0	MD 28 Eastbound	16.0	Left	158	39.4	260
				Through	846	11.6	260
		MD 28 Westbound	13.1	Through	1076	13.1	495
				Right	24	14.7	535
		I-270 NB Off Ramp Northbound	30.4	Through	166	49.5	220
				Right	134	6.7	220
		Nelson St Southbound	35.7	Left	29	58.9	270
				Right	330	33.7	270
MD 28 at I-270 SB Off Ramp	10.3	MD 28 Eastbound	3.3	Through	679	6.5	170
				Right**	1032	1.2	15
		MD 28 Westbound	7.9	Through	1445	7.9	255
		I-270 SB Off Ramp Southbound	38.0	Left	466	44.0	255
				Right*	91	7.3	260

3-4 PM - 2017 Existing - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
MD 189 at I-270 Ramps	22.7	MD 189 Eastbound	22.2	Left	587	26.9	335
				Through	344	22.0	335
				Right**	124	0.2	0
		MD 189 Westbound	33.8	Left	441	47.2	255
				Through	261	45.0	255
				Right**	307	5.0	165
		I-270 NB Off Ramp Northbound	14.6	Left	207	41.8	135
				Right**	428	1.5	0
		I-270 SB Off Ramp Southbound	15.9	Left	266	45.8	330
				Right**	530	1.0	0
Montrose Rd at Tower Oaks Blvd	9.0	Montrose Rd Eastbound	8.1	Left	0	0.0	350
				Through	1396	8.1	350
		Montrose Rd Westbound	9.5	Through	2455	9.5	625
				Right	0	0.0	625
		Tower Oaks Blvd Southbound	0.0	Left	0	0.0	0
				Right*	0	0.0	0
Democracy Blvd at I-270 NB Off Ramp	12.0	Democracy Blvd Eastbound	4.0	Through	926	4.0	75
		I-270 NB Off Ramp Northbound	43.8	Right*	235	43.8	145
Democracy Blvd at I-270 NB Off Ramp	9.4	Democracy Blvd Eastbound	5.3	Through	927	5.3	110
		Democracy Blvd Westbound	5.4	Through	1113	5.4	225
		I-270 NB Off Ramp Northbound	44.5	Left	233	44.5	160
Democracy Blvd at I-270 SB On Ramp	12.6	Democracy Blvd Eastbound	5.4	Through	1201	5.4	210
		Democracy Blvd Westbound	19.1	Left	449	56.1	235
				Through	894	0.5	215
Democracy Blvd at I-270 SB Off Ramp	6.1	Democracy Blvd Eastbound	3.2	Through	990	3.8	160
				Right**	242	1.0	65
		Democracy Blvd Westbound	2.0	Through	894	2.0	90
		I-270 SB Off Ramp Southbound	17.6	Left	208	50.5	150
				Right**	419	1.3	0

3-4 PM - 2017 Existing - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
MD 190 at I-495 Outer Loop Off Ramp	11.3	MD 190 Eastbound	4.5	Through	926	4.5	210
		MD 190 Westbound	5.7	Through	1351	5.7	320
		I-495 Outer Loop Off Ramp Northbound	64.9	Left	260	64.9	500
MD 190 at I-495 Inner Loop On Ramp	1.7	MD 190 Eastbound	0.7	Left	241	2.2	50
				Through	1269	0.4	35
		MD 190 Westbound	2.9	Through	1430	2.9	320
VA 193 at I-495 Outer Loop Ramps	22.4	VA 193 Eastbound	25.3	Through	696	27.2	530
				Right**	55	1.1	435
		VA 193 Westbound	22.5	Left	376	24.4	340
				Through	286	20.0	340
		I-495 Outer Loop Off Ramp Southbound	19.9	Left	239	46.5	420
				Through	103	46.6	420
				Right**	513	2.1	395
VA 193 at I-495 Inner Loop Ramps	11.8	VA 193 Eastbound	8.5	Left	570	13.1	210
				Through	363	1.4	210
		VA 193 Westbound	12.4	Through	630	24.4	340
				Right**	721	1.8	340
		I-495 Inner Loop Off Ramp Northbound	22.0	Left	29	54.9	180
				Through	58	58.4	180
				Right**	146	1.1	180
MD 187 at I-495 Outer Loop Ramps	13.3	I-495 Outer Loop Off Ramp Westbound	28.3	Left	156	54.9	385
				Through	0	0.0	325
				Right*	251	11.8	325
		MD 187 Northbound	10.5	Left	207	51.7	350
				Through	1834	5.8	350
		MD 187 Southbound	13.2	Through	1250	16.2	320
				Right*	431	4.4	275
MD 187 at I-495 Inner Loop Ramps	15.3	I-495 Inner Loop Off Ramp Eastbound	35.1	Left	254	59.9	340
				Right*	209	5.0	250
		MD 187 Northbound	14.8	Through	1787	14.8	395
				Right*	110	14.7	70
		MD 187 Southbound	9.3	Left	160	53.8	235
				Through	1242	3.6	235

3-4 PM - 2017 Existing - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
MD 187 at I-270 NB Ramps	11.2	I-270 NB Off Ramp Westbound	16.2	Left	72	63.4	155
				Right**	228	1.3	10
		MD 187 Northbound	10.4	Left	439	46.8	320
				Through	1948	2.2	320
		MD 187 Southbound	11.4	Through	1295	14.5	230
				Right*	480	3.2	120
MD 187 at I-270 SB Ramps	25.2	I-270 SB Off Ramp Eastbound	54.3	Left	382	55.5	375
				Right*	179	51.7	210
		MD 187 Northbound	16.2	Through	2002	17.6	270
				Right*	218	3.6	5
		MD 187 Southbound	27.7	Left	196	95.8	355
				Through	1172	16.4	355
Rockledge Blvd at I-270 NB Ramps	22.4	I-270 NB Ramps Westbound	27.5	Left	357	25.8	540
				Through	776	28.3	540
		Rockledge Blvd Northbound	2.3	Left	290	2.3	55
Rockledge Blvd at I-270 SB Ramps	26.5	I-270 SB Off Ramp Eastbound	30.2	Left	0	0.0	245
				Through	441	47.3	245
				Right**	257	0.8	0
		Rockledge Blvd Northbound	32.5	Through	292	30.0	320
				Right	488	34.0	320
		Rockledge Blvd Southbound	6.0	Through	356	6.0	50
MD 355 at I-495 Inner Loop Off Ramp	16.3	I-495 Inner Loop Off Ramp Eastbound	70.7	Right*	330	70.7	290
		MD 355 Southbound	5.3	Through	1625	5.3	195

* Channelized right turn

** Free-flow channelized right turn

4-5 PM - 2017 Existing - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
MD 117 at I-270 NB Off Ramp	0.8	MD 117 Eastbound	0.5	Left	4	9.1	0
				Through	678	0.4	0
		MD 117 Westbound	0.7	Through	1150	0.7	25
				Right	5	1.4	35
		I-270 NB Off Ramp Southbound	1.1	Left	249	0.7	0
				Right	1276	1.1	5
MD 117 at I-270 SB On Ramp	1.5	MD 117 Eastbound	1.4	Through	681	1.1	0
				Right**	1350	1.5	0
		MD 117 Westbound	1.6	Left	260	8.2	105
				Through	2163	0.8	85
Shady Grove Rd at I-270 NB Off Ramp	11.6	Shady Grove Rd Eastbound	8.0	Through	828	12.4	195
				Right**	626	2.2	10
		Shady Grove Rd Westbound	11.4	Through	923	11.4	350
		I-270 NB Off Ramp Northbound	16.5	Left	395	45.0	260
				Right**	731	1.1	30
Shady Grove Rd at I-270 SB Off Ramp	7.0	Shady Grove Rd Eastbound	2.8	Through	1347	3.4	225
				Right**	666	1.7	75
		Shady Grove Rd Westbound	2.5	Through	643	1.2	60
				Right**	672	3.8	60
		I-270 SB Off Ramp Southbound	63.2	Left	108	60.7	135
				Right	145	65.0	135
MD 28 at I-270 NB Off Ramp	28.1	MD 28 Eastbound	26.1	Left	231	69.5	375
				Through	834	14.0	375
		MD 28 Westbound	15.0	Through	1197	14.9	480
				Right	40	17.1	520
		I-270 NB Off Ramp Northbound	29.7	Through	145	50.9	220
				Right	138	7.5	220
		Nelson St Southbound	71.9	Left	24	86.0	400
				Right	384	71.0	400
MD 28 at I-270 SB Off Ramp	11.1	MD 28 Eastbound	3.3	Through	719	6.6	180
				Right**	1082	1.2	35
		MD 28 Westbound	9.4	Through	1804	9.4	525
		I-270 SB Off Ramp Southbound	39.6	Left	514	44.8	295
				Right*	87	9.4	305

4-5 PM - 2017 Existing - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
MD 189 at I-270 Ramps	23.3	MD 189 Eastbound	21.4	Left	504	25.5	325
				Through	397	23.3	325
				Right**	131	0.4	0
		MD 189 Westbound	34.3	Left	474	49.4	290
				Through	387	46.5	290
				Right**	395	4.3	220
		I-270 NB Off Ramp Northbound	14.9	Left	211	41.7	150
				Right**	426	1.6	0
		I-270 SB Off Ramp Southbound	15.9	Left	290	45.0	375
				Right**	568	1.1	0
Montrose Rd at Tower Oaks Blvd	8.9	Montrose Rd Eastbound	7.5	Left	0	0.0	285
				Through	1383	7.5	285
		Montrose Rd Westbound	9.7	Through	2515	9.7	600
				Right	0	0.0	600
		Tower Oaks Blvd Southbound	0.0	Left	0	0.0	0
				Right*	0	0.0	0
Democracy Blvd at I-270 NB Off Ramp	13.2	Democracy Blvd Eastbound	4.3	Through	987	4.3	75
		I-270 NB Off Ramp Northbound	48.1	Right*	252	48.1	165
Democracy Blvd at I-270 NB Off Ramp	8.4	Democracy Blvd Eastbound	5.0	Through	988	5.0	110
		Democracy Blvd Westbound	4.8	Through	1186	4.8	200
		I-270 NB Off Ramp Northbound	44.8	Left	209	44.8	155
Democracy Blvd at I-270 SB On Ramp	13.9	Democracy Blvd Eastbound	6.4	Through	1235	6.4	205
		Democracy Blvd Westbound	20.6	Left	486	57.8	255
				Through	902	0.6	235
Democracy Blvd at I-270 SB Off Ramp	7.6	Democracy Blvd Eastbound	4.2	Through	959	4.7	135
				Right**	172	1.1	30
		Democracy Blvd Westbound	2.5	Through	901	2.5	100
		I-270 SB Off Ramp Southbound	18.3	Left	280	48.7	160
				Right**	507	1.6	0

4-5 PM - 2017 Existing - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
MD 190 at I-495 Outer Loop Off Ramp	10.3	MD 190 Eastbound	4.4	Through	1008	4.4	225
		MD 190 Westbound	5.2	Through	1468	5.2	280
		I-495 Outer Loop Off Ramp Northbound	67.0	Left	239	67.0	280
MD 190 at I-495 Inner Loop On Ramp	2.0	MD 190 Eastbound	0.9	Left	361	2.7	55
				Through	1193	0.4	40
		MD 190 Westbound	3.3	Through	1308	3.3	270
VA 193 at I-495 Outer Loop Ramps	24.3	VA 193 Eastbound	30.1	Through	746	31.5	685
				Right**	36	1.3	590
		VA 193 Westbound	21.2	Left	372	23.2	335
				Through	214	17.7	335
		I-495 Outer Loop Off Ramp Southbound	21.1	Left	249	46.2	400
				Through	126	44.0	400
				Right**	477	2.1	380
VA 193 at I-495 Inner Loop Ramps	41.9	VA 193 Eastbound	18.0	Left	645	26.6	325
				Through	348	2.1	325
		VA 193 Westbound	66.8	Through	544	41.4	1305
				Right**	604	89.7	1305
		I-495 Inner Loop Off Ramp Northbound	22.1	Left	41	49.9	160
				Through	57	54.8	160
				Right**	144	1.3	160
MD 187 at I-495 Outer Loop Ramps	17.0	I-495 Outer Loop Off Ramp Westbound	76.1	Left	120	98.3	620
				Through	0	0.0	560
				Right*	326	68.0	565
		MD 187 Northbound	8.9	Left	201	48.4	355
				Through	2189	5.3	360
		MD 187 Southbound	12.8	Through	1247	15.8	330
				Right*	460	4.7	290
MD 187 at I-495 Inner Loop Ramps	16.3	I-495 Inner Loop Off Ramp Eastbound	39.8	Left	263	59.1	310
				Right*	150	5.9	220
		MD 187 Northbound	16.2	Through	2128	16.1	515
				Right*	128	16.8	60
		MD 187 Southbound	9.5	Left	158	52.1	230
				Through	1211	3.9	230

4-5 PM - 2017 Existing - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
MD 187 at I-270 NB Ramps	12.9	I-270 NB Off Ramp Westbound	20.7	Left	86	67.0	170
				Right**	205	1.3	45
		MD 187 Northbound	11.2	Left	591	45.2	370
				Through	2217	2.1	370
		MD 187 Southbound	14.2	Through	1369	18.3	270
				Right*	513	3.5	160
MD 187 at I-270 SB Ramps	27.6	I-270 SB Off Ramp Eastbound	51.0	Left	460	52.0	405
				Right*	193	48.5	190
		MD 187 Northbound	20.6	Through	2356	22.0	360
				Right*	224	6.6	15
		MD 187 Southbound	29.4	Left	197	102.2	370
				Through	1258	18.0	370
Rockledge Blvd at I-270 NB Ramps	25.9	I-270 NB Ramps Westbound	31.6	Left	294	29.2	590
				Through	1002	32.3	590
		Rockledge Blvd Northbound	2.4	Left	318	2.4	25
Rockledge Blvd at I-270 SB Ramps	32.1	I-270 SB Off Ramp Eastbound	31.8	Left	0	0.0	290
				Through	490	52.3	290
				Right**	326	0.9	0
		Rockledge Blvd Northbound	39.7	Through	318	28.7	400
				Right	650	45.1	400
		Rockledge Blvd Southbound	8.0	Through	295	8.0	60
MD 355 at I-495 Inner Loop Off Ramp	13.0	I-495 Inner Loop Off Ramp Eastbound	70.4	Right*	259	70.4	255
		MD 355 Southbound	4.6	Through	1764	4.6	215

* Channelized right turn

** Free-flow channelized right turn

5-6 PM - 2017 Existing - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
MD 117 at I-270 NB Off Ramp	0.8	MD 117 Eastbound	0.6	Left	9	8.7	0
				Through	904	0.6	0
		MD 117 Westbound	0.7	Through	1185	0.7	20
				Right	10	1.0	20
		I-270 NB Off Ramp Southbound	1.0	Left	237	0.7	0
				Right	1144	1.1	0
MD 117 at I-270 SB On Ramp	2.2	MD 117 Eastbound	1.8	Through	915	1.6	0
				Right**	1464	1.9	0
		MD 117 Westbound	2.6	Left	254	17.1	170
				Through	2078	0.8	150
Shady Grove Rd at I-270 NB Off Ramp	12.9	Shady Grove Rd Eastbound	7.3	Through	734	12.0	175
				Right**	691	2.3	30
		Shady Grove Rd Westbound	13.2	Through	1122	13.2	505
		I-270 NB Off Ramp Northbound	18.7	Left	492	48.8	280
				Right**	849	1.2	45
Shady Grove Rd at I-270 SB Off Ramp	8.0	Shady Grove Rd Eastbound	3.5	Through	1277	4.2	225
				Right**	836	2.4	100
		Shady Grove Rd Westbound	3.3	Through	793	1.4	60
				Right**	822	5.2	90
		I-270 SB Off Ramp Southbound	61.8	Left	147	60.4	145
				Right	173	63.0	145
MD 28 at I-270 NB Off Ramp	34.6	MD 28 Eastbound	32.4	Left	279	87.1	480
				Through	1073	18.2	480
		MD 28 Westbound	15.4	Through	1102	15.4	595
				Right	37	17.2	630
		I-270 NB Off Ramp Northbound	34.5	Through	173	51.8	250
				Right	115	8.4	250
		Nelson St Southbound	90.5	Left	28	103.4	420
				Right	417	89.7	420
MD 28 at I-270 SB Off Ramp	11.4	MD 28 Eastbound	4.0	Through	939	7.2	235
				Right**	1264	1.6	95
		MD 28 Westbound	9.3	Through	1799	9.3	425
		I-270 SB Off Ramp Southbound	41.5	Left	553	47.8	315
				Right*	110	10.2	320

5-6 PM - 2017 Existing - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
MD 189 at I-270 Ramps	23.6	MD 189 Eastbound	23.9	Left	500	28.7	330
				Through	407	25.0	330
				Right**	119	0.3	0
		MD 189 Westbound	35.9	Left	510	49.4	280
				Through	319	46.6	280
				Right**	320	3.7	145
		I-270 NB Off Ramp Northbound	15.1	Left	281	40.4	180
				Right**	533	1.8	0
		I-270 SB Off Ramp Southbound	16.5	Left	347	46.4	420
				Right**	689	1.4	0
Montrose Rd at Tower Oaks Blvd	9.4	Montrose Rd Eastbound	8.1	Left	0	0.0	360
				Through	1504	8.1	360
		Montrose Rd Westbound	10.2	Through	2781	10.2	670
				Right	0	0.0	670
		Tower Oaks Blvd Southbound	0.0	Left	0	0.0	0
				Right*	0	0.0	0
Democracy Blvd at I-270 NB Off Ramp	15.1	Democracy Blvd Eastbound	5.3	Through	1098	5.3	75
		I-270 NB Off Ramp Northbound	44.1	Right*	371	44.1	210
Democracy Blvd at I-270 NB Off Ramp	9.8	Democracy Blvd Eastbound	7.0	Through	1098	7.0	175
		Democracy Blvd Westbound	6.5	Through	1073	6.5	260
		I-270 NB Off Ramp Northbound	42.5	Left	202	42.5	135
Democracy Blvd at I-270 SB On Ramp	13.5	Democracy Blvd Eastbound	7.2	Through	1345	7.2	260
		Democracy Blvd Westbound	20.2	Left	456	55.3	245
				Through	817	0.5	225
Democracy Blvd at I-270 SB Off Ramp	10.0	Democracy Blvd Eastbound	6.1	Through	925	6.9	170
				Right**	158	1.3	80
		Democracy Blvd Westbound	3.2	Through	817	3.2	90
		I-270 SB Off Ramp Southbound	19.1	Left	420	46.3	210
				Right**	666	1.9	0

5-6 PM - 2017 Existing - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
MD 190 at I-495 Outer Loop Off Ramp	10.7	MD 190 Eastbound	4.4	Through	1081	4.4	215
		MD 190 Westbound	6.0	Through	1736	6.0	370
		I-495 Outer Loop Off Ramp Northbound	69.1	Left	255	69.1	335
MD 190 at I-495 Inner Loop On Ramp	1.9	MD 190 Eastbound	0.8	Left	325	2.6	60
				Through	1313	0.4	45
		MD 190 Westbound	3.2	Through	1431	3.2	290
VA 193 at I-495 Outer Loop Ramps	28.8	VA 193 Eastbound	40.2	Through	830	41.4	770
				Right**	27	0.9	675
		VA 193 Westbound	21.9	Left	177	27.7	330
				Through	110	12.6	330
		I-495 Outer Loop Off Ramp Southbound	20.5	Left	305	51.2	485
				Through	55	45.3	485
				Right**	592	2.4	460
VA 193 at I-495 Inner Loop Ramps	224.3	VA 193 Eastbound	47.4	Left	715	69.8	485
				Through	405	7.7	485
		VA 193 Westbound	658.8	Through	252	326.9	1540
				Right**	285	952.3	1540
		I-495 Inner Loop Off Ramp Northbound	32.8	Left	33	58.9	235
				Through	55	69.4	235
				Right**	96	2.9	235
MD 187 at I-495 Outer Loop Ramps	25.3	I-495 Outer Loop Off Ramp Westbound	130.1	Left	158	148.6	1170
				Through	0	0.0	1110
				Right*	349	121.8	1110
		MD 187 Northbound	10.9	Left	213	54.4	350
				Through	2056	6.4	350
		MD 187 Southbound	14.6	Through	1429	17.4	385
				Right*	495	6.5	340
MD 187 at I-495 Inner Loop Ramps	17.1	I-495 Inner Loop Off Ramp Eastbound	43.0	Left	307	58.5	420
				Right*	138	8.7	335
		MD 187 Northbound	17.5	Through	1971	17.3	515
				Right*	175	19.4	215
		MD 187 Southbound	9.1	Left	184	52.2	230
				Through	1400	3.5	230

5-6 PM - 2017 Existing - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
MD 187 at I-270 NB Ramps	11.1	I-270 NB Off Ramp Westbound	12.4	Left	41	62.4	95
				Right**	191	1.6	0
		MD 187 Northbound	8.6	Left	528	40.6	355
				Through	2560	2.0	355
		MD 187 Southbound	14.7	Through	1506	18.6	280
				Right*	552	4.0	175
MD 187 at I-270 SB Ramps	28.6	I-270 SB Off Ramp Eastbound	51.9	Left	606	52.4	520
				Right*	221	50.4	275
		MD 187 Northbound	22.7	Through	2482	24.1	455
				Right*	253	9.5	5
		MD 187 Southbound	26.4	Left	141	95.1	375
				Through	1412	19.6	375
Rockledge Blvd at I-270 NB Ramps	25.8	I-270 NB Ramps Westbound	32.1	Left	307	28.0	600
				Through	1031	33.4	600
		Rockledge Blvd Northbound	2.7	Left	366	2.7	65
Rockledge Blvd at I-270 SB Ramps	59.7	I-270 SB Off Ramp Eastbound	52.9	Left	0	0.0	400
				Through	569	84.6	400
				Right**	348	1.0	0
		Rockledge Blvd Northbound	80.3	Through	364	62.7	445
				Right	760	88.7	445
		Rockledge Blvd Southbound	5.0	Through	307	5.0	50
MD 355 at I-495 Inner Loop Off Ramp	12.8	I-495 Inner Loop Off Ramp Eastbound	75.9	Right*	260	75.9	220
		MD 355 Southbound	4.6	Through	1996	4.6	235

* Channelized right turn

** Free-flow channelized right turn

6-7 PM - 2017 Existing - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
MD 117 at I-270 NB Off Ramp	0.8	MD 117 Eastbound	0.5	Left	3	12.1	0
				Through	750	0.5	0
		MD 117 Westbound	0.6	Through	1093	0.6	10
				Right	6	1.0	20
		I-270 NB Off Ramp Southbound	1.0	Left	232	0.6	0
				Right	1230	1.1	5
MD 117 at I-270 SB On Ramp	1.4	MD 117 Eastbound	1.0	Through	752	1.0	0
				Right**	1063	1.1	0
		MD 117 Westbound	1.6	Left	238	9.7	140
				Through	2087	0.7	115
Shady Grove Rd at I-270 NB Off Ramp	10.3	Shady Grove Rd Eastbound	6.1	Through	508	10.6	125
				Right**	538	1.8	0
		Shady Grove Rd Westbound	11.4	Through	920	11.4	330
		I-270 NB Off Ramp Northbound	13.6	Left	281	45.6	220
				Right**	717	1.1	20
Shady Grove Rd at I-270 SB Off Ramp	7.9	Shady Grove Rd Eastbound	2.5	Through	946	3.2	175
				Right**	492	1.1	35
		Shady Grove Rd Westbound	3.0	Through	502	1.3	50
				Right**	698	4.2	90
		I-270 SB Off Ramp Southbound	60.3	Left	100	61.0	135
				Right	159	59.9	135
MD 28 at I-270 NB Off Ramp	24.1	MD 28 Eastbound	27.2	Left	195	84.2	400
				Through	846	14.0	400
		MD 28 Westbound	13.2	Through	1360	13.1	385
				Right	38	15.4	425
		I-270 NB Off Ramp Northbound	33.0	Through	181	50.5	240
				Right	122	7.1	240
		Nelson St Southbound	51.0	Left	32	68.5	375
				Right	318	49.3	375
MD 28 at I-270 SB Off Ramp	11.1	MD 28 Eastbound	3.3	Through	649	6.8	210
				Right**	1096	1.2	70
		MD 28 Westbound	9.8	Through	1995	9.8	645
		I-270 SB Off Ramp Southbound	39.4	Left	487	44.2	290
				Right*	85	12.0	285

6-7 PM - 2017 Existing - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
MD 189 at I-270 Ramps	24.7	MD 189 Eastbound	23.2	Left	504	27.7	325
				Through	349	25.4	325
				Right**	131	0.4	0
		MD 189 Westbound	38.0	Left	499	49.3	285
				Through	426	46.5	285
				Right**	266	3.3	105
		I-270 NB Off Ramp Northbound	13.5	Left	251	39.2	170
				Right**	550	1.7	0
		I-270 SB Off Ramp Southbound	18.8	Left	360	44.6	430
				Right**	523	1.0	0
Montrose Rd at Tower Oaks Blvd	9.1	Montrose Rd Eastbound	8.2	Left	0	0.0	380
				Through	1486	8.2	380
		Montrose Rd Westbound	9.6	Through	2332	9.6	600
				Right	0	0.0	600
		Tower Oaks Blvd Southbound	0.0	Left	0	0.0	0
				Right*	0	0.0	0
Democracy Blvd at I-270 NB Off Ramp	14.3	Democracy Blvd Eastbound	4.9	Through	839	4.9	70
		I-270 NB Off Ramp Northbound	46.0	Right*	250	46.0	170
Democracy Blvd at I-270 NB Off Ramp	9.5	Democracy Blvd Eastbound	6.0	Through	838	6.0	125
		Democracy Blvd Westbound	5.0	Through	1047	5.0	180
		I-270 NB Off Ramp Northbound	44.7	Left	219	44.7	150
Democracy Blvd at I-270 SB On Ramp	9.9	Democracy Blvd Eastbound	4.3	Through	1066	4.3	205
		Democracy Blvd Westbound	14.6	Left	329	54.8	225
				Through	935	0.4	200
Democracy Blvd at I-270 SB Off Ramp	7.1	Democracy Blvd Eastbound	3.7	Through	815	4.2	115
				Right**	140	0.7	10
		Democracy Blvd Westbound	2.2	Through	936	2.2	85
		I-270 SB Off Ramp Southbound	18.2	Left	248	49.4	185
				Right**	468	1.7	0

6-7 PM - 2017 Existing - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
MD 190 at I-495 Outer Loop Off Ramp	10.2	MD 190 Eastbound	3.6	Through	823	3.6	180
		MD 190 Westbound	5.7	Through	1698	5.7	370
		I-495 Outer Loop Off Ramp Northbound	68.0	Left	227	68.0	360
MD 190 at I-495 Inner Loop On Ramp	1.9	MD 190 Eastbound	0.7	Left	257	2.3	55
				Through	1132	0.3	40
		MD 190 Westbound	3.0	Through	1543	3.0	310
VA 193 at I-495 Outer Loop Ramps	22.3	VA 193 Eastbound	27.7	Through	728	28.6	675
				Right**	26	0.9	580
		VA 193 Westbound	20.9	Left	141	27.5	350
				Through	125	13.4	350
		I-495 Outer Loop Off Ramp Southbound	18.7	Left	327	47.2	455
				Through	47	46.9	455
				Right**	639	2.1	435
VA 193 at I-495 Inner Loop Ramps	256.6	VA 193 Eastbound	40.0	Left	688	60.3	455
				Through	376	3.0	455
		VA 193 Westbound	720.4	Through	229	369.2	1540
				Right**	366	940.2	1540
		I-495 Inner Loop Off Ramp Northbound	37.4	Left	42	60.0	250
				Through	76	66.3	250
				Right**	90	2.3	250
MD 187 at I-495 Outer Loop Ramps	25.9	I-495 Outer Loop Off Ramp Westbound	59.4	Left	182	78.9	1165
				Through	4	36.4	1105
				Right*	256	45.9	1110
		MD 187 Northbound	17.2	Left	295	76.9	400
				Through	1695	6.8	400
		MD 187 Southbound	27.5	Through	1196	17.7	600
				Right*	476	52.2	560
MD 187 at I-495 Inner Loop Ramps	24.5	I-495 Inner Loop Off Ramp Eastbound	74.4	Left	401	89.8	1520
				Right*	167	37.5	1430
		MD 187 Northbound	18.3	Through	1601	18.4	440
				Right*	176	17.4	150
		MD 187 Southbound	11.8	Left	160	58.8	285
				Through	1214	5.6	285

6-7 PM - 2017 Existing - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
MD 187 at I-270 NB Ramps	9.3	I-270 NB Off Ramp Westbound	14.0	Left	51	66.8	110
				Right**	220	1.8	0
		MD 187 Northbound	7.8	Left	419	42.9	300
				Through	2469	1.8	300
		MD 187 Southbound	11.1	Through	1342	14.0	260
				Right*	443	2.5	150
MD 187 at I-270 SB Ramps	26.4	I-270 SB Off Ramp Eastbound	55.0	Left	559	55.0	545
				Right*	190	55.2	275
		MD 187 Northbound	20.3	Through	2319	21.3	405
				Right*	185	7.7	5
		MD 187 Southbound	21.9	Left	84	80.8	370
				Through	1309	18.1	370
Rockledge Blvd at I-270 NB Ramps	23.1	I-270 NB Ramps Westbound	27.7	Left	258	23.4	505
				Through	827	29.0	505
		Rockledge Blvd Northbound	2.0	Left	235	2.0	10
Rockledge Blvd at I-270 SB Ramps	39.3	I-270 SB Off Ramp Eastbound	31.2	Left	0	0.0	305
				Through	484	48.8	305
				Right**	279	0.9	0
		Rockledge Blvd Northbound	58.7	Through	235	55.1	395
				Right	540	60.3	395
		Rockledge Blvd Southbound	5.1	Through	258	5.1	45
MD 355 at I-495 Inner Loop Off Ramp	17.5	I-495 Inner Loop Off Ramp Eastbound	71.6	Right*	379	71.6	395
		MD 355 Southbound	6.2	Through	1814	6.2	235

* Channelized right turn

** Free-flow channelized right turn

6-7 AM - 2027 No-build - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
MD 117 at I-270 NB Off Ramp	12.5	MD 117 Eastbound	12.9	Left	42	71.3	110
				Through	270	3.8	110
		MD 117 Westbound	7.6	Through	662	7.7	190
				Right	44	6.8	220
		I-270 NB Off Ramp Southbound	18.8	Left	87	62.8	170
				Right	438	10.0	170
MD 117 at I-270 SB On Ramp	1.1	MD 117 Eastbound	0.5	Through	314	0.6	0
				Right**	1361	0.5	0
		MD 117 Westbound	1.9	Left	378	5.0	160
				Through	722	0.2	140
I-370 at Fields Rd	9.9	Fields Rd Northbound	26.2	Left	78	32.7	85
				Right	158	22.9	90
		I-370 Eastbound	6.6	Through	862	7.3	105
				Right**	156	2.7	90
		I-370 Westbound	9.1	Left	106	32.6	75
				Through	355	2.6	55
					27	2.0	25
Shady Grove Rd at I-270 NB Off Ramp	12.7	Shady Grove Rd Eastbound	8.5	Through	596	9.9	145
				Right**	102	0.6	0
		Shady Grove Rd Westbound	9.7	Through	790	9.7	245
		I-270 NB Off Ramp Northbound	22.7	Left	278	43.3	190
				Right**	256	0.4	0
Shady Grove Rd at I-270 SB Off Ramp	15.3	Shady Grove Rd Eastbound	4.0	Through	523	5.2	90
				Right**	170	0.4	0
		Shady Grove Rd Westbound	2.9	Through	568	2.9	70
				Right**	499	2.8	35
		I-270 SB Off Ramp Southbound	53.7	Left	176	50.1	250
				Right	376	55.4	250
MD 28 at I-270 NB Off Ramp	7.1	MD 28 Eastbound	6.4	Left	36	5.4	250
				Through	686	6.4	250
		MD 28 Westbound	3.4	Through	141	3.4	65
				Right	0	0.0	100
		I-270 NB Off Ramp Northbound	13.7	Through	19	38.9	55
				Right	62	6.0	55
		Nelson St Southbound	10.0	Left	12	39.0	75
				Right	149	7.7	75

6-7 AM - 2027 No-build - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
MD 28 at I-270 SB Off Ramp	9.4	MD 28 Eastbound	2.2	Through	382	5.0	115
				Right**	971	1.1	20
		MD 28 Westbound	5.3	Through	636	5.3	115
		I-270 SB Off Ramp Southbound	36.5	Left	366	44.8	235
				Right*	93	3.6	215
MD 189 at I-270 Ramps	17.2	MD 189 Eastbound	8.1	Left	123	14.2	115
				Through	128	14.1	115
				Right**	191	0.2	0
		MD 189 Westbound	40.5	Left	314	46.9	190
				Through	14	45.2	190
				Right**	52	0.3	0
		I-270 NB Off Ramp Northbound	8.1	Left	46	43.0	65
				Right**	215	0.6	0
		I-270 SB Off Ramp Southbound	13.1	Left	150	50.4	215
				Right**	449	0.6	0
Montrose Rd at Tower Oaks Blvd	10.8	Montrose Rd Eastbound	7.3	Left	22	8.1	205
				Through	987	7.3	205
		Montrose Rd Westbound	6.8	Through	953	6.9	205
				Right	25	2.1	205
		Tower Oaks Blvd Southbound	28.7	Left	43	39.0	105
				Right*	377	27.5	190
Democracy Blvd at I-270 NB Off Ramp	31.4	Democracy Blvd Eastbound	13.6	Through	298	13.6	75
		I-270 NB Off Ramp Northbound	42.3	Right*	490	42.3	290
Democracy Blvd at I-270 NB Off Ramp	12.3	Democracy Blvd Eastbound	6.3	Through	297	6.3	80
		Democracy Blvd Westbound	6.0	Through	128	6.0	105
		I-270 NB Off Ramp Northbound	37.1	Left	106	37.1	80
Democracy Blvd at I-270 SB On Ramp	9.2	Democracy Blvd Eastbound	1.0	Through	357	1.0	45
		Democracy Blvd Westbound	21.9	Left	102	49.8	125
				Through	131	0.1	105
Democracy Blvd at I-270 SB Off Ramp	13.2	Democracy Blvd Eastbound	1.3	Through	152	2.5	45
				Right**	172	0.2	0
		Democracy Blvd Westbound	0.7	Through	131	0.7	30
		I-270 SB Off Ramp Southbound	27.2	Left	205	51.4	145
				Right**	190	1.1	0

6-7 AM - 2027 No-build - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
MD 190 at I-495 Outer Loop Off Ramp	9.3	MD 190 Eastbound	1.9	Through	421	1.9	80
		MD 190 Westbound	2.4	Through	477	2.4	85
		I-495 Outer Loop Off Ramp Northbound	66.5	Left	112	66.5	120
MD 190 at I-495 Inner Loop On Ramp	0.9	MD 190 Eastbound	0.4	Left	136	1.5	25
				Through	1065	0.3	0
		MD 190 Westbound	2.1	Through	450	2.1	90
VA 193 at I-495 Outer Loop Ramps	21.1	VA 193 Eastbound	11.4	Through	887	11.9	230
				Right**	57	3.6	240
		VA 193 Westbound	64.8	Left	80	122.9	120
				Through	72	0.2	120
		I-495 Outer Loop Off Ramp Southbound	25.4	Left	220	64.4	300
				Through	0	0.0	300
				Right**	359	1.6	225
VA 193 at I-495 Inner Loop Ramps	14.4	VA 193 Eastbound	16.4	Left	656	25.8	300
				Through	431	2.0	300
		VA 193 Westbound	21.5	Through	104	43.9	90
				Right**	115	1.3	40
		I-495 Inner Loop Off Ramp Northbound	9.2	Left	50	72.7	185
				Through	0	0.0	185
				Right**	666	4.4	185
MD 187 at I-495 Outer Loop Ramps	17.0	I-495 Outer Loop Off Ramp Westbound	35.7	Left	152	58.4	325
				Through	0	0.0	325
				Right*	159	13.9	275
		MD 187 Northbound	26.3	Left	184	47.4	205
				Through	167	3.1	205
		MD 187 Southbound	10.6	Through	1096	12.9	240
				Right*	331	3.2	200
MD 187 at I-495 Inner Loop Ramps	20.3	I-495 Inner Loop Off Ramp Eastbound	9.2	Left	52	33.4	60
				Right*	405	6.1	90
		MD 187 Northbound	26.1	Through	300	31.9	215
				Right*	96	7.9	55
		MD 187 Southbound	22.6	Left	85	59.8	380
				Through	1164	19.9	380

6-7 AM - 2027 No-build - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
MD 187 at I-270 NB Ramps	10.3	I-270 NB Off Ramp Westbound	13.0	Left	93	45.7	150
				Right**	278	2.1	10
		MD 187 Northbound	11.7	Left	5	77.5	105
				Through	324	10.6	105
		MD 187 Southbound	8.4	Through	535	11.4	115
				Right*	249	1.8	20
MD 187 at I-270 SB Ramps	28.6	I-270 SB Off Ramp Eastbound	48.1	Left	86	43.8	130
				Right*	552	48.8	370
		MD 187 Northbound	21.0	Through	244	21.0	90
				Right*	0	0.0	0
		MD 187 Southbound	12.0	Left	89	41.9	155
				Through	544	7.1	155
Rockledge Blvd at I-270 NB Ramps	20.6	I-270 NB Ramps Westbound	23.5	Left	460	23.7	240
				Through	100	22.7	240
		Rockledge Blvd Northbound	1.1	Left	83	1.1	0
Rockledge Blvd at I-270 SB Ramps	15.3	I-270 SB Off Ramp Eastbound	20.6	Left	0	0.0	235
				Through	399	47.7	235
				Right**	573	1.8	0
		Rockledge Blvd Northbound	20.2	Through	83	32.2	135
				Right	303	16.9	135
		Rockledge Blvd Southbound	0.1	Through	462	0.1	0
MD 355 at I-495 Inner Loop Off Ramp	10.8	I-495 Inner Loop Off Ramp Eastbound	21.7	Right*	476	21.7	190
		MD 355 Southbound	8.9	Through	2662	8.9	290

* Channelized right turn
** Free-flow channelized right turn

7-8 AM - 2027 No-build - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
MD 117 at I-270 NB Off Ramp	13.1	MD 117 Eastbound	10.4	Left	34	73.5	165
				Through	493	6.0	165
		MD 117 Westbound	11.5	Through	785	11.5	250
				Right	6	5.4	280
		I-270 NB Off Ramp Southbound	16.3	Left	135	52.6	195
				Right	711	9.4	200
MD 117 at I-270 SB On Ramp	7.5	MD 117 Eastbound	10.9	Through	528	2.6	0
				Right**	1504	13.8	310
		MD 117 Westbound	2.8	Left	340	11.3	240
				Through	1153	0.3	220
I-370 at Fields Rd	13.3	Fields Rd Northbound	22.9	Left	145	31.5	160
				Right	350	19.4	130
		I-370 Eastbound	12.2	Through	1847	13.3	235
				Right**	338	6.2	220
		I-370 Westbound	10.7	Left	232	33.2	120
				Through	699	3.9	80
					70	3.3	30
Shady Grove Rd at I-270 NB Off Ramp	13.6	Shady Grove Rd Eastbound	7.7	Through	806	9.7	190
				Right**	262	1.5	0
		Shady Grove Rd Westbound	9.3	Through	1136	9.3	215
		I-270 NB Off Ramp Northbound	28.8	Left	457	46.2	255
				Right**	280	0.4	20
Shady Grove Rd at I-270 SB Off Ramp	18.3	Shady Grove Rd Eastbound	9.7	Through	758	13.9	250
				Right**	353	0.7	25
		Shady Grove Rd Westbound	7.6	Through	1142	9.7	255
				Right**	448	2.2	25
		I-270 SB Off Ramp Southbound	43.7	Left	310	38.1	415
				Right	729	46.1	420
MD 28 at I-270 NB Off Ramp	12.9	MD 28 Eastbound	11.9	Left	145	12.7	290
				Through	995	11.8	290
		MD 28 Westbound	7.5	Through	418	7.5	145
				Right	29	7.2	185
		I-270 NB Off Ramp Northbound	27.5	Through	103	45.7	155
				Right	91	6.9	155
		Nelson St Southbound	16.0	Left	27	61.6	90
				Right	219	10.4	90

7-8 AM - 2027 No-build - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
MD 28 at I-270 SB Off Ramp	8.4	MD 28 Eastbound	3.5	Through	880	6.4	200
				Right**	1206	1.4	50
		MD 28 Westbound	6.2	Through	1087	6.2	215
		I-270 SB Off Ramp Southbound	37.8	Left	369	43.3	220
				Right*	62	5.5	205
MD 189 at I-270 Ramps	20.0	MD 189 Eastbound	12.6	Left	391	19.6	300
				Through	315	21.6	300
				Right**	463	0.5	25
		MD 189 Westbound	39.4	Left	566	45.1	275
				Through	334	46.4	275
				Right**	146	1.3	45
		I-270 NB Off Ramp Northbound	9.0	Left	77	53.8	85
				Right**	428	1.0	0
		I-270 SB Off Ramp Southbound	12.4	Left	193	48.4	275
				Right**	608	1.0	0
Montrose Rd at Tower Oaks Blvd	17.6	Montrose Rd Eastbound	8.6	Left	143	17.1	190
				Through	792	7.0	190
		Montrose Rd Westbound	13.3	Through	1626	13.7	640
				Right	84	5.0	640
		Tower Oaks Blvd Southbound	43.1	Left	129	44.9	260
				Right*	488	42.6	275
Democracy Blvd at I-270 NB Off Ramp	23.6	Democracy Blvd Eastbound	8.9	Through	720	8.9	75
		I-270 NB Off Ramp Northbound	38.9	Right*	688	38.9	325
Democracy Blvd at I-270 NB Off Ramp	14.2	Democracy Blvd Eastbound	10.7	Through	724	10.7	180
		Democracy Blvd Westbound	8.6	Through	232	8.6	130
		I-270 NB Off Ramp Northbound	34.4	Left	194	34.4	125
Democracy Blvd at I-270 SB On Ramp	8.8	Democracy Blvd Eastbound	3.1	Through	886	3.1	125
		Democracy Blvd Westbound	20.6	Left	179	48.4	135
				Through	243	0.2	110
Democracy Blvd at I-270 SB Off Ramp	11.3	Democracy Blvd Eastbound	2.8	Through	581	4.0	90
				Right**	314	0.6	15
		Democracy Blvd Westbound	0.6	Through	243	0.6	35
		I-270 SB Off Ramp Southbound	32.8	Left	309	49.9	190
				Right**	167	1.2	0

7-8 AM - 2027 No-build - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
MD 190 at I-495 Outer Loop Off Ramp	15.9	MD 190 Eastbound	5.1	Through	964	5.1	220
		MD 190 Westbound	5.3	Through	676	5.3	160
		I-495 Outer Loop Off Ramp Northbound	74.3	Left	299	74.3	5035
MD 190 at I-495 Inner Loop On Ramp	1.4	MD 190 Eastbound	0.7	Left	271	2.6	55
				Through	1676	0.4	40
		MD 190 Westbound	3.1	Through	857	3.1	215
VA 193 at I-495 Outer Loop Ramps	24.2	VA 193 Eastbound	18.5	Through	1213	19.4	425
				Right**	92	6.5	435
		VA 193 Westbound	40.9	Left	209	96.1	240
				Through	291	1.3	240
		I-495 Outer Loop Off Ramp Southbound	23.0	Left	267	61.3	395
				Through	0	0.0	395
				Right**	492	2.2	320
VA 193 at I-495 Inner Loop Ramps	24.6	VA 193 Eastbound	12.6	Left	811	20.5	340
				Through	688	3.3	340
		VA 193 Westbound	29.9	Through	440	48.7	315
				Right**	325	4.6	265
		I-495 Inner Loop Off Ramp Northbound	38.1	Left	62	96.4	1325
				Through	0	0.0	1325
				Right**	968	34.4	1325
MD 187 at I-495 Outer Loop Ramps	28.2	I-495 Outer Loop Off Ramp Westbound	73.6	Left	191	92.5	790
				Through	0	0.0	790
				Right*	242	58.8	735
		MD 187 Northbound	31.2	Left	258	100.7	390
				Through	702	5.7	390
		MD 187 Southbound	18.9	Through	1856	20.2	710
				Right*	573	14.6	670
MD 187 at I-495 Inner Loop Ramps	23.3	I-495 Inner Loop Off Ramp Eastbound	13.2	Left	80	33.3	115
				Right*	501	10.0	235
		MD 187 Northbound	33.7	Through	908	36.6	370
				Right*	213	21.3	170
		MD 187 Southbound	20.5	Left	165	56.1	540
				Through	1876	17.4	540

7-8 AM - 2027 No-build - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
MD 187 at I-270 NB Ramps	22.3	I-270 NB Off Ramp Westbound	16.3	Left	180	48.9	275
				Right**	450	3.2	140
		MD 187 Northbound	27.2	Left	278	78.4	345
				Through	864	10.8	345
		MD 187 Southbound	21.5	Through	1580	28.3	435
				Right*	777	7.8	325
MD 187 at I-270 SB Ramps	22.2	I-270 SB Off Ramp Eastbound	47.4	Left	161	46.6	245
				Right*	550	47.7	380
		MD 187 Northbound	22.2	Through	993	24.4	170
				Right*	107	1.1	5
		MD 187 Southbound	12.0	Left	189	44.6	375
				Through	1556	8.0	375
Rockledge Blvd at I-270 NB Ramps	31.7	I-270 NB Ramps Westbound	33.3	Left	1228	32.3	1025
				Through	384	36.6	1025
		Rockledge Blvd Northbound	1.3	Left	87	1.3	0
Rockledge Blvd at I-270 SB Ramps	12.6	I-270 SB Off Ramp Eastbound	21.3	Left	0	0.0	255
				Through	524	47.8	255
				Right**	736	2.5	0
		Rockledge Blvd Northbound	22.5	Through	87	40.6	160
				Right	351	18.0	160
		Rockledge Blvd Southbound	0.2	Through	1223	0.2	0
MD 355 at I-495 Inner Loop Off Ramp	11.2	I-495 Inner Loop Off Ramp Eastbound	21.9	Right*	529	21.9	200
		MD 355 Southbound	9.2	Through	2705	9.2	290

* Channelized right turn
** Free-flow channelized right turn

8-9 AM - 2027 No-build - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
MD 117 at I-270 NB Off Ramp	20.6	MD 117 Eastbound	16.6	Left	27	82.5	340
				Through	544	13.4	340
		MD 117 Westbound	20.5	Through	956	20.8	370
				Right	37	11.5	400
		I-270 NB Off Ramp Southbound	22.4	Left	179	38.9	215
				Right	1109	19.7	220
MD 117 at I-270 SB On Ramp	4.9	MD 117 Eastbound	7.6	Through	571	2.0	0
				Right**	1468	9.8	260
		MD 117 Westbound	2.2	Left	285	13.0	220
				Through	1774	0.5	200
I-370 at Fields Rd	12.7	Fields Rd Northbound	23.7	Left	171	33.7	130
				Right	299	18.0	105
		I-370 Eastbound	12.1	Through	1628	13.5	230
				Right**	370	6.2	215
		I-370 Westbound	10.1	Left	346	32.2	150
				Through	1090	3.7	95
					81	3.0	45
Shady Grove Rd at I-270 NB Off Ramp	17.6	Shady Grove Rd Eastbound	7.8	Through	1048	9.8	225
				Right**	369	2.3	0
		Shady Grove Rd Westbound	10.0	Through	1250	10.0	235
		I-270 NB Off Ramp Northbound	41.2	Left	739	55.6	440
				Right**	260	0.3	210
Shady Grove Rd at I-270 SB Off Ramp	18.7	Shady Grove Rd Eastbound	13.3	Through	1022	18.3	390
				Right**	415	1.2	145
		Shady Grove Rd Westbound	9.6	Through	1484	12.0	340
				Right**	507	2.5	115
		I-270 SB Off Ramp Southbound	40.1	Left	395	34.3	445
				Right	818	42.9	445
MD 28 at I-270 NB Off Ramp	15.4	MD 28 Eastbound	16.2	Left	307	25.0	315
				Through	1003	13.5	315
		MD 28 Westbound	9.3	Through	763	9.3	205
				Right	18	8.5	245
		I-270 NB Off Ramp Northbound	23.5	Through	124	45.7	215
				Right	191	9.1	215
		Nelson St Southbound	19.0	Left	29	57.2	145
				Right	266	14.8	145

8-9 AM - 2027 No-build - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
MD 28 at I-270 SB Off Ramp	9.2	MD 28 Eastbound	4.0	Through	1029	6.9	250
				Right**	1082	1.2	110
		MD 28 Westbound	7.6	Through	1678	7.6	320
		I-270 SB Off Ramp Southbound	36.2	Left	398	43.7	240
				Right*	110	9.1	230
MD 189 at I-270 Ramps	18.4	MD 189 Eastbound	14.1	Left	553	21.7	325
				Through	352	22.1	325
				Right**	515	0.7	25
		MD 189 Westbound	37.8	Left	640	43.6	285
				Through	302	44.6	285
				Right**	160	2.1	60
		I-270 NB Off Ramp Northbound	4.6	Left	49	50.4	70
				Right**	646	1.2	0
		I-270 SB Off Ramp Southbound	11.6	Left	184	50.6	250
				Right**	680	1.0	0
Montrose Rd at Tower Oaks Blvd	20.9	Montrose Rd Eastbound	10.5	Left	164	34.6	230
				Through	1182	7.1	230
		Montrose Rd Westbound	18.6	Through	2059	19.1	1025
				Right	136	11.6	1025
		Tower Oaks Blvd Southbound	47.6	Left	218	44.3	300
				Right*	488	49.1	295
Democracy Blvd at I-270 NB Off Ramp	18.4	Democracy Blvd Eastbound	6.0	Through	1309	6.0	80
		I-270 NB Off Ramp Northbound	38.9	Right*	791	38.9	395
Democracy Blvd at I-270 NB Off Ramp	12.4	Democracy Blvd Eastbound	10.3	Through	1308	10.3	325
		Democracy Blvd Westbound	9.5	Through	669	9.5	220
		I-270 NB Off Ramp Northbound	33.6	Left	220	33.6	120
Democracy Blvd at I-270 SB On Ramp	9.8	Democracy Blvd Eastbound	5.5	Through	1527	5.5	250
		Democracy Blvd Westbound	17.1	Left	303	49.3	190
				Through	583	0.3	170
Democracy Blvd at I-270 SB Off Ramp	10.3	Democracy Blvd Eastbound	5.2	Through	1150	6.2	170
				Right**	320	1.3	80
		Democracy Blvd Westbound	2.7	Through	583	2.7	75
		I-270 SB Off Ramp Southbound	29.9	Left	381	46.7	240
				Right**	227	1.6	0

8-9 AM - 2027 No-build - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
MD 190 at I-495 Outer Loop Off Ramp	33.6	MD 190 Eastbound	43.5	Through	666	43.5	185
		MD 190 Westbound	4.4	Through	617	4.4	130
		I-495 Outer Loop Off Ramp Northbound	78.0	Left	256	78.0	6960
MD 190 at I-495 Inner Loop On Ramp	1.6	MD 190 Eastbound	0.7	Left	194	2.3	60
				Through	1098	0.4	45
		MD 190 Westbound	2.8	Through	951	2.8	200
VA 193 at I-495 Outer Loop Ramps	27.0	VA 193 Eastbound	19.8	Through	1199	21.0	430
				Right**	107	6.6	440
		VA 193 Westbound	52.0	Left	295	91.3	265
				Through	231	1.7	265
		I-495 Outer Loop Off Ramp Southbound	21.7	Left	228	63.4	380
				Through	0	0.0	380
				Right**	498	2.6	305
VA 193 at I-495 Inner Loop Ramps	21.0	VA 193 Eastbound	15.1	Left	987	20.4	410
				Through	420	2.6	410
		VA 193 Westbound	25.7	Through	439	46.6	200
				Right**	408	3.2	150
		I-495 Inner Loop Off Ramp Northbound	27.3	Left	94	81.6	1070
				Through	0	0.0	1070
				Right**	615	19.0	1070
MD 187 at I-495 Outer Loop Ramps	84.1	I-495 Outer Loop Off Ramp Westbound	78.1	Left	148	107.6	775
				Through	0	0.0	775
				Right*	271	62.0	725
		MD 187 Northbound	51.9	Left	214	252.8	540
				Through	945	6.4	545
		MD 187 Southbound	102.5	Through	1762	67.6	1365
				Right*	401	255.8	1325
MD 187 at I-495 Inner Loop Ramps	53.6	I-495 Inner Loop Off Ramp Eastbound	21.9	Left	153	47.2	140
				Right*	455	13.4	345
		MD 187 Northbound	101.5	Through	1056	108.2	655
				Right*	153	55.0	470
		MD 187 Southbound	33.3	Left	169	152.6	545
				Through	1729	21.7	545

8-9 AM - 2027 No-build - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
MD 187 at I-270 NB Ramps	26.4	I-270 NB Off Ramp Westbound	12.4	Left	112	44.7	185
				Right**	370	2.6	55
		MD 187 Northbound	22.4	Left	273	75.1	335
				Through	1322	11.5	335
		MD 187 Southbound	31.1	Through	1988	40.0	745
				Right*	781	8.6	640
MD 187 at I-270 SB Ramps	23.6	I-270 SB Off Ramp Eastbound	47.1	Left	186	45.4	305
				Right*	609	47.6	450
		MD 187 Northbound	25.0	Through	1409	27.5	265
				Right*	171	4.2	20
		MD 187 Southbound	13.7	Left	246	50.9	380
				Through	1856	8.8	380
Rockledge Blvd at I-270 NB Ramps	33.7	I-270 NB Ramps Westbound	36.0	Left	1187	34.4	1060
				Through	573	39.3	1060
		Rockledge Blvd Northbound	1.6	Left	129	1.6	0
Rockledge Blvd at I-270 SB Ramps	13.9	I-270 SB Off Ramp Eastbound	21.7	Left	0	0.0	315
				Through	620	46.5	315
				Right**	811	2.7	0
		Rockledge Blvd Northbound	24.2	Through	129	40.4	185
				Right	380	18.8	185
		Rockledge Blvd Southbound	0.2	Through	1187	0.2	0
MD 355 at I-495 Inner Loop Off Ramp	11.0	I-495 Inner Loop Off Ramp Eastbound	22.6	Right*	434	22.6	175
		MD 355 Southbound	9.4	Through	3146	9.4	375

* Channelized right turn
** Free-flow channelized right turn

9-10 AM - 2027 No-build - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
MD 117 at I-270 NB Off Ramp	15.5	MD 117 Eastbound	11.1	Left	4	95.5	220
				Through	474	10.3	220
		MD 117 Westbound	13.2	Through	868	13.3	275
				Right	5	4.6	305
		I-270 NB Off Ramp Southbound	19.0	Left	143	40.9	215
				Right	1055	16.1	215
MD 117 at I-270 SB On Ramp	0.9	MD 117 Eastbound	0.6	Through	475	0.8	0
				Right**	1274	0.5	0
		MD 117 Westbound	1.3	Left	256	7.3	165
				Through	1672	0.3	145
I-370 at Fields Rd	12.3	Fields Rd Northbound	23.6	Left	138	35.8	140
				Right	268	17.3	115
		I-370 Eastbound	11.7	Through	1414	13.0	200
				Right**	312	5.5	185
		I-370 Westbound	10.0	Left	351	32.0	155
				Through	1062	3.4	105
					100	3.2	60
Shady Grove Rd at I-270 NB Off Ramp	16.5	Shady Grove Rd Eastbound	9.2	Through	1036	11.7	265
				Right**	336	1.7	0
		Shady Grove Rd Westbound	9.7	Through	1071	9.7	240
		I-270 NB Off Ramp Northbound	33.8	Left	635	52.6	415
				Right**	356	0.4	180
Shady Grove Rd at I-270 SB Off Ramp	18.0	Shady Grove Rd Eastbound	11.3	Through	969	15.7	315
				Right**	422	1.1	85
		Shady Grove Rd Westbound	7.4	Through	1194	9.6	295
				Right**	513	2.5	70
		I-270 SB Off Ramp Southbound	42.1	Left	404	36.9	400
				Right	732	45.0	400
MD 28 at I-270 NB Off Ramp	16.6	MD 28 Eastbound	18.3	Left	219	34.0	350
				Through	953	14.7	350
		MD 28 Westbound	10.3	Through	1058	10.4	260
				Right	24	9.6	295
		I-270 NB Off Ramp Northbound	23.2	Through	117	48.6	185
				Right	214	9.4	185
		Nelson St Southbound	24.4	Left	32	49.7	205
				Right	291	21.7	205

9-10 AM - 2027 No-build - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
MD 28 at I-270 SB Off Ramp	11.0	MD 28 Eastbound	3.4	Through	744	6.6	190
				Right**	1050	1.1	45
		MD 28 Westbound	9.0	Through	1828	9.0	415
		I-270 SB Off Ramp Southbound	39.8	Left	516	45.2	285
				Right*	91	9.7	290
MD 189 at I-270 Ramps	19.0	MD 189 Eastbound	12.9	Left	476	19.3	310
				Through	349	18.3	310
				Right**	397	0.5	15
		MD 189 Westbound	40.4	Left	485	47.0	260
				Through	345	44.1	260
				Right**	115	1.3	35
		I-270 NB Off Ramp Northbound	5.7	Left	68	44.8	80
				Right**	584	1.1	0
		I-270 SB Off Ramp Southbound	13.2	Left	190	48.1	260
				Right**	529	0.7	0
Montrose Rd at Tower Oaks Blvd	14.5	Montrose Rd Eastbound	8.9	Left	88	22.4	350
				Through	1582	8.1	350
		Montrose Rd Westbound	12.2	Through	2009	12.5	670
				Right	88	5.5	670
		Tower Oaks Blvd Southbound	40.1	Left	163	41.8	210
				Right*	391	39.4	215
Democracy Blvd at I-270 NB Off Ramp	20.2	Democracy Blvd Eastbound	7.3	Through	1061	7.3	80
		I-270 NB Off Ramp Northbound	37.3	Right*	803	37.3	375
Democracy Blvd at I-270 NB Off Ramp	13.6	Democracy Blvd Eastbound	11.1	Through	1061	11.1	285
		Democracy Blvd Westbound	9.6	Through	548	9.6	195
		I-270 NB Off Ramp Northbound	32.7	Left	259	32.7	145
Democracy Blvd at I-270 SB On Ramp	11.1	Democracy Blvd Eastbound	5.4	Through	1284	5.4	205
		Democracy Blvd Westbound	20.1	Left	324	49.7	215
				Through	481	0.3	195
Democracy Blvd at I-270 SB Off Ramp	10.1	Democracy Blvd Eastbound	4.4	Through	914	5.5	145
				Right**	294	1.0	40
		Democracy Blvd Westbound	1.8	Through	480	1.8	60
		I-270 SB Off Ramp Southbound	24.5	Left	369	48.1	215
				Right**	383	1.8	10

9-10 AM - 2027 No-build - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
MD 190 at I-495 Outer Loop Off Ramp	32.5	MD 190 Eastbound	46.1	Through	842	46.1	285
		MD 190 Westbound	3.7	Through	689	3.7	140
		I-495 Outer Loop Off Ramp Northbound	70.2	Left	224	70.2	4740
MD 190 at I-495 Inner Loop On Ramp	1.7	MD 190 Eastbound	0.8	Left	290	2.8	70
				Through	1282	0.4	55
		MD 190 Westbound	3.1	Through	952	3.1	205
VA 193 at I-495 Outer Loop Ramps	25.5	VA 193 Eastbound	16.8	Through	987	18.5	340
				Right**	147	5.7	350
		VA 193 Westbound	53.6	Left	236	92.4	255
				Through	174	1.0	255
		I-495 Outer Loop Off Ramp Southbound	23.4	Left	272	62.4	360
				Through	0	0.0	360
				Right**	494	2.0	285
VA 193 at I-495 Inner Loop Ramps	18.0	VA 193 Eastbound	13.2	Left	782	19.9	350
				Through	498	2.6	350
		VA 193 Westbound	21.7	Through	307	46.5	150
				Right**	402	2.7	100
		I-495 Inner Loop Off Ramp Northbound	23.9	Left	97	78.8	475
				Through	0	0.0	475
				Right**	534	13.9	475
MD 187 at I-495 Outer Loop Ramps	68.2	I-495 Outer Loop Off Ramp Westbound	51.3	Left	138	77.4	625
				Through	0	0.0	625
				Right*	266	37.7	575
		MD 187 Northbound	62.6	Left	201	314.1	510
				Through	883	5.3	510
		MD 187 Southbound	74.7	Through	1497	58.6	1115
				Right*	469	126.1	1070
MD 187 at I-495 Inner Loop Ramps	83.3	I-495 Inner Loop Off Ramp Eastbound	15.6	Left	101	44.7	80
				Right*	314	6.3	70
		MD 187 Northbound	177.2	Through	1011	188.8	655
				Right*	121	80.1	410
		MD 187 Southbound	35.4	Left	143	195.4	450
				Through	1488	20.1	450

9-10 AM - 2027 No-build - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
MD 187 at I-270 NB Ramps	21.6	I-270 NB Off Ramp Westbound	12.6	Left	108	43.9	175
				Right**	332	2.5	40
		MD 187 Northbound	21.9	Left	264	77.6	355
				Through	1326	10.9	355
		MD 187 Southbound	23.1	Through	1681	29.6	435
				Right*	632	5.6	330
MD 187 at I-270 SB Ramps	22.3	I-270 SB Off Ramp Eastbound	49.9	Left	173	49.4	320
				Right*	460	50.0	335
		MD 187 Northbound	23.0	Through	1418	25.2	280
				Right*	160	3.3	5
		MD 187 Southbound	11.9	Left	223	45.5	380
				Through	1568	7.2	380
Rockledge Blvd at I-270 NB Ramps	28.5	I-270 NB Ramps Westbound	30.8	Left	902	29.5	955
				Through	493	33.3	955
		Rockledge Blvd Northbound	1.5	Left	119	1.5	0
Rockledge Blvd at I-270 SB Ramps	14.4	I-270 SB Off Ramp Eastbound	22.2	Left	0	0.0	270
				Through	527	45.9	270
				Right**	614	2.0	0
		Rockledge Blvd Northbound	24.9	Through	119	39.6	135
				Right	244	17.7	135
		Rockledge Blvd Southbound	0.2	Through	903	0.2	0
MD 355 at I-495 Inner Loop Off Ramp	10.0	I-495 Inner Loop Off Ramp Eastbound	22.4	Right*	378	22.4	155
		MD 355 Southbound	8.4	Through	2790	8.4	275

* Channelized right turn
** Free-flow channelized right turn

3-4 PM - 2027 No-build - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
MD 117 at I-270 NB Off Ramp	24.4	MD 117 Eastbound	24.6	Left	0	0.0	525
				Through	672	24.6	525
		MD 117 Westbound	35.1	Through	1182	35.4	380
				Right	28	22.5	410
		I-270 NB Off Ramp Southbound	15.4	Left	289	20.2	210
				Right	1143	14.2	210
MD 117 at I-270 SB On Ramp	1.6	MD 117 Eastbound	0.8	Through	667	1.1	0
				Right**	1057	0.5	0
		MD 117 Westbound	2.3	Left	274	14.2	235
				Through	2047	0.7	215
I-370 at Fields Rd	12.2	Fields Rd Northbound	23.8	Left	252	32.6	150
				Right	346	17.4	120
		I-370 Eastbound	12.3	Through	1034	13.8	155
				Right**	193	4.6	140
		I-370 Westbound	8.8	Left	331	31.7	145
				Through	1553	4.7	120
					233	3.8	100
Shady Grove Rd at I-270 NB Off Ramp	8.4	Shady Grove Rd Eastbound	3.1	Through	999	3.2	130
				Right**	653	2.9	0
		Shady Grove Rd Westbound	3.9	Through	914	3.9	170
		I-270 NB Off Ramp Northbound	20.5	Left	354	59.1	220
				Right**	698	0.9	0
Shady Grove Rd at I-270 SB Off Ramp	12.7	Shady Grove Rd Eastbound	5.5	Through	1411	6.8	335
				Right**	489	1.7	100
		Shady Grove Rd Westbound	3.3	Through	613	4.9	155
				Right**	654	1.9	0
		I-270 SB Off Ramp Southbound	56.7	Left	243	55.3	245
				Right	343	57.7	245
MD 28 at I-270 NB Off Ramp	25.8	MD 28 Eastbound	16.0	Left	106	27.7	335
				Through	892	14.7	335
		MD 28 Westbound	28.8	Through	1064	28.5	575
				Right	28	38.1	610
		I-270 NB Off Ramp Northbound	32.1	Through	225	51.2	285
				Right	176	7.7	285
		Nelson St Southbound	36.2	Left	34	63.2	290
				Right	334	33.4	290

3-4 PM - 2027 No-build - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
MD 28 at I-270 SB Off Ramp	9.8	MD 28 Eastbound	3.1	Through	693	6.0	170
				Right**	1051	1.2	40
		MD 28 Westbound	8.1	Through	1777	8.1	365
		I-270 SB Off Ramp Southbound	35.6	Left	418	44.2	240
				Right*	146	11.1	235
MD 189 at I-270 Ramps	22.4	MD 189 Eastbound	20.9	Left	573	25.8	330
				Through	363	21.1	330
				Right**	137	0.3	0
		MD 189 Westbound	33.5	Left	452	46.8	240
				Through	277	44.2	240
				Right**	312	4.7	145
		I-270 NB Off Ramp Northbound	14.7	Left	174	44.8	135
				Right**	392	1.3	0
		I-270 SB Off Ramp Southbound	14.8	Left	236	44.8	280
				Right**	512	0.9	0
Montrose Rd at Tower Oaks Blvd	15.4	Montrose Rd Eastbound	8.2	Left	65	29.6	275
				Through	1352	7.2	275
		Montrose Rd Westbound	16.0	Through	2399	16.2	990
				Right	113	10.7	990
		Tower Oaks Blvd Southbound	38.3	Left	108	37.4	140
				Right*	274	38.7	180
Democracy Blvd at I-270 NB Off Ramp	11.5	Democracy Blvd Eastbound	3.6	Through	948	3.6	85
		I-270 NB Off Ramp Northbound	45.8	Right*	217	45.8	130
Democracy Blvd at I-270 NB Off Ramp	8.1	Democracy Blvd Eastbound	4.8	Through	948	4.8	105
		Democracy Blvd Westbound	4.9	Through	1170	4.9	235
		I-270 NB Off Ramp Northbound	45.4	Left	184	45.4	125
Democracy Blvd at I-270 SB On Ramp	12.9	Democracy Blvd Eastbound	5.6	Through	1224	5.6	205
		Democracy Blvd Westbound	19.6	Left	461	56.4	250
				Through	891	0.5	230
Democracy Blvd at I-270 SB Off Ramp	6.1	Democracy Blvd Eastbound	3.3	Through	1017	3.8	130
				Right**	217	0.9	35
		Democracy Blvd Westbound	1.9	Through	891	1.9	80
		I-270 SB Off Ramp Southbound	17.7	Left	206	50.4	150
				Right**	412	1.3	0

3-4 PM - 2027 No-build - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
MD 190 at I-495 Outer Loop Off Ramp	11.5	MD 190 Eastbound	4.2	Through	979	4.2	185
		MD 190 Westbound	5.4	Through	1312	5.4	300
		I-495 Outer Loop Off Ramp Northbound	68.9	Left	265	68.9	275
MD 190 at I-495 Inner Loop On Ramp	15.5	MD 190 Eastbound	0.6	Left	248	2.3	55
				Through	1323	0.3	45
		MD 190 Westbound	33.2	Through	1326	33.2	285
VA 193 at I-495 Outer Loop Ramps	18.7	VA 193 Eastbound	20.0	Through	690	21.8	345
				Right**	84	5.7	355
		VA 193 Westbound	21.0	Left	457	23.1	305
				Through	279	17.7	305
		I-495 Outer Loop Off Ramp Southbound	15.4	Left	256	46.5	295
				Through	0	0.0	295
				Right**	562	1.3	215
VA 193 at I-495 Inner Loop Ramps	9.3	VA 193 Eastbound	6.5	Left	578	10.3	160
				Through	369	0.5	160
		VA 193 Westbound	11.9	Through	710	22.2	235
				Right**	710	1.7	180
		I-495 Inner Loop Off Ramp Northbound	6.4	Left	27	63.8	75
				Through	0	0.0	75
				Right**	313	1.4	75
MD 187 at I-495 Outer Loop Ramps	12.1	I-495 Outer Loop Off Ramp Westbound	30.1	Left	147	57.5	425
				Through	0	0.0	425
				Right*	244	13.5	390
		MD 187 Northbound	7.5	Left	182	45.1	300
				Through	1968	4.0	300
		MD 187 Southbound	13.8	Through	1308	16.6	360
				Right*	453	5.7	315
MD 187 at I-495 Inner Loop Ramps	15.1	I-495 Inner Loop Off Ramp Eastbound	33.7	Left	239	59.4	245
				Right*	215	5.1	160
		MD 187 Northbound	14.3	Through	1915	14.3	430
				Right*	104	15.3	70
		MD 187 Southbound	10.4	Left	165	61.3	325
				Through	1288	3.9	325

3-4 PM - 2027 No-build - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
MD 187 at I-270 NB Ramps	12.9	I-270 NB Off Ramp Westbound	18.1	Left	98	62.8	195
				Right**	263	1.4	60
		MD 187 Northbound	11.4	Left	527	45.6	355
				Through	1990	2.4	355
		MD 187 Southbound	13.9	Through	1375	18.0	275
				Right*	522	3.3	170
MD 187 at I-270 SB Ramps	28.8	I-270 SB Off Ramp Eastbound	60.5	Left	410	62.8	575
				Right*	191	55.6	435
		MD 187 Northbound	20.1	Through	2109	21.8	345
				Right*	233	5.3	15
		MD 187 Southbound	29.5	Left	178	102.9	370
				Through	1295	19.5	370
Rockledge Blvd at I-270 NB Ramps	17.5	I-270 NB Ramps Westbound	21.6	Left	379	19.5	525
				Through	886	22.5	525
		Rockledge Blvd Northbound	1.6	Left	327	1.6	0
Rockledge Blvd at I-270 SB Ramps	24.1	I-270 SB Off Ramp Eastbound	30.0	Left	0	0.0	225
				Through	419	47.6	225
				Right**	252	0.8	0
		Rockledge Blvd Northbound	30.0	Through	327	41.7	275
				Right	555	23.0	275
		Rockledge Blvd Southbound	0.1	Through	378	0.1	0
MD 355 at I-495 Inner Loop Off Ramp	15.4	I-495 Inner Loop Off Ramp Eastbound	69.8	Right*	325	69.8	290
		MD 355 Southbound	5.1	Through	1725	5.1	190

* Channelized right turn

** Free-flow channelized right turn

4-5 PM - 2027 No-build - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
MD 117 at I-270 NB Off Ramp	25.8	MD 117 Eastbound	24.7	Left	0	0.0	630
				Through	684	24.7	630
		MD 117 Westbound	36.0	Through	1198	36.2	380
				Right	14	22.7	410
		I-270 NB Off Ramp Southbound	15.9	Left	167	24.1	215
				Right	1011	14.5	215
MD 117 at I-270 SB On Ramp	2.0	MD 117 Eastbound	0.9	Through	684	1.3	0
				Right**	1347	0.7	0
		MD 117 Westbound	3.0	Left	291	17.4	240
				Through	1927	0.8	220
I-370 at Fields Rd	13.5	Fields Rd Northbound	25.1	Left	313	34.8	170
				Right	408	17.7	145
		I-370 Eastbound	13.6	Through	1205	15.3	195
				Right**	246	5.2	180
		I-370 Westbound	9.7	Left	362	33.5	165
				Through	1629	5.3	155
					273	4.2	100
Shady Grove Rd at I-270 NB Off Ramp	22.2	Shady Grove Rd Eastbound	18.4	Through	949	3.2	130
				Right**	575	43.4	625
		Shady Grove Rd Westbound	31.6	Through	834	31.6	160
		I-270 NB Off Ramp Northbound	20.0	Left	315	57.1	210
				Right**	608	0.8	10
Shady Grove Rd at I-270 SB Off Ramp	15.9	Shady Grove Rd Eastbound	12.3	Through	1330	14.2	1070
				Right**	653	8.3	840
		Shady Grove Rd Westbound	3.4	Through	547	5.1	160
				Right**	607	1.9	30
		I-270 SB Off Ramp Southbound	56.1	Left	222	55.7	225
				Right	312	56.4	225
MD 28 at I-270 NB Off Ramp	49.3	MD 28 Eastbound	21.2	Left	168	43.1	375
				Through	861	16.9	375
		MD 28 Westbound	62.3	Through	1056	60.7	880
				Right	34	112.4	915
		I-270 NB Off Ramp Northbound	34.8	Through	215	54.4	305
				Right	166	9.5	305
		Nelson St Southbound	100.8	Left	22	117.4	420
				Right	371	99.8	420

4-5 PM - 2027 No-build - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
MD 28 at I-270 SB Off Ramp	11.2	MD 28 Eastbound	3.1	Through	707	6.1	175
				Right**	1130	1.2	35
		MD 28 Westbound	10.5	Through	2104	10.5	655
		I-270 SB Off Ramp Southbound	39.8	Left	445	46.0	280
				Right*	123	17.3	270
MD 189 at I-270 Ramps	24.0	MD 189 Eastbound	20.0	Left	510	24.1	325
				Through	442	21.0	325
				Right**	129	0.3	0
		MD 189 Westbound	37.1	Left	499	47.2	275
				Through	398	46.1	275
				Right**	406	15.9	310
		I-270 NB Off Ramp Northbound	15.3	Left	178	47.4	125
				Right**	409	1.4	0
		I-270 SB Off Ramp Southbound	14.3	Left	234	45.5	315
				Right**	547	0.9	0
Montrose Rd at Tower Oaks Blvd	17.9	Montrose Rd Eastbound	9.1	Left	88	35.1	280
				Through	1309	7.4	280
		Montrose Rd Westbound	19.4	Through	2457	19.8	1100
				Right	132	13.6	1100
		Tower Oaks Blvd Southbound	40.5	Left	112	42.7	140
				Right*	250	39.5	170
Democracy Blvd at I-270 NB Off Ramp	12.7	Democracy Blvd Eastbound	4.2	Through	1011	4.2	85
		I-270 NB Off Ramp Northbound	46.6	Right*	253	46.6	160
Democracy Blvd at I-270 NB Off Ramp	8.1	Democracy Blvd Eastbound	5.0	Through	1013	5.0	110
		Democracy Blvd Westbound	5.2	Through	1255	5.2	285
		I-270 NB Off Ramp Northbound	44.8	Left	188	44.8	140
Democracy Blvd at I-270 SB On Ramp	14.6	Democracy Blvd Eastbound	7.2	Through	1262	7.2	235
		Democracy Blvd Westbound	21.1	Left	532	55.8	270
				Through	901	0.6	245
Democracy Blvd at I-270 SB Off Ramp	7.6	Democracy Blvd Eastbound	4.4	Through	995	4.8	140
				Right**	128	0.9	30
		Democracy Blvd Westbound	2.6	Through	901	2.6	110
		I-270 SB Off Ramp Southbound	18.1	Left	268	49.7	175
				Right**	507	1.4	0

4-5 PM - 2027 No-build - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
MD 190 at I-495 Outer Loop Off Ramp	11.2	MD 190 Eastbound	4.4	Through	1062	4.4	225
		MD 190 Westbound	6.1	Through	1471	6.1	385
		I-495 Outer Loop Off Ramp Northbound	67.4	Left	262	67.4	370
MD 190 at I-495 Inner Loop On Ramp	26.8	MD 190 Eastbound	1.1	Left	369	3.6	60
				Through	1289	0.4	45
		MD 190 Westbound	66.5	Through	1071	66.5	410
VA 193 at I-495 Outer Loop Ramps	19.6	VA 193 Eastbound	22.4	Through	733	23.8	490
				Right**	59	5.7	440
		VA 193 Westbound	20.6	Left	411	23.8	310
				Through	196	14.1	310
		I-495 Outer Loop Off Ramp Southbound	15.8	Left	256	45.2	325
				Through	0	0.0	325
				Right**	518	1.3	245
VA 193 at I-495 Inner Loop Ramps	95.3	VA 193 Eastbound	43.0	Left	646	64.4	290
				Through	329	0.9	290
		VA 193 Westbound	173.2	Through	553	72.5	1310
				Right**	524	279.3	1255
		I-495 Inner Loop Off Ramp Northbound	9.0	Left	47	60.9	115
				Through	0	0.0	115
				Right**	333	1.6	115
MD 187 at I-495 Outer Loop Ramps	12.9	I-495 Outer Loop Off Ramp Westbound	31.9	Left	113	61.6	400
				Through	0	0.0	400
				Right*	289	20.3	365
		MD 187 Northbound	9.8	Left	185	53.5	485
				Through	2378	6.4	485
		MD 187 Southbound	13.0	Through	1309	15.7	360
				Right*	462	5.2	315
MD 187 at I-495 Inner Loop Ramps	16.2	I-495 Inner Loop Off Ramp Eastbound	38.0	Left	241	58.6	290
				Right*	154	5.7	205
		MD 187 Northbound	16.9	Through	2324	16.9	535
				Right*	105	18.4	55
		MD 187 Southbound	9.0	Left	170	51.4	220
				Through	1245	3.2	220

4-5 PM - 2027 No-build - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
MD 187 at I-270 NB Ramps	15.6	I-270 NB Off Ramp Westbound	22.9	Left	129	62.8	220
				Right**	242	1.7	85
		MD 187 Northbound	12.2	Left	725	41.1	375
				Through	2268	3.0	375
		MD 187 Southbound	19.4	Through	1445	25.2	325
				Right*	562	4.3	220
MD 187 at I-270 SB Ramps	41.1	I-270 SB Off Ramp Eastbound	59.6	Left	493	61.9	660
				Right*	194	53.6	375
		MD 187 Northbound	44.0	Through	2504	46.9	605
				Right*	230	12.4	20
		MD 187 Southbound	27.9	Left	180	101.5	380
				Through	1394	18.4	380
Rockledge Blvd at I-270 NB Ramps	18.0	I-270 NB Ramps Westbound	22.0	Left	307	20.0	540
				Through	1162	22.5	540
		Rockledge Blvd Northbound	2.0	Left	366	2.0	0
Rockledge Blvd at I-270 SB Ramps	26.7	I-270 SB Off Ramp Eastbound	28.3	Left	0	0.0	240
				Through	426	47.3	240
				Right**	295	0.9	0
		Rockledge Blvd Northbound	33.1	Through	366	43.5	345
				Right	734	27.9	345
		Rockledge Blvd Southbound	0.1	Through	308	0.1	0
MD 355 at I-495 Inner Loop Off Ramp	12.1	I-495 Inner Loop Off Ramp Eastbound	75.4	Right*	234	75.4	220
		MD 355 Southbound	4.1	Through	1854	4.1	200

* Channelized right turn

** Free-flow channelized right turn

5-6 PM - 2027 No-build - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
MD 117 at I-270 NB Off Ramp	28.4	MD 117 Eastbound	31.4	Left	0	0.0	955
				Through	895	31.4	955
		MD 117 Westbound	35.8	Through	1261	36.0	385
				Right	31	28.8	415
		I-270 NB Off Ramp Southbound	15.8	Left	179	21.6	210
				Right	798	14.5	215
MD 117 at I-270 SB On Ramp	3.2	MD 117 Eastbound	1.6	Through	912	2.5	125
				Right**	1462	1.0	0
		MD 117 Westbound	5.0	Left	256	32.4	300
				Through	1804	1.1	275
I-370 at Fields Rd	138.0	Fields Rd Northbound	271.2	Left	305	113.3	1040
				Right	362	404.3	1010
		I-370 Eastbound	322.5	Through	943	333.1	865
				Right**	169	263.1	845
		I-370 Westbound	9.9	Left	334	31.5	140
				Through	1614	6.4	170
					347	5.6	155
Shady Grove Rd at I-270 NB Off Ramp	102.6	Shady Grove Rd Eastbound	144.9	Through	605	5.2	110
				Right**	435	339.2	790
		Shady Grove Rd Westbound	115.9	Through	824	115.9	185
		I-270 NB Off Ramp Northbound	18.2	Left	220	52.7	195
				Right**	431	0.6	0
Shady Grove Rd at I-270 SB Off Ramp	95.3	Shady Grove Rd Eastbound	173.1	Through	886	174.6	1685
				Right**	550	170.6	1445
		Shady Grove Rd Westbound	2.9	Through	446	4.0	105
				Right**	596	2.0	10
		I-270 SB Off Ramp Southbound	61.3	Left	187	61.3	195
				Right	265	61.3	195
MD 28 at I-270 NB Off Ramp	69.0	MD 28 Eastbound	23.7	Left	211	40.5	415
				Through	1035	20.3	415
		MD 28 Westbound	113.1	Through	816	110.7	880
				Right	25	193.2	920
		I-270 NB Off Ramp Northbound	39.2	Through	187	58.3	345
				Right	123	10.1	345
		Nelson St Southbound	142.2	Left	23	155.7	425
				Right	367	141.4	425

5-6 PM - 2027 No-build - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
MD 28 at I-270 SB Off Ramp	9.4	MD 28 Eastbound	3.6	Through	963	6.3	190
				Right**	1268	1.5	50
		MD 28 Westbound	8.6	Through	1544	8.6	495
		I-270 SB Off Ramp Southbound	37.1	Left	395	44.9	250
				Right*	115	10.1	255
MD 189 at I-270 Ramps	36.2	MD 189 Eastbound	27.1	Left	497	38.7	485
				Through	439	22.0	485
				Right**	131	0.3	0
		MD 189 Westbound	68.9	Left	520	55.8	400
				Through	307	50.7	400
				Right**	324	107.2	725
		I-270 NB Off Ramp Northbound	18.8	Left	179	48.8	145
				Right**	336	2.9	0
		I-270 SB Off Ramp Southbound	14.5	Left	269	44.5	360
				Right**	598	1.0	0
Montrose Rd at Tower Oaks Blvd	56.9	Montrose Rd Eastbound	8.7	Left	75	33.6	310
				Through	1372	7.4	310
		Montrose Rd Westbound	93.2	Through	1950	92.1	1560
				Right	116	111.6	1560
		Tower Oaks Blvd Southbound	42.2	Left	118	41.8	150
				Right*	237	42.4	160
Democracy Blvd at I-270 NB Off Ramp	11.1	Democracy Blvd Eastbound	4.0	Through	1053	4.0	75
		I-270 NB Off Ramp Northbound	46.3	Right*	211	46.3	165
Democracy Blvd at I-270 NB Off Ramp	8.2	Democracy Blvd Eastbound	5.1	Through	1053	5.1	150
		Democracy Blvd Westbound	7.5	Through	1079	7.5	250
		I-270 NB Off Ramp Northbound	44.3	Left	113	44.3	110
Democracy Blvd at I-270 SB On Ramp	14.2	Democracy Blvd Eastbound	7.2	Through	1299	7.2	260
		Democracy Blvd Westbound	21.9	Left	473	54.2	285
				Through	715	0.6	265
Democracy Blvd at I-270 SB Off Ramp	9.8	Democracy Blvd Eastbound	5.5	Through	936	6.2	145
				Right**	141	1.1	45
		Democracy Blvd Westbound	3.1	Through	715	3.1	100
		I-270 SB Off Ramp Southbound	19.9	Left	364	48.6	210
				Right**	572	1.7	0

5-6 PM - 2027 No-build - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
MD 190 at I-495 Outer Loop Off Ramp	15.5	MD 190 Eastbound	14.6	Through	1074	14.6	345
		MD 190 Westbound	6.2	Through	1274	6.2	515
		I-495 Outer Loop Off Ramp Northbound	66.0	Left	253	66.0	350
MD 190 at I-495 Inner Loop On Ramp	55.3	MD 190 Eastbound	21.8	Left	292	99.2	545
				Through	1278	4.1	530
		MD 190 Westbound	119.3	Through	821	119.3	290
VA 193 at I-495 Outer Loop Ramps	60.6	VA 193 Eastbound	103.1	Through	663	108.9	1125
				Right**	69	47.2	1135
		VA 193 Westbound	26.1	Left	284	30.4	295
				Through	126	16.4	295
		I-495 Outer Loop Off Ramp Southbound	41.6	Left	301	91.3	1155
				Through	0	0.0	1155
				Right**	586	16.0	1075
VA 193 at I-495 Inner Loop Ramps	229.1	VA 193 Eastbound	107.1	Left	552	165.3	480
				Through	373	20.9	480
		VA 193 Westbound	468.8	Through	366	216.6	1580
				Right**	344	737.2	1525
		I-495 Inner Loop Off Ramp Northbound	10.8	Left	43	52.9	105
				Through	0	0.0	105
				Right**	220	2.6	105
MD 187 at I-495 Outer Loop Ramps	13.1	I-495 Outer Loop Off Ramp Westbound	37.9	Left	126	64.0	445
				Through	0	0.0	445
				Right*	239	24.2	410
		MD 187 Northbound	8.9	Left	197	48.9	390
				Through	2141	5.2	395
		MD 187 Southbound	13.5	Through	1505	15.9	365
				Right*	490	6.3	320
MD 187 at I-495 Inner Loop Ramps	13.2	I-495 Inner Loop Off Ramp Eastbound	41.4	Left	143	61.7	265
				Right*	85	7.4	175
		MD 187 Northbound	13.5	Through	2201	13.4	455
				Right*	140	15.7	65
		MD 187 Southbound	8.8	Left	189	54.4	265
				Through	1440	2.8	265

5-6 PM - 2027 No-build - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
MD 187 at I-270 NB Ramps	19.6	I-270 NB Off Ramp Westbound	21.6	Left	49	75.2	155
				Right**	132	1.7	25
		MD 187 Northbound	11.1	Left	643	46.9	370
				Through	2572	2.1	370
		MD 187 Southbound	33.8	Through	1450	31.3	965
				Right*	466	41.5	860
MD 187 at I-270 SB Ramps	38.7	I-270 SB Off Ramp Eastbound	66.5	Left	567	68.1	730
				Right*	174	61.2	355
		MD 187 Northbound	38.2	Through	2643	40.2	845
				Right*	244	16.4	10
		MD 187 Southbound	26.0	Left	114	96.4	375
				Through	1390	20.2	375
Rockledge Blvd at I-270 NB Ramps	88.5	I-270 NB Ramps Westbound	104.2	Left	231	38.5	1290
				Through	929	120.6	1290
		Rockledge Blvd Northbound	37.0	Left	354	37.0	185
Rockledge Blvd at I-270 SB Ramps	64.8	I-270 SB Off Ramp Eastbound	29.3	Left	0	0.0	245
				Through	429	48.6	245
				Right**	290	0.9	0
		Rockledge Blvd Northbound	101.4	Through	361	120.6	460
				Right	747	92.1	460
		Rockledge Blvd Southbound	0.1	Through	232	0.1	0
MD 355 at I-495 Inner Loop Off Ramp	8.2	I-495 Inner Loop Off Ramp Eastbound	77.6	Right*	148	77.6	205
		MD 355 Southbound	3.2	Through	2035	3.2	210

* Channelized right turn

** Free-flow channelized right turn

6-7 PM - 2027 No-build - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
MD 117 at I-270 NB Off Ramp	25.1	MD 117 Eastbound	25.5	Left	0	0.0	690
				Through	761	25.5	690
		MD 117 Westbound	35.6	Through	1174	35.8	380
				Right	17	23.9	410
		I-270 NB Off Ramp Southbound	15.5	Left	173	23.3	215
				Right	1173	14.4	215
MD 117 at I-270 SB On Ramp	1.4	MD 117 Eastbound	0.8	Through	746	1.2	30
				Right**	1069	0.5	0
		MD 117 Westbound	1.9	Left	223	14.0	200
				Through	2122	0.6	180
I-370 at Fields Rd	256.8	Fields Rd Northbound	623.3	Left	325	255.8	1040
				Right	435	897.9	1010
		I-370 Eastbound	516.8	Through	1031	536.9	865
				Right**	198	411.8	850
		I-370 Westbound	10.8	Left	395	32.1	170
				Through	1742	6.7	200
					294	6.0	145
Shady Grove Rd at I-270 NB Off Ramp	89.5	Shady Grove Rd Eastbound	118.1	Through	657	4.4	120
				Right**	601	242.3	795
		Shady Grove Rd Westbound	99.8	Through	946	99.8	195
		I-270 NB Off Ramp Northbound	15.2	Left	172	51.2	170
				Right**	442	1.2	0
Shady Grove Rd at I-270 SB Off Ramp	92.8	Shady Grove Rd Eastbound	165.8	Through	1075	161.4	1690
				Right**	533	174.6	1445
		Shady Grove Rd Westbound	3.4	Through	400	4.9	125
				Right**	719	2.6	45
		I-270 SB Off Ramp Southbound	56.2	Left	174	55.8	225
				Right	296	56.5	225
MD 28 at I-270 NB Off Ramp	62.5	MD 28 Eastbound	23.9	Left	131	60.1	355
				Through	862	18.3	355
		MD 28 Westbound	72.4	Through	1176	69.9	880
				Right	36	154.5	920
		I-270 NB Off Ramp Northbound	43.0	Through	248	62.1	380
				Right	140	9.2	380
		Nelson St Southbound	153.3	Left	33	153.6	430
				Right	339	153.2	430

6-7 PM - 2027 No-build - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
MD 28 at I-270 SB Off Ramp	11.6	MD 28 Eastbound	2.9	Through	639	5.9	145
				Right**	1138	1.2	25
		MD 28 Westbound	11.8	Through	2157	11.8	890
		I-270 SB Off Ramp Southbound	39.3	Left	430	44.8	280
				Right*	113	18.5	295
MD 189 at I-270 Ramps	28.1	MD 189 Eastbound	22.2	Left	504	27.7	330
				Through	383	22.8	330
				Right**	136	0.3	0
		MD 189 Westbound	47.1	Left	534	50.0	395
				Through	447	52.4	395
				Right**	285	33.5	415
		I-270 NB Off Ramp Northbound	15.0	Left	177	46.1	135
				Right**	441	2.5	0
		I-270 SB Off Ramp Southbound	16.3	Left	305	43.4	390
				Right**	534	0.9	0
Montrose Rd at Tower Oaks Blvd	58.1	Montrose Rd Eastbound	9.3	Left	64	30.5	345
				Through	1435	8.3	345
		Montrose Rd Westbound	89.0	Through	2189	89.5	1560
				Right	243	84.4	1560
		Tower Oaks Blvd Southbound	52.2	Left	84	38.8	225
				Right*	221	57.4	270
Democracy Blvd at I-270 NB Off Ramp	11.4	Democracy Blvd Eastbound	3.9	Through	835	3.9	75
		I-270 NB Off Ramp Northbound	47.6	Right*	174	47.6	140
Democracy Blvd at I-270 NB Off Ramp	10.8	Democracy Blvd Eastbound	4.5	Through	833	4.5	100
		Democracy Blvd Westbound	11.6	Through	1078	11.6	300
		I-270 NB Off Ramp Northbound	47.1	Left	122	47.1	110
Democracy Blvd at I-270 SB On Ramp	10.4	Democracy Blvd Eastbound	4.2	Through	1063	4.2	190
		Democracy Blvd Westbound	15.8	Left	327	56.2	270
				Through	875	0.7	250
Democracy Blvd at I-270 SB Off Ramp	7.2	Democracy Blvd Eastbound	3.5	Through	820	3.9	110
				Right**	124	0.7	15
		Democracy Blvd Westbound	2.5	Through	875	2.5	110
		I-270 SB Off Ramp Southbound	18.5	Left	242	49.5	165
				Right**	438	1.4	0

6-7 PM - 2027 No-build - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
MD 190 at I-495 Outer Loop Off Ramp	19.5	MD 190 Eastbound	31.6	Through	926	31.6	325
		MD 190 Westbound	4.5	Through	1225	4.5	330
		I-495 Outer Loop Off Ramp Northbound	66.7	Left	153	66.7	145
MD 190 at I-495 Inner Loop On Ramp	98.7	MD 190 Eastbound	72.3	Left	294	268.2	535
				Through	1089	19.4	520
		MD 190 Westbound	134.5	Through	1020	134.5	1150
VA 193 at I-495 Outer Loop Ramps	690.9	VA 193 Eastbound	1438.3	Through	365	1438.8	1135
				Right**	22	1429.4	1145
		VA 193 Westbound	33.2	Left	94	41.0	270
				Through	62	21.4	270
		I-495 Outer Loop Off Ramp Southbound	352.8	Left	156	740.9	5755
				Through	0	0.0	5755
				Right**	396	200.0	5675
VA 193 at I-495 Inner Loop Ramps	697.5	VA 193 Eastbound	458.3	Left	335	620.1	480
				Through	185	165.2	480
		VA 193 Westbound	1579.1	Through	137	642.6	1580
				Right**	144	2470.1	1520
		I-495 Inner Loop Off Ramp Northbound	12.4	Left	25	59.3	160
				Through	0	0.0	160
				Right**	155	4.8	160
MD 187 at I-495 Outer Loop Ramps	12.1	I-495 Outer Loop Off Ramp Westbound	29.2	Left	77	55.5	195
				Through	0	0.0	195
				Right*	88	6.2	155
		MD 187 Northbound	10.6	Left	279	48.6	365
				Through	1802	4.7	365
		MD 187 Southbound	12.4	Through	1255	15.1	370
				Right*	492	5.4	325
MD 187 at I-495 Inner Loop Ramps	22.5	I-495 Inner Loop Off Ramp Eastbound	76.6	Left	327	93.0	2895
				Right*	155	42.3	2805
		MD 187 Northbound	16.7	Through	1754	16.8	465
				Right*	163	16.1	120
		MD 187 Southbound	11.1	Left	148	60.9	255
				Through	1179	4.9	255

6-7 PM - 2027 No-build - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
MD 187 at I-270 NB Ramps	73.1	I-270 NB Off Ramp Westbound	18.5	Left	41	69.8	130
				Right**	126	1.8	10
		MD 187 Northbound	13.1	Left	541	65.4	365
				Through	2504	1.8	365
		MD 187 Southbound	199.3	Through	1124	140.5	1060
				Right*	395	366.6	955
MD 187 at I-270 SB Ramps	37.0	I-270 SB Off Ramp Eastbound	71.5	Left	566	73.0	735
				Right*	187	67.1	515
		MD 187 Northbound	33.7	Through	2478	35.4	600
				Right*	191	11.9	0
		MD 187 Southbound	22.4	Left	54	92.3	385
				Through	1111	19.0	385
Rockledge Blvd at I-270 NB Ramps	164.9	I-270 NB Ramps Westbound	194.3	Left	177	58.7	1380
				Through	884	221.5	1380
		Rockledge Blvd Northbound	48.3	Left	268	48.3	220
Rockledge Blvd at I-270 SB Ramps	136.7	I-270 SB Off Ramp Eastbound	29.3	Left	0	0.0	215
				Through	418	46.2	215
				Right**	247	0.9	0
		Rockledge Blvd Northbound	243.3	Through	264	287.5	450
				Right	632	224.8	450
		Rockledge Blvd Southbound	0.1	Through	177	0.1	0
MD 355 at I-495 Inner Loop Off Ramp	17.3	I-495 Inner Loop Off Ramp Eastbound	74.1	Right*	366	74.1	380
		MD 355 Southbound	6.2	Through	1882	6.2	265

* Channelized right turn

** Free-flow channelized right turn

6-7 AM - 2027 Preferred Alternative - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
MD 117 at I-270 NB Off Ramp	13.3	MD 117 Eastbound	12.5	Left	36	80.6	100
				Through	276	3.6	100
		MD 117 Westbound	7.1	Through	665	7.1	175
				Right	44	6.0	205
		I-270 NB Off Ramp Southbound	22.3	Left	77	60.8	185
				Right	449	15.7	190
MD 117 at I-270 SB On Ramp	1.0	MD 117 Eastbound	0.5	Through	323	0.6	0
				Right**	1370	0.5	0
		MD 117 Westbound	1.9	Left	371	5.4	205
				Through	747	0.2	180
I-370 at Fields Rd	10.2	Fields Rd Northbound	25.5	Left	81	31.9	75
				Right	168	22.4	85
		I-370 Eastbound	6.9	Through	895	7.6	110
				Right**	154	2.9	90
		I-370 Westbound	9.7	Left	102	35.3	80
				Through	345	2.7	55
					27	2.4	25
Shady Grove Rd at I-270 NB Off Ramp	12.3	Shady Grove Rd Eastbound	8.5	Through	580	9.7	145
				Right**	90	0.7	0
		Shady Grove Rd Westbound	9.7	Through	783	9.7	255
		I-270 NB Off Ramp Northbound	22.1	Left	248	41.6	165
				Right**	225	0.5	0
Shady Grove Rd at I-270 SB Off Ramp	16.3	Shady Grove Rd Eastbound	4.2	Through	490	5.4	115
				Right**	160	0.3	0
		Shady Grove Rd Westbound	2.9	Through	527	3.1	85
				Right**	503	2.8	50
		I-270 SB Off Ramp Southbound	55.5	Left	179	52.3	270
				Right	374	57.0	270
Gude Dr at I-270 ML Access	20.0	Gude Dr Eastbound	13.3	Left	68	54.2	115
				Through	320	13.4	115
				Right	289	3.7	115
		Gude Dr Westbound	19.4	Left	149	45.3	115
				Through	307	10.0	115
				Right	73	6.2	135
		I-270 Ramp Northbound	24.8	Left	271	42.6	310
				Right	303	9.0	310
		I-270 Ramp Southbound	28.9	Left	174	37.3	205
				Right	64	6.2	205

6-7 AM - 2027 Preferred Alternative - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
MD 28 at I-270 NB Off Ramp	6.6	MD 28 Eastbound	5.0	Left	38	3.9	245
				Through	684	5.1	245
		MD 28 Westbound	5.2	Through	137	5.2	80
				Right	0	0.0	70
		I-270 NB Off Ramp Northbound	14.5	Through	20	38.7	55
				Right	54	5.5	55
		Nelson St Southbound	11.5	Left	12	51.3	70
				Right	142	8.2	70
MD 28 at I-270 SB Off Ramp	9.0	MD 28 Eastbound	2.4	Through	408	5.6	110
				Right**	945	1.0	20
		MD 28 Westbound	5.2	Through	637	5.2	115
		I-270 SB Off Ramp Southbound	35.6	Left	345	43.6	200
				Right*	87	3.7	45
MD 189 at I-270 SB Ramps	5.4	MD 189 Eastbound	4.5	Through	293	7.0	110
				Right**	177	0.4	0
		MD 189 Westbound	4.4	Left	314	0.8	15
				Through	56	24.9	60
		I-270 SB Off Ramp Southbound	6.9	Left	145	23.4	80
				Right**	405	1.0	0
MD 189 at I-270 NB Ramps	12.0	MD 189 Eastbound	16.6	Left	157	0.6	0
				Through	283	25.5	120
		MD 189 Westbound	7.3	Through	338	8.1	155
				Right**	47	1.0	35
		I-270 NB Off Ramp Northbound	11.4	Left	33	22.3	50
				Right**	212	9.7	85
Wootton Pkwy at I-270 ML Access	24.3	Wootton Pkwy Eastbound	28.7	Left	240	42.4	225
				Through	122	17.7	220
				Right	103	9.8	235
		Wootton Pkwy Westbound	27.3	Left	306	39.3	170
				Through	390	20.4	170
				Right	79	14.8	195
		I-270 Ramp Northbound	8.7	Left	36	29.8	100
				Right	209	5.1	120
		I-270 Ramp Southbound	22.5	Left	184	32.9	205
				Right	106	4.3	225
Montrose Rd at Tower Oaks Blvd	11.0	Montrose Rd Eastbound	7.0	Left	22	7.2	200
				Through	920	7.0	200
		Montrose Rd Westbound	6.9	Through	938	7.1	180
				Right	30	2.3	180
		Tower Oaks Blvd Southbound	27.9	Left	82	41.7	125
				Right*	374	24.8	165

6-7 AM - 2027 Preferred Alternative - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
Westlake Terrace at I-270 ML Access	11.1	Westlake Terrace Eastbound	11.5	Left	71	13.2	85
				Through	154	11.8	85
				Right	25	4.8	80
		Westlake Terrace Westbound	10.8	Left	65	13.7	90
				Through	178	11.9	90
				Right	55	3.6	100
		I-270 Ramp Northbound	9.1	Left	33	10.3	110
				Right	183	8.8	110
		I-270 Ramp Southbound	12.2	Left	322	12.3	220
				Right	94	11.8	220
Democracy Blvd at I-270 NB Off Ramp	29.6	Democracy Blvd Eastbound	10.5	Through	324	10.5	70
		I-270 NB Off Ramp Northbound	44.2	Right*	424	44.2	235
Democracy Blvd at I-270 NB Off Ramp	12.9	Democracy Blvd Eastbound	5.0	Through	324	5.0	75
		Democracy Blvd Westbound	5.2	Through	101	5.2	85
		I-270 NB Off Ramp Northbound	41.6	Left	117	41.6	90
Democracy Blvd at I-270 SB Off Ramp	17.1	Democracy Blvd Eastbound	2.6	Through	155	5.0	55
				Right**	175	0.5	0
		Democracy Blvd Westbound	19.6	Left	76	54.0	85
				Through	142	1.3	85
		I-270 SB Off Ramp Southbound	28.9	Left	200	50.5	135
				Right**	154	0.9	0
MD 190 at I-495 Outer Loop Off Ramp	13.7	MD 190 Eastbound	7.3	Through	551	9.3	105
				Right	422	4.7	65
		MD 190 Westbound	12.5	Left	64	21.9	105
				Through	404	11.0	105
		I-495 Ramp Southbound	22.5	Left	671	25.3	140
				Right	103	4.3	140
MD 190 at I-495 Inner Loop On Ramp	7.2	MD 190 Eastbound	4.2	Left	55	13.6	105
				Through	1435	3.8	105
		MD 190 Westbound	9.0	Through	514	9.0	155
		I-495 Ramp Northbound	12.5	Left	162	25.9	75
				Right	505	8.2	75

6-7 AM - 2027 Preferred Alternative - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
VA 193 at I-495 Outer Loop Ramps	19.4	VA 193 Eastbound	10.4	Through	887	10.8	235
				Right**	47	3.0	245
		VA 193 Westbound	64.3	Left	56	123.8	85
				Through	52	0.2	85
		I-495 Outer Loop Off Ramp Southbound	25.5	Left	229	63.7	315
				Through	0	0.0	315
				Right**	364	1.5	255
VA 193 at I-495 Inner Loop Ramps	12.6	VA 193 Eastbound	14.4	Left	600	24.9	275
				Through	502	1.9	275
		VA 193 Westbound	18.4	Through	67	48.7	65
				Right**	118	1.2	20
		I-495 Inner Loop Off Ramp Northbound	7.9	Left	42	67.1	100
				Through	0	0.0	100
				Right**	611	3.9	100
MD 187 at I-495 Outer Loop Ramps	16.9	I-495 Outer Loop Off Ramp Westbound	27.6	Left	159	45.8	280
				Through	0	0.0	280
				Right*	161	9.7	230
		MD 187 Northbound	29.8	Left	197	55.1	200
				Through	243	9.4	205
		MD 187 Southbound	10.5	Through	1095	12.9	240
				Right*	335	2.5	195
MD 187 at I-495 Inner Loop Ramps	5.0	I-495 Inner Loop Off Ramp Eastbound	11.0	Left	104	38.8	90
				Right*	448	4.6	120
		MD 187 Northbound	11.0	Through	339	13.3	165
				Right*	82	1.5	30
		MD 187 Southbound	7.3	Left	85	78.8	130
				Through	1168	2.1	130
MD 187 at I-270 NB Ramps	9.5	I-270 NB Off Ramp Westbound	9.2	Left	58	42.6	65
				Right**	297	2.7	10
		MD 187 Northbound	11.1	Left	6	76.1	100
				Through	395	10.1	100
		MD 187 Southbound	8.9	Through	574	11.9	120
				Right*	242	1.8	10
MD 187 at I-270 SB Ramps	28.3	I-270 SB Off Ramp Eastbound	47.6	Left	85	47.2	90
				Right*	551	47.6	355
		MD 187 Northbound	21.5	Through	316	21.8	110
				Right*	4	0.4	0
		MD 187 Southbound	12.5	Left	89	43.0	155
				Through	544	7.5	155

6-7 AM - 2027 Preferred Alternative - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
Rockledge Blvd at I-270 NB Ramps	21.5	I-270 NB Ramps Westbound	23.6	Left	482	24.0	170
				Through	81	21.6	170
		Rockledge Blvd Northbound	0.6	Left	58	0.6	0
Rockledge Blvd at I-270 SB Ramps	14.9	I-270 SB Off Ramp Eastbound	20.9	Left	0	0.0	220
				Through	395	47.2	220
				Right**	536	1.5	0
		Rockledge Blvd Northbound	19.4	Through	58	33.0	110
				Right	283	16.6	110
		Rockledge Blvd Southbound	0.1	Through	483	0.1	0
MD 355 at I-495 Inner Loop Off Ramp	11.2	I-495 Inner Loop Off Ramp Eastbound	22.1	Right*	498	22.1	190
		MD 355 Southbound	9.3	Through	2792	9.3	310

* Channelized right turn

** Free-flow channelized right turn

7-8 AM - 2027 Preferred Alternative - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
MD 117 at I-270 NB Off Ramp	16.0	MD 117 Eastbound	11.8	Left	28	88.9	180
				Through	488	7.4	180
		MD 117 Westbound	12.5	Through	793	12.5	270
				Right	5	5.8	300
		I-270 NB Off Ramp Southbound	21.6	Left	137	44.9	210
				Right	733	17.3	210
MD 117 at I-270 SB On Ramp	2.8	MD 117 Eastbound	3.2	Through	521	1.2	0
				Right**	1525	3.9	115
		MD 117 Westbound	2.3	Left	332	9.6	225
				Through	1189	0.3	205
I-370 at Fields Rd	14.0	Fields Rd Northbound	23.9	Left	151	33.1	160
				Right	355	20.0	135
		I-370 Eastbound	13.0	Through	1782	14.2	240
				Right**	329	6.8	225
		I-370 Westbound	10.9	Left	223	34.1	105
				Through	682	4.1	75
					71	3.5	45
Shady Grove Rd at I-270 NB Off Ramp	13.8	Shady Grove Rd Eastbound	8.2	Through	807	10.4	175
				Right**	257	1.6	0
		Shady Grove Rd Westbound	9.2	Through	1133	9.2	215
		I-270 NB Off Ramp Northbound	29.1	Left	447	46.5	260
				Right**	274	0.7	30
Shady Grove Rd at I-270 SB Off Ramp	18.8	Shady Grove Rd Eastbound	10.6	Through	722	15.2	240
				Right**	335	0.7	0
		Shady Grove Rd Westbound	8.5	Through	1124	11.1	265
				Right**	453	2.2	50
		I-270 SB Off Ramp Southbound	41.5	Left	343	35.3	410
				Right	753	44.4	410
Gude Dr at I-270 ML Access	18.9	Gude Dr Eastbound	14.7	Left	74	54.5	205
				Through	746	15.0	205
				Right	317	4.7	205
		Gude Dr Westbound	17.3	Left	157	46.3	175
				Through	608	11.0	175
				Right	82	8.2	190
		I-270 Ramp Northbound	24.4	Left	284	41.0	310
				Right	323	9.9	305
		I-270 Ramp Southbound	30.4	Left	189	38.9	215
				Right	67	6.7	215

7-8 AM - 2027 Preferred Alternative - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
MD 28 at I-270 NB Off Ramp	14.1	MD 28 Eastbound	12.4	Left	146	9.9	310
				Through	970	12.8	310
		MD 28 Westbound	12.7	Through	415	13.0	175
				Right	27	8.8	165
		I-270 NB Off Ramp Northbound	26.0	Through	90	46.0	135
				Right	95	7.0	135
		Nelson St Southbound	15.2	Left	26	56.4	90
				Right	219	10.3	90
MD 28 at I-270 SB Off Ramp	8.1	MD 28 Eastbound	3.5	Through	888	6.3	200
				Right**	1176	1.4	40
		MD 28 Westbound	6.1	Through	1084	6.1	185
		I-270 SB Off Ramp Southbound	37.5	Left	340	42.8	235
				Right*	55	4.9	45
MD 189 at I-270 SB Ramps	6.8	MD 189 Eastbound	7.4	Through	737	11.3	245
				Right**	438	0.8	125
		MD 189 Westbound	6.4	Left	567	1.8	95
				Through	411	12.8	130
		I-270 SB Off Ramp Southbound	6.5	Left	208	21.0	90
				Right**	587	1.4	0
MD 189 at I-270 NB Ramps	11.4	MD 189 Eastbound	11.4	Left	419	1.7	35
				Through	521	19.2	170
		MD 189 Westbound	10.7	Through	903	11.9	295
				Right**	140	3.0	65
		I-270 NB Off Ramp Northbound	13.0	Left	75	20.5	70
				Right**	399	11.5	135
Wootton Pkwy at I-270 ML Access	22.2	Wootton Pkwy Eastbound	25.9	Left	182	41.0	200
				Through	240	18.4	195
				Right	78	13.7	210
		Wootton Pkwy Westbound	25.5	Left	353	39.6	210
				Through	678	19.5	210
				Right	87	15.7	235
		I-270 Ramp Northbound	8.9	Left	45	27.4	150
				Right	297	6.1	175
		I-270 Ramp Southbound	19.0	Left	172	30.4	205
				Right	153	6.2	225
Montrose Rd at Tower Oaks Blvd	14.9	Montrose Rd Eastbound	7.6	Left	111	14.6	190
				Through	809	6.6	190
		Montrose Rd Westbound	11.4	Through	1623	11.8	495
				Right	76	4.2	495
		Tower Oaks Blvd Southbound	34.6	Left	145	40.0	245
				Right*	492	33.0	235

7-8 AM - 2027 Preferred Alternative - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
Westlake Terrace at I-270 ML Access	13.1	Westlake Terrace Eastbound	12.6	Left	103	16.9	105
				Through	272	11.8	100
				Right	34	6.7	105
		Westlake Terrace Westbound	12.1	Left	162	16.3	130
				Through	389	11.5	130
				Right	51	3.7	145
		I-270 Ramp Northbound	11.0	Left	29	15.0	140
				Right	253	10.5	140
		I-270 Ramp Southbound	17.2	Left	219	17.5	225
				Right	134	16.6	225
Democracy Blvd at I-270 NB Off Ramp	22.3	Democracy Blvd Eastbound	7.2	Through	739	7.2	75
		I-270 NB Off Ramp Northbound	38.5	Right*	687	38.5	330
Democracy Blvd at I-270 NB Off Ramp	14.8	Democracy Blvd Eastbound	9.8	Through	741	9.8	170
		Democracy Blvd Westbound	8.5	Through	209	8.5	135
		I-270 NB Off Ramp Northbound	36.6	Left	231	36.6	135
Democracy Blvd at I-270 SB Off Ramp	14.8	Democracy Blvd Eastbound	5.8	Through	592	8.3	135
				Right**	319	1.0	35
		Democracy Blvd Westbound	17.7	Left	162	45.7	160
				Through	278	1.4	160
		I-270 SB Off Ramp Southbound	32.9	Left	257	49.4	165
				Right**	133	0.8	0
MD 190 at I-495 Outer Loop Off Ramp	16.0	MD 190 Eastbound	14.0	Through	1016	17.7	170
				Right	726	8.9	80
		MD 190 Westbound	15.4	Left	407	20.5	195
				Through	686	12.3	195
		I-495 Ramp Southbound	19.6	Left	983	22.9	170
				Right	232	5.5	170
MD 190 at I-495 Inner Loop On Ramp	9.3	MD 190 Eastbound	4.9	Left	112	11.4	125
				Through	2098	4.6	125
		MD 190 Westbound	14.5	Through	914	14.5	275
		I-495 Ramp Northbound	14.4	Left	260	24.3	105
				Right	741	11.0	100

7-8 AM - 2027 Preferred Alternative - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
VA 193 at I-495 Outer Loop Ramps	24.0	VA 193 Eastbound	20.3	Through	1235	21.1	435
				Right**	76	7.4	445
		VA 193 Westbound	33.6	Left	181	82.2	205
				Through	272	1.2	205
		I-495 Outer Loop Off Ramp Southbound	24.7	Left	327	62.3	390
				Through	0	0.0	390
				Right**	556	2.5	330
VA 193 at I-495 Inner Loop Ramps	17.2	VA 193 Eastbound	11.2	Left	774	18.5	335
				Through	801	4.3	335
		VA 193 Westbound	26.3	Through	397	45.8	230
				Right**	329	2.8	185
		I-495 Inner Loop Off Ramp Northbound	19.9	Left	57	79.5	470
				Through	0	0.0	470
				Right**	922	16.2	470
MD 187 at I-495 Outer Loop Ramps	24.7	I-495 Outer Loop Off Ramp Westbound	27.5	Left	193	46.8	380
				Through	0	0.0	380
				Right*	256	13.0	330
		MD 187 Northbound	46.9	Left	255	177.1	500
				Through	774	4.0	500
		MD 187 Southbound	14.7	Through	1842	16.1	520
				Right*	581	10.0	475
MD 187 at I-495 Inner Loop Ramps	5.0	I-495 Inner Loop Off Ramp Eastbound	14.1	Left	107	40.0	160
				Right*	576	9.3	270
		MD 187 Northbound	22.3	Through	958	25.9	340
				Right*	193	4.2	70
		MD 187 Southbound	8.5	Left	151	79.5	200
				Through	1871	2.7	200
MD 187 at I-270 NB Ramps	21.3	I-270 NB Off Ramp Westbound	16.6	Left	200	44.3	155
				Right**	421	3.4	65
		MD 187 Northbound	23.3	Left	244	69.5	255
				Through	968	11.6	255
		MD 187 Southbound	21.6	Through	1660	27.7	435
				Right*	726	7.7	325
MD 187 at I-270 SB Ramps	21.6	I-270 SB Off Ramp Eastbound	46.5	Left	162	45.9	210
				Right*	540	46.7	355
		MD 187 Northbound	22.3	Through	1073	24.3	190
				Right*	102	1.7	0
		MD 187 Southbound	11.8	Left	180	44.7	420
				Through	1679	8.3	420

7-8 AM - 2027 Preferred Alternative - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
Rockledge Blvd at I-270 NB Ramps	23.5	I-270 NB Ramps Westbound	24.8	Left	1168	26.1	530
				Through	327	20.2	530
		Rockledge Blvd Northbound	0.7	Left	88	0.7	0
Rockledge Blvd at I-270 SB Ramps	12.4	I-270 SB Off Ramp Eastbound	20.8	Left	0	0.0	255
				Through	502	47.3	255
				Right**	710	2.1	0
		Rockledge Blvd Northbound	21.4	Through	88	36.0	175
				Right	361	17.8	175
		Rockledge Blvd Southbound	0.2	Through	1160	0.2	0
MD 355 at I-495 Inner Loop Off Ramp	11.4	I-495 Inner Loop Off Ramp Eastbound	22.4	Right*	509	22.4	215
		MD 355 Southbound	9.4	Through	2793	9.4	340

* Channelized right turn
** Free-flow channelized right turn

8-9 AM - 2027 Preferred Alternative - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
MD 117 at I-270 NB Off Ramp	20.3	MD 117 Eastbound	17.4	Left	23	107.0	365
				Through	546	13.7	365
		MD 117 Westbound	20.4	Through	968	20.8	365
				Right	37	10.5	395
		I-270 NB Off Ramp Southbound	21.5	Left	178	38.4	215
				Right	1146	18.9	220
MD 117 at I-270 SB On Ramp	1.5	MD 117 Eastbound	1.0	Through	573	1.1	0
				Right**	1469	1.0	0
		MD 117 Westbound	1.9	Left	282	11.2	235
				Through	1827	0.4	215
I-370 at Fields Rd	13.0	Fields Rd Northbound	23.6	Left	168	33.0	135
				Right	298	18.3	115
		I-370 Eastbound	12.6	Through	1611	14.0	215
				Right**	357	6.3	200
		I-370 Westbound	10.5	Left	357	33.4	170
				Through	1122	3.8	105
					80	2.7	45
Shady Grove Rd at I-270 NB Off Ramp	19.3	Shady Grove Rd Eastbound	8.7	Through	1040	10.9	235
				Right**	348	2.0	25
		Shady Grove Rd Westbound	9.9	Through	1248	9.9	245
		I-270 NB Off Ramp Northbound	44.9	Left	773	60.0	520
				Right**	267	1.1	285
Shady Grove Rd at I-270 SB Off Ramp	18.1	Shady Grove Rd Eastbound	11.6	Through	979	15.9	310
				Right**	395	1.0	80
		Shady Grove Rd Westbound	9.1	Through	1510	11.4	345
				Right**	512	2.5	120
		I-270 SB Off Ramp Southbound	40.6	Left	409	35.0	430
				Right	800	43.4	430
Gude Dr at I-270 ML Access	20.6	Gude Dr Eastbound	17.4	Left	82	53.8	245
				Through	1000	17.5	245
				Right	261	5.4	245
		Gude Dr Westbound	17.8	Left	150	45.0	220
				Through	776	13.3	220
				Right	75	10.1	240
		I-270 Ramp Northbound	27.3	Left	335	42.5	395
				Right	355	13.0	395
		I-270 Ramp Southbound	30.1	Left	209	38.2	255
				Right	74	7.4	255

8-9 AM - 2027 Preferred Alternative - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
MD 28 at I-270 NB Off Ramp	17.3	MD 28 Eastbound	14.5	Left	315	18.5	355
				Through	991	13.3	355
		MD 28 Westbound	18.4	Through	753	18.5	265
				Right	18	12.4	255
		I-270 NB Off Ramp Northbound	23.9	Through	127	48.0	160
				Right	198	8.4	160
		Nelson St Southbound	19.2	Left	30	62.8	155
				Right	265	14.3	155
MD 28 at I-270 SB Off Ramp	9.3	MD 28 Eastbound	4.0	Through	1049	6.8	295
				Right**	1074	1.3	150
		MD 28 Westbound	8.0	Through	1708	8.0	425
		I-270 SB Off Ramp Southbound	38.0	Left	385	44.6	240
				Right*	93	10.7	80
MD 189 at I-270 SB Ramps	7.0	MD 189 Eastbound	8.7	Through	932	12.7	330
				Right**	484	0.9	210
		MD 189 Westbound	5.7	Left	644	2.2	125
				Through	358	11.9	115
		I-270 SB Off Ramp Southbound	5.7	Left	187	20.2	85
				Right**	638	1.5	0
MD 189 at I-270 NB Ramps	11.3	MD 189 Eastbound	9.9	Left	577	2.3	45
				Through	543	18.0	175
		MD 189 Westbound	11.6	Through	947	12.6	310
				Right**	156	5.1	85
		I-270 NB Off Ramp Northbound	13.1	Left	55	21.1	50
				Right**	655	12.5	285
Wootton Pkwy at I-270 ML Access	22.5	Wootton Pkwy Eastbound	26.5	Left	241	42.3	250
				Through	483	20.1	245
				Right	80	17.6	255
		Wootton Pkwy Westbound	26.0	Left	309	37.6	215
				Through	633	21.6	215
				Right	93	17.0	240
		I-270 Ramp Northbound	10.8	Left	54	30.0	190
				Right	386	8.1	215
		I-270 Ramp Southbound	17.6	Left	143	33.1	170
				Right	195	6.3	190
Montrose Rd at Tower Oaks Blvd	16.3	Montrose Rd Eastbound	8.7	Left	87	22.3	295
				Through	1289	7.7	295
		Montrose Rd Westbound	14.5	Through	2059	14.8	880
				Right	126	8.7	880
		Tower Oaks Blvd Southbound	39.9	Left	185	41.9	255
				Right*	422	39.0	230

8-9 AM - 2027 Preferred Alternative - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
Westlake Terrace at I-270 ML Access	15.6	Westlake Terrace Eastbound	14.5	Left	144	22.2	130
				Through	404	12.2	130
				Right	25	7.7	130
		Westlake Terrace Westbound	11.9	Left	120	19.1	125
				Through	483	11.9	125
				Right	108	4.0	140
		I-270 Ramp Northbound	12.7	Left	67	16.5	135
				Right	172	11.2	135
		I-270 Ramp Southbound	24.4	Left	301	24.5	315
				Right	149	24.3	320
Democracy Blvd at I-270 NB Off Ramp	18.1	Democracy Blvd Eastbound	5.3	Through	1347	5.3	85
		I-270 NB Off Ramp Northbound	38.3	Right*	845	38.3	420
Democracy Blvd at I-270 NB Off Ramp	13.1	Democracy Blvd Eastbound	10.9	Through	1348	10.9	295
		Democracy Blvd Westbound	10.1	Through	674	10.1	185
		I-270 NB Off Ramp Northbound	33.1	Left	251	33.1	130
Democracy Blvd at I-270 SB Off Ramp	16.1	Democracy Blvd Eastbound	10.3	Through	1141	12.2	270
				Right**	307	3.3	180
		Democracy Blvd Westbound	16.7	Left	277	40.0	175
				Through	642	6.6	175
		I-270 SB Off Ramp Southbound	29.1	Left	369	46.0	215
				Right**	222	1.1	0
MD 190 at I-495 Outer Loop Off Ramp	14.2	MD 190 Eastbound	12.0	Through	985	15.1	150
				Right	850	8.5	80
		MD 190 Westbound	13.8	Left	360	19.2	170
				Through	683	10.9	170
		I-495 Ramp Southbound	19.8	Left	579	24.7	140
				Right	193	5.0	140
MD 190 at I-495 Inner Loop On Ramp	10.1	MD 190 Eastbound	4.5	Left	127	14.4	130
				Through	1561	3.7	130
		MD 190 Westbound	15.6	Through	1053	15.6	320
		I-495 Ramp Northbound	13.4	Left	281	23.7	100
				Right	851	10.0	100

8-9 AM - 2027 Preferred Alternative - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
VA 193 at I-495 Outer Loop Ramps	26.0	VA 193 Eastbound	20.4	Through	1197	21.4	485
				Right**	98	8.0	495
		VA 193 Westbound	48.1	Left	276	84.9	295
				Through	216	1.1	295
		I-495 Outer Loop Off Ramp Southbound	21.6	Left	270	62.5	395
				Through	0	0.0	395
				Right**	574	2.3	330
VA 193 at I-495 Inner Loop Ramps	16.8	VA 193 Eastbound	13.1	Left	927	18.7	380
				Through	519	3.0	380
		VA 193 Westbound	25.2	Through	406	47.1	220
				Right**	406	3.2	175
		I-495 Inner Loop Off Ramp Northbound	14.7	Left	87	80.0	320
				Through	0	0.0	320
				Right**	576	4.8	320
MD 187 at I-495 Outer Loop Ramps	25.9	I-495 Outer Loop Off Ramp Westbound	23.6	Left	168	46.4	365
				Through	0	0.0	365
				Right*	311	11.3	315
		MD 187 Northbound	48.0	Left	256	219.3	515
				Through	1045	6.0	515
		MD 187 Southbound	14.7	Through	1969	16.0	495
				Right*	492	9.3	455
MD 187 at I-495 Inner Loop Ramps	5.0	I-495 Inner Loop Off Ramp Eastbound	21.0	Left	180	44.4	380
				Right*	518	12.8	365
		MD 187 Northbound	74.7	Through	1155	80.9	570
				Right*	147	26.0	120
		MD 187 Southbound	10.9	Left	206	81.8	225
				Through	1917	3.2	225
MD 187 at I-270 NB Ramps	25.5	I-270 NB Off Ramp Westbound	13.8	Left	126	46.6	110
				Right**	386	3.1	30
		MD 187 Northbound	21.5	Left	269	70.9	325
				Through	1333	11.6	325
		MD 187 Southbound	29.9	Through	2067	37.3	915
				Right*	770	10.1	805
MD 187 at I-270 SB Ramps	23.1	I-270 SB Off Ramp Eastbound	47.7	Left	222	46.9	330
				Right*	617	48.0	430
		MD 187 Northbound	24.5	Through	1366	27.0	270
				Right*	165	3.7	0
		MD 187 Southbound	12.6	Left	233	47.1	430
				Through	1959	8.5	430

8-9 AM - 2027 Preferred Alternative - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
Rockledge Blvd at I-270 NB Ramps	23.7	I-270 NB Ramps Westbound	25.5	Left	1205	27.0	540
				Through	560	22.4	540
		Rockledge Blvd Northbound	0.9	Left	139	0.9	0
Rockledge Blvd at I-270 SB Ramps	14.4	I-270 SB Off Ramp Eastbound	22.4	Left	0	0.0	365
				Through	649	46.8	365
				Right**	794	2.5	0
		Rockledge Blvd Northbound	24.8	Through	139	39.3	185
				Right	395	19.6	185
		Rockledge Blvd Southbound	0.2	Through	1204	0.2	0
MD 355 at I-495 Inner Loop Off Ramp	11.4	I-495 Inner Loop Off Ramp Eastbound	22.0	Right*	485	22.0	180
		MD 355 Southbound	9.8	Through	3198	9.8	350

* Channelized right turn
** Free-flow channelized right turn

9-10 AM - 2027 Preferred Alternative - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
MD 117 at I-270 NB Off Ramp	18.8	MD 117 Eastbound	13.4	Left	4	101.2	240
				Through	476	12.7	240
		MD 117 Westbound	15.6	Through	870	15.6	285
				Right	5	7.2	315
		I-270 NB Off Ramp Southbound	23.2	Left	146	40.6	215
				Right	1067	20.8	220
MD 117 at I-270 SB On Ramp	1.0	MD 117 Eastbound	0.6	Through	478	0.7	0
				Right**	1274	0.5	0
		MD 117 Westbound	1.4	Left	256	8.0	170
				Through	1688	0.4	150
I-370 at Fields Rd	12.7	Fields Rd Northbound	24.4	Left	145	33.7	130
				Right	274	19.5	105
		I-370 Eastbound	11.7	Through	1373	13.1	190
				Right**	307	5.7	170
		I-370 Westbound	10.6	Left	349	34.1	155
				Through	1045	3.6	85
					100	2.5	45
Shady Grove Rd at I-270 NB Off Ramp	17.0	Shady Grove Rd Eastbound	9.2	Through	1012	11.5	255
				Right**	319	1.9	30
		Shady Grove Rd Westbound	9.8	Through	1068	9.8	245
		I-270 NB Off Ramp Northbound	35.1	Left	654	53.3	425
				Right**	349	1.1	190
Shady Grove Rd at I-270 SB Off Ramp	18.3	Shady Grove Rd Eastbound	11.4	Through	919	16.1	295
				Right**	412	0.9	65
		Shady Grove Rd Westbound	7.6	Through	1204	9.8	285
				Right**	517	2.5	55
		I-270 SB Off Ramp Southbound	41.7	Left	411	37.0	425
				Right	763	44.3	425
Gude Dr at I-270 ML Access	20.1	Gude Dr Eastbound	15.4	Left	71	52.8	210
				Through	735	15.7	210
				Right	264	4.7	210
		Gude Dr Westbound	18.2	Left	148	47.6	200
				Through	717	13.1	200
				Right	78	9.4	215
		I-270 Ramp Northbound	27.1	Left	344	42.5	415
				Right	320	10.5	415
		I-270 Ramp Southbound	28.0	Left	185	36.7	245
				Right	77	6.9	245

9-10 AM - 2027 Preferred Alternative - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
MD 28 at I-270 NB Off Ramp	18.4	MD 28 Eastbound	15.3	Left	222	22.5	340
				Through	926	13.5	340
		MD 28 Westbound	19.1	Through	1051	19.1	355
				Right	24	17.8	345
		I-270 NB Off Ramp Northbound	22.1	Through	104	48.3	165
				Right	211	9.1	165
		Nelson St Southbound	23.5	Left	37	58.5	200
				Right	291	19.0	200
MD 28 at I-270 SB Off Ramp	10.9	MD 28 Eastbound	3.3	Through	753	6.3	185
				Right**	1023	1.1	30
		MD 28 Westbound	10.1	Through	1900	10.1	530
		I-270 SB Off Ramp Southbound	38.7	Left	458	43.9	260
				Right*	85	10.4	95
MD 189 at I-270 SB Ramps	7.4	MD 189 Eastbound	8.8	Through	857	12.2	275
				Right**	373	0.9	150
		MD 189 Westbound	6.7	Left	469	1.4	60
				Through	440	12.3	140
		I-270 SB Off Ramp Southbound	6.2	Left	193	19.3	95
				Right**	518	1.3	0
MD 189 at I-270 NB Ramps	11.1	MD 189 Eastbound	10.5	Left	511	2.0	35
				Through	539	18.6	200
		MD 189 Westbound	10.3	Through	839	11.2	250
				Right**	115	4.0	65
		I-270 NB Off Ramp Northbound	13.1	Left	70	21.0	65
				Right**	587	12.1	255
Wootton Pkwy at I-270 ML Access	21.6	Wootton Pkwy Eastbound	25.5	Left	219	41.4	225
				Through	402	18.8	220
				Right	71	15.0	230
		Wootton Pkwy Westbound	24.5	Left	236	38.8	180
				Through	530	19.6	180
				Right	93	16.4	205
		I-270 Ramp Northbound	10.9	Left	57	30.1	225
				Right	393	8.1	250
		I-270 Ramp Southbound	20.1	Left	157	33.0	165
				Right	134	5.1	185
Montrose Rd at Tower Oaks Blvd	12.6	Montrose Rd Eastbound	8.9	Left	42	18.0	355
				Through	1619	8.7	355
		Montrose Rd Westbound	10.9	Through	1997	11.2	720
				Right	80	4.8	720
		Tower Oaks Blvd Southbound	32.7	Left	131	37.8	150
				Right*	349	30.8	155

9-10 AM - 2027 Preferred Alternative - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
Westlake Terrace at I-270 ML Access	17.8	Westlake Terrace Eastbound	19.6	Left	184	34.2	140
				Through	368	13.0	140
				Right	26	8.3	140
		Westlake Terrace Westbound	12.0	Left	81	16.5	150
				Through	632	12.8	150
				Right	109	4.3	160
		I-270 Ramp Northbound	17.3	Left	64	20.8	220
				Right	263	16.4	215
		I-270 Ramp Southbound	26.8	Left	267	27.6	340
				Right	171	25.5	345
Democracy Blvd at I-270 NB Off Ramp	20.0	Democracy Blvd Eastbound	6.6	Through	1134	6.6	75
		I-270 NB Off Ramp Northbound	39.2	Right*	795	39.2	440
Democracy Blvd at I-270 NB Off Ramp	14.3	Democracy Blvd Eastbound	11.1	Through	1134	11.1	295
		Democracy Blvd Westbound	10.3	Through	497	10.3	195
		I-270 NB Off Ramp Northbound	34.1	Left	280	34.1	150
Democracy Blvd at I-270 SB Off Ramp	16.2	Democracy Blvd Eastbound	10.2	Through	939	12.4	260
				Right**	285	2.9	175
		Democracy Blvd Westbound	17.3	Left	264	41.5	175
				Through	515	4.8	175
		I-270 SB Off Ramp Southbound	25.1	Left	366	49.1	225
				Right**	371	1.4	0
MD 190 at I-495 Outer Loop Off Ramp	13.4	MD 190 Eastbound	9.8	Through	914	12.6	145
				Right	682	6.2	70
		MD 190 Westbound	12.9	Left	179	23.9	155
				Through	734	10.2	155
		I-495 Ramp Southbound	21.2	Left	647	24.3	145
				Right	119	4.6	145
MD 190 at I-495 Inner Loop On Ramp	10.5	MD 190 Eastbound	4.7	Left	105	14.2	125
				Through	1470	4.0	125
		MD 190 Westbound	15.4	Through	1022	15.4	255
		I-495 Ramp Northbound	14.2	Left	387	23.7	110
				Right	739	9.3	110

9-10 AM - 2027 Preferred Alternative - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
VA 193 at I-495 Outer Loop Ramps	24.5	VA 193 Eastbound	16.5	Through	1027	18.0	355
				Right**	138	5.7	360
		VA 193 Westbound	52.6	Left	196	91.8	220
				Through	153	2.5	220
		I-495 Outer Loop Off Ramp Southbound	23.9	Left	283	63.2	380
				Through	0	0.0	380
				Right**	513	2.2	315
VA 193 at I-495 Inner Loop Ramps	15.1	VA 193 Eastbound	12.9	Left	763	20.1	325
				Through	569	3.3	325
		VA 193 Westbound	20.4	Through	263	48.0	170
				Right**	414	2.9	125
		I-495 Inner Loop Off Ramp Northbound	13.9	Left	90	72.8	180
				Through	0	0.0	180
				Right**	480	2.9	180
MD 187 at I-495 Outer Loop Ramps	22.4	I-495 Outer Loop Off Ramp Westbound	20.7	Left	140	43.1	330
				Through	0	0.0	330
				Right*	257	8.5	280
		MD 187 Northbound	38.7	Left	253	179.5	535
				Through	1033	4.2	535
		MD 187 Southbound	12.0	Through	1463	14.0	385
				Right*	471	5.8	345
MD 187 at I-495 Inner Loop Ramps	5.0	I-495 Inner Loop Off Ramp Eastbound	14.4	Left	109	42.9	155
				Right*	335	5.2	105
		MD 187 Northbound	64.8	Through	1188	69.2	560
				Right*	121	21.7	35
		MD 187 Southbound	9.6	Left	149	79.7	185
				Through	1446	2.4	185
MD 187 at I-270 NB Ramps	21.2	I-270 NB Off Ramp Westbound	13.9	Left	120	45.9	110
				Right**	348	2.8	10
		MD 187 Northbound	20.3	Left	246	70.1	330
				Through	1400	11.5	330
		MD 187 Southbound	23.1	Through	1858	28.8	485
				Right*	596	5.4	375
MD 187 at I-270 SB Ramps	22.1	I-270 SB Off Ramp Eastbound	49.2	Left	198	47.7	305
				Right*	493	49.8	350
		MD 187 Northbound	23.3	Through	1454	25.4	275
				Right*	158	4.3	10
		MD 187 Southbound	11.5	Left	223	45.0	430
				Through	1740	7.2	430

9-10 AM - 2027 Preferred Alternative - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
Rockledge Blvd at I-270 NB Ramps	24.0	I-270 NB Ramps Westbound	26.0	Left	882	27.4	470
				Through	463	23.4	470
		Rockledge Blvd Northbound	0.8	Left	118	0.8	0
Rockledge Blvd at I-270 SB Ramps	15.0	I-270 SB Off Ramp Eastbound	23.7	Left	0	0.0	300
				Through	572	46.3	300
				Right**	585	1.5	0
		Rockledge Blvd Northbound	23.1	Through	118	35.4	130
				Right	252	17.4	130
		Rockledge Blvd Southbound	0.2	Through	885	0.2	0
MD 355 at I-495 Inner Loop Off Ramp	10.5	I-495 Inner Loop Off Ramp Eastbound	22.0	Right*	440	22.0	165
		MD 355 Southbound	8.7	Through	2820	8.7	275

* Channelized right turn

** Free-flow channelized right turn

3-4 PM - 2027 Preferred Alternative - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
MD 117 at I-270 NB Off Ramp	25.1	MD 117 Eastbound	24.8	Left	0	0.0	570
				Through	671	24.8	570
		MD 117 Westbound	36.1	Through	1238	36.5	385
				Right	29	17.8	415
		I-270 NB Off Ramp Southbound	15.7	Left	325	19.9	215
				Right	1147	14.5	215
MD 117 at I-270 SB On Ramp	1.4	MD 117 Eastbound	1.1	Through	665	2.0	155
				Right**	1068	0.6	0
		MD 117 Westbound	1.7	Left	286	8.8	200
				Through	2090	0.7	185
I-370 at Fields Rd	12.6	Fields Rd Northbound	24.9	Left	258	33.9	160
				Right	344	18.1	130
		I-370 Eastbound	12.9	Through	1501	14.2	225
				Right**	289	6.4	210
		I-370 Westbound	8.9	Left	337	33.0	160
				Through	1572	4.5	150
					239	3.9	90
Shady Grove Rd at I-270 NB Off Ramp	6.6	Shady Grove Rd Eastbound	2.9	Through	972	3.2	140
				Right**	640	2.5	55
		Shady Grove Rd Westbound	3.5	Through	964	3.5	180
		I-270 NB Off Ramp Northbound	16.5	Left	263	54.3	170
				Right**	644	1.0	0
Shady Grove Rd at I-270 SB Off Ramp	12.1	Shady Grove Rd Eastbound	4.8	Through	1384	6.2	400
				Right**	487	1.0	175
		Shady Grove Rd Westbound	2.9	Through	561	4.7	145
				Right**	666	1.4	75
		I-270 SB Off Ramp Southbound	56.9	Left	226	54.4	220
				Right	328	58.7	220
Gude Dr at I-270 ML Access	26.5	Gude Dr Eastbound	20.8	Left	127	52.6	235
				Through	684	20.4	235
				Right	255	6.3	240
		Gude Dr Westbound	26.0	Left	431	45.8	250
				Through	737	16.2	250
				Right	106	13.7	275
		I-270 Ramp Northbound	32.2	Left	399	47.2	490
				Right	258	9.0	490
		I-270 Ramp Southbound	37.2	Left	260	39.9	295
				Right	22	5.8	295

3-4 PM - 2027 Preferred Alternative - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
MD 28 at I-270 NB Off Ramp	19.2	MD 28 Eastbound	13.6	Left	107	13.8	385
				Through	912	13.5	385
		MD 28 Westbound	16.6	Through	1065	16.7	410
				Right	29	13.9	440
		I-270 NB Off Ramp Northbound	36.0	Through	218	57.4	260
				Right	179	9.9	260
		Nelson St Southbound	24.6	Left	36	54.8	170
				Right	322	21.2	170
MD 28 at I-270 SB Off Ramp	10.0	MD 28 Eastbound	3.2	Through	699	6.2	195
				Right**	1036	1.2	55
		MD 28 Westbound	8.3	Through	1758	8.3	495
		I-270 SB Off Ramp Southbound	32.2	Left	430	43.3	235
				Right*	246	12.9	260
MD 189 at I-270 SB Ramps	8.9	MD 189 Eastbound	9.5	Through	930	10.8	280
				Right**	129	0.4	75
		MD 189 Westbound	10.9	Left	448	1.1	40
				Through	482	20.1	165
		I-270 SB Off Ramp Southbound	5.6	Left	240	14.2	80
				Right**	521	1.6	0
MD 189 at I-270 NB Ramps	10.1	MD 189 Eastbound	9.8	Left	571	3.2	70
				Through	599	16.2	160
		MD 189 Westbound	9.0	Through	755	9.7	190
				Right**	304	7.4	170
		I-270 NB Off Ramp Northbound	12.5	Left	176	21.1	80
				Right**	413	8.8	130
Wootton Pkwy at I-270 ML Access	26.5	Wootton Pkwy Eastbound	36.6	Left	126	92.0	270
				Through	606	26.6	270
				Right	68	23.7	275
		Wootton Pkwy Westbound	26.9	Left	612	37.3	240
				Through	311	15.2	245
				Right	168	10.4	245
		I-270 Ramp Northbound	14.4	Left	136	28.4	180
				Right	335	8.8	180
		I-270 Ramp Southbound	18.6	Left	159	32.4	175
				Right	207	7.9	175
Montrose Rd at Tower Oaks Blvd	16.0	Montrose Rd Eastbound	8.5	Left	68	23.4	325
				Through	1323	7.8	325
		Montrose Rd Westbound	14.2	Through	2355	14.5	1095
				Right	123	8.0	1095
		Tower Oaks Blvd Southbound	42.3	Left	133	41.5	220
				Right*	431	42.6	230

3-4 PM - 2027 Preferred Alternative - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
Westlake Terrace at I-270 ML Access	13.6	Westlake Terrace Eastbound	13.8	Left	307	13.4	165
				Through	416	14.4	165
				Right	36	9.7	165
		Westlake Terrace Westbound	12.3	Left	210	10.4	160
				Through	472	16.7	160
				Right	343	7.5	165
		I-270 Ramp Northbound	13.4	Left	51	23.2	130
				Right	117	9.1	130
		I-270 Ramp Southbound	17.2	Left	111	22.3	205
				Right	209	14.5	205
Democracy Blvd at I-270 NB Off Ramp	11.3	Democracy Blvd Eastbound	3.4	Through	930	3.4	80
		I-270 NB Off Ramp Northbound	43.3	Right*	231	43.3	150
Democracy Blvd at I-270 NB Off Ramp	8.0	Democracy Blvd Eastbound	2.0	Through	934	2.0	160
		Democracy Blvd Westbound	5.0	Through	1219	5.0	260
		I-270 NB Off Ramp Northbound	45.2	Left	253	45.2	160
Democracy Blvd at I-270 SB Off Ramp	16.1	Democracy Blvd Eastbound	10.9	Through	994	12.8	330
				Right**	239	3.2	235
		Democracy Blvd Westbound	19.3	Left	455	41.1	255
				Through	1015	9.6	255
		I-270 SB Off Ramp Southbound	18.7	Left	211	50.5	140
				Right**	386	1.3	0
MD 190 at I-495 Outer Loop Off Ramp	9.9	MD 190 Eastbound	12.1	Through	1198	13.1	180
				Right	234	6.5	70
		MD 190 Westbound	3.6	Left	499	10.7	185
				Through	1302	0.9	185
		I-495 Ramp Southbound	21.5	Left	465	28.7	135
				Right	232	7.1	130
MD 190 at I-495 Inner Loop On Ramp	9.1	MD 190 Eastbound	3.6	Left	202	17.7	185
				Through	1573	1.7	185
		MD 190 Westbound	11.6	Through	1483	11.6	315
		I-495 Ramp Northbound	23.2	Left	247	31.1	100
				Right	183	12.4	95

3-4 PM - 2027 Preferred Alternative - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
VA 193 at I-495 Outer Loop Ramps	19.0	VA 193 Eastbound	19.6	Through	699	21.2	375
				Right**	79	5.5	380
		VA 193 Westbound	22.0	Left	452	24.8	320
				Through	291	17.6	320
		I-495 Outer Loop Off Ramp Southbound	15.9	Left	268	48.5	330
				Through	0	0.0	330
				Right**	610	1.6	270
VA 193 at I-495 Inner Loop Ramps	9.3	VA 193 Eastbound	6.2	Left	576	10.1	175
				Through	392	0.5	175
		VA 193 Westbound	12.2	Through	715	22.6	220
				Right**	705	1.6	165
		I-495 Inner Loop Off Ramp Northbound	5.7	Left	27	57.0	75
				Through	0	0.0	75
				Right**	281	0.8	75
MD 187 at I-495 Outer Loop Ramps	9.8	I-495 Outer Loop Off Ramp Westbound	15.7	Left	132	36.7	240
				Through	0	0.0	240
				Right*	232	3.7	190
		MD 187 Northbound	7.2	Left	190	63.7	190
				Through	2014	1.9	190
		MD 187 Southbound	11.8	Through	1381	14.5	335
				Right*	431	3.3	290
MD 187 at I-495 Inner Loop Ramps	5.0	I-495 Inner Loop Off Ramp Eastbound	24.1	Left	278	41.6	330
				Right*	228	2.7	245
		MD 187 Northbound	10.5	Through	1936	10.9	410
				Right*	114	4.2	45
		MD 187 Southbound	8.8	Left	166	61.8	195
				Through	1340	2.3	195
MD 187 at I-270 NB Ramps	21.8	I-270 NB Off Ramp Westbound	22.2	Left	189	47.2	145
				Right**	233	1.9	0
		MD 187 Northbound	23.3	Left	442	45.2	380
				Through	2101	18.7	380
		MD 187 Southbound	19.7	Through	1356	26.6	360
				Right*	536	2.1	210
MD 187 at I-270 SB Ramps	34.4	I-270 SB Off Ramp Eastbound	79.7	Left	400	83.9	580
				Right*	316	74.4	560
		MD 187 Northbound	36.6	Through	2147	39.0	525
				Right*	220	13.7	15
		MD 187 Southbound	10.1	Left	182	37.8	250
				Through	1361	6.4	250

3-4 PM - 2027 Preferred Alternative - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
Rockledge Blvd at I-270 NB Ramps	16.8	I-270 NB Ramps Westbound	21.2	Left	383	19.7	445
				Through	816	21.9	445
		Rockledge Blvd Northbound	1.5	Left	341	1.5	0
Rockledge Blvd at I-270 SB Ramps	23.8	I-270 SB Off Ramp Eastbound	27.6	Left	0	0.0	265
				Through	474	48.4	265
				Right**	368	0.7	0
		Rockledge Blvd Northbound	29.9	Through	341	43.8	275
				Right	616	22.3	275
		Rockledge Blvd Southbound	0.1	Through	383	0.1	0
MD 355 at I-495 Inner Loop Off Ramp	17.1	I-495 Inner Loop Off Ramp Eastbound	69.7	Right*	391	69.7	350
		MD 355 Southbound	6.2	Through	1891	6.2	250

* Channelized right turn

** Free-flow channelized right turn

4-5 PM - 2027 Preferred Alternative - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
MD 117 at I-270 NB Off Ramp	26.0	MD 117 Eastbound	25.0	Left	0	0.0	635
				Through	686	25.0	635
		MD 117 Westbound	38.4	Through	1257	38.6	390
				Right	14	23.2	420
		I-270 NB Off Ramp Southbound	16.4	Left	233	24.0	215
				Right	1354	15.1	215
MD 117 at I-270 SB On Ramp	1.7	MD 117 Eastbound	1.3	Through	688	2.5	180
				Right**	1350	0.7	0
		MD 117 Westbound	2.0	Left	309	11.5	240
				Through	2313	0.8	220
I-370 at Fields Rd	14.2	Fields Rd Northbound	24.5	Left	311	35.1	175
				Right	409	16.4	145
		I-370 Eastbound	16.1	Through	1761	17.5	275
				Right**	345	9.0	255
		I-370 Westbound	9.8	Left	423	34.1	180
				Through	1932	5.3	170
					280	4.2	115
Shady Grove Rd at I-270 NB Off Ramp	6.0	Shady Grove Rd Eastbound	2.8	Through	966	3.2	145
				Right**	621	2.3	20
		Shady Grove Rd Westbound	3.6	Through	959	3.6	205
		I-270 NB Off Ramp Northbound	15.1	Left	227	51.8	170
				Right**	590	1.0	0
Shady Grove Rd at I-270 SB Off Ramp	11.6	Shady Grove Rd Eastbound	4.4	Through	1362	5.8	360
				Right**	637	1.2	150
		Shady Grove Rd Westbound	2.9	Through	518	5.0	145
				Right**	670	1.4	85
		I-270 SB Off Ramp Southbound	57.9	Left	225	56.7	220
				Right	307	58.9	220
Gude Dr at I-270 ML Access	26.5	Gude Dr Eastbound	22.0	Left	134	53.4	265
				Through	836	22.3	265
				Right	285	6.5	265
		Gude Dr Westbound	27.0	Left	445	47.0	320
				Through	888	18.2	320
				Right	90	14.8	345
		I-270 Ramp Northbound	29.8	Left	393	43.8	420
				Right	269	9.3	420
		I-270 Ramp Southbound	35.6	Left	272	37.6	275
				Right	18	5.9	275

4-5 PM - 2027 Preferred Alternative - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
MD 28 at I-270 NB Off Ramp	29.0	MD 28 Eastbound	15.5	Left	170	17.8	330
				Through	865	15.1	330
		MD 28 Westbound	34.3	Through	1132	34.0	630
				Right	41	43.3	660
		I-270 NB Off Ramp Northbound	37.1	Through	193	59.7	255
				Right	176	12.4	255
		Nelson St Southbound	40.4	Left	24	60.0	340
				Right	399	39.3	340
MD 28 at I-270 SB Off Ramp	11.2	MD 28 Eastbound	3.3	Through	722	6.4	185
				Right**	1100	1.2	90
		MD 28 Westbound	10.2	Through	2214	10.2	780
		I-270 SB Off Ramp Southbound	36.8	Left	448	44.0	300
				Right*	197	20.2	330
MD 189 at I-270 SB Ramps	8.9	MD 189 Eastbound	9.9	Through	938	11.1	235
				Right**	113	0.4	110
		MD 189 Westbound	10.6	Left	483	1.2	45
				Through	603	18.2	170
		I-270 SB Off Ramp Southbound	5.2	Left	236	14.1	70
				Right**	560	1.5	0
MD 189 at I-270 NB Ramps	11.3	MD 189 Eastbound	10.7	Left	501	4.1	40
				Through	672	15.6	195
		MD 189 Westbound	11.2	Through	905	10.5	230
				Right**	399	12.9	245
		I-270 NB Off Ramp Northbound	12.5	Left	180	20.7	85
				Right**	412	8.9	110
Wootton Pkwy at I-270 ML Access	27.1	Wootton Pkwy Eastbound	38.6	Left	130	91.2	300
				Through	668	29.3	300
				Right	53	25.9	305
		Wootton Pkwy Westbound	25.9	Left	646	36.2	265
				Through	367	15.0	265
				Right	186	11.5	265
		I-270 Ramp Northbound	15.3	Left	128	30.2	200
				Right	410	10.6	200
		I-270 Ramp Southbound	20.9	Left	182	31.4	195
				Right	137	7.0	195
Montrose Rd at Tower Oaks Blvd	20.2	Montrose Rd Eastbound	8.8	Left	79	25.0	330
				Through	1281	7.8	330
		Montrose Rd Westbound	21.6	Through	2369	22.0	1280
				Right	156	16.3	1280
		Tower Oaks Blvd Southbound	43.9	Left	144	43.2	200
				Right*	364	44.1	210

4-5 PM - 2027 Preferred Alternative - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
Westlake Terrace at I-270 ML Access	16.0	Westlake Terrace Eastbound	16.6	Left	346	16.6	175
				Through	362	17.4	170
				Right	45	10.8	170
		Westlake Terrace Westbound	14.4	Left	290	11.8	190
				Through	514	20.0	190
				Right	336	8.1	195
		I-270 Ramp Northbound	16.3	Left	81	24.1	165
				Right	128	11.4	165
		I-270 Ramp Southbound	19.8	Left	155	24.7	245
				Right	219	16.4	245
Democracy Blvd at I-270 NB Off Ramp	10.5	Democracy Blvd Eastbound	3.9	Through	985	3.9	85
		I-270 NB Off Ramp Northbound	45.9	Right*	184	45.9	135
Democracy Blvd at I-270 NB Off Ramp	6.7	Democracy Blvd Eastbound	2.1	Through	985	2.1	155
		Democracy Blvd Westbound	4.3	Through	1270	4.3	245
		I-270 NB Off Ramp Northbound	46.7	Left	190	46.7	135
Democracy Blvd at I-270 SB Off Ramp	18.2	Democracy Blvd Eastbound	12.9	Through	954	14.4	320
				Right**	169	4.4	220
		Democracy Blvd Westbound	22.1	Left	479	43.6	305
				Through	977	11.5	300
		I-270 SB Off Ramp Southbound	18.5	Left	281	47.4	170
				Right**	479	1.5	0
MD 190 at I-495 Outer Loop Off Ramp	9.6	MD 190 Eastbound	12.4	Through	1285	13.7	200
				Right	273	6.2	70
		MD 190 Westbound	3.1	Left	459	9.6	175
				Through	1321	0.9	175
		I-495 Ramp Southbound	20.9	Left	417	28.8	135
				Right	231	6.7	130
MD 190 at I-495 Inner Loop On Ramp	10.7	MD 190 Eastbound	5.6	Left	265	26.7	255
				Through	1457	1.8	255
		MD 190 Westbound	13.2	Through	1366	13.2	305
		I-495 Ramp Northbound	25.3	Left	256	30.7	95
				Right	116	13.5	95

4-5 PM - 2027 Preferred Alternative - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
VA 193 at I-495 Outer Loop Ramps	19.5	VA 193 Eastbound	22.5	Through	737	23.8	550
				Right**	54	5.1	480
		VA 193 Westbound	21.8	Left	493	24.1	310
				Through	226	16.9	310
		I-495 Outer Loop Off Ramp Southbound	14.6	Left	278	41.9	335
				Through	0	0.0	335
				Right**	565	1.2	270
VA 193 at I-495 Inner Loop Ramps	9.6	VA 193 Eastbound	6.8	Left	644	10.5	160
				Through	371	0.4	160
		VA 193 Westbound	12.5	Through	683	23.6	285
				Right**	710	1.7	235
		I-495 Inner Loop Off Ramp Northbound	6.7	Left	36	59.4	90
				Through	0	0.0	90
				Right**	323	0.8	90
MD 187 at I-495 Outer Loop Ramps	9.0	I-495 Outer Loop Off Ramp Westbound	12.1	Left	112	36.2	255
				Through	0	0.0	255
				Right*	315	3.6	200
		MD 187 Northbound	6.8	Left	198	60.6	225
				Through	2339	2.3	225
		MD 187 Southbound	11.3	Through	1375	13.9	325
				Right*	457	3.4	280
MD 187 at I-495 Inner Loop Ramps	5.0	I-495 Inner Loop Off Ramp Eastbound	30.2	Left	264	43.1	395
				Right*	130	4.0	310
		MD 187 Northbound	11.3	Through	2278	11.6	495
				Right*	116	6.7	45
		MD 187 Southbound	7.0	Left	157	50.5	175
				Through	1328	1.8	175
MD 187 at I-270 NB Ramps	24.6	I-270 NB Off Ramp Westbound	22.8	Left	197	46.6	145
				Right**	224	1.8	0
		MD 187 Northbound	26.8	Left	664	47.3	375
				Through	2234	20.8	375
		MD 187 Southbound	21.8	Through	1448	29.0	420
				Right*	581	4.0	270
MD 187 at I-270 SB Ramps	96.6	I-270 SB Off Ramp Eastbound	141.1	Left	453	151.7	980
				Right*	301	125.3	925
		MD 187 Northbound	135.3	Through	2403	139.0	1570
				Right*	204	91.9	0
		MD 187 Southbound	14.3	Left	189	44.4	345
				Through	1443	10.4	345

4-5 PM - 2027 Preferred Alternative - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
Rockledge Blvd at I-270 NB Ramps	19.0	I-270 NB Ramps Westbound	23.8	Left	334	20.4	550
				Through	1100	24.8	550
		Rockledge Blvd Northbound	1.6	Left	392	1.6	0
Rockledge Blvd at I-270 SB Ramps	26.7	I-270 SB Off Ramp Eastbound	27.1	Left	0	0.0	280
				Through	535	47.1	280
				Right**	405	0.6	0
		Rockledge Blvd Northbound	34.2	Through	392	43.7	335
				Right	735	29.2	335
		Rockledge Blvd Southbound	0.1	Through	334	0.1	0
MD 355 at I-495 Inner Loop Off Ramp	12.6	I-495 Inner Loop Off Ramp Eastbound	75.0	Right*	253	75.0	245
		MD 355 Southbound	4.4	Through	1917	4.4	250

* Channelized right turn
** Free-flow channelized right turn

5-6 PM - 2027 Preferred Alternative - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
MD 117 at I-270 NB Off Ramp	27.8	MD 117 Eastbound	32.0	Left	0	0.0	980
				Through	904	32.0	980
		MD 117 Westbound	35.0	Through	1306	35.3	390
				Right	33	24.4	420
		I-270 NB Off Ramp Southbound	16.5	Left	200	21.9	210
				Right	972	15.3	210
MD 117 at I-270 SB On Ramp	2.7	MD 117 Eastbound	2.5	Through	920	4.4	420
				Right**	1462	1.2	0
		MD 117 Westbound	2.9	Left	272	17.6	220
				Through	2007	0.9	200
I-370 at Fields Rd	20.7	Fields Rd Northbound	28.6	Left	381	34.1	285
				Right	524	24.6	250
		I-370 Eastbound	29.0	Through	2325	30.7	600
				Right**	409	19.5	580
		I-370 Westbound	9.8	Left	415	33.5	170
				Through	1985	5.8	195
					353	4.9	135
Shady Grove Rd at I-270 NB Off Ramp	6.1	Shady Grove Rd Eastbound	2.8	Through	882	3.0	145
				Right**	678	2.5	50
		Shady Grove Rd Westbound	4.7	Through	1202	4.7	280
		I-270 NB Off Ramp Northbound	16.7	Left	191	53.3	150
				Right**	446	1.0	10
Shady Grove Rd at I-270 SB Off Ramp	11.5	Shady Grove Rd Eastbound	4.4	Through	1311	6.1	355
				Right**	830	1.6	185
		Shady Grove Rd Westbound	3.3	Through	558	5.4	135
				Right**	834	1.9	160
		I-270 SB Off Ramp Southbound	58.4	Left	247	57.1	225
				Right	321	59.5	225
Gude Dr at I-270 ML Access	25.2	Gude Dr Eastbound	21.0	Left	106	53.0	290
				Through	974	21.2	285
				Right	243	6.3	290
		Gude Dr Westbound	25.1	Left	430	47.7	445
				Through	1055	17.0	445
				Right	102	13.5	470
		I-270 Ramp Northbound	30.6	Left	338	44.7	405
				Right	216	8.6	405
		I-270 Ramp Southbound	36.3	Left	234	39.0	225
				Right	22	7.0	225

5-6 PM - 2027 Preferred Alternative - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
MD 28 at I-270 NB Off Ramp	53.1	MD 28 Eastbound	20.1	Left	227	18.4	545
				Through	1131	20.5	545
		MD 28 Westbound	104.9	Through	875	102.7	870
				Right	30	168.0	900
		I-270 NB Off Ramp Northbound	49.6	Through	186	68.5	265
				Right	104	15.7	265
		Nelson St Southbound	50.7	Left	27	77.5	365
				Right	407	48.9	365
MD 28 at I-270 SB Off Ramp	10.7	MD 28 Eastbound	3.9	Through	977	6.8	235
				Right**	1244	1.5	105
		MD 28 Westbound	9.2	Through	1599	9.2	685
		I-270 SB Off Ramp Southbound	35.1	Left	498	45.4	295
				Right*	219	11.6	285
MD 189 at I-270 SB Ramps	8.8	MD 189 Eastbound	10.2	Through	927	11.4	270
				Right**	110	0.4	100
		MD 189 Westbound	10.4	Left	513	1.3	50
				Through	534	19.1	180
		I-270 SB Off Ramp Southbound	5.5	Left	295	13.9	95
				Right**	686	1.9	0
MD 189 at I-270 NB Ramps	14.8	MD 189 Eastbound	15.1	Left	480	13.6	250
				Through	731	16.0	365
		MD 189 Westbound	15.1	Through	865	10.7	230
				Right**	305	27.7	430
		I-270 NB Off Ramp Northbound	13.7	Left	182	22.2	90
				Right**	359	9.4	140
Wootton Pkwy at I-270 ML Access	29.2	Wootton Pkwy Eastbound	45.6	Left	146	120.6	300
				Through	642	30.3	300
				Right	55	24.7	305
		Wootton Pkwy Westbound	25.7	Left	597	36.6	250
				Through	449	16.0	250
				Right	174	13.2	250
		I-270 Ramp Northbound	15.9	Left	131	29.0	190
				Right	354	11.0	190
		I-270 Ramp Southbound	20.0	Left	186	29.9	180
				Right	146	7.3	180
Montrose Rd at Tower Oaks Blvd	44.5	Montrose Rd Eastbound	9.6	Left	68	32.1	380
				Through	1463	8.6	380
		Montrose Rd Westbound	66.3	Through	2269	66.0	1520
				Right	132	71.9	1520
		Tower Oaks Blvd Southbound	46.1	Left	161	38.0	225
				Right*	398	49.4	225

5-6 PM - 2027 Preferred Alternative - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
Westlake Terrace at I-270 ML Access	14.8	Westlake Terrace Eastbound	13.9	Left	310	15.8	160
				Through	378	13.4	155
				Right	70	8.5	155
		Westlake Terrace Westbound	13.8	Left	184	9.6	250
				Through	627	18.1	250
				Right	483	9.7	255
		I-270 Ramp Northbound	15.6	Left	62	23.8	160
				Right	112	11.1	160
		I-270 Ramp Southbound	20.5	Left	122	26.2	245
				Right	193	16.9	245
Democracy Blvd at I-270 NB Off Ramp	11.1	Democracy Blvd Eastbound	4.1	Through	1058	4.1	85
		I-270 NB Off Ramp Northbound	46.2	Right*	211	46.2	185
Democracy Blvd at I-270 NB Off Ramp	6.3	Democracy Blvd Eastbound	3.7	Through	1058	3.7	150
		Democracy Blvd Westbound	4.3	Through	1200	4.3	230
		I-270 NB Off Ramp Northbound	44.2	Left	138	44.2	125
Democracy Blvd at I-270 SB Off Ramp	20.7	Democracy Blvd Eastbound	14.9	Through	900	17.1	315
				Right**	182	4.1	220
		Democracy Blvd Westbound	25.4	Left	469	46.7	280
				Through	869	13.9	280
		I-270 SB Off Ramp Southbound	20.7	Left	405	48.5	240
				Right**	604	2.0	0
MD 190 at I-495 Outer Loop Off Ramp	10.1	MD 190 Eastbound	11.7	Through	1337	13.1	205
				Right	298	5.6	70
		MD 190 Westbound	2.7	Left	261	10.1	155
				Through	1158	1.0	155
		I-495 Ramp Southbound	21.2	Left	497	28.0	145
				Right	232	6.7	140
MD 190 at I-495 Inner Loop On Ramp	47.9	MD 190 Eastbound	3.3	Left	153	22.5	120
				Through	1609	1.4	120
		MD 190 Westbound	137.1	Through	941	137.1	505
		I-495 Ramp Northbound	26.7	Left	188	32.0	95
				Right	70	12.7	95

5-6 PM - 2027 Preferred Alternative - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
VA 193 at I-495 Outer Loop Ramps	20.6	VA 193 Eastbound	23.7	Through	808	25.4	680
				Right**	76	5.2	675
		VA 193 Westbound	23.2	Left	458	25.9	245
				Through	189	16.6	245
		I-495 Outer Loop Off Ramp Southbound	16.0	Left	329	43.9	375
				Through	0	0.0	375
				Right**	629	1.4	310
VA 193 at I-495 Inner Loop Ramps	12.3	VA 193 Eastbound	10.4	Left	679	16.7	315
				Through	435	0.6	315
		VA 193 Westbound	14.4	Through	602	22.9	940
				Right**	623	6.1	885
		I-495 Inner Loop Off Ramp Northbound	10.5	Left	45	60.5	105
				Through	0	0.0	105
				Right**	227	0.6	105
MD 187 at I-495 Outer Loop Ramps	10.2	I-495 Outer Loop Off Ramp Westbound	14.1	Left	154	33.7	280
				Through	0	0.0	280
				Right*	315	4.6	225
		MD 187 Northbound	7.3	Left	204	61.6	245
				Through	2189	2.2	245
		MD 187 Southbound	12.8	Through	1502	15.5	350
				Right*	493	4.5	305
MD 187 at I-495 Inner Loop Ramps	5.0	I-495 Inner Loop Off Ramp Eastbound	28.7	Left	260	41.3	400
				Right*	132	4.0	315
		MD 187 Northbound	12.0	Through	2145	12.5	475
				Right*	174	6.7	65
		MD 187 Southbound	9.6	Left	187	64.7	225
				Through	1460	2.5	225
MD 187 at I-270 NB Ramps	26.1	I-270 NB Off Ramp Westbound	15.4	Left	101	42.8	100
				Right**	205	1.9	15
		MD 187 Northbound	24.5	Left	636	48.9	375
				Through	2514	18.3	375
		MD 187 Southbound	30.0	Through	1571	40.0	535
				Right*	600	3.9	385
MD 187 at I-270 SB Ramps	132.8	I-270 SB Off Ramp Eastbound	330.8	Left	458	336.8	1540
				Right*	213	318.0	1530
		MD 187 Northbound	153.7	Through	2709	156.8	1570
				Right*	222	115.8	0
		MD 187 Southbound	17.5	Left	123	52.3	365
				Through	1563	14.8	365

5-6 PM - 2027 Preferred Alternative - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
Rockledge Blvd at I-270 NB Ramps	19.8	I-270 NB Ramps Westbound	23.5	Left	399	20.8	575
				Through	1084	24.5	575
		Rockledge Blvd Northbound	1.8	Left	309	1.8	0
Rockledge Blvd at I-270 SB Ramps	92.4	I-270 SB Off Ramp Eastbound	46.4	Left	0	0.0	455
				Through	484	90.7	455
				Right**	473	1.0	0
		Rockledge Blvd Northbound	182.6	Through	309	186.8	475
				Right	586	180.4	475
		Rockledge Blvd Southbound	0.1	Through	398	0.1	0
MD 355 at I-495 Inner Loop Off Ramp	11.6	I-495 Inner Loop Off Ramp Eastbound	78.5	Right*	237	78.5	270
		MD 355 Southbound	4.2	Through	2123	4.2	265

* Channelized right turn
** Free-flow channelized right turn

6-7 PM - 2027 Preferred Alternative - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
MD 117 at I-270 NB Off Ramp	25.0	MD 117 Eastbound	25.8	Left	0	0.0	740
				Through	760	25.8	740
		MD 117 Westbound	34.6	Through	1222	34.8	380
				Right	17	20.5	410
		I-270 NB Off Ramp Southbound	15.9	Left	172	22.7	205
				Right	1189	14.9	210
MD 117 at I-270 SB On Ramp	1.4	MD 117 Eastbound	1.1	Through	745	1.9	130
				Right**	1076	0.6	0
		MD 117 Westbound	1.6	Left	241	9.8	165
				Through	2168	0.6	145
I-370 at Fields Rd	46.5	Fields Rd Northbound	59.9	Left	307	34.1	295
				Right	397	79.7	265
		I-370 Eastbound	85.8	Through	1644	88.4	505
				Right**	317	72.6	485
		I-370 Westbound	9.4	Left	374	32.5	175
				Through	1660	5.1	160
					294	4.5	110
Shady Grove Rd at I-270 NB Off Ramp	9.7	Shady Grove Rd Eastbound	14.4	Through	669	2.7	110
				Right**	510	29.8	160
		Shady Grove Rd Westbound	3.2	Through	973	3.2	185
		I-270 NB Off Ramp Northbound	11.6	Left	95	51.7	125
				Right**	358	1.0	0
Shady Grove Rd at I-270 SB Off Ramp	19.9	Shady Grove Rd Eastbound	19.1	Through	980	19.1	565
				Right**	481	19.2	370
		Shady Grove Rd Westbound	2.2	Through	368	3.8	100
				Right**	705	1.4	70
		I-270 SB Off Ramp Southbound	60.4	Left	200	57.7	225
				Right	299	62.3	225
Gude Dr at I-270 ML Access	25.4	Gude Dr Eastbound	19.6	Left	122	49.1	230
				Through	657	19.5	230
				Right	254	5.6	230
		Gude Dr Westbound	24.6	Left	406	46.4	290
				Through	885	15.8	290
				Right	105	13.7	315
		I-270 Ramp Northbound	32.1	Left	323	47.1	520
				Right	211	9.3	520
		I-270 Ramp Southbound	39.0	Left	243	41.4	270
				Right	18	6.4	270

6-7 PM - 2027 Preferred Alternative - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
MD 28 at I-270 NB Off Ramp	62.7	MD 28 Eastbound	13.4	Left	139	16.5	370
				Through	898	12.9	370
		MD 28 Westbound	106.5	Through	1175	104.5	860
				Right	38	168.9	885
		I-270 NB Off Ramp Northbound	58.6	Through	168	74.5	250
				Right	93	29.8	250
		Nelson St Southbound	60.0	Left	31	84.7	375
				Right	311	57.6	375
MD 28 at I-270 SB Off Ramp	12.2	MD 28 Eastbound	2.8	Through	648	5.4	170
				Right**	1110	1.2	25
		MD 28 Westbound	12.8	Through	1826	12.8	1160
		I-270 SB Off Ramp Southbound	36.5	Left	453	45.4	280
				Right*	190	15.3	255
MD 189 at I-270 SB Ramps	28.1	MD 189 Eastbound	63.7	Through	809	70.3	585
				Right**	113	16.2	260
		MD 189 Westbound	13.3	Left	451	1.6	80
				Through	541	23.1	240
		I-270 SB Off Ramp Southbound	6.6	Left	289	15.8	170
				Right**	549	1.7	0
MD 189 at I-270 NB Ramps	66.6	MD 189 Eastbound	48.9	Left	455	94.9	475
				Through	646	16.5	600
		MD 189 Westbound	104.0	Through	860	44.8	470
				Right**	239	316.9	750
		I-270 NB Off Ramp Northbound	17.3	Left	132	24.6	115
				Right**	306	14.1	345
Wootton Pkwy at I-270 ML Access	30.8	Wootton Pkwy Eastbound	47.9	Left	143	132.9	280
				Through	521	26.8	280
				Right	46	22.3	285
		Wootton Pkwy Westbound	26.7	Left	554	37.6	230
				Through	289	14.7	230
				Right	148	9.9	235
		I-270 Ramp Northbound	16.1	Left	119	29.2	135
				Right	209	8.6	135
		I-270 Ramp Southbound	21.5	Left	203	32.9	190
				Right	164	7.5	190
Montrose Rd at Tower Oaks Blvd	165.0	Montrose Rd Eastbound	8.3	Left	57	12.3	350
				Through	1354	8.1	350
		Montrose Rd Westbound	633.4	Through	477	609.3	1565
				Right	35	961.8	1565
		Tower Oaks Blvd Southbound	118.3	Left	99	41.7	865
				Right*	304	143.2	870

6-7 PM - 2027 Preferred Alternative - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
Westlake Terrace at I-270 ML Access	16.3	Westlake Terrace Eastbound	16.1	Left	339	20.1	170
				Through	345	13.1	165
				Right	33	6.6	165
		Westlake Terrace Westbound	15.5	Left	192	10.3	240
				Through	494	18.8	240
				Right	376	13.9	245
		I-270 Ramp Northbound	14.9	Left	56	24.0	135
				Right	104	9.9	130
		I-270 Ramp Southbound	19.9	Left	115	25.9	250
				Right	193	16.3	245
Democracy Blvd at I-270 NB Off Ramp	11.1	Democracy Blvd Eastbound	3.8	Through	826	3.8	85
		I-270 NB Off Ramp Northbound	47.1	Right*	166	47.1	140
Democracy Blvd at I-270 NB Off Ramp	6.8	Democracy Blvd Eastbound	1.9	Through	823	1.9	110
		Democracy Blvd Westbound	3.6	Through	1145	3.6	165
		I-270 NB Off Ramp Northbound	48.9	Left	180	48.9	140
Democracy Blvd at I-270 SB Off Ramp	16.1	Democracy Blvd Eastbound	10.0	Through	814	11.2	280
				Right**	129	2.7	185
		Democracy Blvd Westbound	18.8	Left	339	47.1	225
				Through	989	9.1	225
		I-270 SB Off Ramp Southbound	19.5	Left	238	50.8	170
				Right**	412	1.5	0
MD 190 at I-495 Outer Loop Off Ramp	11.2	MD 190 Eastbound	11.1	Through	1058	12.3	160
				Right	289	6.5	60
		MD 190 Westbound	7.9	Left	524	24.5	405
				Through	1309	1.3	405
		I-495 Ramp Southbound	22.1	Left	399	28.8	125
				Right	175	6.8	120
MD 190 at I-495 Inner Loop On Ramp	47.9	MD 190 Eastbound	2.7	Left	146	15.3	120
				Through	1362	1.3	120
		MD 190 Westbound	100.3	Through	1446	100.3	1095
		I-495 Ramp Northbound	26.1	Left	260	31.0	105
				Right	90	12.1	105

6-7 PM - 2027 Preferred Alternative - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
VA 193 at I-495 Outer Loop Ramps	183.2	VA 193 Eastbound	534.5	Through	548	541.9	1030
				Right**	33	410.7	975
		VA 193 Westbound	25.9	Left	205	32.4	295
				Through	123	15.1	295
		I-495 Outer Loop Off Ramp Southbound	16.1	Left	307	44.8	335
				Through	0	0.0	335
				Right**	606	1.6	275
VA 193 at I-495 Inner Loop Ramps	273.3	VA 193 Eastbound	162.1	Left	498	276.9	445
				Through	354	0.5	445
		VA 193 Westbound	484.4	Through	302	133.6	1580
				Right**	386	758.8	1530
		I-495 Inner Loop Off Ramp Northbound	13.7	Left	27	70.2	175
				Through	0	0.0	175
				Right**	167	4.6	175
MD 187 at I-495 Outer Loop Ramps	12.9	I-495 Outer Loop Off Ramp Westbound	18.9	Left	170	35.2	310
				Through	0	0.0	310
				Right*	211	5.8	255
		MD 187 Northbound	11.5	Left	289	68.4	325
				Through	1908	2.9	325
		MD 187 Southbound	13.3	Through	1303	16.6	325
				Right*	472	4.2	280
MD 187 at I-495 Inner Loop Ramps	5.0	I-495 Inner Loop Off Ramp Eastbound	30.8	Left	450	40.5	595
				Right*	189	7.8	510
		MD 187 Northbound	13.7	Through	1768	14.5	415
				Right*	176	5.5	80
		MD 187 Southbound	6.6	Left	134	41.4	170
				Through	1339	3.1	170
MD 187 at I-270 NB Ramps	28.5	I-270 NB Off Ramp Westbound	14.1	Left	82	41.8	105
				Right**	191	2.2	0
		MD 187 Northbound	22.6	Left	478	70.1	380
				Through	2522	13.6	380
		MD 187 Southbound	40.8	Through	1318	35.8	790
				Right*	423	56.3	645
MD 187 at I-270 SB Ramps	111.0	I-270 SB Off Ramp Eastbound	360.7	Left	460	366.0	1545
				Right*	256	351.1	1535
		MD 187 Northbound	95.6	Through	2565	97.4	1360
				Right*	190	71.6	0
		MD 187 Southbound	13.7	Left	69	58.5	320
				Through	1336	11.4	320

6-7 PM - 2027 Preferred Alternative - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
Rockledge Blvd at I-270 NB Ramps	88.5	I-270 NB Ramps Westbound	94.7	Left	234	37.6	1045
				Through	781	111.9	1045
		Rockledge Blvd Northbound	60.1	Left	223	60.1	155
Rockledge Blvd at I-270 SB Ramps	171.9	I-270 SB Off Ramp Eastbound	45.5	Left	0	0.0	280
				Through	423	83.7	280
				Right**	359	0.6	0
		Rockledge Blvd Northbound	352.1	Through	231	387.0	475
				Right	541	337.2	475
		Rockledge Blvd Southbound	0.1	Through	234	0.1	0
MD 355 at I-495 Inner Loop Off Ramp	18.3	I-495 Inner Loop Off Ramp Eastbound	69.6	Right*	424	69.6	460
		MD 355 Southbound	7.0	Through	1920	7.0	290

* Channelized right turn

** Free-flow channelized right turn

6-7 AM - 2045 No-build - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
MD 117 at I-270 NB Off Ramp	12.7	MD 117 Eastbound	12.2	Left	45	70.3	170
				Through	311	3.9	170
		MD 117 Westbound	8.6	Through	678	8.7	230
				Right	43	6.7	260
		I-270 NB Off Ramp Southbound	18.6	Left	91	63.0	180
				Right	457	9.7	185
MD 117 at I-270 SB On Ramp	1.2	MD 117 Eastbound	0.7	Through	358	0.7	0
				Right**	1406	0.7	0
		MD 117 Westbound	2.0	Left	374	5.5	140
				Through	762	0.2	120
I-370 at Fields Rd	10.1	Fields Rd Northbound	25.0	Left	80	32.0	80
				Right	168	21.6	95
		I-370 Eastbound	7.1	Through	894	7.8	120
				Right**	153	3.2	105
		I-370 Westbound	9.2	Left	123	31.0	80
				Through	385	2.7	50
					27	2.3	25
Shady Grove Rd at I-270 NB Off Ramp	12.8	Shady Grove Rd Eastbound	8.4	Through	614	10.0	155
				Right**	124	0.6	0
		Shady Grove Rd Westbound	9.4	Through	864	9.4	255
		I-270 NB Off Ramp Northbound	24.1	Left	290	45.5	205
				Right**	262	0.4	0
Shady Grove Rd at I-270 SB Off Ramp	15.1	Shady Grove Rd Eastbound	4.3	Through	584	5.6	135
				Right**	193	0.4	0
		Shady Grove Rd Westbound	3.2	Through	583	3.4	95
				Right**	572	3.1	50
		I-270 SB Off Ramp Southbound	56.3	Left	154	52.6	250
				Right	382	57.8	250
MD 28 at I-270 NB Off Ramp	7.6	MD 28 Eastbound	6.2	Left	42	5.6	250
				Through	653	6.3	250
		MD 28 Westbound	3.8	Through	172	3.8	70
				Right	0	0.0	105
		I-270 NB Off Ramp Northbound	15.8	Through	23	48.2	70
				Right	75	5.9	70
		Nelson St Southbound	11.9	Left	17	49.5	80
				Right	160	8.0	80

6-7 AM - 2045 No-build - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
MD 28 at I-270 SB Off Ramp	8.1	MD 28 Eastbound	2.4	Through	441	5.3	110
				Right**	983	1.1	0
		MD 28 Westbound	5.3	Through	661	5.3	120
		I-270 SB Off Ramp Southbound	32.9	Left	300	42.6	215
				Right*	100	3.6	145
MD 189 at I-270 Ramps	17.7	MD 189 Eastbound	8.1	Left	143	13.1	115
				Through	142	14.2	115
				Right**	198	0.2	0
		MD 189 Westbound	40.6	Left	352	46.0	210
				Through	14	44.1	210
				Right**	49	0.3	0
		I-270 NB Off Ramp Northbound	9.1	Left	47	48.9	70
				Right**	219	0.6	0
		I-270 SB Off Ramp Southbound	13.2	Left	139	51.7	200
				Right**	421	0.5	0
Montrose Rd at Tower Oaks Blvd	11.1	Montrose Rd Eastbound	7.3	Left	20	9.9	205
				Through	973	7.2	205
		Montrose Rd Westbound	7.1	Through	1057	7.3	215
				Right	24	2.0	215
		Tower Oaks Blvd Southbound	29.3	Left	47	35.7	105
				Right*	399	28.6	200
Democracy Blvd at I-270 NB Off Ramp	32.3	Democracy Blvd Eastbound	13.6	Through	311	13.6	75
		I-270 NB Off Ramp Northbound	44.2	Right*	491	44.2	260
Democracy Blvd at I-270 NB Off Ramp	12.2	Democracy Blvd Eastbound	6.1	Through	310	6.1	65
		Democracy Blvd Westbound	5.9	Through	159	5.9	125
		I-270 NB Off Ramp Northbound	38.0	Left	111	38.0	95
Democracy Blvd at I-270 SB On Ramp	11.8	Democracy Blvd Eastbound	1.1	Through	376	1.1	60
		Democracy Blvd Westbound	26.5	Left	141	51.3	120
				Through	132	0.1	100
Democracy Blvd at I-270 SB Off Ramp	12.8	Democracy Blvd Eastbound	1.4	Through	162	2.6	55
				Right**	172	0.2	0
		Democracy Blvd Westbound	0.6	Through	132	0.6	30
		I-270 SB Off Ramp Southbound	25.9	Left	213	48.9	150
				Right**	198	1.1	0

6-7 AM - 2045 No-build - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
MD 190 at I-495 Outer Loop Off Ramp	11.5	MD 190 Eastbound	2.2	Through	339	2.2	70
		MD 190 Westbound	2.7	Through	499	2.7	85
		I-495 Outer Loop Off Ramp Northbound	69.0	Left	132	69.0	115
MD 190 at I-495 Inner Loop On Ramp	0.9	MD 190 Eastbound	0.4	Left	87	1.4	20
				Through	1049	0.3	0
		MD 190 Westbound	1.8	Through	551	1.8	130
VA 193 at I-495 Outer Loop Ramps	24.4	VA 193 Eastbound	12.9	Through	888	13.5	230
				Right**	57	3.8	240
		VA 193 Westbound	68.7	Left	134	115.5	155
				Through	92	0.6	155
		I-495 Outer Loop Off Ramp Southbound	26.0	Left	225	64.4	370
				Through	0	0.0	370
				Right**	352	1.5	295
VA 193 at I-495 Inner Loop Ramps	14.9	VA 193 Eastbound	15.5	Left	656	24.2	305
				Through	436	2.5	305
		VA 193 Westbound	28.3	Through	182	43.7	110
				Right**	104	1.4	60
		I-495 Inner Loop Off Ramp Northbound	8.7	Left	47	71.1	160
				Through	0	0.0	160
				Right**	670	4.3	160
MD 187 at I-495 Outer Loop Ramps	22.2	I-495 Outer Loop Off Ramp Westbound	40.6	Left	147	65.0	370
				Through	0	0.0	370
				Right*	161	18.4	320
		MD 187 Northbound	42.4	Left	243	84.3	290
				Through	274	5.2	290
		MD 187 Southbound	13.2	Through	1405	15.1	370
				Right*	388	6.4	325
MD 187 at I-495 Inner Loop Ramps	17.5	I-495 Inner Loop Off Ramp Eastbound	11.8	Left	98	34.8	75
				Right*	345	5.2	20
		MD 187 Northbound	28.4	Through	437	32.5	265
				Right*	89	8.0	60
		MD 187 Southbound	15.5	Left	92	49.9	380
				Through	1460	13.4	380

6-7 AM - 2045 No-build - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
MD 187 at I-270 NB Ramps	11.1	I-270 NB Off Ramp Westbound	15.8	Left	131	45.4	215
				Right**	283	2.1	85
		MD 187 Northbound	11.8	Left	5	77.0	110
				Through	350	10.9	110
		MD 187 Southbound	8.5	Through	561	11.7	120
				Right*	274	1.9	20
MD 187 at I-270 SB Ramps	29.2	I-270 SB Off Ramp Eastbound	47.0	Left	89	46.6	115
				Right*	655	47.0	430
		MD 187 Northbound	23.6	Through	265	23.6	95
				Right*	0	0.0	0
		MD 187 Southbound	12.2	Left	88	42.4	150
				Through	608	7.9	150
Rockledge Blvd at I-270 NB Ramps	22.8	I-270 NB Ramps Westbound	25.9	Left	492	26.1	245
				Through	96	24.5	245
		Rockledge Blvd Northbound	1.1	Left	82	1.1	0
Rockledge Blvd at I-270 SB Ramps	16.3	I-270 SB Off Ramp Eastbound	21.4	Left	0	0.0	250
				Through	481	47.6	250
				Right**	660	2.3	0
		Rockledge Blvd Northbound	21.3	Through	82	36.2	150
				Right	342	17.7	150
		Rockledge Blvd Southbound	0.1	Through	492	0.1	0
MD 355 at I-495 Inner Loop Off Ramp	10.9	I-495 Inner Loop Off Ramp Eastbound	22.1	Right*	476	22.1	185
		MD 355 Southbound	8.9	Through	2743	8.9	305

* Channelized right turn

** Free-flow channelized right turn

7-8 AM - 2045 No-build - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
MD 117 at I-270 NB Off Ramp	12.4	MD 117 Eastbound	10.4	Left	32	78.7	210
				Through	494	6.0	210
		MD 117 Westbound	10.3	Through	808	10.3	245
				Right	5	8.0	275
		I-270 NB Off Ramp Southbound	15.8	Left	124	51.7	200
				Right	704	9.5	200
MD 117 at I-270 SB On Ramp	17.5	MD 117 Eastbound	27.7	Through	526	6.6	0
				Right**	1524	35.0	640
		MD 117 Westbound	3.5	Left	346	14.2	225
				Through	1161	0.3	205
I-370 at Fields Rd	13.7	Fields Rd Northbound	22.7	Left	145	32.1	150
				Right	371	19.1	125
		I-370 Eastbound	13.1	Through	1857	14.3	255
				Right**	327	6.4	240
		I-370 Westbound	10.8	Left	254	32.6	120
				Through	761	4.2	80
					71	3.5	45
Shady Grove Rd at I-270 NB Off Ramp	13.7	Shady Grove Rd Eastbound	7.3	Through	825	9.2	175
				Right**	279	1.5	0
		Shady Grove Rd Westbound	9.7	Through	1149	9.7	235
		I-270 NB Off Ramp Northbound	29.2	Left	453	47.8	280
				Right**	292	0.4	35
Shady Grove Rd at I-270 SB Off Ramp	17.8	Shady Grove Rd Eastbound	9.9	Through	820	13.9	250
				Right**	365	0.8	50
		Shady Grove Rd Westbound	7.5	Through	1136	9.7	260
				Right**	465	2.3	30
		I-270 SB Off Ramp Southbound	43.2	Left	286	37.5	435
				Right	726	45.4	435
MD 28 at I-270 NB Off Ramp	13.8	MD 28 Eastbound	13.1	Left	146	13.9	345
				Through	979	13.0	345
		MD 28 Westbound	8.4	Through	471	8.4	175
				Right	29	7.6	210
		I-270 NB Off Ramp Northbound	26.3	Through	107	48.0	180
				Right	122	7.3	180
		Nelson St Southbound	16.3	Left	31	57.6	90
				Right	225	10.7	90

7-8 AM - 2045 No-build - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
MD 28 at I-270 SB Off Ramp	7.3	MD 28 Eastbound	3.5	Through	947	6.0	205
				Right**	1222	1.5	70
		MD 28 Westbound	5.7	Through	1127	5.7	160
		I-270 SB Off Ramp Southbound	35.4	Left	292	42.9	195
				Right*	73	5.3	175
MD 189 at I-270 Ramps	20.5	MD 189 Eastbound	12.2	Left	420	19.9	305
				Through	312	20.8	305
				Right**	515	0.7	40
		MD 189 Westbound	39.7	Left	616	45.1	280
				Through	341	45.9	280
				Right**	142	1.3	40
		I-270 NB Off Ramp Northbound	13.3	Left	138	51.1	120
				Right**	424	1.0	0
		I-270 SB Off Ramp Southbound	11.9	Left	178	49.2	215
				Right**	595	0.8	0
Montrose Rd at Tower Oaks Blvd	19.5	Montrose Rd Eastbound	9.3	Left	156	21.9	215
				Through	825	6.9	215
		Montrose Rd Westbound	14.5	Through	1754	15.0	740
				Right	110	6.0	740
		Tower Oaks Blvd Southbound	47.9	Left	142	44.8	320
				Right*	532	48.7	330
Democracy Blvd at I-270 NB Off Ramp	22.4	Democracy Blvd Eastbound	8.3	Through	831	8.3	80
		I-270 NB Off Ramp Northbound	39.7	Right*	678	39.7	315
Democracy Blvd at I-270 NB Off Ramp	14.9	Democracy Blvd Eastbound	12.2	Through	833	12.2	215
		Democracy Blvd Westbound	9.0	Through	273	9.0	170
		I-270 NB Off Ramp Northbound	35.1	Left	193	35.1	115
Democracy Blvd at I-270 SB On Ramp	9.7	Democracy Blvd Eastbound	3.8	Through	1008	3.8	155
		Democracy Blvd Westbound	22.8	Left	212	49.4	155
				Through	249	0.2	135
Democracy Blvd at I-270 SB Off Ramp	13.3	Democracy Blvd Eastbound	3.9	Through	603	5.5	170
				Right**	313	0.8	70
		Democracy Blvd Westbound	0.9	Through	249	0.9	50
		I-270 SB Off Ramp Southbound	33.2	Left	407	47.4	230
				Right**	181	1.3	0

7-8 AM - 2045 No-build - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
MD 190 at I-495 Outer Loop Off Ramp	16.9	MD 190 Eastbound	7.1	Through	870	7.1	190
		MD 190 Westbound	5.2	Through	713	5.2	165
		I-495 Outer Loop Off Ramp Northbound	76.0	Left	283	76.0	5470
MD 190 at I-495 Inner Loop On Ramp	1.4	MD 190 Eastbound	0.6	Left	188	2.2	55
				Through	1612	0.4	40
		MD 190 Westbound	2.8	Through	1007	2.8	215
VA 193 at I-495 Outer Loop Ramps	25.8	VA 193 Eastbound	20.7	Through	1212	21.7	445
				Right**	92	7.6	455
		VA 193 Westbound	38.5	Left	269	81.6	275
				Through	322	2.4	275
		I-495 Outer Loop Off Ramp Southbound	24.5	Left	272	63.5	390
				Through	0	0.0	390
				Right**	475	2.1	320
VA 193 at I-495 Inner Loop Ramps	26.0	VA 193 Eastbound	11.4	Left	811	18.6	355
				Through	693	2.9	355
		VA 193 Westbound	31.7	Through	535	48.8	280
				Right**	321	3.2	230
		I-495 Inner Loop Off Ramp Northbound	43.0	Left	60	103.6	875
				Through	0	0.0	875
				Right**	951	39.1	875
MD 187 at I-495 Outer Loop Ramps	63.0	I-495 Outer Loop Off Ramp Westbound	44.2	Left	184	64.4	445
				Through	0	0.0	445
				Right*	179	23.4	390
		MD 187 Northbound	54.7	Left	247	221.2	545
				Through	861	6.9	545
		MD 187 Southbound	69.0	Through	2033	71.6	1680
				Right*	673	61.1	1640
MD 187 at I-495 Inner Loop Ramps	58.4	I-495 Inner Loop Off Ramp Eastbound	17.9	Left	127	38.6	170
				Right*	405	11.4	205
		MD 187 Northbound	123.5	Through	1040	133.6	800
				Right*	159	57.5	265
		MD 187 Southbound	32.7	Left	145	148.2	545
				Through	2050	24.6	545

7-8 AM - 2045 No-build - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
MD 187 at I-270 NB Ramps	25.3	I-270 NB Off Ramp Westbound	19.4	Left	203	52.5	345
				Right**	425	3.6	210
		MD 187 Northbound	29.3	Left	314	82.7	360
				Through	875	10.1	360
		MD 187 Southbound	24.8	Through	1673	32.7	475
				Right*	778	7.9	370
MD 187 at I-270 SB Ramps	22.9	I-270 SB Off Ramp Eastbound	47.2	Left	168	47.0	265
				Right*	613	47.2	420
		MD 187 Northbound	23.3	Through	1030	25.7	180
				Right*	109	1.2	10
		MD 187 Southbound	12.4	Left	189	49.4	380
				Through	1676	8.2	380
Rockledge Blvd at I-270 NB Ramps	36.4	I-270 NB Ramps Westbound	38.4	Left	1273	36.4	1045
				Through	422	44.7	1045
		Rockledge Blvd Northbound	1.4	Left	100	1.4	0
Rockledge Blvd at I-270 SB Ramps	12.7	I-270 SB Off Ramp Eastbound	20.2	Left	0	0.0	280
				Through	558	45.3	280
				Right**	815	3.0	0
		Rockledge Blvd Northbound	23.7	Through	100	41.8	190
				Right	418	19.4	190
		Rockledge Blvd Southbound	0.2	Through	1268	0.2	0
MD 355 at I-495 Inner Loop Off Ramp	11.3	I-495 Inner Loop Off Ramp Eastbound	21.7	Right*	502	21.7	185
		MD 355 Southbound	9.4	Through	2786	9.4	330

* Channelized right turn

** Free-flow channelized right turn

8-9 AM - 2045 No-build - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
MD 117 at I-270 NB Off Ramp	20.6	MD 117 Eastbound	16.3	Left	27	81.8	295
				Through	555	13.2	295
		MD 117 Westbound	20.0	Through	969	20.4	360
				Right	36	10.7	390
		I-270 NB Off Ramp Southbound	22.9	Left	187	38.2	215
				Right	1112	20.3	220
MD 117 at I-270 SB On Ramp	29.4	MD 117 Eastbound	55.7	Through	581	17.5	0
				Right**	1522	70.3	880
		MD 117 Westbound	2.7	Left	293	16.6	260
				Through	1782	0.5	240
I-370 at Fields Rd	13.0	Fields Rd Northbound	24.2	Left	168	33.4	145
				Right	314	19.3	120
		I-370 Eastbound	12.5	Through	1689	13.7	230
				Right**	360	6.7	215
		I-370 Westbound	10.3	Left	351	32.5	155
				Through	1144	4.0	115
					80	2.9	40
Shady Grove Rd at I-270 NB Off Ramp	16.8	Shady Grove Rd Eastbound	7.4	Through	1078	9.3	245
				Right**	401	2.1	0
		Shady Grove Rd Westbound	10.2	Through	1279	10.2	275
		I-270 NB Off Ramp Northbound	39.3	Left	722	53.7	420
				Right**	266	0.3	185
Shady Grove Rd at I-270 SB Off Ramp	18.3	Shady Grove Rd Eastbound	12.5	Through	1111	17.0	375
				Right**	437	1.2	130
		Shady Grove Rd Westbound	9.0	Through	1464	11.3	320
				Right**	537	2.7	95
		I-270 SB Off Ramp Southbound	42.2	Left	368	36.2	475
				Right	789	45.0	475
MD 28 at I-270 NB Off Ramp	17.0	MD 28 Eastbound	18.1	Left	315	29.2	345
				Through	997	14.6	345
		MD 28 Westbound	9.8	Through	826	9.8	220
				Right	16	11.3	255
		I-270 NB Off Ramp Northbound	25.9	Through	147	49.8	215
				Right	213	9.5	215
		Nelson St Southbound	21.4	Left	27	62.6	165
				Right	278	17.4	165

8-9 AM - 2045 No-build - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
MD 28 at I-270 SB Off Ramp	8.2	MD 28 Eastbound	3.8	Through	1108	6.4	250
				Right**	1079	1.2	115
		MD 28 Westbound	7.5	Through	1676	7.5	335
		I-270 SB Off Ramp Southbound	31.1	Left	301	42.2	190
				Right*	164	10.8	195
MD 189 at I-270 Ramps	18.4	MD 189 Eastbound	13.6	Left	582	21.9	325
				Through	354	21.4	325
				Right**	591	0.8	15
		MD 189 Westbound	38.2	Left	684	43.3	295
				Through	314	44.9	295
				Right**	153	2.1	55
		I-270 NB Off Ramp Northbound	4.2	Left	46	46.7	90
				Right**	624	1.1	0
		I-270 SB Off Ramp Southbound	11.3	Left	178	48.8	220
				Right**	648	1.0	0
Montrose Rd at Tower Oaks Blvd	24.6	Montrose Rd Eastbound	10.5	Left	159	37.3	255
				Through	1182	6.9	255
		Montrose Rd Westbound	23.5	Through	2166	24.0	1140
				Right	169	16.7	1140
		Tower Oaks Blvd Southbound	53.9	Left	243	45.3	340
				Right*	500	58.0	345
Democracy Blvd at I-270 NB Off Ramp	18.0	Democracy Blvd Eastbound	5.7	Through	1370	5.7	75
		I-270 NB Off Ramp Northbound	38.8	Right*	807	38.8	400
Democracy Blvd at I-270 NB Off Ramp	12.5	Democracy Blvd Eastbound	10.5	Through	1370	10.5	335
		Democracy Blvd Westbound	10.2	Through	762	10.2	250
		I-270 NB Off Ramp Northbound	34.3	Left	207	34.3	130
Democracy Blvd at I-270 SB On Ramp	11.4	Democracy Blvd Eastbound	6.6	Through	1597	6.6	260
		Democracy Blvd Westbound	19.4	Left	370	49.9	220
				Through	593	0.4	200
Democracy Blvd at I-270 SB Off Ramp	11.8	Democracy Blvd Eastbound	6.5	Through	1164	7.8	260
				Right**	323	1.8	170
		Democracy Blvd Westbound	2.9	Through	592	2.9	85
		I-270 SB Off Ramp Southbound	31.2	Left	439	47.1	245
				Right**	235	1.7	0

8-9 AM - 2045 No-build - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
MD 190 at I-495 Outer Loop Off Ramp	35.5	MD 190 Eastbound	55.1	Through	495	55.1	195
		MD 190 Westbound	6.0	Through	682	6.0	150
		I-495 Outer Loop Off Ramp Northbound	74.4	Left	269	74.4	5565
MD 190 at I-495 Inner Loop On Ramp	1.8	MD 190 Eastbound	0.5	Left	125	2.0	45
				Through	1019	0.4	30
		MD 190 Westbound	3.2	Through	1067	3.2	285
VA 193 at I-495 Outer Loop Ramps	28.4	VA 193 Eastbound	21.3	Through	1200	22.5	425
				Right**	107	7.7	435
		VA 193 Westbound	51.1	Left	352	86.3	350
				Through	256	2.7	350
		I-495 Outer Loop Off Ramp Southbound	22.0	Left	226	64.4	365
				Through	0	0.0	365
				Right**	481	2.1	290
VA 193 at I-495 Inner Loop Ramps	21.7	VA 193 Eastbound	14.1	Left	993	18.8	420
				Through	411	2.6	420
		VA 193 Westbound	28.9	Through	529	49.3	250
				Right**	417	3.2	200
		I-495 Inner Loop Off Ramp Northbound	27.2	Left	88	83.5	575
				Through	0	0.0	575
				Right**	589	18.8	575
MD 187 at I-495 Outer Loop Ramps	160.4	I-495 Outer Loop Off Ramp Westbound	60.1	Left	135	91.8	1205
				Through	0	0.0	1205
				Right*	234	41.8	1155
		MD 187 Northbound	87.0	Left	180	403.2	550
				Through	725	8.6	550
		MD 187 Southbound	209.3	Through	1668	151.3	1685
				Right*	448	425.3	1640
MD 187 at I-495 Inner Loop Ramps	110.8	I-495 Inner Loop Off Ramp Eastbound	25.3	Left	147	60.6	155
				Right*	349	10.5	220
		MD 187 Northbound	303.4	Through	814	320.3	830
				Right*	89	149.2	400
		MD 187 Southbound	36.5	Left	113	232.9	485
				Through	1658	23.1	485

8-9 AM - 2045 No-build - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
MD 187 at I-270 NB Ramps	30.2	I-270 NB Off Ramp Westbound	15.3	Left	129	47.7	220
				Right**	323	2.3	85
		MD 187 Northbound	24.3	Left	318	78.9	355
				Through	1385	11.7	355
		MD 187 Southbound	36.0	Through	2117	45.5	980
				Right*	774	9.9	875
MD 187 at I-270 SB Ramps	24.4	I-270 SB Off Ramp Eastbound	46.7	Left	182	48.1	345
				Right*	680	46.4	435
		MD 187 Northbound	27.1	Through	1522	29.9	295
				Right*	186	4.8	10
		MD 187 Southbound	13.8	Left	251	50.2	380
				Through	1986	9.2	380
Rockledge Blvd at I-270 NB Ramps	37.0	I-270 NB Ramps Westbound	39.8	Left	1138	37.6	1115
				Through	638	43.9	1115
		Rockledge Blvd Northbound	1.8	Left	145	1.8	10
Rockledge Blvd at I-270 SB Ramps	14.9	I-270 SB Off Ramp Eastbound	21.8	Left	0	0.0	375
				Through	654	46.9	375
				Right**	952	4.7	0
		Rockledge Blvd Northbound	24.5	Through	145	41.2	185
				Right	441	19.0	185
		Rockledge Blvd Southbound	0.2	Through	1138	0.2	0
MD 355 at I-495 Inner Loop Off Ramp	10.5	I-495 Inner Loop Off Ramp Eastbound	21.2	Right*	400	21.2	155
		MD 355 Southbound	9.1	Through	3251	9.1	350

* Channelized right turn

** Free-flow channelized right turn

9-10 AM - 2045 No-build - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
MD 117 at I-270 NB Off Ramp	15.4	MD 117 Eastbound	10.9	Left	4	85.0	215
				Through	507	10.3	215
		MD 117 Westbound	13.1	Through	875	13.1	290
				Right	5	5.5	320
		I-270 NB Off Ramp Southbound	19.1	Left	129	43.9	215
				Right	1052	16.0	215
MD 117 at I-270 SB On Ramp	6.7	MD 117 Eastbound	12.2	Through	510	4.5	0
				Right**	1355	15.1	565
		MD 117 Westbound	1.5	Left	260	8.6	210
				Through	1674	0.4	190
I-370 at Fields Rd	12.4	Fields Rd Northbound	23.8	Left	139	33.9	135
				Right	282	18.9	115
		I-370 Eastbound	11.7	Through	1418	13.1	185
				Right**	298	5.2	165
		I-370 Westbound	10.2	Left	372	31.9	145
				Through	1124	3.7	95
					99	2.7	70
Shady Grove Rd at I-270 NB Off Ramp	15.9	Shady Grove Rd Eastbound	8.6	Through	1063	10.8	255
				Right**	345	1.9	0
		Shady Grove Rd Westbound	10.3	Through	1097	10.3	240
		I-270 NB Off Ramp Northbound	32.3	Left	627	51.1	385
				Right**	371	0.4	155
Shady Grove Rd at I-270 SB Off Ramp	17.9	Shady Grove Rd Eastbound	11.0	Through	1032	15.2	340
				Right**	444	1.1	110
		Shady Grove Rd Westbound	7.2	Through	1190	9.2	290
				Right**	534	2.9	50
		I-270 SB Off Ramp Southbound	43.6	Left	375	38.5	435
				Right	732	46.2	435
MD 28 at I-270 NB Off Ramp	17.7	MD 28 Eastbound	20.1	Left	226	45.2	345
				Through	936	14.0	345
		MD 28 Westbound	11.1	Through	1113	11.2	260
				Right	28	8.6	300
		I-270 NB Off Ramp Northbound	23.6	Through	121	50.2	210
				Right	234	9.8	210
		Nelson St Southbound	25.7	Left	34	57.1	230
				Right	303	22.2	230

9-10 AM - 2045 No-build - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
MD 28 at I-270 SB Off Ramp	10.3	MD 28 Eastbound	3.5	Through	810	6.6	210
				Right**	1025	1.1	75
		MD 28 Westbound	8.9	Through	1855	8.9	400
		I-270 SB Off Ramp Southbound	37.2	Left	460	42.8	260
				Right*	93	9.6	265
MD 189 at I-270 Ramps	18.8	MD 189 Eastbound	13.1	Left	509	20.5	325
				Through	351	18.6	325
				Right**	454	0.6	0
		MD 189 Westbound	40.0	Left	502	43.8	255
				Through	363	46.5	255
				Right**	112	1.9	40
		I-270 NB Off Ramp Northbound	5.6	Left	67	45.6	75
				Right**	588	1.1	0
		I-270 SB Off Ramp Southbound	12.1	Left	168	47.7	240
				Right**	525	0.7	0
Montrose Rd at Tower Oaks Blvd	16.4	Montrose Rd Eastbound	9.6	Left	99	29.0	395
				Through	1604	8.4	395
		Montrose Rd Westbound	14.9	Through	2136	15.2	865
				Right	108	7.5	865
		Tower Oaks Blvd Southbound	42.0	Left	176	42.0	235
				Right*	407	42.1	245
Democracy Blvd at I-270 NB Off Ramp	20.2	Democracy Blvd Eastbound	7.1	Through	1084	7.1	80
		I-270 NB Off Ramp Northbound	38.2	Right*	795	38.2	375
Democracy Blvd at I-270 NB Off Ramp	12.8	Democracy Blvd Eastbound	10.0	Through	1085	10.0	235
		Democracy Blvd Westbound	10.1	Through	690	10.1	290
		I-270 NB Off Ramp Northbound	32.6	Left	246	32.6	145
Democracy Blvd at I-270 SB On Ramp	14.4	Democracy Blvd Eastbound	7.2	Through	1314	7.2	250
		Democracy Blvd Westbound	24.5	Left	448	50.9	235
				Through	487	0.3	215
Democracy Blvd at I-270 SB Off Ramp	10.5	Democracy Blvd Eastbound	5.0	Through	934	6.2	160
				Right**	299	1.2	65
		Democracy Blvd Westbound	2.0	Through	488	2.0	65
		I-270 SB Off Ramp Southbound	24.6	Left	381	47.9	205
				Right**	389	1.9	0

9-10 AM - 2045 No-build - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
MD 190 at I-495 Outer Loop Off Ramp	35.6	MD 190 Eastbound	57.8	Through	601	57.8	215
		MD 190 Westbound	4.3	Through	711	4.3	170
		I-495 Outer Loop Off Ramp Northbound	75.8	Left	221	75.8	5410
MD 190 at I-495 Inner Loop On Ramp	1.7	MD 190 Eastbound	0.7	Left	187	2.6	60
				Through	1147	0.4	45
		MD 190 Westbound	2.9	Through	1098	2.9	205
VA 193 at I-495 Outer Loop Ramps	26.8	VA 193 Eastbound	18.1	Through	986	19.7	380
				Right**	147	7.1	390
		VA 193 Westbound	50.3	Left	291	83.1	335
				Through	198	2.2	335
		I-495 Outer Loop Off Ramp Southbound	24.6	Left	262	64.4	350
				Through	0	0.0	350
				Right**	459	1.9	275
VA 193 at I-495 Inner Loop Ramps	18.9	VA 193 Eastbound	12.6	Left	782	18.9	320
				Through	488	2.5	320
		VA 193 Westbound	25.6	Through	389	48.3	210
				Right**	398	3.5	160
		I-495 Inner Loop Off Ramp Northbound	23.6	Left	95	84.4	435
				Through	0	0.0	435
				Right**	504	12.2	435
MD 187 at I-495 Outer Loop Ramps	121.8	I-495 Outer Loop Off Ramp Westbound	43.4	Left	130	73.1	3435
				Through	0	0.0	3435
				Right*	215	25.5	3390
		MD 187 Northbound	77.9	Left	193	379.7	550
				Through	862	10.3	550
		MD 187 Southbound	155.3	Through	1703	136.2	1685
				Right*	489	221.9	1640
MD 187 at I-495 Inner Loop Ramps	116.5	I-495 Inner Loop Off Ramp Eastbound	27.4	Left	152	56.9	115
				Right*	223	7.3	165
		MD 187 Northbound	278.8	Through	959	292.0	830
				Right*	84	127.5	695
		MD 187 Southbound	41.7	Left	139	204.8	550
				Through	1675	28.1	545

9-10 AM - 2045 No-build - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
MD 187 at I-270 NB Ramps	24.0	I-270 NB Off Ramp Westbound	18.7	Left	173	49.0	305
				Right**	327	2.7	175
		MD 187 Northbound	23.7	Left	288	79.7	355
				Through	1376	12.0	355
		MD 187 Southbound	25.3	Through	1752	32.6	555
				Right*	670	6.1	445
MD 187 at I-270 SB Ramps	24.2	I-270 SB Off Ramp Eastbound	49.1	Left	175	46.9	245
				Right*	578	49.8	440
		MD 187 Northbound	25.7	Through	1491	28.0	300
				Right*	163	4.1	15
		MD 187 Southbound	13.3	Left	242	47.0	385
				Through	1692	8.4	385
Rockledge Blvd at I-270 NB Ramps	31.1	I-270 NB Ramps Westbound	33.9	Left	960	32.2	1005
				Through	520	37.2	1005
		Rockledge Blvd Northbound	1.7	Left	142	1.7	0
Rockledge Blvd at I-270 SB Ramps	15.3	I-270 SB Off Ramp Eastbound	22.7	Left	0	0.0	305
				Through	615	46.3	305
				Right**	714	2.4	0
		Rockledge Blvd Northbound	26.2	Through	142	41.3	155
				Right	278	18.5	155
		Rockledge Blvd Southbound	0.2	Through	960	0.2	0
MD 355 at I-495 Inner Loop Off Ramp	10.0	I-495 Inner Loop Off Ramp Eastbound	22.0	Right*	360	22.0	135
		MD 355 Southbound	8.5	Through	2914	8.5	275

* Channelized right turn

** Free-flow channelized right turn

3-4 PM - 2045 No-build - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
MD 117 at I-270 NB Off Ramp	25.7	MD 117 Eastbound	25.3	Left	0	0.0	620
				Through	726	25.3	620
		MD 117 Westbound	36.8	Through	1240	37.1	380
				Right	29	21.5	410
		I-270 NB Off Ramp Southbound	15.7	Left	257	21.7	210
				Right	1124	14.4	215
MD 117 at I-270 SB On Ramp	1.9	MD 117 Eastbound	0.8	Through	720	1.1	0
				Right**	1083	0.6	0
		MD 117 Westbound	2.7	Left	285	16.8	245
				Through	2072	0.8	225
I-370 at Fields Rd	12.9	Fields Rd Northbound	24.0	Left	251	33.8	150
				Right	349	17.0	125
		I-370 Eastbound	13.8	Through	1535	15.4	220
				Right**	293	5.8	200
		I-370 Westbound	9.2	Left	345	32.8	140
				Through	1620	5.0	135
					239	3.8	85
Shady Grove Rd at I-270 NB Off Ramp	8.3	Shady Grove Rd Eastbound	3.1	Through	1058	3.3	115
				Right**	659	2.9	0
		Shady Grove Rd Westbound	4.0	Through	890	4.0	160
		I-270 NB Off Ramp Northbound	19.8	Left	359	58.9	220
				Right**	750	1.0	0
Shady Grove Rd at I-270 SB Off Ramp	13.9	Shady Grove Rd Eastbound	6.3	Through	1445	7.9	385
				Right**	518	1.7	170
		Shady Grove Rd Westbound	3.7	Through	619	5.7	170
				Right**	630	1.8	40
		I-270 SB Off Ramp Southbound	54.7	Left	270	52.4	270
				Right	411	56.2	275
MD 28 at I-270 NB Off Ramp	28.8	MD 28 Eastbound	19.0	Left	110	31.6	410
				Through	929	17.5	410
		MD 28 Westbound	26.4	Through	1073	26.2	520
				Right	31	33.3	560
		I-270 NB Off Ramp Northbound	39.2	Through	282	57.0	365
				Right	164	8.7	365
		Nelson St Southbound	49.3	Left	38	66.1	335
				Right	367	47.5	335

3-4 PM - 2045 No-build - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
MD 28 at I-270 SB Off Ramp	10.6	MD 28 Eastbound	3.3	Through	717	6.5	175
				Right**	1078	1.2	25
		MD 28 Westbound	8.9	Through	1877	8.9	445
		I-270 SB Off Ramp Southbound	35.3	Left	455	44.7	250
				Right*	202	14.2	255
MD 189 at I-270 Ramps	21.6	MD 189 Eastbound	19.3	Left	561	24.0	325
				Through	366	20.8	325
				Right**	168	0.3	0
		MD 189 Westbound	33.3	Left	467	45.8	250
				Through	310	43.5	250
				Right**	318	5.0	150
		I-270 NB Off Ramp Northbound	13.6	Left	185	43.7	140
				Right**	458	1.5	0
		I-270 SB Off Ramp Southbound	14.9	Left	235	47.1	295
				Right**	542	0.9	0
Montrose Rd at Tower Oaks Blvd	15.8	Montrose Rd Eastbound	8.7	Left	55	30.5	360
				Through	1441	7.9	360
		Montrose Rd Westbound	16.0	Through	2494	16.2	1080
				Right	142	11.8	1080
		Tower Oaks Blvd Southbound	40.6	Left	144	43.4	170
				Right*	262	39.1	175
Democracy Blvd at I-270 NB Off Ramp	14.8	Democracy Blvd Eastbound	4.2	Through	976	4.2	85
		I-270 NB Off Ramp Northbound	46.6	Right*	323	46.6	170
Democracy Blvd at I-270 NB Off Ramp	8.5	Democracy Blvd Eastbound	5.4	Through	976	5.4	115
		Democracy Blvd Westbound	5.6	Through	1295	5.6	235
		I-270 NB Off Ramp Northbound	43.3	Left	193	43.3	135
Democracy Blvd at I-270 SB On Ramp	12.2	Democracy Blvd Eastbound	5.6	Through	1255	5.6	210
		Democracy Blvd Westbound	17.8	Left	464	55.7	250
				Through	1022	0.6	230
Democracy Blvd at I-270 SB Off Ramp	6.5	Democracy Blvd Eastbound	3.5	Through	1017	4.0	145
				Right**	162	0.9	50
		Democracy Blvd Westbound	2.2	Through	1022	2.2	100
		I-270 SB Off Ramp Southbound	17.5	Left	236	50.1	150
				Right**	480	1.4	0

3-4 PM - 2045 No-build - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
MD 190 at I-495 Outer Loop Off Ramp	11.6	MD 190 Eastbound	4.6	Through	1025	4.6	210
		MD 190 Westbound	5.7	Through	1240	5.7	345
		I-495 Outer Loop Off Ramp Northbound	66.2	Left	266	66.2	465
MD 190 at I-495 Inner Loop On Ramp	36.9	MD 190 Eastbound	0.7	Left	253	2.3	50
				Through	1395	0.4	35
		MD 190 Westbound	94.1	Through	1042	94.1	475
VA 193 at I-495 Outer Loop Ramps	18.9	VA 193 Eastbound	20.9	Through	683	22.9	375
				Right**	97	6.6	375
		VA 193 Westbound	21.0	Left	532	23.2	385
				Through	295	17.2	385
		I-495 Outer Loop Off Ramp Southbound	14.7	Left	241	44.2	260
				Through	0	0.0	260
				Right**	532	1.3	180
VA 193 at I-495 Inner Loop Ramps	10.3	VA 193 Eastbound	6.8	Left	577	10.6	135
				Through	349	0.4	135
		VA 193 Westbound	13.5	Through	797	23.9	335
				Right**	713	1.8	275
		I-495 Inner Loop Off Ramp Northbound	6.5	Left	32	59.8	105
				Through	0	0.0	105
				Right**	338	1.5	105
MD 187 at I-495 Outer Loop Ramps	11.7	I-495 Outer Loop Off Ramp Westbound	22.3	Left	108	54.8	275
				Through	0	0.0	275
				Right*	248	8.2	235
		MD 187 Northbound	8.9	Left	162	51.3	385
				Through	2153	5.7	385
		MD 187 Southbound	13.3	Through	1393	15.8	400
				Right*	491	6.1	355
MD 187 at I-495 Inner Loop Ramps	13.5	I-495 Inner Loop Off Ramp Eastbound	27.8	Left	184	58.1	220
				Right*	238	4.5	125
		MD 187 Northbound	14.3	Through	2117	14.3	485
				Right*	96	14.7	65
		MD 187 Southbound	8.1	Left	169	48.3	240
				Through	1327	3.0	240

3-4 PM - 2045 No-build - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
MD 187 at I-270 NB Ramps	16.9	I-270 NB Off Ramp Westbound	27.9	Left	161	73.2	325
				Right**	280	1.8	190
		MD 187 Northbound	13.7	Left	725	43.5	380
				Through	2033	3.0	380
		MD 187 Southbound	18.9	Through	1416	24.6	310
				Right*	544	4.0	205
MD 187 at I-270 SB Ramps	53.3	I-270 SB Off Ramp Eastbound	61.3	Left	439	63.1	605
				Right*	277	58.6	500
		MD 187 Northbound	68.1	Through	2315	72.7	890
				Right*	250	25.5	10
		MD 187 Southbound	25.6	Left	172	101.2	380
				Through	1408	16.3	380
Rockledge Blvd at I-270 NB Ramps	18.8	I-270 NB Ramps Westbound	23.0	Left	408	22.2	580
				Through	1055	23.3	580
		Rockledge Blvd Northbound	1.9	Left	366	1.9	0
Rockledge Blvd at I-270 SB Ramps	25.0	I-270 SB Off Ramp Eastbound	31.0	Left	0	0.0	290
				Through	503	48.0	290
				Right**	284	0.9	0
		Rockledge Blvd Northbound	30.5	Through	366	42.9	295
				Right	627	23.3	295
		Rockledge Blvd Southbound	0.1	Through	410	0.1	0
MD 355 at I-495 Inner Loop Off Ramp	13.6	I-495 Inner Loop Off Ramp Eastbound	70.5	Right*	307	70.5	255
		MD 355 Southbound	4.9	Through	2014	4.9	225

* Channelized right turn

** Free-flow channelized right turn

4-5 PM - 2045 No-build - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
MD 117 at I-270 NB Off Ramp	26.5	MD 117 Eastbound	25.0	Left	0	0.0	555
				Through	675	25.0	555
		MD 117 Westbound	37.5	Through	1256	37.6	385
				Right	14	25.7	415
		I-270 NB Off Ramp Southbound	15.9	Left	183	22.3	215
				Right	1037	14.8	220
MD 117 at I-270 SB On Ramp	2.3	MD 117 Eastbound	0.9	Through	674	1.2	0
				Right**	1371	0.7	0
		MD 117 Westbound	3.5	Left	308	19.5	260
				Through	1999	1.0	240
I-370 at Fields Rd	16.5	Fields Rd Northbound	28.4	Left	312	35.1	235
				Right	409	23.3	205
		I-370 Eastbound	20.0	Through	1734	21.5	450
				Right**	337	12.0	430
		I-370 Westbound	9.7	Left	366	32.9	160
				Through	1658	5.5	150
					280	4.2	110
Shady Grove Rd at I-270 NB Off Ramp	34.8	Shady Grove Rd Eastbound	32.0	Through	919	3.4	115
				Right**	479	86.9	785
		Shady Grove Rd Westbound	56.9	Through	763	56.9	175
		I-270 NB Off Ramp Northbound	19.6	Left	280	57.9	215
				Right**	576	0.9	0
Shady Grove Rd at I-270 SB Off Ramp	25.7	Shady Grove Rd Eastbound	28.3	Through	1205	29.8	1685
				Right**	591	25.3	1445
		Shady Grove Rd Westbound	3.7	Through	502	5.7	155
				Right**	545	1.9	15
		I-270 SB Off Ramp Southbound	55.4	Left	243	52.3	290
				Right	375	57.4	290
MD 28 at I-270 NB Off Ramp	51.3	MD 28 Eastbound	23.1	Left	172	53.8	395
				Through	873	17.1	395
		MD 28 Westbound	59.7	Through	1056	58.2	885
				Right	37	102.1	925
		I-270 NB Off Ramp Northbound	38.0	Through	253	56.2	335
				Right	166	10.2	335
		Nelson St Southbound	117.3	Left	23	127.1	425
				Right	368	116.6	425

4-5 PM - 2045 No-build - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
MD 28 at I-270 SB Off Ramp	11.3	MD 28 Eastbound	3.2	Through	732	6.2	175
				Right**	1158	1.3	30
		MD 28 Westbound	10.3	Through	2207	10.3	710
		I-270 SB Off Ramp Southbound	39.9	Left	448	46.9	280
				Right*	157	19.8	290
MD 189 at I-270 Ramps	25.1	MD 189 Eastbound	20.6	Left	522	24.4	330
				Through	453	23.3	330
				Right**	161	0.3	0
		MD 189 Westbound	40.0	Left	532	45.5	260
				Through	420	47.5	260
				Right**	424	25.5	425
		I-270 NB Off Ramp Northbound	14.5	Left	192	44.8	130
				Right**	457	1.8	0
		I-270 SB Off Ramp Southbound	14.2	Left	236	45.1	320
				Right**	549	0.9	0
Montrose Rd at Tower Oaks Blvd	21.1	Montrose Rd Eastbound	9.3	Left	84	36.6	285
				Through	1376	7.6	285
		Montrose Rd Westbound	24.5	Through	2575	24.7	1255
				Right	147	20.1	1255
		Tower Oaks Blvd Southbound	42.0	Left	153	42.6	165
				Right*	244	41.6	165
Democracy Blvd at I-270 NB Off Ramp	15.9	Democracy Blvd Eastbound	5.3	Through	934	5.3	80
		I-270 NB Off Ramp Northbound	44.8	Right*	343	44.8	205
Democracy Blvd at I-270 NB Off Ramp	8.8	Democracy Blvd Eastbound	6.0	Through	935	6.0	105
		Democracy Blvd Westbound	6.3	Through	1458	6.3	270
		I-270 NB Off Ramp Northbound	42.0	Left	188	42.0	130
Democracy Blvd at I-270 SB On Ramp	14.7	Democracy Blvd Eastbound	7.5	Through	1182	7.5	240
		Democracy Blvd Westbound	19.8	Left	566	55.8	295
				Through	1066	0.8	275
Democracy Blvd at I-270 SB Off Ramp	8.2	Democracy Blvd Eastbound	4.7	Through	865	5.1	135
				Right**	107	1.0	45
		Democracy Blvd Westbound	2.9	Through	1065	2.9	110
		I-270 SB Off Ramp Southbound	18.5	Left	314	49.1	180
				Right**	570	1.7	0

4-5 PM - 2045 No-build - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
MD 190 at I-495 Outer Loop Off Ramp	10.5	MD 190 Eastbound	4.6	Through	1102	4.6	220
		MD 190 Westbound	5.0	Through	1374	5.0	300
		I-495 Outer Loop Off Ramp Northbound	66.5	Left	252	66.5	320
MD 190 at I-495 Inner Loop On Ramp	39.6	MD 190 Eastbound	1.8	Left	365	7.1	150
				Through	1348	0.4	135
		MD 190 Westbound	132.8	Through	696	132.8	440
VA 193 at I-495 Outer Loop Ramps	19.3	VA 193 Eastbound	21.5	Through	739	23.1	485
				Right**	73	6.1	450
		VA 193 Westbound	19.8	Left	462	22.5	335
				Through	203	13.6	335
		I-495 Outer Loop Off Ramp Southbound	16.6	Left	247	48.4	320
				Through	0	0.0	320
				Right**	515	1.3	240
VA 193 at I-495 Inner Loop Ramps	98.7	VA 193 Eastbound	37.5	Left	661	55.5	270
				Through	321	0.5	270
		VA 193 Westbound	185.3	Through	619	72.6	1580
				Right**	505	323.6	1520
		I-495 Inner Loop Off Ramp Northbound	7.5	Left	43	54.1	100
				Through	0	0.0	100
				Right**	365	2.0	100
MD 187 at I-495 Outer Loop Ramps	11.1	I-495 Outer Loop Off Ramp Westbound	20.9	Left	93	53.9	250
				Through	0	0.0	250
				Right*	215	6.7	210
		MD 187 Northbound	8.6	Left	175	45.3	490
				Through	2582	6.1	495
		MD 187 Southbound	13.3	Through	1382	16.0	365
				Right*	480	5.6	320
MD 187 at I-495 Inner Loop Ramps	14.1	I-495 Inner Loop Off Ramp Eastbound	30.0	Left	118	60.9	130
				Right*	140	4.0	35
		MD 187 Northbound	15.5	Through	2646	15.4	600
				Right*	68	17.8	50
		MD 187 Southbound	8.7	Left	178	51.2	225
				Through	1296	2.9	225

4-5 PM - 2045 No-build - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
MD 187 at I-270 NB Ramps	19.0	I-270 NB Off Ramp Westbound	43.8	Left	217	90.2	410
				Right**	260	5.1	280
		MD 187 Northbound	13.4	Left	738	41.6	370
				Through	1915	2.6	370
		MD 187 Southbound	20.4	Through	1483	26.5	380
				Right*	591	5.0	270
MD 187 at I-270 SB Ramps	91.0	I-270 SB Off Ramp Eastbound	61.2	Left	517	62.3	670
				Right*	261	59.0	625
		MD 187 Northbound	148.9	Through	2132	155.6	1610
				Right*	211	81.3	5
		MD 187 Southbound	24.7	Left	167	100.4	380
				Through	1528	16.4	380
Rockledge Blvd at I-270 NB Ramps	18.5	I-270 NB Ramps Westbound	23.0	Left	381	20.9	580
				Through	1163	23.6	580
		Rockledge Blvd Northbound	2.1	Left	418	2.1	0
Rockledge Blvd at I-270 SB Ramps	27.7	I-270 SB Off Ramp Eastbound	29.1	Left	0	0.0	275
				Through	487	48.7	275
				Right**	339	0.9	0
		Rockledge Blvd Northbound	35.3	Through	418	43.2	365
				Right	819	31.3	365
		Rockledge Blvd Southbound	0.1	Through	382	0.1	0
MD 355 at I-495 Inner Loop Off Ramp	9.9	I-495 Inner Loop Off Ramp Eastbound	77.5	Right*	182	77.5	205
		MD 355 Southbound	3.9	Through	2039	3.9	215

* Channelized right turn

** Free-flow channelized right turn

5-6 PM - 2045 No-build - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
MD 117 at I-270 NB Off Ramp	28.7	MD 117 Eastbound	30.5	Left	0	0.0	940
				Through	918	30.5	940
		MD 117 Westbound	36.1	Through	1313	36.3	390
				Right	33	27.6	420
		I-270 NB Off Ramp Southbound	16.8	Left	185	22.7	210
				Right	789	15.4	215
MD 117 at I-270 SB On Ramp	3.3	MD 117 Eastbound	1.7	Through	931	2.5	205
				Right**	1473	1.2	0
		MD 117 Westbound	5.1	Left	268	32.6	265
				Through	1834	1.1	240
I-370 at Fields Rd	230.0	Fields Rd Northbound	501.8	Left	250	194.4	1040
				Right	308	751.3	1010
		I-370 Eastbound	619.2	Through	746	634.8	865
				Right**	128	528.7	850
		I-370 Westbound	10.3	Left	325	32.0	145
				Through	1562	6.8	195
					352	5.8	155
Shady Grove Rd at I-270 NB Off Ramp	151.5	Shady Grove Rd Eastbound	232.4	Through	440	5.7	95
				Right**	235	656.9	795
		Shady Grove Rd Westbound	147.0	Through	683	147.0	170
		I-270 NB Off Ramp Northbound	16.7	Left	122	49.8	145
				Right**	261	1.2	0
Shady Grove Rd at I-270 SB Off Ramp	154.3	Shady Grove Rd Eastbound	376.8	Through	496	376.9	1690
				Right**	270	376.7	1445
		Shady Grove Rd Westbound	2.8	Through	309	4.3	100
				Right**	498	1.9	20
		I-270 SB Off Ramp Southbound	55.6	Left	209	53.8	205
				Right	279	56.9	205
MD 28 at I-270 NB Off Ramp	80.2	MD 28 Eastbound	23.5	Left	197	45.5	435
				Through	1029	19.3	435
		MD 28 Westbound	145.9	Through	685	141.9	880
				Right	25	257.5	920
		I-270 NB Off Ramp Northbound	38.1	Through	148	53.2	275
				Right	83	11.1	275
		Nelson St Southbound	178.8	Left	23	180.3	425
				Right	306	178.7	425

5-6 PM - 2045 No-build - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
MD 28 at I-270 SB Off Ramp	8.6	MD 28 Eastbound	3.8	Through	1001	6.7	220
				Right**	1304	1.6	85
		MD 28 Westbound	8.1	Through	1164	8.1	440
		I-270 SB Off Ramp Southbound	32.5	Left	350	41.8	220
				Right*	131	7.7	225
MD 189 at I-270 Ramps	62.7	MD 189 Eastbound	50.1	Left	506	84.4	715
				Through	446	27.2	715
				Right**	157	4.2	225
		MD 189 Westbound	131.8	Left	465	72.4	290
				Through	277	70.3	290
				Right**	253	308.5	800
		I-270 NB Off Ramp Northbound	22.0	Left	136	57.1	140
				Right**	253	3.2	0
		I-270 SB Off Ramp Southbound	15.2	Left	253	47.0	325
				Right**	568	1.0	0
Montrose Rd at Tower Oaks Blvd	68.7	Montrose Rd Eastbound	8.6	Left	96	29.5	285
				Through	1351	7.1	285
		Montrose Rd Westbound	132.6	Through	1402	131.8	1560
				Right	82	145.5	1560
		Tower Oaks Blvd Southbound	43.8	Left	126	43.1	145
				Right*	191	44.2	150
Democracy Blvd at I-270 NB Off Ramp	10.9	Democracy Blvd Eastbound	3.9	Through	970	3.9	75
		I-270 NB Off Ramp Northbound	47.2	Right*	188	47.2	150
Democracy Blvd at I-270 NB Off Ramp	6.2	Democracy Blvd Eastbound	4.6	Through	968	4.6	155
		Democracy Blvd Westbound	5.1	Through	1196	5.1	220
		I-270 NB Off Ramp Northbound	43.1	Left	80	43.1	95
Democracy Blvd at I-270 SB On Ramp	14.5	Democracy Blvd Eastbound	7.0	Through	1212	7.0	245
		Democracy Blvd Westbound	21.6	Left	483	56.0	260
				Through	791	0.6	240
Democracy Blvd at I-270 SB Off Ramp	9.9	Democracy Blvd Eastbound	5.4	Through	850	5.9	190
				Right**	104	1.0	90
		Democracy Blvd Westbound	3.4	Through	791	3.4	115
		I-270 SB Off Ramp Southbound	19.8	Left	363	49.2	215
				Right**	588	1.8	0

5-6 PM - 2045 No-build - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
MD 190 at I-495 Outer Loop Off Ramp	17.3	MD 190 Eastbound	14.4	Through	1135	14.4	485
		MD 190 Westbound	5.5	Through	863	5.5	300
		I-495 Outer Loop Off Ramp Northbound	68.2	Left	265	68.2	465
MD 190 at I-495 Inner Loop On Ramp	76.2	MD 190 Eastbound	29.3	Left	244	167.8	680
				Through	1408	5.3	665
		MD 190 Westbound	232.2	Through	496	232.2	915
VA 193 at I-495 Outer Loop Ramps	91.9	VA 193 Eastbound	275.2	Through	418	283.4	1130
				Right**	52	209.0	1020
		VA 193 Westbound	21.0	Left	173	25.8	280
				Through	78	10.5	280
		I-495 Outer Loop Off Ramp Southbound	16.4	Left	316	44.4	365
				Through	0	0.0	365
				Right**	589	1.4	285
VA 193 at I-495 Inner Loop Ramps	285.6	VA 193 Eastbound	141.6	Left	330	297.3	455
				Through	364	0.6	455
		VA 193 Westbound	666.7	Through	218	302.7	1580
				Right**	182	1102.7	1525
		I-495 Inner Loop Off Ramp Northbound	11.8	Left	30	57.4	95
				Through	0	0.0	95
				Right**	162	3.4	95
MD 187 at I-495 Outer Loop Ramps	12.4	I-495 Outer Loop Off Ramp Westbound	27.6	Left	114	54.0	340
				Through	0	0.0	340
				Right*	197	12.2	300
		MD 187 Northbound	8.6	Left	173	50.6	420
				Through	2398	5.5	425
		MD 187 Southbound	14.8	Through	1594	17.1	470
				Right*	492	7.5	425
MD 187 at I-495 Inner Loop Ramps	11.9	I-495 Inner Loop Off Ramp Eastbound	35.0	Left	81	60.8	180
				Right*	70	5.2	95
		MD 187 Northbound	12.2	Through	2492	12.1	540
				Right*	115	15.0	100
		MD 187 Southbound	9.3	Left	182	60.4	300
				Through	1516	3.2	300

5-6 PM - 2045 No-build - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
MD 187 at I-270 NB Ramps	19.3	I-270 NB Off Ramp Westbound	27.0	Left	94	71.3	255
				Right**	170	2.5	120
		MD 187 Northbound	12.5	Left	744	44.2	380
				Through	2324	2.3	380
		MD 187 Southbound	28.1	Through	1597	33.2	980
				Right*	531	12.7	875
MD 187 at I-270 SB Ramps	87.4	I-270 SB Off Ramp Eastbound	86.9	Left	560	88.9	855
				Right*	192	81.1	670
		MD 187 Northbound	126.1	Through	2512	133.0	1610
				Right*	317	72.1	350
		MD 187 Southbound	23.0	Left	112	104.0	380
				Through	1587	17.3	380
Rockledge Blvd at I-270 NB Ramps	47.9	I-270 NB Ramps Westbound	54.0	Left	322	27.5	1290
				Through	1037	62.2	1290
		Rockledge Blvd Northbound	22.5	Left	325	22.5	190
Rockledge Blvd at I-270 SB Ramps	92.3	I-270 SB Off Ramp Eastbound	31.0	Left	0	0.0	320
				Through	487	55.5	320
				Right**	399	1.1	0
		Rockledge Blvd Northbound	175.3	Through	334	185.5	475
				Right	679	170.2	475
		Rockledge Blvd Southbound	0.1	Through	321	0.1	0
MD 355 at I-495 Inner Loop Off Ramp	7.0	I-495 Inner Loop Off Ramp Eastbound	72.7	Right*	118	72.7	175
		MD 355 Southbound	3.4	Through	2125	3.4	320

* Channelized right turn

** Free-flow channelized right turn

6-7 PM - 2045 No-build - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
MD 117 at I-270 NB Off Ramp	25.4	MD 117 Eastbound	25.5	Left	0	0.0	655
				Through	747	25.5	655
		MD 117 Westbound	36.5	Through	1236	36.7	385
				Right	16	22.2	415
		I-270 NB Off Ramp Southbound	15.8	Left	213	21.4	215
				Right	1256	14.9	220
MD 117 at I-270 SB On Ramp	1.6	MD 117 Eastbound	0.8	Through	735	1.2	0
				Right**	1093	0.6	0
		MD 117 Westbound	2.1	Left	237	15.8	210
				Through	2249	0.7	190
I-370 at Fields Rd	168.6	Fields Rd Northbound	340.6	Left	437	193.4	1040
				Right	633	442.3	1010
		I-370 Eastbound	287.2	Through	1755	294.7	865
				Right**	323	246.4	850
		I-370 Westbound	10.7	Left	446	32.3	175
				Through	1979	6.6	190
					300	5.3	125
Shady Grove Rd at I-270 NB Off Ramp	49.3	Shady Grove Rd Eastbound	48.3	Through	954	3.9	135
				Right**	855	97.8	790
		Shady Grove Rd Westbound	76.4	Through	1039	76.4	370
		I-270 NB Off Ramp Northbound	15.5	Left	199	57.0	190
				Right**	575	1.2	20
Shady Grove Rd at I-270 SB Off Ramp	58.3	Shady Grove Rd Eastbound	87.5	Through	1589	84.4	1685
				Right**	801	93.8	1440
		Shady Grove Rd Westbound	4.2	Through	448	7.1	160
				Right**	788	2.6	20
		I-270 SB Off Ramp Southbound	53.5	Left	187	49.3	265
				Right	394	55.5	265
MD 28 at I-270 NB Off Ramp	67.5	MD 28 Eastbound	64.0	Left	102	309.8	1195
				Through	914	36.6	1195
		MD 28 Westbound	48.9	Through	1464	48.0	875
				Right	46	78.8	910
		I-270 NB Off Ramp Northbound	52.4	Through	207	72.6	470
				Right	100	10.7	470
		Nelson St Southbound	177.0	Left	30	173.7	420
				Right	299	177.4	420

6-7 PM - 2045 No-build - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
MD 28 at I-270 SB Off Ramp	16.2	MD 28 Eastbound	3.8	Through	663	8.2	215
				Right**	1174	1.3	70
		MD 28 Westbound	19.2	Through	1982	19.2	2745
		I-270 SB Off Ramp Southbound	40.9	Left	512	46.7	330
				Right*	174	23.9	340
MD 189 at I-270 Ramps	76.3	MD 189 Eastbound	75.7	Left	525	118.4	950
				Through	392	44.1	950
				Right**	155	11.3	520
		MD 189 Westbound	137.2	Left	568	106.1	745
				Through	467	111.7	745
				Right**	305	234.2	780
		I-270 NB Off Ramp Northbound	14.8	Left	119	47.4	130
				Right**	326	2.8	0
		I-270 SB Off Ramp Southbound	17.3	Left	336	45.0	385
				Right**	575	1.1	0
Montrose Rd at Tower Oaks Blvd	174.6	Montrose Rd Eastbound	10.5	Left	56	32.8	1175
				Through	1472	9.7	1175
		Montrose Rd Westbound	532.0	Through	725	539.7	1560
				Right	74	456.5	1560
		Tower Oaks Blvd Southbound	81.7	Left	150	45.4	755
				Right*	225	105.9	755
Democracy Blvd at I-270 NB Off Ramp	11.3	Democracy Blvd Eastbound	3.6	Through	853	3.6	80
		I-270 NB Off Ramp Northbound	45.3	Right*	193	45.3	180
Democracy Blvd at I-270 NB Off Ramp	12.3	Democracy Blvd Eastbound	4.6	Through	855	4.6	125
		Democracy Blvd Westbound	17.7	Through	745	17.7	220
		I-270 NB Off Ramp Northbound	41.0	Left	88	41.0	95
Democracy Blvd at I-270 SB On Ramp	7.7	Democracy Blvd Eastbound	3.2	Through	1101	3.2	170
		Democracy Blvd Westbound	13.6	Left	212	51.7	210
				Through	627	0.7	190
Democracy Blvd at I-270 SB Off Ramp	8.3	Democracy Blvd Eastbound	3.8	Through	834	4.1	125
				Right**	87	0.6	35
		Democracy Blvd Westbound	2.8	Through	626	2.8	125
		I-270 SB Off Ramp Southbound	18.4	Left	265	49.1	170
				Right**	480	1.5	0

6-7 PM - 2045 No-build - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
MD 190 at I-495 Outer Loop Off Ramp	21.2	MD 190 Eastbound	30.6	Through	961	30.6	560
		MD 190 Westbound	4.1	Through	938	4.1	245
		I-495 Outer Loop Off Ramp Northbound	69.2	Left	147	69.2	220
MD 190 at I-495 Inner Loop On Ramp	131.0	MD 190 Eastbound	103.9	Left	311	414.0	810
				Through	1131	18.6	795
		MD 190 Westbound	190.6	Through	655	190.6	1170
VA 193 at I-495 Outer Loop Ramps	460.4	VA 193 Eastbound	1687.6	Through	296	1693.6	1130
				Right**	24	1613.3	1145
		VA 193 Westbound	18.9	Left	84	25.9	185
				Through	53	7.9	185
		I-495 Outer Loop Off Ramp Southbound	15.6	Left	242	45.5	325
				Through	0	0.0	325
				Right**	505	1.3	245
VA 193 at I-495 Inner Loop Ramps	707.2	VA 193 Eastbound	354.1	Left	280	688.9	445
				Through	265	0.3	445
		VA 193 Westbound	1961.7	Through	117	735.3	1575
				Right**	131	3057.0	1515
		I-495 Inner Loop Off Ramp Northbound	13.5	Left	22	62.3	130
				Through	0	0.0	130
				Right**	149	6.3	130
MD 187 at I-495 Outer Loop Ramps	9.6	I-495 Outer Loop Off Ramp Westbound	33.7	Left	59	54.7	180
				Through	0	0.0	180
				Right*	46	6.8	140
		MD 187 Northbound	8.7	Left	239	47.7	350
				Through	2013	4.1	350
		MD 187 Southbound	9.2	Through	1316	11.1	380
				Right*	500	4.2	335
MD 187 at I-495 Inner Loop Ramps	17.3	I-495 Inner Loop Off Ramp Eastbound	57.2	Left	257	79.3	1710
				Right*	166	23.1	1625
		MD 187 Northbound	15.6	Through	1991	15.6	445
				Right*	144	16.1	85
		MD 187 Southbound	7.5	Left	111	49.8	245
				Through	1261	3.8	245

6-7 PM - 2045 No-build - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
MD 187 at I-270 NB Ramps	105.2	I-270 NB Off Ramp Westbound	26.2	Left	28	76.7	155
				Right**	58	1.8	30
		MD 187 Northbound	41.9	Left	389	216.5	385
				Through	1680	1.5	385
		MD 187 Southbound	367.8	Through	419	175.8	1250
				Right*	105	1134.1	1140
MD 187 at I-270 SB Ramps	164.0	I-270 SB Off Ramp Eastbound	65.0	Left	505	66.7	720
				Right*	267	61.8	620
		MD 187 Northbound	249.7	Through	1562	258.7	1610
				Right*	117	128.6	325
		MD 187 Southbound	14.2	Left	23	93.6	240
				Through	427	9.9	240
Rockledge Blvd at I-270 NB Ramps	501.3	I-270 NB Ramps Westbound	595.3	Left	84	79.3	1490
				Through	440	693.9	1490
		Rockledge Blvd Northbound	235.0	Left	185	235.0	270
Rockledge Blvd at I-270 SB Ramps	187.2	I-270 SB Off Ramp Eastbound	31.3	Left	0	0.0	305
				Through	535	45.1	305
				Right**	243	0.9	0
		Rockledge Blvd Northbound	380.5	Through	191	487.1	480
				Right	519	341.3	480
		Rockledge Blvd Southbound	0.1	Through	85	0.1	0
MD 355 at I-495 Inner Loop Off Ramp	14.5	I-495 Inner Loop Off Ramp Eastbound	72.2	Right*	316	72.2	410
		MD 355 Southbound	5.6	Through	2046	5.6	320

* Channelized right turn

** Free-flow channelized right turn

6-7 AM - 2045 Preferred Alternative - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
MD 117 at I-270 NB Off Ramp	13.9	MD 117 Eastbound	11.1	Left	38	69.7	115
				Through	309	3.9	115
		MD 117 Westbound	7.8	Through	684	7.9	205
				Right	44	6.4	235
		I-270 NB Off Ramp Southbound	23.5	Left	95	59.4	190
				Right	469	16.2	190
MD 117 at I-270 SB On Ramp	1.2	MD 117 Eastbound	0.7	Through	353	0.7	0
				Right**	1438	0.7	0
		MD 117 Westbound	2.0	Left	375	5.9	190
				Through	777	0.2	170
I-370 at Fields Rd	10.2	Fields Rd Northbound	26.2	Left	74	32.8	75
				Right	169	23.4	85
		I-370 Eastbound	7.1	Through	920	7.7	115
				Right**	149	3.4	100
		I-370 Westbound	9.1	Left	103	31.2	75
				Through	340	3.0	50
					27	1.7	25
Shady Grove Rd at I-270 NB Off Ramp	12.4	Shady Grove Rd Eastbound	8.7	Through	629	9.7	155
				Right**	82	0.7	0
		Shady Grove Rd Westbound	9.6	Through	863	9.6	250
		I-270 NB Off Ramp Northbound	23.9	Left	230	45.3	170
				Right**	208	0.3	0
Shady Grove Rd at I-270 SB Off Ramp	15.5	Shady Grove Rd Eastbound	4.2	Through	543	5.3	110
				Right**	150	0.3	0
		Shady Grove Rd Westbound	3.2	Through	494	3.1	70
				Right**	598	3.4	65
		I-270 SB Off Ramp Southbound	54.6	Left	168	52.8	245
				Right	372	55.4	245
Gude Dr at I-270 ML Access	20.8	Gude Dr Eastbound	14.6	Left	77	53.2	125
				Through	357	14.7	125
				Right	299	4.5	125
		Gude Dr Westbound	20.6	Left	201	45.7	135
				Through	453	12.1	135
				Right	98	8.3	150
		I-270 Ramp Northbound	25.0	Left	310	41.4	365
				Right	330	9.5	360
		I-270 Ramp Southbound	28.7	Left	184	37.7	235
				Right	74	6.2	235

6-7 AM - 2045 Preferred Alternative - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
MD 28 at I-270 NB Off Ramp	7.4	MD 28 Eastbound	5.4	Left	43	5.4	225
				Through	629	5.4	225
		MD 28 Westbound	5.8	Through	167	5.8	95
				Right	0	0.0	85
		I-270 NB Off Ramp Northbound	16.9	Through	21	47.8	60
				Right	56	5.4	60
		Nelson St Southbound	12.4	Left	18	47.9	90
				Right	154	8.3	90
MD 28 at I-270 SB Off Ramp	7.4	MD 28 Eastbound	2.3	Through	464	4.9	120
				Right**	951	1.1	35
		MD 28 Westbound	5.8	Through	796	5.8	145
		I-270 SB Off Ramp Southbound	31.0	Left	259	41.1	150
				Right*	99	4.7	50
MD 189 at I-270 SB Ramps	5.5	MD 189 Eastbound	5.6	Through	413	7.8	110
				Right**	177	0.5	0
		MD 189 Westbound	4.2	Left	343	0.9	0
				Through	50	26.7	50
		I-270 SB Off Ramp Southbound	6.5	Left	127	22.5	95
				Right**	364	1.0	0
MD 189 at I-270 NB Ramps	11.3	MD 189 Eastbound	14.2	Left	188	0.7	0
				Through	353	21.3	135
		MD 189 Westbound	7.5	Through	361	8.4	175
				Right**	45	0.8	15
		I-270 NB Off Ramp Northbound	10.9	Left	32	22.3	55
				Right**	166	8.7	75
Wootton Pkwy at I-270 ML Access	24.0	Wootton Pkwy Eastbound	28.0	Left	246	41.3	255
				Through	123	17.0	250
				Right	104	9.7	265
		Wootton Pkwy Westbound	26.8	Left	324	38.0	170
				Through	420	20.3	170
				Right	87	16.4	195
		I-270 Ramp Northbound	8.1	Left	37	27.0	105
				Right	226	5.0	130
		I-270 Ramp Southbound	24.0	Left	197	34.2	230
				Right	106	5.0	250
Montrose Rd at Tower Oaks Blvd	11.5	Montrose Rd Eastbound	6.8	Left	21	9.5	190
				Through	878	6.8	190
		Montrose Rd Westbound	7.1	Through	1045	7.2	220
				Right	24	2.3	220
		Tower Oaks Blvd Southbound	31.1	Left	155	43.3	155
				Right*	296	24.7	135

6-7 AM - 2045 Preferred Alternative - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
Westlake Terrace at I-270 ML Access	13.4	Westlake Terrace Eastbound	12.8	Left	84	15.9	90
				Through	200	12.6	90
				Right	33	6.2	90
		Westlake Terrace Westbound	11.9	Left	117	15.5	100
				Through	241	13.3	100
				Right	96	4.0	110
		I-270 Ramp Northbound	11.4	Left	25	15.3	180
				Right	243	11.0	180
		I-270 Ramp Southbound	16.2	Left	394	16.0	300
				Right	103	16.7	300
Democracy Blvd at I-270 NB Off Ramp	28.8	Democracy Blvd Eastbound	9.7	Through	308	9.7	70
		I-270 NB Off Ramp Northbound	44.4	Right*	376	44.4	230
Democracy Blvd at I-270 NB Off Ramp	15.6	Democracy Blvd Eastbound	5.7	Through	308	5.7	75
		Democracy Blvd Westbound	4.9	Through	45	4.9	40
		I-270 NB Off Ramp Northbound	40.9	Left	141	40.9	110
Democracy Blvd at I-270 SB Off Ramp	13.3	Democracy Blvd Eastbound	1.8	Through	161	3.4	55
				Right**	192	0.5	0
		Democracy Blvd Westbound	4.9	Left	15	52.7	50
				Through	170	0.7	45
		I-270 SB Off Ramp Southbound	33.9	Left	183	50.2	140
				Right**	90	0.7	0
MD 190 at I-495 Outer Loop Off Ramp	13.6	MD 190 Eastbound	7.0	Through	507	9.1	110
				Right	423	4.6	70
		MD 190 Westbound	13.4	Left	61	26.0	100
				Through	392	11.5	100
		I-495 Ramp Southbound	21.9	Left	659	24.6	145
				Right	100	4.2	145
MD 190 at I-495 Inner Loop On Ramp	7.6	MD 190 Eastbound	4.3	Left	64	13.4	95
				Through	1369	3.9	95
		MD 190 Westbound	10.0	Through	551	10.0	185
		I-495 Ramp Northbound	12.8	Left	159	27.4	80
				Right	520	8.4	80

6-7 AM - 2045 Preferred Alternative - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
VA 193 at I-495 Outer Loop Ramps	22.7	VA 193 Eastbound	11.5	Through	894	11.9	240
				Right**	52	3.0	250
		VA 193 Westbound	77.2	Left	100	124.9	130
				Through	62	0.2	130
		I-495 Outer Loop Off Ramp Southbound	25.8	Left	223	65.4	335
				Through	0	0.0	335
				Right**	365	1.5	270
VA 193 at I-495 Inner Loop Ramps	13.6	VA 193 Eastbound	14.4	Left	585	24.9	270
				Through	515	2.4	270
		VA 193 Westbound	25.4	Through	126	46.4	80
				Right**	109	1.1	30
		I-495 Inner Loop Off Ramp Northbound	8.1	Left	40	66.5	135
				Through	0	0.0	135
				Right**	620	4.4	135
MD 187 at I-495 Outer Loop Ramps	32.2	I-495 Outer Loop Off Ramp Westbound	23.5	Left	127	43.6	235
				Through	0	0.0	235
				Right*	144	5.8	185
		MD 187 Northbound	100.7	Left	255	209.7	500
				Through	299	7.8	505
		MD 187 Southbound	11.5	Through	1302	13.6	300
				Right*	414	4.8	255
MD 187 at I-495 Inner Loop Ramps	5.0	I-495 Inner Loop Off Ramp Eastbound	12.1	Left	101	45.2	100
				Right*	448	4.6	95
		MD 187 Northbound	44.5	Through	482	51.6	320
				Right*	80	1.5	30
		MD 187 Southbound	7.2	Left	88	81.7	130
				Through	1338	2.3	130
MD 187 at I-270 NB Ramps	10.0	I-270 NB Off Ramp Westbound	9.0	Left	50	43.5	80
				Right**	276	2.7	20
		MD 187 Northbound	12.1	Left	12	74.9	125
				Through	434	10.3	125
		MD 187 Southbound	9.2	Through	611	12.1	130
				Right*	235	1.8	10
MD 187 at I-270 SB Ramps	29.0	I-270 SB Off Ramp Eastbound	47.2	Left	94	43.6	90
				Right*	656	47.7	400
		MD 187 Northbound	21.8	Through	353	22.1	105
				Right*	4	0.6	0
		MD 187 Southbound	12.3	Left	89	40.7	170
				Through	572	7.9	170

6-7 AM - 2045 Preferred Alternative - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
Rockledge Blvd at I-270 NB Ramps	21.3	I-270 NB Ramps Westbound	23.6	Left	544	23.7	225
				Through	78	22.9	225
		Rockledge Blvd Northbound	0.6	Left	70	0.6	0
Rockledge Blvd at I-270 SB Ramps	14.8	I-270 SB Off Ramp Eastbound	20.3	Left	0	0.0	230
				Through	401	47.5	230
				Right**	584	1.5	0
		Rockledge Blvd Northbound	20.6	Through	70	33.5	145
				Right	377	18.3	145
		Rockledge Blvd Southbound	0.1	Through	547	0.1	0
MD 355 at I-495 Inner Loop Off Ramp	10.8	I-495 Inner Loop Off Ramp Eastbound	22.3	Right*	472	22.3	185
		MD 355 Southbound	8.9	Through	2799	8.9	295

* Channelized right turn

** Free-flow channelized right turn

7-8 AM - 2045 Preferred Alternative - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
MD 117 at I-270 NB Off Ramp	16.6	MD 117 Eastbound	12.6	Left	27	87.6	290
				Through	491	8.5	290
		MD 117 Westbound	12.4	Through	820	12.4	270
				Right	5	8.8	300
		I-270 NB Off Ramp Southbound	22.7	Left	136	48.1	210
				Right	757	18.2	215
MD 117 at I-270 SB On Ramp	10.4	MD 117 Eastbound	16.2	Through	523	2.7	0
				Right**	1576	20.7	480
		MD 117 Westbound	2.7	Left	344	11.4	205
				Through	1227	0.3	185
I-370 at Fields Rd	14.3	Fields Rd Northbound	23.3	Left	145	32.4	145
				Right	376	19.8	125
		I-370 Eastbound	13.5	Through	1906	14.7	255
				Right**	324	6.5	235
		I-370 Westbound	11.2	Left	224	34.5	125
				Through	676	4.4	80
					70	3.1	25
Shady Grove Rd at I-270 NB Off Ramp	13.9	Shady Grove Rd Eastbound	8.4	Through	871	10.2	200
				Right**	228	1.6	0
		Shady Grove Rd Westbound	9.6	Through	1131	9.6	230
		I-270 NB Off Ramp Northbound	29.9	Left	439	45.8	260
				Right**	239	0.6	15
Shady Grove Rd at I-270 SB Off Ramp	18.3	Shady Grove Rd Eastbound	10.3	Through	770	14.1	235
				Right**	310	0.7	15
		Shady Grove Rd Westbound	7.7	Through	1082	10.1	245
				Right**	484	2.3	30
		I-270 SB Off Ramp Southbound	42.1	Left	329	35.2	430
				Right	742	45.1	430
Gude Dr at I-270 ML Access	20.8	Gude Dr Eastbound	17.1	Left	80	52.2	235
				Through	834	18.3	235
				Right	353	6.2	235
		Gude Dr Westbound	19.5	Left	225	47.1	215
				Through	867	13.5	215
				Right	112	10.8	235
		I-270 Ramp Northbound	26.4	Left	334	42.2	380
				Right	350	11.3	380
		I-270 Ramp Southbound	29.6	Left	195	38.0	215
				Right	74	7.3	215

7-8 AM - 2045 Preferred Alternative - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
MD 28 at I-270 NB Off Ramp	13.5	MD 28 Eastbound	11.2	Left	155	10.8	310
				Through	955	11.3	310
		MD 28 Westbound	12.9	Through	466	13.2	215
				Right	30	8.4	210
		I-270 NB Off Ramp Northbound	25.3	Through	82	46.0	140
				Right	91	6.6	140
		Nelson St Southbound	16.2	Left	31	54.9	100
				Right	226	10.9	100
MD 28 at I-270 SB Off Ramp	7.1	MD 28 Eastbound	3.7	Through	977	6.4	195
				Right**	1182	1.4	70
		MD 28 Westbound	6.4	Through	1290	6.4	255
		I-270 SB Off Ramp Southbound	33.5	Left	245	42.4	170
				Right*	80	6.4	55
MD 189 at I-270 SB Ramps	7.2	MD 189 Eastbound	8.2	Through	925	12.8	310
				Right**	603	1.2	200
		MD 189 Westbound	5.9	Left	614	2.0	90
				Through	435	11.6	145
		I-270 SB Off Ramp Southbound	6.6	Left	204	19.5	95
				Right**	484	1.2	0
MD 189 at I-270 NB Ramps	11.4	MD 189 Eastbound	10.5	Left	513	2.0	40
				Through	613	17.6	200
		MD 189 Westbound	11.7	Through	982	12.7	285
				Right**	133	4.2	70
		I-270 NB Off Ramp Northbound	13.0	Left	69	20.7	65
				Right**	335	11.4	135
Wootton Pkwy at I-270 ML Access	22.6	Wootton Pkwy Eastbound	26.4	Left	181	42.0	200
				Through	249	18.8	200
				Right	78	14.4	210
		Wootton Pkwy Westbound	25.9	Left	384	38.5	240
				Through	739	20.6	240
				Right	92	15.4	265
		I-270 Ramp Northbound	9.6	Left	46	32.6	160
				Right	331	6.4	185
		I-270 Ramp Southbound	19.9	Left	182	31.5	185
				Right	159	6.6	205
Montrose Rd at Tower Oaks Blvd	17.5	Montrose Rd Eastbound	9.7	Left	194	22.3	205
				Through	796	6.7	205
		Montrose Rd Westbound	14.8	Through	1777	15.3	690
				Right	95	5.8	690
		Tower Oaks Blvd Southbound	38.3	Left	180	44.0	235
				Right*	433	35.9	210

7-8 AM - 2045 Preferred Alternative - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
Westlake Terrace at I-270 ML Access	15.2	Westlake Terrace Eastbound	12.8	Left	128	18.1	115
				Through	304	11.5	115
				Right	42	5.8	120
		Westlake Terrace Westbound	14.1	Left	287	20.8	185
				Through	450	10.9	185
				Right	45	3.7	200
		I-270 Ramp Northbound	13.6	Left	35	21.6	195
				Right	264	12.6	195
		I-270 Ramp Southbound	21.9	Left	259	22.3	305
				Right	120	21.1	310
Democracy Blvd at I-270 NB Off Ramp	21.1	Democracy Blvd Eastbound	6.1	Through	785	6.1	70
		I-270 NB Off Ramp Northbound	39.1	Right*	656	39.1	315
Democracy Blvd at I-270 NB Off Ramp	14.6	Democracy Blvd Eastbound	9.0	Through	786	9.0	155
		Democracy Blvd Westbound	7.7	Through	168	7.7	100
		I-270 NB Off Ramp Northbound	36.6	Left	254	36.6	150
Democracy Blvd at I-270 SB Off Ramp	12.6	Democracy Blvd Eastbound	5.0	Through	671	7.0	140
				Right**	345	1.0	45
		Democracy Blvd Westbound	12.6	Left	106	46.0	115
				Through	315	1.4	115
		I-270 SB Off Ramp Southbound	37.5	Left	232	50.2	155
				Right**	80	0.6	0
MD 190 at I-495 Outer Loop Off Ramp	16.2	MD 190 Eastbound	14.6	Through	1061	18.3	180
				Right	826	9.9	85
		MD 190 Westbound	14.8	Left	450	19.3	210
				Through	704	12.0	210
		I-495 Ramp Southbound	20.0	Left	969	23.4	205
				Right	218	5.1	205
MD 190 at I-495 Inner Loop On Ramp	9.4	MD 190 Eastbound	4.9	Left	127	11.8	130
				Through	2119	4.5	130
		MD 190 Westbound	14.6	Through	967	14.6	300
		I-495 Ramp Northbound	14.3	Left	262	24.3	100
				Right	764	10.9	100

7-8 AM - 2045 Preferred Alternative - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
VA 193 at I-495 Outer Loop Ramps	26.1	VA 193 Eastbound	21.0	Through	1260	21.9	470
				Right**	80	7.8	480
		VA 193 Westbound	40.0	Left	239	87.0	325
				Through	291	1.3	325
		I-495 Outer Loop Off Ramp Southbound	25.4	Left	322	64.0	440
				Through	0	0.0	440
				Right**	554	2.9	375
VA 193 at I-495 Inner Loop Ramps	18.0	VA 193 Eastbound	10.6	Left	780	17.8	345
				Through	818	3.8	345
		VA 193 Westbound	29.0	Through	472	46.8	250
				Right**	320	2.7	200
		I-495 Inner Loop Off Ramp Northbound	21.2	Left	55	74.6	530
				Through	0	0.0	530
				Right**	935	18.0	530
MD 187 at I-495 Outer Loop Ramps	31.3	I-495 Outer Loop Off Ramp Westbound	30.6	Left	174	45.6	295
				Through	0	0.0	295
				Right*	133	11.0	245
		MD 187 Northbound	66.2	Left	254	283.2	545
				Through	906	5.3	550
		MD 187 Southbound	16.6	Through	2065	17.1	575
				Right*	690	15.5	535
MD 187 at I-495 Inner Loop Ramps	5.0	I-495 Inner Loop Off Ramp Eastbound	19.7	Left	142	54.7	200
				Right*	571	11.0	370
		MD 187 Northbound	127.0	Through	1070	140.3	795
				Right*	159	37.8	15
		MD 187 Southbound	6.4	Left	106	82.2	150
				Through	2127	2.7	150
MD 187 at I-270 NB Ramps	25.1	I-270 NB Off Ramp Westbound	24.5	Left	337	49.3	240
				Right**	401	3.6	105
		MD 187 Northbound	25.2	Left	302	69.3	295
				Through	1001	11.9	295
		MD 187 Southbound	25.3	Through	1728	32.6	515
				Right*	718	7.8	405
MD 187 at I-270 SB Ramps	23.2	I-270 SB Off Ramp Eastbound	46.8	Left	201	46.9	335
				Right*	619	46.8	440
		MD 187 Northbound	24.8	Through	1125	26.9	215
				Right*	101	1.6	0
		MD 187 Southbound	12.9	Left	188	50.5	435
				Through	1872	9.2	435

7-8 AM - 2045 Preferred Alternative - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
Rockledge Blvd at I-270 NB Ramps	24.3	I-270 NB Ramps Westbound	26.3	Left	1130	28.1	570
				Through	409	21.3	570
		Rockledge Blvd Northbound	0.9	Left	128	0.9	0
Rockledge Blvd at I-270 SB Ramps	14.0	I-270 SB Off Ramp Eastbound	20.7	Left	0	0.0	310
				Through	612	46.0	310
				Right**	897	3.4	0
		Rockledge Blvd Northbound	24.6	Through	128	39.4	190
				Right	400	19.8	190
		Rockledge Blvd Southbound	0.2	Through	1123	0.2	0
MD 355 at I-495 Inner Loop Off Ramp	10.9	I-495 Inner Loop Off Ramp Eastbound	22.5	Right*	464	22.5	190
		MD 355 Southbound	9.1	Through	2865	9.1	340

* Channelized right turn

** Free-flow channelized right turn

8-9 AM - 2045 Preferred Alternative - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
MD 117 at I-270 NB Off Ramp	21.1	MD 117 Eastbound	20.7	Left	20	112.1	430
				Through	557	17.5	430
		MD 117 Westbound	24.6	Through	980	25.1	370
				Right	35	11.6	400
		I-270 NB Off Ramp Southbound	18.7	Left	201	29.9	215
				Right	1190	16.8	220
MD 117 at I-270 SB On Ramp	5.6	MD 117 Eastbound	8.6	Through	586	1.8	0
				Right**	1549	11.1	445
		MD 117 Westbound	2.6	Left	298	16.0	245
				Through	1873	0.5	225
I-370 at Fields Rd	13.8	Fields Rd Northbound	23.8	Left	170	35.0	155
				Right	321	17.9	125
		I-370 Eastbound	13.9	Through	1747	15.3	225
				Right**	365	7.2	205
		I-370 Westbound	10.6	Left	357	33.2	135
				Through	1116	3.9	100
					80	3.5	50
Shady Grove Rd at I-270 NB Off Ramp	17.1	Shady Grove Rd Eastbound	8.5	Through	1119	10.4	270
				Right**	338	2.0	35
		Shady Grove Rd Westbound	10.3	Through	1306	10.3	290
		I-270 NB Off Ramp Northbound	39.3	Left	711	52.8	420
				Right**	248	0.9	180
Shady Grove Rd at I-270 SB Off Ramp	18.3	Shady Grove Rd Eastbound	12.8	Through	1046	17.3	355
				Right**	394	1.0	115
		Shady Grove Rd Westbound	8.8	Through	1413	11.2	330
				Right**	604	3.2	80
		I-270 SB Off Ramp Southbound	40.7	Left	411	36.3	440
				Right	791	43.0	440
Gude Dr at I-270 ML Access	22.8	Gude Dr Eastbound	20.2	Left	89	57.3	330
				Through	1093	20.7	330
				Right	287	6.8	330
		Gude Dr Westbound	21.1	Left	220	49.1	310
				Through	1096	16.2	310
				Right	114	13.7	330
		I-270 Ramp Northbound	29.0	Left	390	42.5	415
				Right	383	15.3	415
		I-270 Ramp Southbound	28.1	Left	211	35.6	220
				Right	81	8.4	220

8-9 AM - 2045 Preferred Alternative - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
MD 28 at I-270 NB Off Ramp	18.1	MD 28 Eastbound	15.7	Left	327	19.8	355
				Through	994	14.3	355
		MD 28 Westbound	19.5	Through	821	19.5	280
				Right	16	17.7	270
		I-270 NB Off Ramp Northbound	22.3	Through	106	47.1	170
				Right	194	8.8	170
		Nelson St Southbound	20.5	Left	34	58.5	140
				Right	271	15.7	140
MD 28 at I-270 SB Off Ramp	8.8	MD 28 Eastbound	4.0	Through	1154	6.6	250
				Right**	1068	1.2	90
		MD 28 Westbound	8.9	Through	2050	8.9	550
		I-270 SB Off Ramp Southbound	32.7	Left	270	42.1	185
				Right*	167	17.4	160
MD 189 at I-270 SB Ramps	8.1	MD 189 Eastbound	9.8	Through	1102	14.9	445
				Right**	663	1.4	280
		MD 189 Westbound	6.6	Left	679	2.5	100
				Through	436	13.0	155
		I-270 SB Off Ramp Southbound	6.2	Left	186	19.2	90
				Right**	492	1.2	0
MD 189 at I-270 NB Ramps	11.4	MD 189 Eastbound	9.2	Left	656	2.7	105
				Through	634	16.0	200
		MD 189 Westbound	12.5	Through	1016	13.4	335
				Right**	145	6.2	80
		I-270 NB Off Ramp Northbound	14.0	Left	100	19.9	65
				Right**	548	12.9	225
Wootton Pkwy at I-270 ML Access	22.8	Wootton Pkwy Eastbound	26.9	Left	245	41.1	270
				Through	491	21.4	265
				Right	81	17.6	275
		Wootton Pkwy Westbound	26.5	Left	331	37.5	255
				Through	680	22.3	255
				Right	103	19.0	280
		I-270 Ramp Northbound	11.1	Left	53	29.3	205
				Right	417	8.8	225
		I-270 Ramp Southbound	17.1	Left	144	31.8	175
				Right	197	6.3	195
Montrose Rd at Tower Oaks Blvd	16.5	Montrose Rd Eastbound	8.7	Left	70	24.6	270
				Through	1358	7.9	270
		Montrose Rd Westbound	15.2	Through	2220	15.5	965
				Right	125	9.7	965
		Tower Oaks Blvd Southbound	40.1	Left	173	41.1	255
				Right*	423	39.7	235

8-9 AM - 2045 Preferred Alternative - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
Westlake Terrace at I-270 ML Access	17.9	Westlake Terrace Eastbound	15.5	Left	151	26.4	135
				Through	422	12.1	135
				Right	30	8.0	135
		Westlake Terrace Westbound	13.3	Left	176	21.6	145
				Through	500	12.8	145
				Right	132	4.4	160
		I-270 Ramp Northbound	15.0	Left	73	17.4	175
				Right	180	14.0	175
		I-270 Ramp Southbound	30.7	Left	310	30.8	440
				Right	152	30.4	440
Democracy Blvd at I-270 NB Off Ramp	17.7	Democracy Blvd Eastbound	5.4	Through	1442	5.4	80
		I-270 NB Off Ramp Northbound	37.7	Right*	889	37.7	595
Democracy Blvd at I-270 NB Off Ramp	13.7	Democracy Blvd Eastbound	11.9	Through	1443	11.9	340
		Democracy Blvd Westbound	10.3	Through	769	10.3	250
		I-270 NB Off Ramp Northbound	31.4	Left	289	31.4	160
Democracy Blvd at I-270 SB Off Ramp	18.1	Democracy Blvd Eastbound	12.0	Through	1180	14.3	345
				Right**	367	4.5	260
		Democracy Blvd Westbound	17.3	Left	297	40.9	205
				Through	753	8.0	200
		I-270 SB Off Ramp Southbound	36.4	Left	422	47.2	250
				Right**	129	1.0	0
MD 190 at I-495 Outer Loop Off Ramp	14.6	MD 190 Eastbound	12.6	Through	1034	15.9	165
				Right	947	9.1	85
		MD 190 Westbound	14.5	Left	381	21.1	205
				Through	698	11.0	205
		I-495 Ramp Southbound	19.9	Left	591	24.7	135
				Right	190	4.9	135
MD 190 at I-495 Inner Loop On Ramp	10.3	MD 190 Eastbound	4.5	Left	134	14.4	115
				Through	1616	3.6	115
		MD 190 Westbound	16.3	Through	1114	16.3	335
		I-495 Ramp Northbound	13.4	Left	284	22.9	125
				Right	878	10.4	125

8-9 AM - 2045 Preferred Alternative - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
VA 193 at I-495 Outer Loop Ramps	26.8	VA 193 Eastbound	21.4	Through	1219	22.5	465
				Right**	102	8.2	475
		VA 193 Westbound	48.2	Left	326	79.9	330
				Through	223	1.8	330
		I-495 Outer Loop Off Ramp Southbound	21.4	Left	272	62.1	395
				Through	0	0.0	395
				Right**	588	2.7	330
VA 193 at I-495 Inner Loop Ramps	17.1	VA 193 Eastbound	12.6	Left	920	18.4	385
				Through	549	2.9	385
		VA 193 Westbound	27.2	Through	471	47.9	250
				Right**	410	3.5	200
		I-495 Inner Loop Off Ramp Northbound	13.6	Left	85	77.2	290
				Through	0	0.0	290
				Right**	613	4.7	290
MD 187 at I-495 Outer Loop Ramps	34.0	I-495 Outer Loop Off Ramp Westbound	31.9	Left	196	51.4	515
				Through	0	0.0	515
				Right*	295	18.9	465
		MD 187 Northbound	77.2	Left	257	307.7	550
				Through	836	6.4	555
		MD 187 Southbound	18.4	Through	2289	19.2	640
				Right*	675	15.7	595
MD 187 at I-495 Inner Loop Ramps	5.0	I-495 Inner Loop Off Ramp Eastbound	25.3	Left	110	57.9	300
				Right*	495	18.1	420
		MD 187 Northbound	235.8	Through	1019	250.1	830
				Right*	100	90.2	10
		MD 187 Southbound	13.4	Left	232	95.3	420
				Through	2232	4.9	420
MD 187 at I-270 NB Ramps	27.0	I-270 NB Off Ramp Westbound	22.1	Left	262	49.3	190
				Right**	377	3.3	45
		MD 187 Northbound	20.5	Left	261	66.6	355
				Through	1490	12.4	355
		MD 187 Southbound	32.0	Through	2155	39.8	825
				Right*	730	9.1	715
MD 187 at I-270 SB Ramps	24.8	I-270 SB Off Ramp Eastbound	48.1	Left	271	47.5	350
				Right*	651	48.4	450
		MD 187 Northbound	28.3	Through	1474	30.9	335
				Right*	180	6.9	0
		MD 187 Southbound	13.6	Left	235	49.6	435
				Through	2188	9.7	435

8-9 AM - 2045 Preferred Alternative - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
Rockledge Blvd at I-270 NB Ramps	23.9	I-270 NB Ramps Westbound	26.5	Left	1165	28.0	570
				Through	553	23.5	570
		Rockledge Blvd Northbound	1.1	Left	200	1.1	0
Rockledge Blvd at I-270 SB Ramps	15.6	I-270 SB Off Ramp Eastbound	22.1	Left	0	0.0	400
				Through	715	46.6	400
				Right**	1017	4.9	0
		Rockledge Blvd Northbound	26.5	Through	200	40.2	195
				Right	403	19.7	195
		Rockledge Blvd Southbound	0.2	Through	1164	0.2	0
MD 355 at I-495 Inner Loop Off Ramp	10.9	I-495 Inner Loop Off Ramp Eastbound	21.8	Right*	425	21.8	170
		MD 355 Southbound	9.5	Through	3321	9.5	395

* Channelized right turn

** Free-flow channelized right turn

9-10 AM - 2045 Preferred Alternative - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
MD 117 at I-270 NB Off Ramp	18.6	MD 117 Eastbound	15.3	Left	4	95.9	230
				Through	490	14.7	230
		MD 117 Westbound	18.2	Through	888	18.3	345
				Right	5	5.4	375
		I-270 NB Off Ramp Southbound	20.3	Left	136	34.3	215
				Right	1079	18.5	220
MD 117 at I-270 SB On Ramp	1.1	MD 117 Eastbound	0.7	Through	491	0.8	0
				Right**	1342	0.6	0
		MD 117 Westbound	1.5	Left	261	8.7	220
				Through	1708	0.4	200
I-370 at Fields Rd	13.0	Fields Rd Northbound	22.8	Left	145	32.0	140
				Right	294	18.3	115
		I-370 Eastbound	12.5	Through	1493	13.8	195
				Right**	306	5.9	175
		I-370 Westbound	10.7	Left	355	33.5	145
				Through	1069	3.9	90
					99	2.8	50
Shady Grove Rd at I-270 NB Off Ramp	15.6	Shady Grove Rd Eastbound	8.7	Through	1062	10.6	225
				Right**	296	1.8	0
		Shady Grove Rd Westbound	10.4	Through	1104	10.4	320
		I-270 NB Off Ramp Northbound	32.5	Left	565	50.5	325
				Right**	323	1.0	85
Shady Grove Rd at I-270 SB Off Ramp	17.9	Shady Grove Rd Eastbound	11.4	Through	975	15.8	315
				Right**	404	0.9	85
		Shady Grove Rd Westbound	7.8	Through	1091	10.2	275
				Right**	578	3.2	65
		I-270 SB Off Ramp Southbound	40.7	Left	385	35.8	420
				Right	753	43.3	420
Gude Dr at I-270 ML Access	21.6	Gude Dr Eastbound	17.3	Left	76	54.7	245
				Through	813	18.1	245
				Right	291	5.5	245
		Gude Dr Westbound	20.4	Left	218	51.0	325
				Through	1020	14.8	325
				Right	120	12.9	345
		I-270 Ramp Northbound	28.0	Left	391	42.6	415
				Right	364	12.3	415
		I-270 Ramp Southbound	27.7	Left	202	35.8	200
				Right	81	7.7	200

9-10 AM - 2045 Preferred Alternative - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
MD 28 at I-270 NB Off Ramp	19.1	MD 28 Eastbound	15.7	Left	226	24.5	350
				Through	911	13.5	350
		MD 28 Westbound	20.5	Through	1123	20.7	395
				Right	23	13.6	385
		I-270 NB Off Ramp Northbound	21.1	Through	95	50.1	145
				Right	230	9.1	145
		Nelson St Southbound	23.8	Left	39	58.2	205
				Right	291	19.2	205
MD 28 at I-270 SB Off Ramp	10.1	MD 28 Eastbound	3.3	Through	833	5.9	200
				Right**	977	1.1	25
		MD 28 Westbound	10.2	Through	2140	10.2	635
		I-270 SB Off Ramp Southbound	34.9	Left	322	43.3	190
				Right*	167	18.6	185
MD 189 at I-270 SB Ramps	8.0	MD 189 Eastbound	9.4	Through	987	13.6	345
				Right**	514	1.1	235
		MD 189 Westbound	6.7	Left	507	1.6	45
				Through	470	12.3	160
		I-270 SB Off Ramp Southbound	6.6	Left	178	20.0	85
				Right**	444	1.2	0
MD 189 at I-270 NB Ramps	10.9	MD 189 Eastbound	9.4	Left	561	2.3	40
				Through	604	16.0	195
		MD 189 Westbound	11.2	Through	892	11.9	260
				Right**	106	5.2	60
		I-270 NB Off Ramp Northbound	13.5	Left	84	19.8	60
				Right**	492	12.4	215
Wootton Pkwy at I-270 ML Access	21.9	Wootton Pkwy Eastbound	26.8	Left	222	43.4	270
				Through	407	19.8	265
				Right	72	15.1	280
		Wootton Pkwy Westbound	24.3	Left	260	37.0	195
				Through	570	19.7	195
				Right	99	17.4	220
		I-270 Ramp Northbound	10.8	Left	58	28.7	225
				Right	435	8.4	245
		I-270 Ramp Southbound	21.3	Left	177	32.8	210
				Right	130	5.7	230
Montrose Rd at Tower Oaks Blvd	12.5	Montrose Rd Eastbound	9.3	Left	19	18.7	490
				Through	1694	9.2	490
		Montrose Rd Westbound	10.0	Through	2157	10.1	685
				Right	80	5.4	685
		Tower Oaks Blvd Southbound	36.1	Left	101	41.1	165
				Right*	376	34.8	185

9-10 AM - 2045 Preferred Alternative - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
Westlake Terrace at I-270 ML Access	23.1	Westlake Terrace Eastbound	23.4	Left	191	45.3	175
				Through	387	13.7	175
				Right	28	7.9	175
		Westlake Terrace Westbound	12.9	Left	121	20.0	170
				Through	615	13.5	170
				Right	142	4.5	180
		I-270 Ramp Northbound	17.4	Left	62	21.6	240
				Right	284	16.5	235
		I-270 Ramp Southbound	45.7	Left	304	45.4	580
				Right	172	46.2	580
Democracy Blvd at I-270 NB Off Ramp	18.8	Democracy Blvd Eastbound	6.0	Through	1206	6.0	80
		I-270 NB Off Ramp Northbound	38.5	Right*	787	38.5	380
Democracy Blvd at I-270 NB Off Ramp	13.4	Democracy Blvd Eastbound	10.0	Through	1207	10.0	265
		Democracy Blvd Westbound	9.5	Through	630	9.5	235
		I-270 NB Off Ramp Northbound	34.1	Left	318	34.1	180
Democracy Blvd at I-270 SB Off Ramp	17.2	Democracy Blvd Eastbound	11.0	Through	1023	13.3	315
				Right**	329	3.7	230
		Democracy Blvd Westbound	18.4	Left	331	41.2	235
				Through	622	6.3	235
		I-270 SB Off Ramp Southbound	29.1	Left	354	49.2	215
				Right**	255	1.2	0
MD 190 at I-495 Outer Loop Off Ramp	13.6	MD 190 Eastbound	10.3	Through	995	12.9	155
				Right	683	6.5	65
		MD 190 Westbound	12.9	Left	203	22.4	165
				Through	721	10.3	165
		I-495 Ramp Southbound	21.6	Left	650	24.5	140
				Right	110	4.5	140
MD 190 at I-495 Inner Loop On Ramp	11.0	MD 190 Eastbound	4.7	Left	103	15.0	125
				Through	1550	4.0	125
		MD 190 Westbound	16.2	Through	1127	16.2	325
		I-495 Ramp Northbound	14.9	Left	383	24.8	125
				Right	747	9.9	125

9-10 AM - 2045 Preferred Alternative - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
VA 193 at I-495 Outer Loop Ramps	26.0	VA 193 Eastbound	16.4	Through	1051	17.7	370
				Right**	142	6.9	380
		VA 193 Westbound	55.9	Left	251	92.5	270
				Through	170	1.8	270
		I-495 Outer Loop Off Ramp Southbound	24.3	Left	257	65.6	380
				Through	0	0.0	380
				Right**	478	2.1	315
VA 193 at I-495 Inner Loop Ramps	15.3	VA 193 Eastbound	12.4	Left	761	19.3	310
				Through	570	3.2	310
		VA 193 Westbound	22.1	Through	332	45.7	155
				Right**	404	2.7	105
		I-495 Inner Loop Off Ramp Northbound	13.5	Left	88	72.8	185
				Through	0	0.0	185
				Right**	495	3.0	185
MD 187 at I-495 Outer Loop Ramps	29.7	I-495 Outer Loop Off Ramp Westbound	20.0	Left	113	47.1	275
				Through	0	0.0	275
				Right*	221	6.1	220
		MD 187 Northbound	60.8	Left	260	289.6	550
				Through	1091	6.2	550
		MD 187 Southbound	12.8	Through	1665	14.4	450
				Right*	626	8.5	405
MD 187 at I-495 Inner Loop Ramps	5.0	I-495 Inner Loop Off Ramp Eastbound	15.7	Left	79	54.0	85
				Right*	327	6.5	195
		MD 187 Northbound	185.9	Through	1307	194.0	830
				Right*	96	76.7	5
		MD 187 Southbound	9.3	Left	162	77.7	195
				Through	1612	2.4	195
MD 187 at I-270 NB Ramps	23.2	I-270 NB Off Ramp Westbound	23.6	Left	250	48.8	185
				Right**	306	2.9	30
		MD 187 Northbound	21.0	Left	275	71.9	340
				Through	1465	11.4	340
		MD 187 Southbound	24.7	Through	1872	30.8	650
				Right*	596	5.5	540
MD 187 at I-270 SB Ramps	22.4	I-270 SB Off Ramp Eastbound	46.6	Left	203	46.3	280
				Right*	545	46.7	375
		MD 187 Northbound	24.7	Through	1531	26.8	280
				Right*	167	5.2	0
		MD 187 Southbound	12.0	Left	228	47.6	430
				Through	1879	7.6	430

9-10 AM - 2045 Preferred Alternative - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
Rockledge Blvd at I-270 NB Ramps	23.2	I-270 NB Ramps Westbound	25.9	Left	843	26.6	485
				Through	469	24.9	485
		Rockledge Blvd Northbound	1.0	Left	162	1.0	0
Rockledge Blvd at I-270 SB Ramps	15.1	I-270 SB Off Ramp Eastbound	20.5	Left	0	0.0	355
				Through	618	45.7	355
				Right**	900	3.2	0
		Rockledge Blvd Northbound	25.8	Through	162	38.0	140
				Right	266	18.4	140
		Rockledge Blvd Southbound	0.2	Through	844	0.2	0
MD 355 at I-495 Inner Loop Off Ramp	9.7	I-495 Inner Loop Off Ramp Eastbound	22.3	Right*	384	22.3	175
		MD 355 Southbound	8.0	Through	2942	8.0	310

* Channelized right turn

** Free-flow channelized right turn

3-4 PM - 2045 Preferred Alternative - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
MD 117 at I-270 NB Off Ramp	25.8	MD 117 Eastbound	26.0	Left	0	0.0	650
				Through	737	26.0	650
		MD 117 Westbound	36.9	Through	1264	37.3	385
				Right	28	19.6	415
		I-270 NB Off Ramp Southbound	16.0	Left	343	19.6	215
				Right	1165	15.0	215
MD 117 at I-270 SB On Ramp	1.6	MD 117 Eastbound	1.3	Through	732	2.5	205
				Right**	1110	0.5	0
		MD 117 Westbound	1.8	Left	292	10.3	215
				Through	2131	0.7	195
I-370 at Fields Rd	12.6	Fields Rd Northbound	24.1	Left	246	34.0	155
				Right	349	17.1	120
		I-370 Eastbound	13.4	Through	1553	14.6	240
				Right**	291	7.3	220
		I-370 Westbound	8.9	Left	351	32.7	140
				Through	1643	4.6	140
					256	3.7	105
Shady Grove Rd at I-270 NB Off Ramp	6.2	Shady Grove Rd Eastbound	2.9	Through	1120	3.3	155
				Right**	554	1.9	45
		Shady Grove Rd Westbound	3.8	Through	953	3.8	215
		I-270 NB Off Ramp Northbound	15.5	Left	234	53.0	170
				Right**	595	0.8	0
Shady Grove Rd at I-270 SB Off Ramp	13.0	Shady Grove Rd Eastbound	4.4	Through	1381	5.6	305
				Right**	495	0.9	105
		Shady Grove Rd Westbound	3.1	Through	546	4.8	140
				Right**	643	1.6	105
		I-270 SB Off Ramp Southbound	58.6	Left	294	56.7	235
				Right	323	60.3	235
Gude Dr at I-270 ML Access	27.2	Gude Dr Eastbound	23.0	Left	166	55.1	275
				Through	863	22.7	275
				Right	322	7.5	280
		Gude Dr Westbound	27.7	Left	481	46.9	265
				Through	824	18.3	265
				Right	110	14.4	290
		I-270 Ramp Northbound	29.6	Left	400	44.5	430
				Right	302	9.8	430
		I-270 Ramp Southbound	37.2	Left	317	39.4	300
				Right	22	6.3	300

3-4 PM - 2045 Preferred Alternative - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
MD 28 at I-270 NB Off Ramp	20.4	MD 28 Eastbound	14.5	Left	113	12.4	380
				Through	958	14.8	380
		MD 28 Westbound	16.6	Through	946	16.7	340
				Right	41	14.9	370
		I-270 NB Off Ramp Northbound	42.9	Through	239	62.4	300
				Right	165	14.8	300
		Nelson St Southbound	22.6	Left	40	59.5	315
				Right	339	18.2	315
MD 28 at I-270 SB Off Ramp	10.7	MD 28 Eastbound	3.4	Through	786	6.2	210
				Right**	1005	1.1	110
		MD 28 Westbound	8.9	Through	1982	8.9	575
		I-270 SB Off Ramp Southbound	35.4	Left	428	45.2	260
				Right*	245	18.2	275
MD 189 at I-270 SB Ramps	8.5	MD 189 Eastbound	9.6	Through	993	11.0	270
				Right**	154	0.5	90
		MD 189 Westbound	9.2	Left	567	1.5	50
				Through	491	18.2	160
		I-270 SB Off Ramp Southbound	5.6	Left	235	14.2	75
				Right**	502	1.6	0
MD 189 at I-270 NB Ramps	10.1	MD 189 Eastbound	10.0	Left	571	3.2	100
				Through	655	15.9	160
		MD 189 Westbound	9.5	Through	908	10.2	245
				Right**	329	7.4	165
		I-270 NB Off Ramp Northbound	11.6	Left	149	20.3	70
				Right**	446	8.8	165
Wootton Pkwy at I-270 ML Access	27.3	Wootton Pkwy Eastbound	38.8	Left	130	90.8	310
				Through	624	29.5	310
				Right	68	24.1	315
		Wootton Pkwy Westbound	27.1	Left	670	37.3	255
				Through	337	15.0	255
				Right	182	12.0	255
		I-270 Ramp Northbound	15.4	Left	135	29.0	205
				Right	361	10.4	205
		I-270 Ramp Southbound	18.5	Left	172	31.3	180
				Right	215	8.2	185
Montrose Rd at Tower Oaks Blvd	15.3	Montrose Rd Eastbound	8.8	Left	50	23.4	420
				Through	1440	8.3	420
		Montrose Rd Westbound	12.7	Through	2380	13.1	1125
				Right	162	7.0	1125
		Tower Oaks Blvd Southbound	41.5	Left	161	40.7	250
				Right*	452	41.8	250

3-4 PM - 2045 Preferred Alternative - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
Westlake Terrace at I-270 ML Access	16.0	Westlake Terrace Eastbound	15.7	Left	366	17.1	180
				Through	479	15.1	180
				Right	46	11.4	180
		Westlake Terrace Westbound	14.6	Left	226	12.1	205
				Through	512	19.8	205
				Right	361	8.8	210
		I-270 Ramp Northbound	15.5	Left	52	25.7	160
				Right	123	11.3	160
		I-270 Ramp Southbound	21.1	Left	154	26.2	305
				Right	227	17.7	305
Democracy Blvd at I-270 NB Off Ramp	14.1	Democracy Blvd Eastbound	4.9	Through	1008	4.9	80
		I-270 NB Off Ramp Northbound	39.4	Right*	365	39.4	205
Democracy Blvd at I-270 NB Off Ramp	11.3	Democracy Blvd Eastbound	4.8	Through	1008	4.8	190
		Democracy Blvd Westbound	8.0	Through	1521	8.0	275
		I-270 NB Off Ramp Northbound	40.7	Left	389	40.7	230
Democracy Blvd at I-270 SB Off Ramp	15.5	Democracy Blvd Eastbound	10.6	Through	876	12.1	230
				Right**	155	1.7	140
		Democracy Blvd Westbound	15.9	Left	379	41.2	230
				Through	1533	9.6	225
		I-270 SB Off Ramp Southbound	22.6	Left	264	51.8	175
				Right**	364	1.3	0
MD 190 at I-495 Outer Loop Off Ramp	10.0	MD 190 Eastbound	12.0	Through	1198	13.3	180
				Right	276	6.4	70
		MD 190 Westbound	4.0	Left	515	11.9	200
				Through	1334	1.0	200
		I-495 Ramp Southbound	21.6	Left	467	28.8	135
				Right	232	7.3	130
MD 190 at I-495 Inner Loop On Ramp	10.1	MD 190 Eastbound	4.7	Left	231	23.7	190
				Through	1542	1.8	190
		MD 190 Westbound	12.8	Through	1505	12.8	320
		I-495 Ramp Northbound	20.9	Left	253	29.7	90
				Right	249	12.0	85

3-4 PM - 2045 Preferred Alternative - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
VA 193 at I-495 Outer Loop Ramps	19.2	VA 193 Eastbound	20.5	Through	696	22.4	370
				Right**	89	5.8	355
		VA 193 Westbound	21.8	Left	494	24.0	385
				Through	353	18.6	385
		I-495 Outer Loop Off Ramp Southbound	15.5	Left	269	47.6	330
				Through	0	0.0	330
				Right**	607	1.3	270
VA 193 at I-495 Inner Loop Ramps	10.1	VA 193 Eastbound	6.1	Left	559	10.2	160
				Through	406	0.6	160
		VA 193 Westbound	13.7	Through	825	23.2	300
				Right**	649	1.5	245
		I-495 Inner Loop Off Ramp Northbound	6.3	Left	33	63.2	95
				Through	0	0.0	95
				Right**	341	0.8	95
MD 187 at I-495 Outer Loop Ramps	9.1	I-495 Outer Loop Off Ramp Westbound	17.2	Left	127	35.9	255
				Through	0	0.0	255
				Right*	182	4.2	205
		MD 187 Northbound	6.0	Left	166	62.1	170
				Through	2304	1.9	170
		MD 187 Southbound	11.8	Through	1549	14.1	340
				Right*	430	3.9	295
MD 187 at I-495 Inner Loop Ramps	5.0	I-495 Inner Loop Off Ramp Eastbound	25.6	Left	239	44.2	255
				Right*	195	2.7	170
		MD 187 Northbound	11.1	Through	2235	11.3	435
				Right*	107	5.7	40
		MD 187 Southbound	6.5	Left	163	50.1	190
				Through	1510	1.8	190
MD 187 at I-270 NB Ramps	23.1	I-270 NB Off Ramp Westbound	25.5	Left	251	46.0	190
				Right**	218	1.9	25
		MD 187 Northbound	24.5	Left	493	43.0	375
				Through	2162	20.3	375
		MD 187 Southbound	20.6	Through	1430	27.6	385
				Right*	554	2.6	235
MD 187 at I-270 SB Ramps	38.9	I-270 SB Off Ramp Eastbound	86.2	Left	406	89.7	650
				Right*	322	81.8	610
		MD 187 Northbound	44.4	Through	2237	47.1	740
				Right*	255	20.7	5
		MD 187 Southbound	10.3	Left	180	36.1	300
				Through	1499	7.2	300

3-4 PM - 2045 Preferred Alternative - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
Rockledge Blvd at I-270 NB Ramps	17.6	I-270 NB Ramps Westbound	22.4	Left	364	20.5	495
				Through	846	23.2	495
		Rockledge Blvd Northbound	1.4	Left	353	1.4	0
Rockledge Blvd at I-270 SB Ramps	23.7	I-270 SB Off Ramp Eastbound	25.1	Left	0	0.0	290
				Through	531	46.7	290
				Right**	472	0.7	0
		Rockledge Blvd Northbound	31.2	Through	353	42.6	295
				Right	621	24.7	295
		Rockledge Blvd Southbound	0.1	Through	365	0.1	0
MD 355 at I-495 Inner Loop Off Ramp	16.9	I-495 Inner Loop Off Ramp Eastbound	68.3	Right*	405	68.3	400
		MD 355 Southbound	6.8	Through	2059	6.8	290

* Channelized right turn
** Free-flow channelized right turn

4-5 PM - 2045 Preferred Alternative - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
MD 117 at I-270 NB Off Ramp	26.1	MD 117 Eastbound	25.6	Left	0	0.0	620
				Through	691	25.6	620
		MD 117 Westbound	37.9	Through	1283	38.0	385
				Right	14	23.4	415
		I-270 NB Off Ramp Southbound	16.6	Left	254	23.5	210
				Right	1315	15.3	215
MD 117 at I-270 SB On Ramp	2.1	MD 117 Eastbound	1.6	Through	692	3.1	325
				Right**	1388	0.8	0
		MD 117 Westbound	2.5	Left	315	13.8	345
				Through	2294	1.0	325
I-370 at Fields Rd	14.0	Fields Rd Northbound	24.3	Left	312	34.5	170
				Right	421	16.7	140
		I-370 Eastbound	15.9	Through	1825	17.2	280
				Right**	349	9.1	260
		I-370 Westbound	9.8	Left	433	33.1	175
				Through	2007	5.6	190
					292	4.6	125
Shady Grove Rd at I-270 NB Off Ramp	5.4	Shady Grove Rd Eastbound	2.7	Through	1125	3.1	170
				Right**	552	2.0	30
		Shady Grove Rd Westbound	3.9	Through	952	3.9	205
		I-270 NB Off Ramp Northbound	14.0	Left	179	52.0	145
				Right**	515	0.7	0
Shady Grove Rd at I-270 SB Off Ramp	12.7	Shady Grove Rd Eastbound	4.4	Through	1369	5.8	350
				Right**	605	1.2	150
		Shady Grove Rd Westbound	2.8	Through	471	4.7	130
				Right**	664	1.4	110
		I-270 SB Off Ramp Southbound	58.0	Left	310	58.8	220
				Right	304	57.2	220
Gude Dr at I-270 ML Access	27.2	Gude Dr Eastbound	23.7	Left	168	53.3	365
				Through	1053	24.3	365
				Right	364	8.2	365
		Gude Dr Westbound	28.4	Left	501	47.5	375
				Through	988	19.9	375
				Right	104	17.2	400
		I-270 Ramp Northbound	28.5	Left	387	43.7	455
				Right	310	9.4	455
		I-270 Ramp Southbound	35.2	Left	305	37.3	320
				Right	22	6.2	320

4-5 PM - 2045 Preferred Alternative - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
MD 28 at I-270 NB Off Ramp	23.4	MD 28 Eastbound	14.8	Left	175	18.3	365
				Through	884	14.2	365
		MD 28 Westbound	21.9	Through	1132	21.9	490
				Right	49	22.1	515
		I-270 NB Off Ramp Northbound	40.8	Through	209	61.6	235
				Right	150	11.8	235
		Nelson St Southbound	34.0	Left	27	66.6	320
				Right	417	31.9	320
MD 28 at I-270 SB Off Ramp	12.1	MD 28 Eastbound	3.5	Through	800	6.6	220
				Right**	1054	1.2	80
		MD 28 Westbound	12.2	Through	2392	12.2	940
		I-270 SB Off Ramp Southbound	36.9	Left	439	43.9	235
				Right*	202	21.8	265
MD 189 at I-270 SB Ramps	9.0	MD 189 Eastbound	10.1	Through	1007	11.3	270
				Right**	117	0.5	145
		MD 189 Westbound	10.1	Left	587	1.4	50
				Through	668	17.7	195
		I-270 SB Off Ramp Southbound	5.7	Left	232	15.2	85
				Right**	568	1.8	0
MD 189 at I-270 NB Ramps	12.6	MD 189 Eastbound	11.1	Left	513	5.3	65
				Through	724	15.2	200
		MD 189 Westbound	13.7	Through	1062	11.2	295
				Right**	437	19.6	330
		I-270 NB Off Ramp Northbound	12.9	Left	194	21.0	80
				Right**	409	9.1	140
Wootton Pkwy at I-270 ML Access	27.2	Wootton Pkwy Eastbound	36.5	Left	132	77.9	335
				Through	699	29.5	335
				Right	59	27.1	340
		Wootton Pkwy Westbound	26.5	Left	701	37.2	280
				Through	400	15.4	280
				Right	212	12.2	280
		I-270 Ramp Northbound	17.4	Left	131	29.8	260
				Right	438	13.7	260
		I-270 Ramp Southbound	21.5	Left	200	31.8	175
				Right	144	7.2	180
Montrose Rd at Tower Oaks Blvd	18.1	Montrose Rd Eastbound	8.6	Left	50	25.7	375
				Through	1419	8.0	375
		Montrose Rd Westbound	18.4	Through	2412	18.8	1295
				Right	228	14.1	1295
		Tower Oaks Blvd Southbound	41.9	Left	161	40.9	210
				Right*	389	42.3	225

4-5 PM - 2045 Preferred Alternative - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
Westlake Terrace at I-270 ML Access	18.2	Westlake Terrace Eastbound	19.6	Left	395	20.7	215
				Through	427	19.3	210
				Right	50	13.1	210
		Westlake Terrace Westbound	15.9	Left	315	13.3	235
				Through	559	21.4	235
				Right	354	9.3	245
		I-270 Ramp Northbound	16.8	Left	75	25.7	185
				Right	151	12.3	185
		I-270 Ramp Southbound	23.5	Left	170	27.9	320
				Right	225	20.2	320
Democracy Blvd at I-270 NB Off Ramp	9.6	Democracy Blvd Eastbound	4.2	Through	1105	4.2	85
		I-270 NB Off Ramp Northbound	42.8	Right*	179	42.8	150
Democracy Blvd at I-270 NB Off Ramp	7.7	Democracy Blvd Eastbound	3.7	Through	1107	3.7	195
		Democracy Blvd Westbound	5.4	Through	1602	5.4	310
		I-270 NB Off Ramp Northbound	44.9	Left	224	44.9	165
Democracy Blvd at I-270 SB Off Ramp	19.2	Democracy Blvd Eastbound	13.6	Through	857	14.9	245
				Right**	95	2.3	150
		Democracy Blvd Westbound	20.5	Left	436	44.9	260
				Through	1386	12.9	260
		I-270 SB Off Ramp Southbound	22.5	Left	366	48.7	240
				Right**	458	1.6	0
MD 190 at I-495 Outer Loop Off Ramp	9.8	MD 190 Eastbound	11.0	Through	1284	12.3	205
				Right	320	5.9	65
		MD 190 Westbound	2.9	Left	305	10.0	165
				Through	1051	0.8	165
		I-495 Ramp Southbound	20.8	Left	433	28.7	135
				Right	238	6.4	135
MD 190 at I-495 Inner Loop On Ramp	34.5	MD 190 Eastbound	9.6	Left	278	49.1	235
				Through	1466	2.1	235
		MD 190 Westbound	89.1	Through	873	89.1	480
		I-495 Ramp Northbound	23.0	Left	223	30.3	90
				Right	152	12.4	85

4-5 PM - 2045 Preferred Alternative - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
VA 193 at I-495 Outer Loop Ramps	20.2	VA 193 Eastbound	23.7	Through	743	25.2	555
				Right**	64	6.5	430
		VA 193 Westbound	21.2	Left	543	23.1	355
				Through	291	17.6	355
		I-495 Outer Loop Off Ramp Southbound	15.7	Left	278	44.8	320
				Through	0	0.0	320
				Right**	563	1.3	260
VA 193 at I-495 Inner Loop Ramps	9.9	VA 193 Eastbound	6.5	Left	636	10.2	170
				Through	384	0.5	170
		VA 193 Westbound	13.4	Through	788	23.3	325
				Right**	671	1.7	270
		I-495 Inner Loop Off Ramp Northbound	6.1	Left	41	54.2	100
				Through	0	0.0	100
				Right**	379	0.9	100
MD 187 at I-495 Outer Loop Ramps	9.1	I-495 Outer Loop Off Ramp Westbound	12.6	Left	101	35.9	180
				Through	0	0.0	180
				Right*	230	2.3	125
		MD 187 Northbound	6.7	Left	201	60.9	275
				Through	2718	2.7	280
		MD 187 Southbound	12.1	Through	1521	14.4	370
				Right*	451	4.6	325
MD 187 at I-495 Inner Loop Ramps	5.0	I-495 Inner Loop Off Ramp Eastbound	26.1	Left	223	39.3	235
				Right*	125	2.7	140
		MD 187 Northbound	13.2	Through	2706	13.5	575
				Right*	123	8.3	35
		MD 187 Southbound	8.2	Left	167	63.7	210
				Through	1447	1.8	210
MD 187 at I-270 NB Ramps	24.3	I-270 NB Off Ramp Westbound	25.1	Left	233	47.3	165
				Right**	222	1.9	10
		MD 187 Northbound	25.7	Left	667	45.2	380
				Through	2137	19.7	380
		MD 187 Southbound	22.1	Through	1495	29.8	400
				Right*	611	3.4	250
MD 187 at I-270 SB Ramps	104.1	I-270 SB Off Ramp Eastbound	156.3	Left	446	169.4	965
				Right*	309	137.4	950
		MD 187 Northbound	147.6	Through	2337	153.4	1575
				Right*	270	96.9	0
		MD 187 Southbound	15.6	Left	178	45.4	360
				Through	1548	12.2	360

4-5 PM - 2045 Preferred Alternative - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
Rockledge Blvd at I-270 NB Ramps	18.7	I-270 NB Ramps Westbound	23.7	Left	348	21.2	560
				Through	1100	24.5	560
		Rockledge Blvd Northbound	1.8	Left	429	1.8	0
Rockledge Blvd at I-270 SB Ramps	25.9	I-270 SB Off Ramp Eastbound	25.1	Left	0	0.0	300
				Through	534	46.9	300
				Right**	479	0.8	0
		Rockledge Blvd Northbound	34.2	Through	429	44.0	330
				Right	753	28.5	330
		Rockledge Blvd Southbound	0.1	Through	349	0.1	0
MD 355 at I-495 Inner Loop Off Ramp	12.9	I-495 Inner Loop Off Ramp Eastbound	77.1	Right*	270	77.1	270
		MD 355 Southbound	4.8	Through	2141	4.8	280

* Channelized right turn

** Free-flow channelized right turn

5-6 PM - 2045 Preferred Alternative - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
MD 117 at I-270 NB Off Ramp	28.3	MD 117 Eastbound	32.2	Left	0	0.0	980
				Through	919	32.2	980
		MD 117 Westbound	35.3	Through	1338	35.6	390
				Right	33	22.4	420
		I-270 NB Off Ramp Southbound	17.3	Left	206	22.4	205
				Right	984	16.2	210
MD 117 at I-270 SB On Ramp	2.7	MD 117 Eastbound	2.7	Through	933	4.7	420
				Right**	1485	1.4	0
		MD 117 Westbound	2.8	Left	275	16.6	210
				Through	2047	0.9	190
I-370 at Fields Rd	17.2	Fields Rd Northbound	24.1	Left	383	34.7	195
				Right	553	16.7	165
		I-370 Eastbound	22.3	Through	2514	23.3	465
				Right**	420	16.4	445
		I-370 Westbound	9.8	Left	437	32.3	165
				Through	2070	5.9	195
					369	4.9	135
Shady Grove Rd at I-270 NB Off Ramp	5.5	Shady Grove Rd Eastbound	2.8	Through	997	3.0	150
				Right**	653	2.6	110
		Shady Grove Rd Westbound	5.0	Through	1210	5.0	230
		I-270 NB Off Ramp Northbound	16.0	Left	138	53.1	135
				Right**	334	0.7	0
Shady Grove Rd at I-270 SB Off Ramp	12.4	Shady Grove Rd Eastbound	4.6	Through	1326	6.5	325
				Right**	818	1.6	170
		Shady Grove Rd Westbound	3.0	Through	501	4.8	110
				Right**	845	1.9	120
		I-270 SB Off Ramp Southbound	57.8	Left	320	58.7	240
				Right	324	56.8	240
Gude Dr at I-270 ML Access	26.0	Gude Dr Eastbound	23.0	Left	130	51.0	455
				Through	1239	23.8	450
				Right	303	7.9	455
		Gude Dr Westbound	26.3	Left	466	48.2	530
				Through	1206	18.8	530
				Right	115	16.7	555
		I-270 Ramp Northbound	28.5	Left	345	43.1	400
				Right	268	9.7	400
		I-270 Ramp Southbound	35.8	Left	295	37.8	300
				Right	20	6.7	300

5-6 PM - 2045 Preferred Alternative - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
MD 28 at I-270 NB Off Ramp	42.8	MD 28 Eastbound	18.7	Left	230	18.3	490
				Through	1198	18.8	490
		MD 28 Westbound	58.3	Through	979	56.6	820
				Right	40	98.3	845
		I-270 NB Off Ramp Northbound	57.9	Through	150	73.2	250
				Right	66	23.3	250
		Nelson St Southbound	78.6	Left	31	93.1	415
				Right	400	77.5	415
MD 28 at I-270 SB Off Ramp	11.0	MD 28 Eastbound	4.2	Through	1075	7.3	260
				Right**	1211	1.4	120
		MD 28 Westbound	9.7	Through	1539	9.7	820
		I-270 SB Off Ramp Southbound	34.9	Left	502	45.3	305
				Right*	232	12.5	315
MD 189 at I-270 SB Ramps	18.8	MD 189 Eastbound	37.7	Through	943	41.9	1035
				Right**	120	4.9	790
		MD 189 Westbound	10.4	Left	578	1.8	75
				Through	492	20.4	235
		I-270 SB Off Ramp Southbound	7.6	Left	293	20.9	230
				Right**	713	2.2	0
MD 189 at I-270 NB Ramps	39.5	MD 189 Eastbound	36.3	Left	445	68.9	580
				Through	772	17.5	760
		MD 189 Westbound	52.0	Through	907	28.9	635
				Right**	237	140.5	845
		I-270 NB Off Ramp Northbound	15.0	Left	164	22.6	125
				Right**	261	10.1	185
Wootton Pkwy at I-270 ML Access	34.0	Wootton Pkwy Eastbound	62.9	Left	148	178.6	540
				Through	667	39.7	540
				Right	53	31.3	545
		Wootton Pkwy Westbound	25.2	Left	643	36.1	255
				Through	487	15.4	260
				Right	183	12.9	260
		I-270 Ramp Northbound	16.6	Left	130	29.3	215
				Right	392	12.4	215
		I-270 Ramp Southbound	21.4	Left	209	31.3	210
				Right	150	7.7	215
Montrose Rd at Tower Oaks Blvd	46.6	Montrose Rd Eastbound	10.1	Left	64	37.7	425
				Through	1544	9.0	425
		Montrose Rd Westbound	74.9	Through	1698	74.5	1560
				Right	88	82.7	1560
		Tower Oaks Blvd Southbound	64.1	Left	135	42.1	285
				Right*	327	73.1	340

5-6 PM - 2045 Preferred Alternative - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
Westlake Terrace at I-270 ML Access	16.7	Westlake Terrace Eastbound	15.9	Left	365	20.5	175
				Through	425	13.2	175
				Right	77	9.6	175
		Westlake Terrace Westbound	16.4	Left	190	10.8	330
				Through	636	20.9	330
				Right	518	13.0	335
		I-270 Ramp Northbound	15.7	Left	58	25.2	150
				Right	119	11.0	150
		I-270 Ramp Southbound	20.9	Left	119	27.4	245
				Right	203	17.1	245
Democracy Blvd at I-270 NB Off Ramp	10.7	Democracy Blvd Eastbound	4.2	Through	1163	4.2	90
		I-270 NB Off Ramp Northbound	41.5	Right*	247	41.5	230
Democracy Blvd at I-270 NB Off Ramp	7.7	Democracy Blvd Eastbound	4.8	Through	1163	4.8	210
		Democracy Blvd Westbound	5.1	Through	1461	5.1	280
		I-270 NB Off Ramp Northbound	41.7	Left	214	41.7	180
Democracy Blvd at I-270 SB Off Ramp	20.0	Democracy Blvd Eastbound	14.9	Through	857	16.0	230
				Right**	77	2.2	135
		Democracy Blvd Westbound	21.9	Left	432	45.0	280
				Through	1247	13.8	280
		I-270 SB Off Ramp Southbound	21.9	Left	430	47.5	230
				Right**	551	1.9	0
MD 190 at I-495 Outer Loop Off Ramp	10.2	MD 190 Eastbound	11.2	Through	1344	12.7	205
				Right	320	5.2	110
		MD 190 Westbound	2.1	Left	191	8.7	135
				Through	1030	0.8	135
		I-495 Ramp Southbound	21.5	Left	486	28.8	140
				Right	234	6.4	140
MD 190 at I-495 Inner Loop On Ramp	54.9	MD 190 Eastbound	8.0	Left	189	59.2	285
				Through	1573	1.9	285
		MD 190 Westbound	198.0	Through	650	198.0	495
		I-495 Ramp Northbound	24.8	Left	226	31.1	95
				Right	120	12.8	95

5-6 PM - 2045 Preferred Alternative - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
VA 193 at I-495 Outer Loop Ramps	73.4	VA 193 Eastbound	187.7	Through	632	198.7	1090
				Right**	66	82.4	1105
		VA 193 Westbound	23.9	Left	383	27.4	340
				Through	170	16.1	340
		I-495 Outer Loop Off Ramp Southbound	16.2	Left	317	43.8	340
				Through	0	0.0	340
				Right**	600	1.6	275
VA 193 at I-495 Inner Loop Ramps	116.3	VA 193 Eastbound	90.4	Left	501	163.7	450
				Through	408	0.5	450
		VA 193 Westbound	180.0	Through	504	80.5	1580
				Right**	351	323.0	1530
		I-495 Inner Loop Off Ramp Northbound	9.4	Left	41	59.0	115
				Through	0	0.0	115
				Right**	248	1.2	115
MD 187 at I-495 Outer Loop Ramps	9.7	I-495 Outer Loop Off Ramp Westbound	16.4	Left	123	37.0	245
				Through	0	0.0	245
				Right*	209	4.3	195
		MD 187 Northbound	6.4	Left	190	59.3	255
				Through	2536	2.5	255
		MD 187 Southbound	12.7	Through	1664	15.0	410
				Right*	496	5.2	365
MD 187 at I-495 Inner Loop Ramps	5.0	I-495 Inner Loop Off Ramp Eastbound	28.6	Left	243	40.9	360
				Right*	125	4.7	275
		MD 187 Northbound	14.8	Through	2486	15.3	695
				Right*	215	9.7	140
		MD 187 Southbound	8.4	Left	177	63.6	230
				Through	1602	2.3	230
MD 187 at I-270 NB Ramps	31.2	I-270 NB Off Ramp Westbound	19.6	Left	140	44.3	125
				Right**	195	1.9	0
		MD 187 Northbound	23.5	Left	622	52.4	380
				Through	2548	16.5	380
		MD 187 Southbound	43.5	Through	1641	57.8	780
				Right*	633	6.5	630
MD 187 at I-270 SB Ramps	128.0	I-270 SB Off Ramp Eastbound	354.4	Left	454	359.0	1545
				Right*	216	345.0	1535
		MD 187 Northbound	143.4	Through	2748	147.5	1575
				Right*	319	108.9	10
		MD 187 Southbound	17.0	Left	117	60.6	370
				Through	1678	13.9	370

5-6 PM - 2045 Preferred Alternative - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
Rockledge Blvd at I-270 NB Ramps	20.8	I-270 NB Ramps Westbound	24.6	Left	439	22.0	585
				Through	1103	25.7	585
		Rockledge Blvd Northbound	2.0	Left	316	2.0	30
Rockledge Blvd at I-270 SB Ramps	104.5	I-270 SB Off Ramp Eastbound	56.5	Left	0	0.0	575
				Through	537	121.3	575
				Right**	638	1.9	0
		Rockledge Blvd Northbound	225.0	Through	317	203.0	475
				Right	529	238.2	475
		Rockledge Blvd Southbound	0.1	Through	436	0.1	0
MD 355 at I-495 Inner Loop Off Ramp	11.7	I-495 Inner Loop Off Ramp Eastbound	73.6	Right*	253	73.6	280
		MD 355 Southbound	4.9	Through	2295	4.9	340

* Channelized right turn

** Free-flow channelized right turn

6-7 PM - 2045 Preferred Alternative - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
MD 117 at I-270 NB Off Ramp	25.6	MD 117 Eastbound	25.4	Left	0	0.0	645
				Through	749	25.4	645
		MD 117 Westbound	35.6	Through	1257	35.8	385
				Right	17	24.3	415
		I-270 NB Off Ramp Southbound	16.1	Left	201	22.9	205
				Right	1114	14.8	210
MD 117 at I-270 SB On Ramp	1.4	MD 117 Eastbound	1.1	Through	736	1.8	140
				Right**	1106	0.6	0
		MD 117 Westbound	1.7	Left	245	9.6	210
				Through	2121	0.7	190
I-370 at Fields Rd	13.9	Fields Rd Northbound	24.4	Left	298	34.0	160
				Right	392	17.1	135
		I-370 Eastbound	15.8	Through	1693	17.1	315
				Right**	319	8.7	300
		I-370 Westbound	9.5	Left	394	32.8	175
				Through	1759	5.2	165
					310	4.3	110
Shady Grove Rd at I-270 NB Off Ramp	4.1	Shady Grove Rd Eastbound	2.2	Through	756	2.5	120
				Right**	475	1.6	30
		Shady Grove Rd Westbound	3.6	Through	965	3.6	205
		I-270 NB Off Ramp Northbound	10.9	Left	84	52.5	105
				Right**	338	0.6	0
Shady Grove Rd at I-270 SB Off Ramp	12.6	Shady Grove Rd Eastbound	3.5	Through	993	4.9	265
				Right**	482	0.8	105
		Shady Grove Rd Westbound	2.3	Through	352	3.9	105
				Right**	699	1.5	70
		I-270 SB Off Ramp Southbound	59.5	Left	237	59.2	200
				Right	279	59.8	200
Gude Dr at I-270 ML Access	26.0	Gude Dr Eastbound	21.2	Left	151	51.5	285
				Through	828	21.3	280
				Right	321	6.9	285
		Gude Dr Westbound	26.9	Left	451	49.0	400
				Through	996	18.3	400
				Right	117	15.3	425
		I-270 Ramp Northbound	27.8	Left	326	41.5	385
				Right	239	9.0	385
		I-270 Ramp Southbound	38.3	Left	286	40.4	300
				Right	19	5.8	300

6-7 PM - 2045 Preferred Alternative - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
MD 28 at I-270 NB Off Ramp	31.2	MD 28 Eastbound	16.7	Left	141	24.2	385
				Through	924	15.6	385
		MD 28 Westbound	31.7	Through	1425	31.3	770
				Right	51	43.1	800
		I-270 NB Off Ramp Northbound	58.2	Through	167	76.3	250
				Right	97	27.0	250
		Nelson St Southbound	50.7	Left	40	75.5	375
				Right	353	47.9	375
MD 28 at I-270 SB Off Ramp	13.2	MD 28 Eastbound	3.2	Through	706	6.1	165
				Right**	1068	1.2	55
		MD 28 Westbound	14.4	Through	2164	14.4	3000
		I-270 SB Off Ramp Southbound	36.7	Left	450	44.2	275
				Right*	198	19.6	300
MD 189 at I-270 SB Ramps	44.5	MD 189 Eastbound	92.5	Through	945	103.6	1050
				Right**	131	12.1	955
		MD 189 Westbound	20.3	Left	516	2.3	235
				Through	624	35.2	450
		I-270 SB Off Ramp Southbound	14.0	Left	290	31.7	410
				Right**	498	3.7	0
MD 189 at I-270 NB Ramps	102.7	MD 189 Eastbound	58.5	Left	526	110.9	510
				Through	719	20.2	685
		MD 189 Westbound	190.5	Through	925	85.6	645
				Right**	221	629.4	850
		I-270 NB Off Ramp Northbound	22.0	Left	214	32.8	180
				Right**	349	15.4	320
Wootton Pkwy at I-270 ML Access	34.3	Wootton Pkwy Eastbound	60.2	Left	147	163.9	445
				Through	558	35.9	445
				Right	49	26.3	450
		Wootton Pkwy Westbound	27.1	Left	603	37.8	255
				Through	310	14.9	260
				Right	169	11.2	260
		I-270 Ramp Northbound	15.7	Left	121	29.6	140
				Right	211	7.7	140
		I-270 Ramp Southbound	20.7	Left	220	31.9	210
				Right	182	7.2	215
Montrose Rd at Tower Oaks Blvd	227.1	Montrose Rd Eastbound	8.5	Left	25	12.8	625
				Through	1411	8.4	625
		Montrose Rd Westbound	1083.4	Through	386	1069.9	1560
				Right	22	1321.0	1560
		Tower Oaks Blvd Southbound	138.7	Left	107	51.9	1205
				Right*	295	170.1	1245

6-7 PM - 2045 Preferred Alternative - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
Westlake Terrace at I-270 ML Access	51.7	Westlake Terrace Eastbound	59.2	Left	362	92.4	515
				Through	396	32.3	510
				Right	40	26.0	510
		Westlake Terrace Westbound	61.7	Left	197	27.7	565
				Through	531	54.1	565
				Right	372	90.6	570
		I-270 Ramp Northbound	15.4	Left	50	25.3	175
				Right	138	11.9	170
		I-270 Ramp Southbound	23.5	Left	145	29.6	275
				Right	217	19.4	275
Democracy Blvd at I-270 NB Off Ramp	15.3	Democracy Blvd Eastbound	5.6	Through	898	5.6	90
		I-270 NB Off Ramp Northbound	41.7	Right*	330	41.7	245
Democracy Blvd at I-270 NB Off Ramp	13.8	Democracy Blvd Eastbound	5.1	Through	897	5.1	185
		Democracy Blvd Westbound	12.6	Through	1288	12.6	330
		I-270 NB Off Ramp Northbound	43.0	Left	324	43.0	230
Democracy Blvd at I-270 SB Off Ramp	15.8	Democracy Blvd Eastbound	9.1	Through	709	10.2	165
				Right**	92	1.1	55
		Democracy Blvd Westbound	15.7	Left	275	44.9	290
				Through	1345	9.8	290
		I-270 SB Off Ramp Southbound	24.0	Left	304	50.5	200
				Right**	358	1.4	0
MD 190 at I-495 Outer Loop Off Ramp	9.0	MD 190 Eastbound	9.7	Through	1077	10.8	150
				Right	309	5.9	75
		MD 190 Westbound	4.1	Left	386	14.3	180
				Through	1166	0.7	180
		I-495 Ramp Southbound	22.6	Left	339	30.2	120
				Right	157	6.2	115
MD 190 at I-495 Inner Loop On Ramp	50.6	MD 190 Eastbound	4.0	Left	156	25.0	145
				Through	1309	1.6	145
		MD 190 Westbound	129.8	Through	1022	129.8	1100
		I-495 Ramp Northbound	23.0	Left	306	29.1	125
				Right	160	11.4	125

6-7 PM - 2045 Preferred Alternative - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
VA 193 at I-495 Outer Loop Ramps	318.6	VA 193 Eastbound	975.8	Through	495	963.6	1130
				Right**	34	1153.1	1145
		VA 193 Westbound	19.2	Left	198	23.8	320
				Through	137	12.5	320
		I-495 Outer Loop Off Ramp Southbound	16.5	Left	274	46.4	355
				Through	0	0.0	355
				Right**	545	1.5	290
VA 193 at I-495 Inner Loop Ramps	431.5	VA 193 Eastbound	221.9	Left	459	377.2	445
				Through	322	0.6	445
		VA 193 Westbound	823.5	Through	310	295.3	1580
				Right**	339	1306.4	1530
		I-495 Inner Loop Off Ramp Northbound	11.4	Left	28	61.4	145
				Through	0	0.0	145
				Right**	188	4.0	145
MD 187 at I-495 Outer Loop Ramps	10.6	I-495 Outer Loop Off Ramp Westbound	22.5	Left	114	38.0	200
				Through	0	0.0	200
				Right*	94	3.7	145
		MD 187 Northbound	8.3	Left	251	59.6	270
				Through	2250	2.6	270
		MD 187 Southbound	12.3	Through	1433	14.8	385
				Right*	466	4.6	340
MD 187 at I-495 Inner Loop Ramps	5.0	I-495 Inner Loop Off Ramp Eastbound	30.8	Left	435	41.5	3610
				Right*	210	8.8	3540
		MD 187 Northbound	14.8	Through	2080	15.4	475
				Right*	179	7.7	40
		MD 187 Southbound	4.8	Left	116	34.8	145
				Through	1435	2.4	145
MD 187 at I-270 NB Ramps	73.0	I-270 NB Off Ramp Westbound	17.3	Left	54	44.2	80
				Right**	99	2.6	0
		MD 187 Northbound	43.1	Left	393	224.1	385
				Through	2172	10.3	385
		MD 187 Southbound	155.7	Through	827	85.9	1285
				Right*	203	440.1	1135
MD 187 at I-270 SB Ramps	169.9	I-270 SB Off Ramp Eastbound	271.3	Left	449	280.6	1535
				Right*	272	256.0	1525
		MD 187 Northbound	198.7	Through	2118	205.9	1575
				Right*	182	115.8	0
		MD 187 Southbound	10.9	Left	41	70.2	275
				Through	837	8.0	275

6-7 PM - 2045 Preferred Alternative - Intersection Delay

Intersection	Delay (s/veh)	Direction	Delay (s/veh)	Movement	Volume (veh)	Delay (s/veh)	Max Queue (ft)
Rockledge Blvd at I-270 NB Ramps	481.5	I-270 NB Ramps Westbound	532.9	Left	132	100.5	1515
				Through	472	653.8	1515
		Rockledge Blvd Northbound	296.9	Left	168	296.9	260
Rockledge Blvd at I-270 SB Ramps	197.9	I-270 SB Off Ramp Eastbound	33.9	Left	0	0.0	300
				Through	486	60.2	300
				Right**	383	0.6	0
		Rockledge Blvd Northbound	477.7	Through	173	601.1	480
				Right	431	428.2	480
		Rockledge Blvd Southbound	0.1	Through	134	0.1	0
MD 355 at I-495 Inner Loop Off Ramp	20.1	I-495 Inner Loop Off Ramp Eastbound	68.1	Right*	496	68.1	530
		MD 355 Southbound	8.3	Through	2021	8.3	335

* Channelized right turn
** Free-flow channelized right turn

Appendix I
Synchro Analysis Results

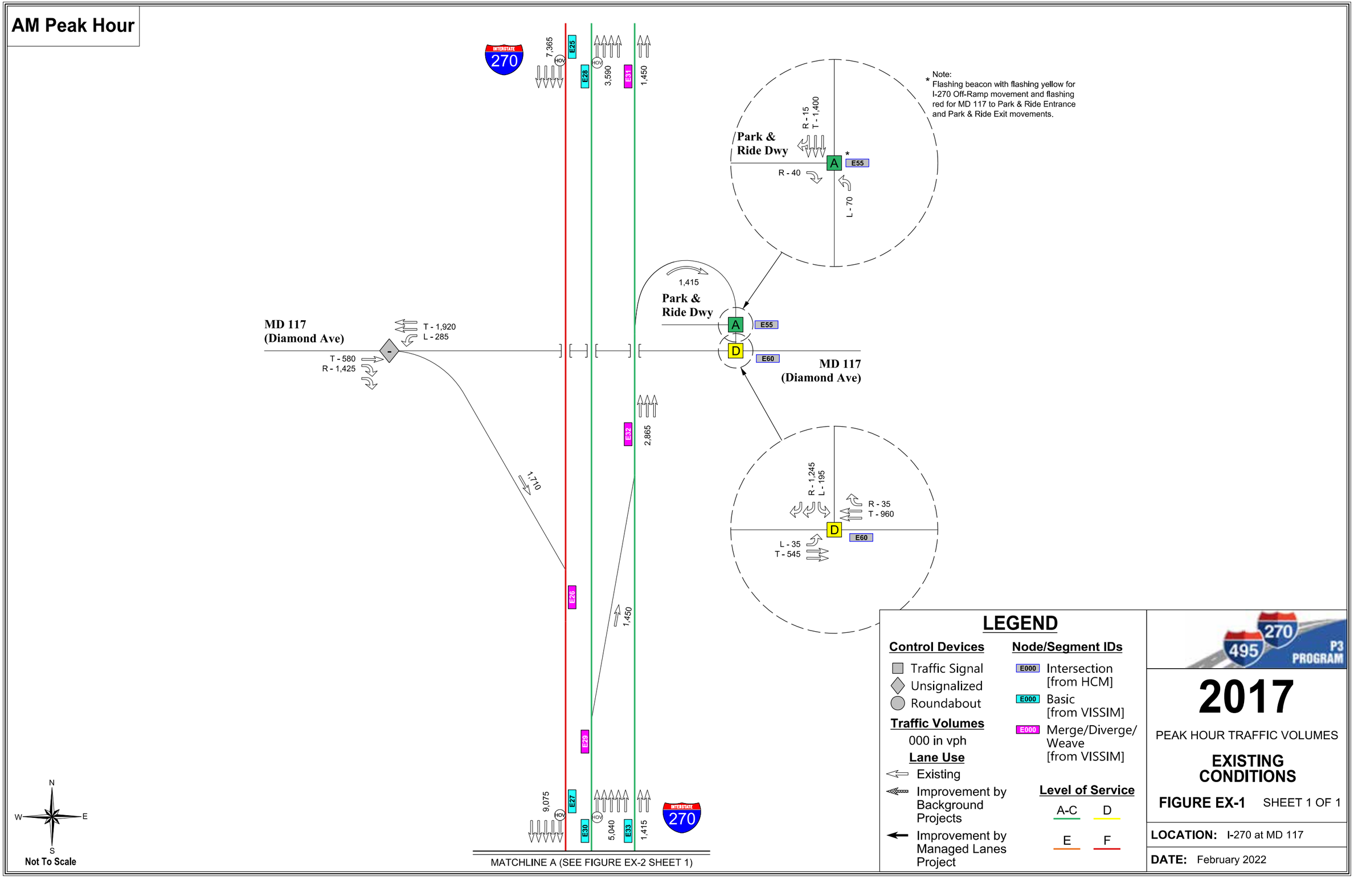
APPENDIX I

- Graphics
    - 2017 Existing Conditions
    - 2027 No Build Conditions
    - 2027 Preferred Alternative
    - 2045 No Build Conditions
    - 2045 Preferred Alternative
- Synchro Analysis Output Tables
    - 2017 Existing Conditions
    - 2027 No Build Conditions
    - 2027 Preferred Alternative
    - 2045 No Build Conditions
    - 2045 Preferred Alternative
- Synchro Analysis Summary
- Synchro Analysis Outputs
    - 2017 Existing Conditions
    - 2027 No Build Conditions
    - 2027 Preferred Alternative
    - 2045 No Build Conditions
    - 2045 Preferred Alternative

*Navigate to desired section by clicking on respective alternative above

2017 EXISTING CONDITIONS GRAPHICS

AM Peak Hour



LEGEND

Control Devices
- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes
000 in vph

Lane Use
- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs
- E000 Intersection [from HCM]
- E000 Basic [from VISSIM]
- E000 Merge/Diverge/ Weave [from VISSIM]

Level of Service

A-C	D
E	F

I-270 495 P3 PROGRAM

2017

PEAK HOUR TRAFFIC VOLUMES

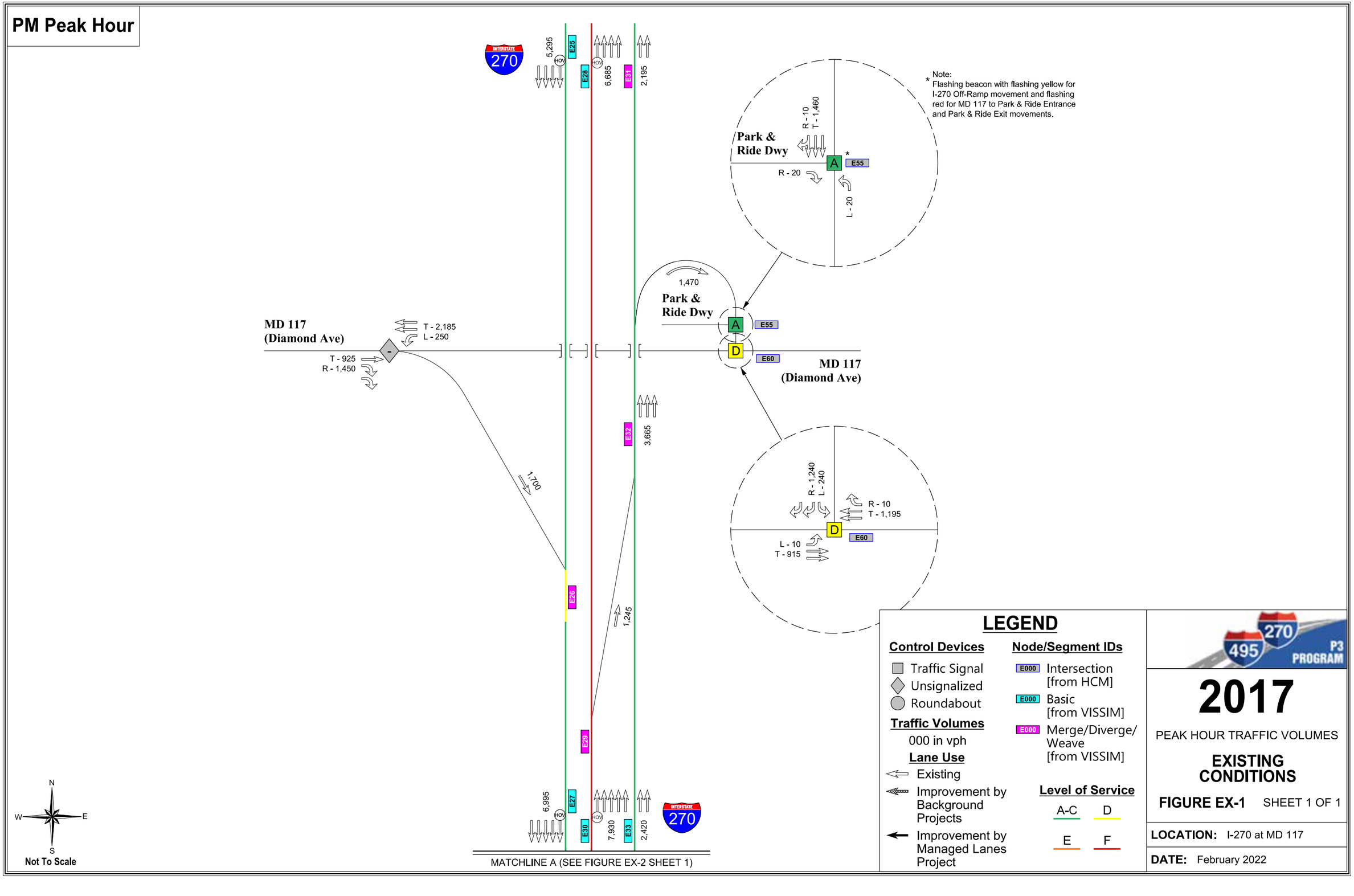
EXISTING CONDITIONS

FIGURE EX-1 SHEET 1 OF 1

LOCATION: I-270 at MD 117

DATE: February 2022

PM Peak Hour



LEGEND

Control Devices
- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes
000 in vph

Lane Use
- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs
- E000 Intersection [from HCM]
- E000 Basic [from VISSIM]
- E000 Merge/Diverge/ Weave [from VISSIM]

Level of Service
A-C D E F

I-270 495 P3 PROGRAM

2017

PEAK HOUR TRAFFIC VOLUMES

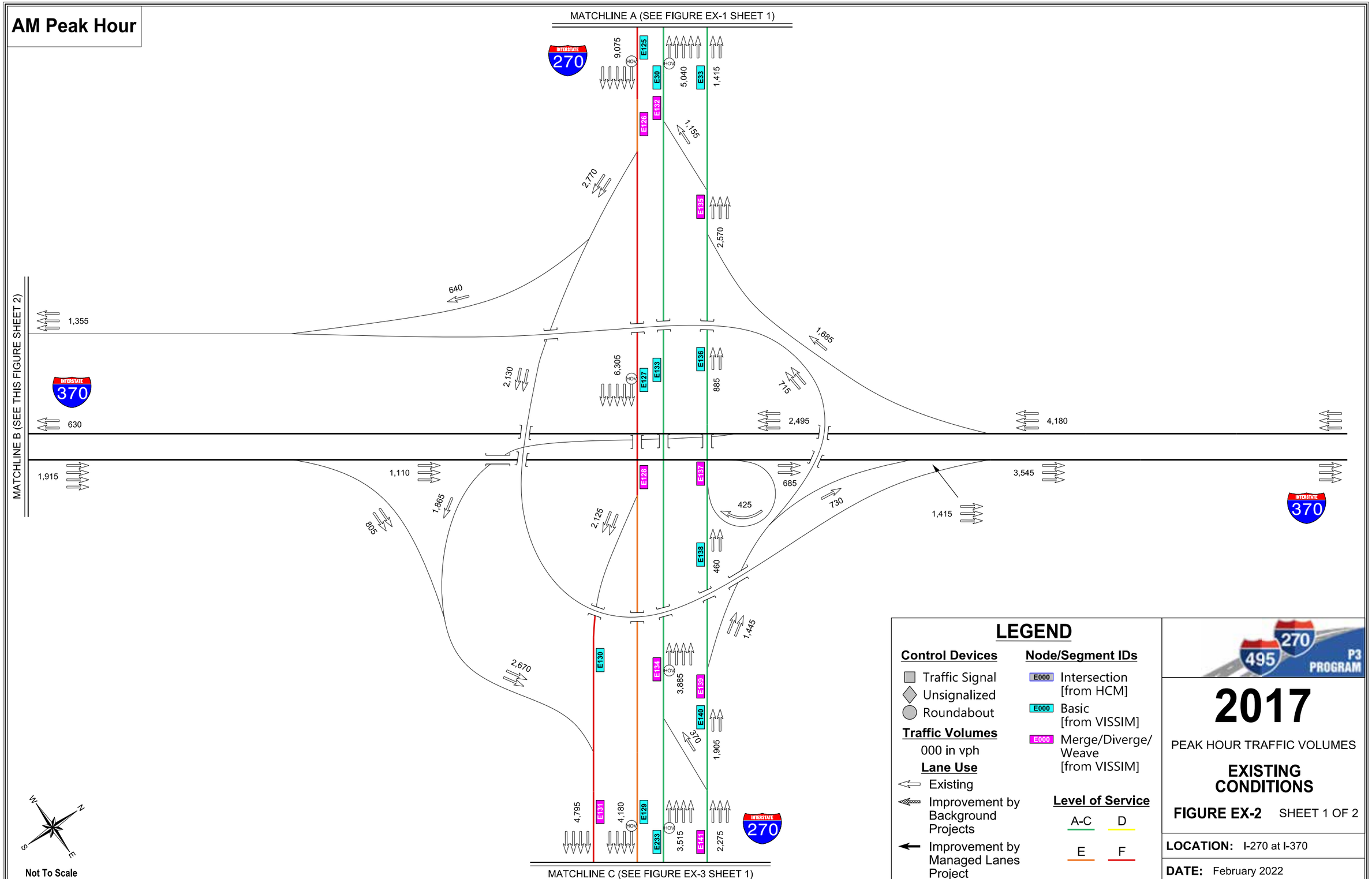
EXISTING CONDITIONS

FIGURE EX-1 SHEET 1 OF 1

LOCATION: I-270 at MD 117

DATE: February 2022

AM Peak Hour



Not To Scale

LEGEND

Control Devices

- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes

000 in vph

Lane Use

- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs

- E000 Intersection [from HCM]
- E000 Basic [from VISSIM]
- E000 Merge/Diverge/ Weave [from VISSIM]

Level of Service

A-C D E F

I-270 / I-495 P3 PROGRAM

2017

PEAK HOUR TRAFFIC VOLUMES

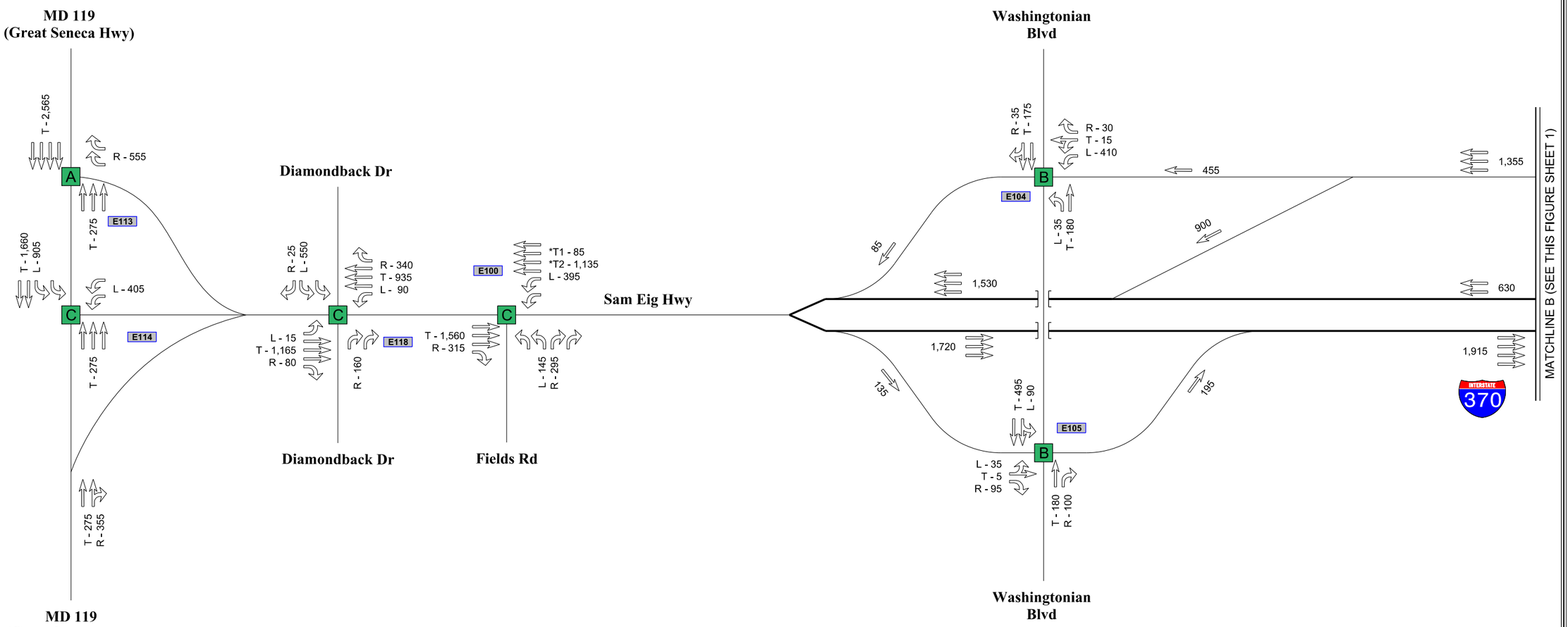
EXISTING CONDITIONS

FIGURE EX-2 SHEET 1 OF 2

LOCATION: I-270 at I-370

DATE: February 2022

AM Peak Hour



LEGEND

Control Devices
- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes
000 in vph

Lane Use
- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs
- E000 Intersection [from HCM]
- E000 Basic [from VISSIM]
- E000 Merge/Diverge/ Weave [from VISSIM]

Level of Service
A-C D E F

Not To Scale

*T1 represents vehicles arriving from I-370 (Sam Eig Hwy)
*T2 represents vehicles arriving from Washingtonian Blvd Ramp

I-495 & I-270 P3 PROGRAM

2017

PEAK HOUR TRAFFIC VOLUMES

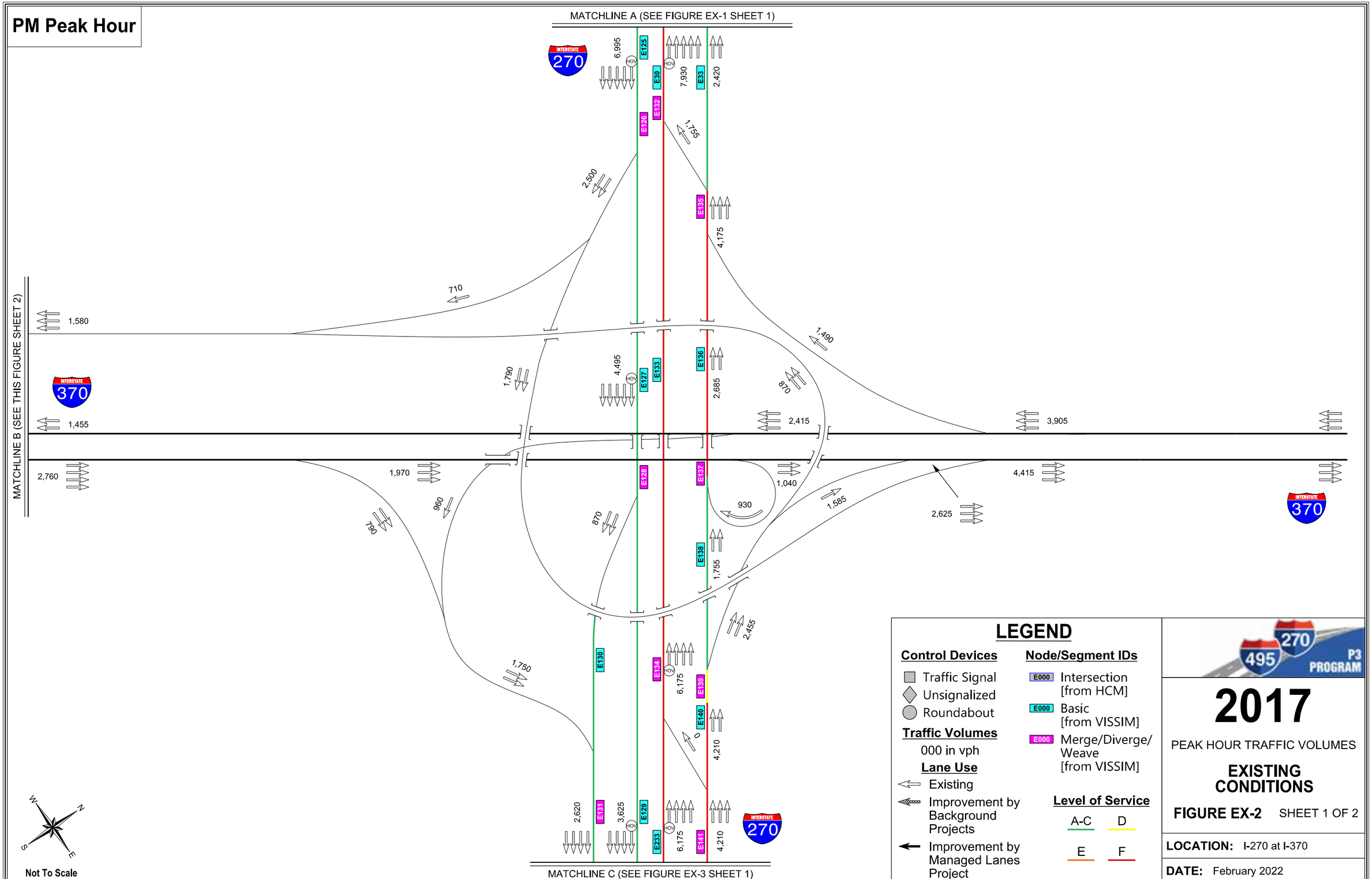
EXISTING CONDITIONS

FIGURE EX-2 SHEET 2 OF 2

LOCATION: I-270 at I-370

DATE: February 2022

PM Peak Hour



LEGEND

Control Devices

- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes

000 in vph

Lane Use

- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs

- E000 Intersection [from HCM]
- E000 Basic [from VISSIM]
- E000 Merge/Diverge/ Weave [from VISSIM]

Level of Service

A-C | D | E | F

I-270 / I-495 P3 PROGRAM

2017

PEAK HOUR TRAFFIC VOLUMES

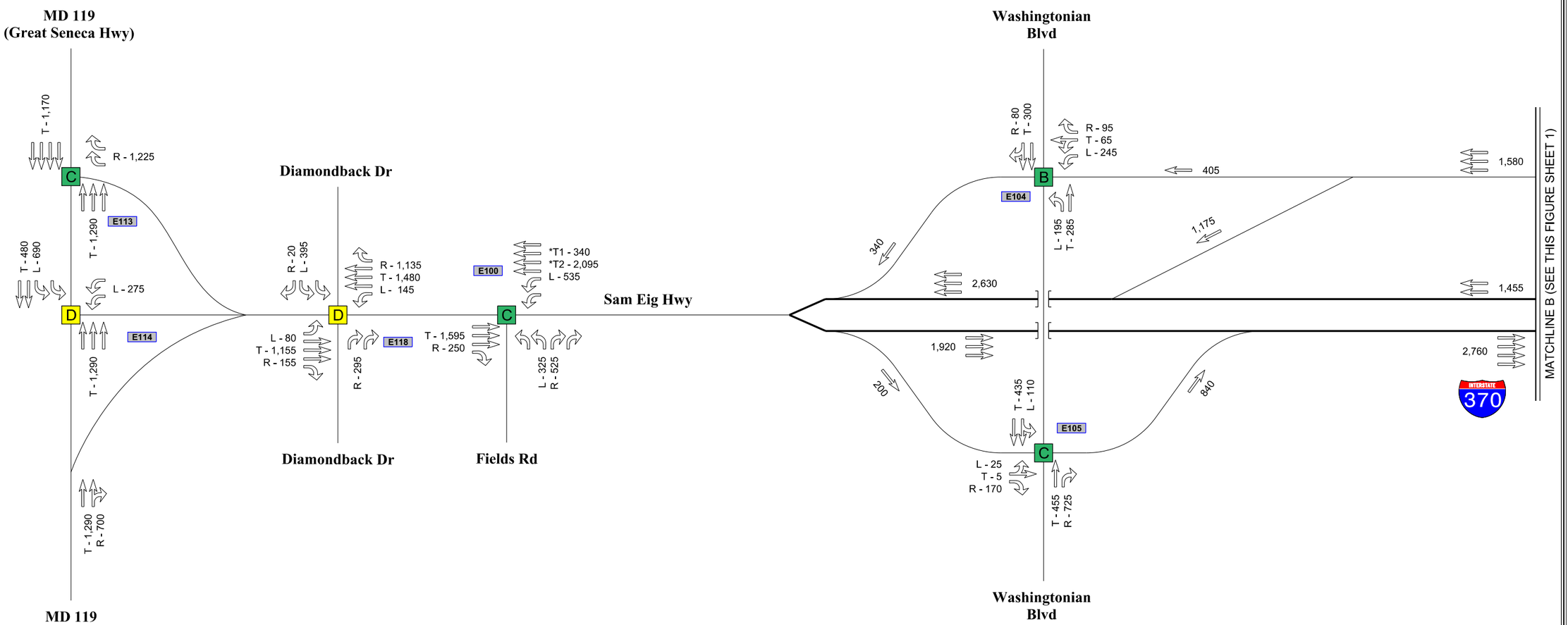
EXISTING CONDITIONS

FIGURE EX-2 SHEET 1 OF 2

LOCATION: I-270 at I-370

DATE: February 2022

PM Peak Hour



LEGEND

Control Devices
- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes
000 in vph

Lane Use
- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs
- E000 Intersection [from HCM]
- E000 Basic [from VISSIM]
- E000 Merge/Diverge/ Weave [from VISSIM]

Level of Service

A-C	D
E	F

Not To Scale

*T1 represents vehicles arriving from I-370 (Sam Eig Hwy)
*T2 represents vehicles arriving from Washingtonian Blvd Ramp

I-495 & I-270 P3 PROGRAM

2017

PEAK HOUR TRAFFIC VOLUMES

EXISTING CONDITIONS

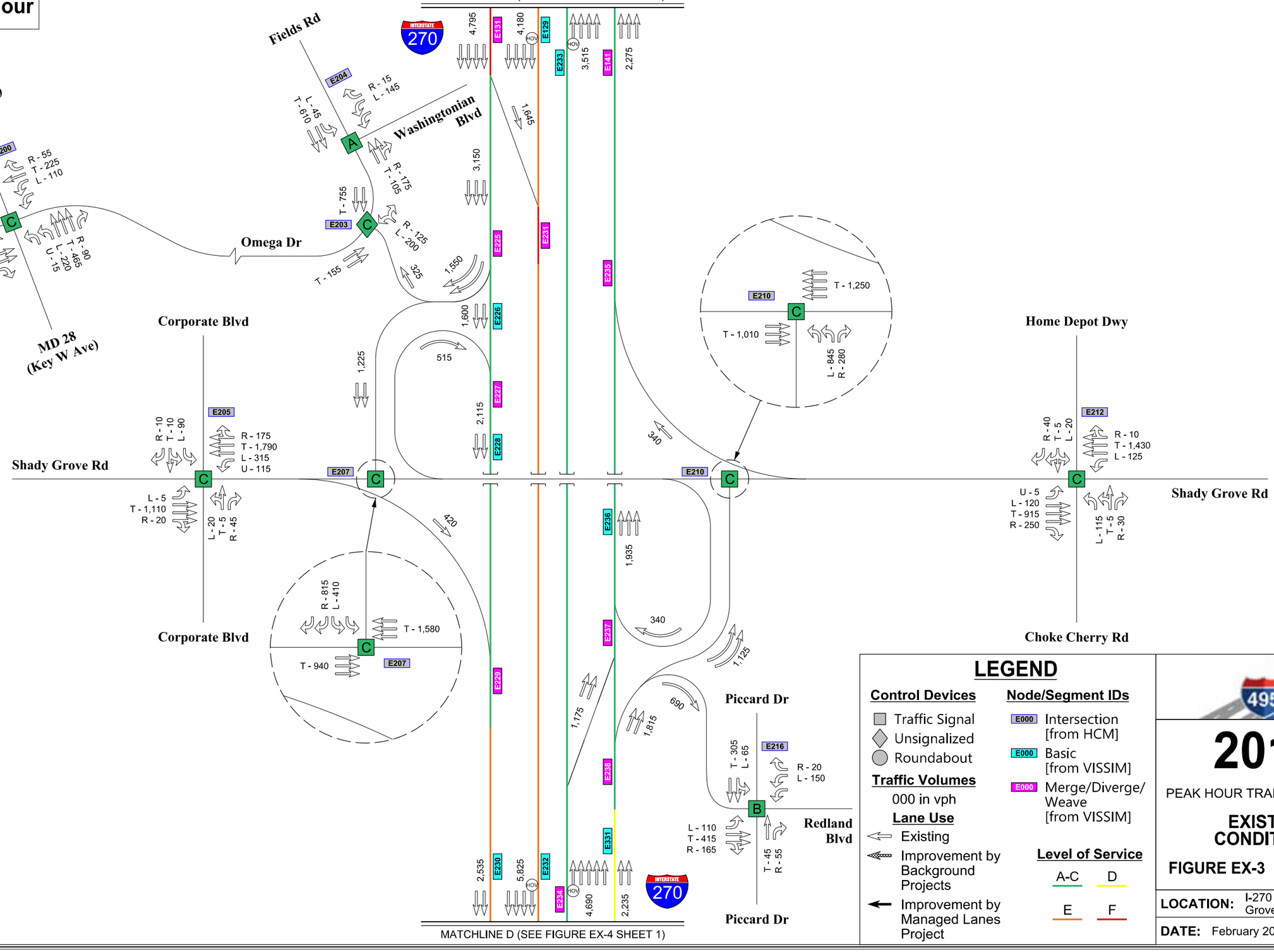
FIGURE EX-2 SHEET 2 OF 2

LOCATION: I-270 at I-370

DATE: February 2022

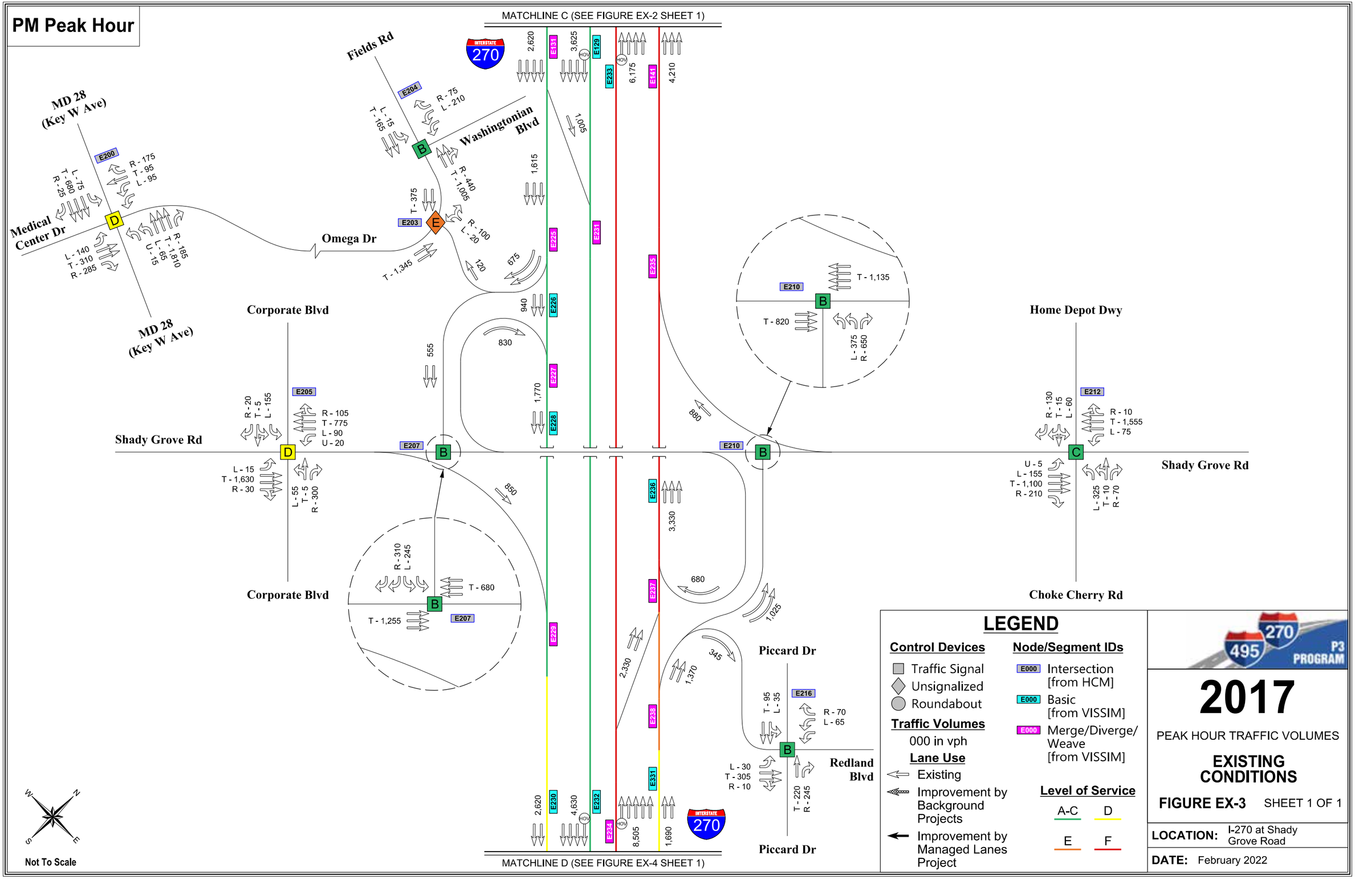
AM Peak Hour

MATCHLINE C (SEE FIGURE EX-2 SHEET 1)



PM Peak Hour

MATCHLINE C (SEE FIGURE EX-2 SHEET 1)



MATCHLINE D (SEE FIGURE EX-4 SHEET 1)

LEGEND

Control Devices
- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes
000 in vph

Lane Use
- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs
- E000 Intersection [from HCM]
- E000 Basic [from VISSIM]
- E000 Merge/Diverge/ Weave [from VISSIM]

Level of Service
A-C D E F

Not To Scale

I-270 495 P3 PROGRAM

2017

PEAK HOUR TRAFFIC VOLUMES

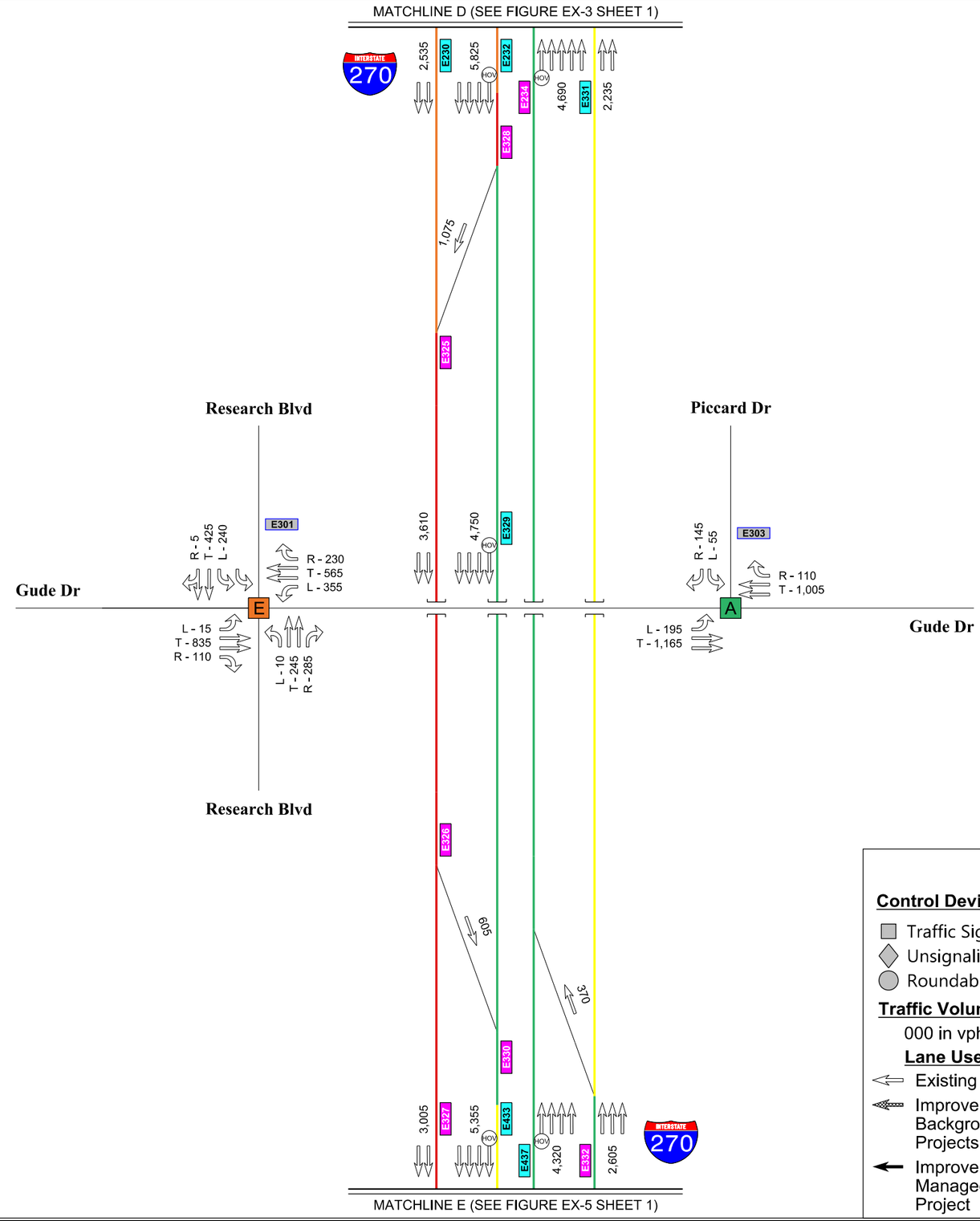
EXISTING CONDITIONS

FIGURE EX-3 SHEET 1 OF 1

LOCATION: I-270 at Shady Grove Road

DATE: February 2022

AM Peak Hour



Not To Scale

LEGEND

Control Devices

- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes

000 in vph

Lane Use

- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs

- E000 Intersection [from HCM]
- E000 Basic [from VISSIM]
- E000 Merge/Diverge/ Weave [from VISSIM]

Level of Service

A-C D E F

I-270 495 P3 PROGRAM

2017

PEAK HOUR TRAFFIC VOLUMES

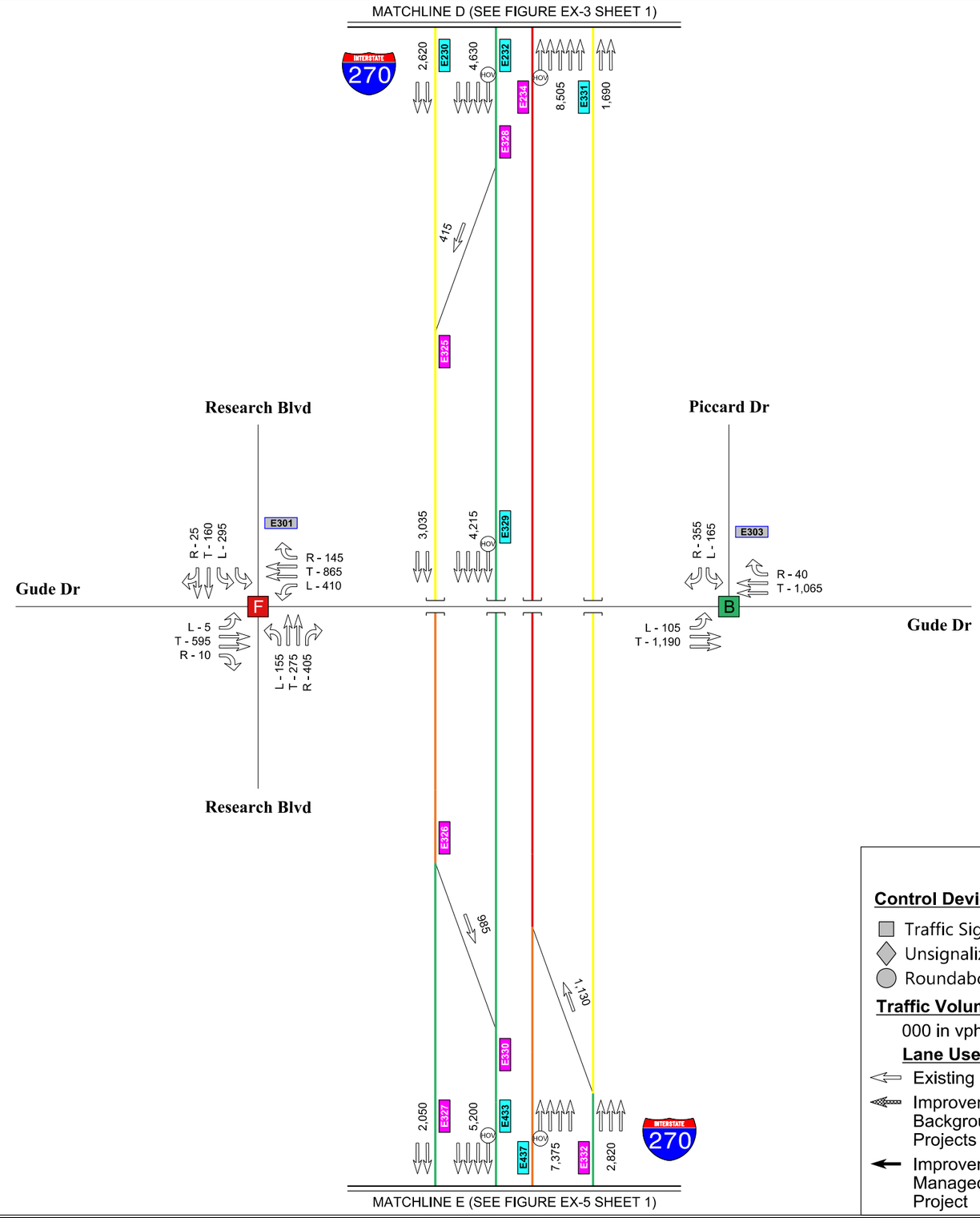
EXISTING CONDITIONS

FIGURE EX-4 SHEET 1 OF 1

LOCATION: I-270 at Gude Drive

DATE: February 2022

PM Peak Hour



Not To Scale

LEGEND

Control Devices

- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes

000 in vph

Lane Use

- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs

- E000 Intersection [from HCM]
- E000 Basic [from VISSIM]
- E000 Merge/Diverge/ Weave [from VISSIM]

Level of Service

A-C D E F

I-270 / 495 P3 PROGRAM

2017

PEAK HOUR TRAFFIC VOLUMES

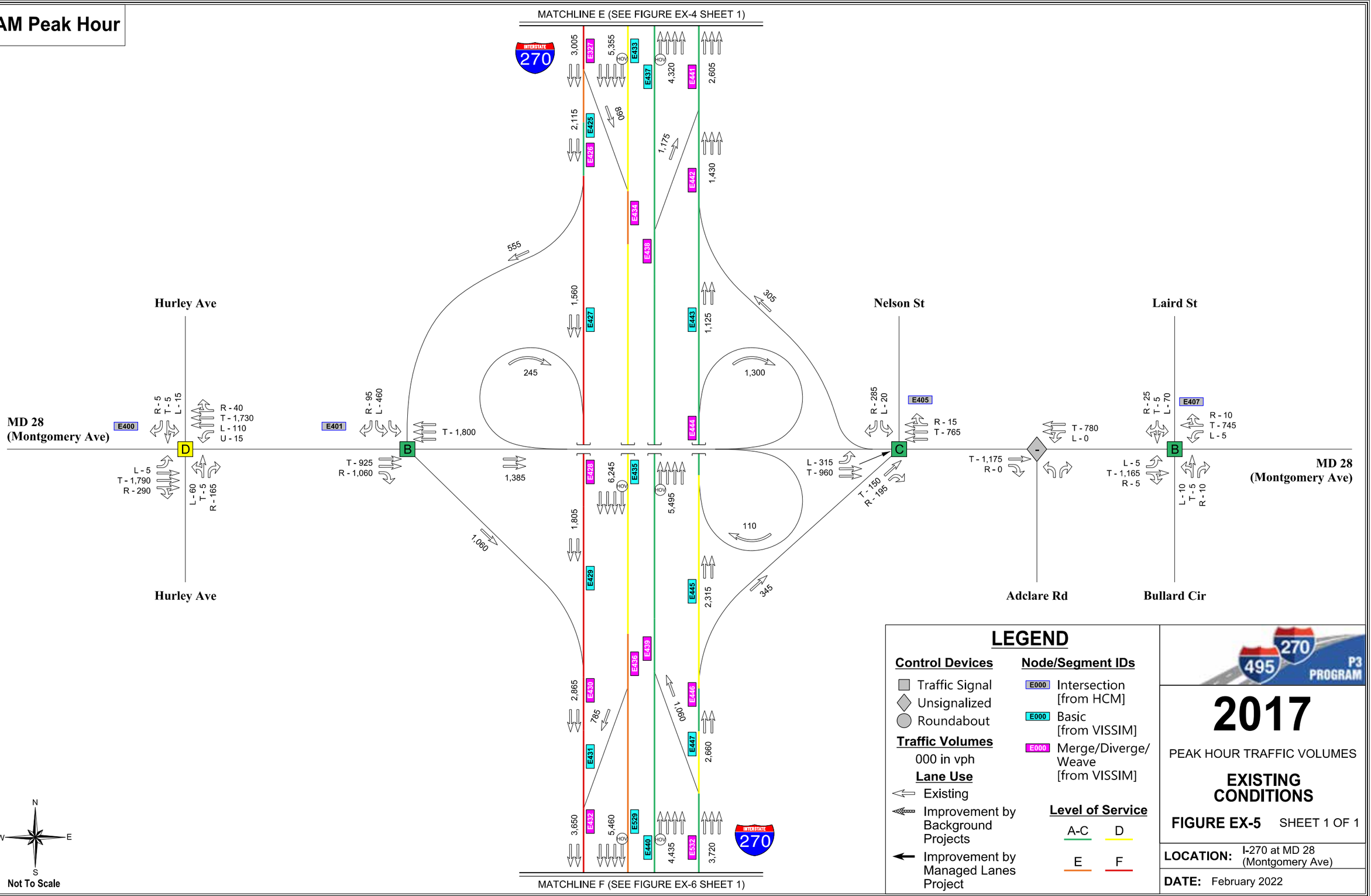
EXISTING CONDITIONS

FIGURE EX-4 SHEET 1 OF 1

LOCATION: I-270 at Gude Drive

DATE: February 2022

AM Peak Hour



LEGEND

Control Devices

- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes

000 in vph

Lane Use

- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs

- E000 Intersection [from HCM]
- E000 Basic [from VISSIM]
- E000 Merge/Diverge/ Weave [from VISSIM]

Level of Service

A-C D E F

I-270 / I-495 P3 PROGRAM

2017

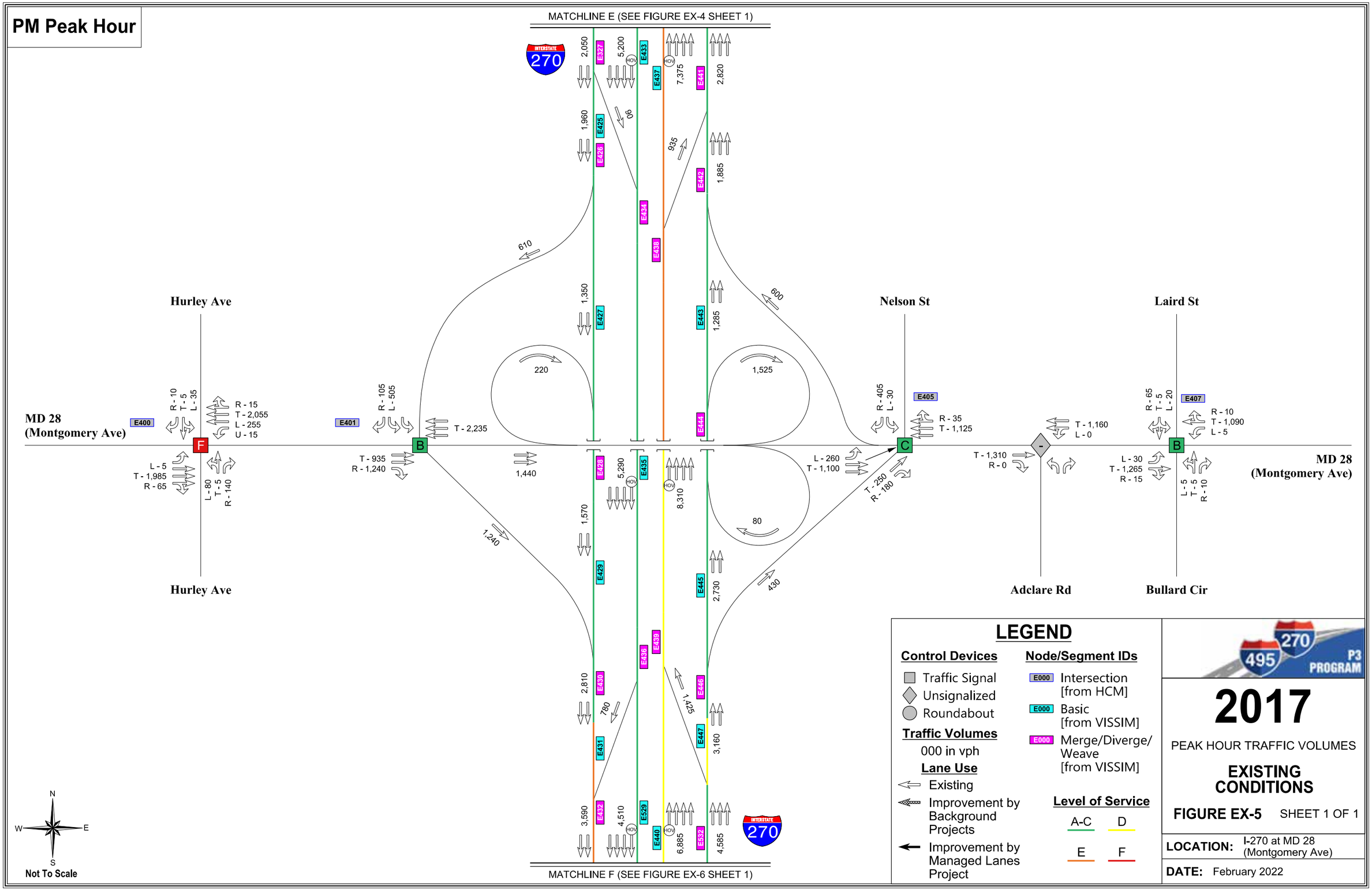
PEAK HOUR TRAFFIC VOLUMES

EXISTING CONDITIONS

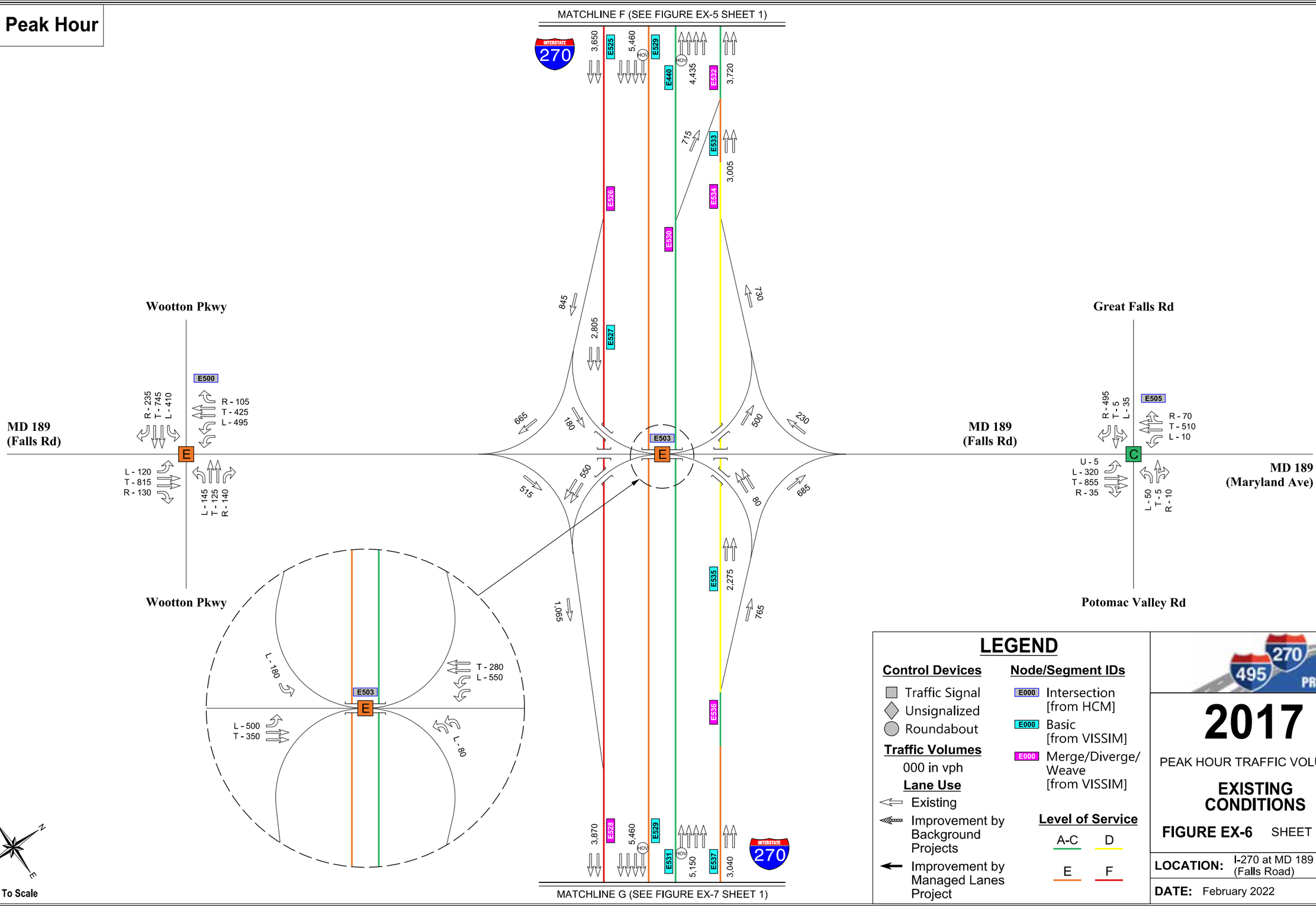
FIGURE EX-5 SHEET 1 OF 1

LOCATION: I-270 at MD 28 (Montgomery Ave)

DATE: February 2022


PM Peak Hour
MATCHLINE E (SEE FIGURE EX-4 SHEET 1)
MATCHLINE F (SEE FIGURE EX-6 SHEET 1)
Hurley Ave
Nelson St
Laird St
MD 28 (Montgomery Ave)
Adclare Rd
Bullard Cir
270
E400
E401
E405
E407
E427
E428
E429
E430
E431
E432
E433
E434
E435
E436
E437
E438
E439
E440
E441
E442
E443
E444
E445
E446
E447
E529
E532
R - 10
T - 5
L - 35
R - 15
T - 2,055
L - 255
U - 15
L - 5
T - 1,985
R - 65
L - 80
T - 5
R - 140
R - 105
L - 505
T - 2,235
T - 935
R - 1,240
R - 405
L - 30
R - 35
T - 1,125
L - 260
T - 1,100
T - 250
R - 180
T - 1,160
L - 0
T - 1,310
R - 0
R - 65
T - 5
L - 20
R - 10
T - 1,090
L - 5
L - 30
T - 1,265
R - 15
L - 5
T - 5
R - 10
2,050
5,200
7,375
2,820
1,960
90
935
1,885
610
600
1,350
1,285
220
1,525
1,440
5,290
8,310
1,570
80
1,240
2,730
430
2,810
780
1,425
3,160
3,590
4,510
6,885
4,585
N
S
E
W
Not To Scale
LEGEND
Control Devices
Traffic Signal
Unsignalized
Roundabout
Traffic Volumes
000 in vph
Lane Use
Existing
Improvement by Background Projects
Improvement by Managed Lanes Project
Node/Segment IDs
E000 Intersection [from HCM]
E000 Basic [from VISSIM]
E000 Merge/Diverge/ Weave [from VISSIM]
Level of Service
A-C
D
E
F
495
270
P3 PROGRAM
2017
PEAK HOUR TRAFFIC VOLUMES
EXISTING CONDITIONS
FIGURE EX-5
SHEET 1 OF 1
LOCATION: I-270 at MD 28 (Montgomery Ave)
DATE: February 2022

AM Peak Hour



LEGEND

Control Devices

- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes

000 in vph

Lane Use

- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs

- E000 Intersection [from HCM]
- E000 Basic [from VISSIM]
- E000 Merge/Diverge/ Weave [from VISSIM]

Level of Service

A-C D E F

270 495 P3 PROGRAM

2017

PEAK HOUR TRAFFIC VOLUMES

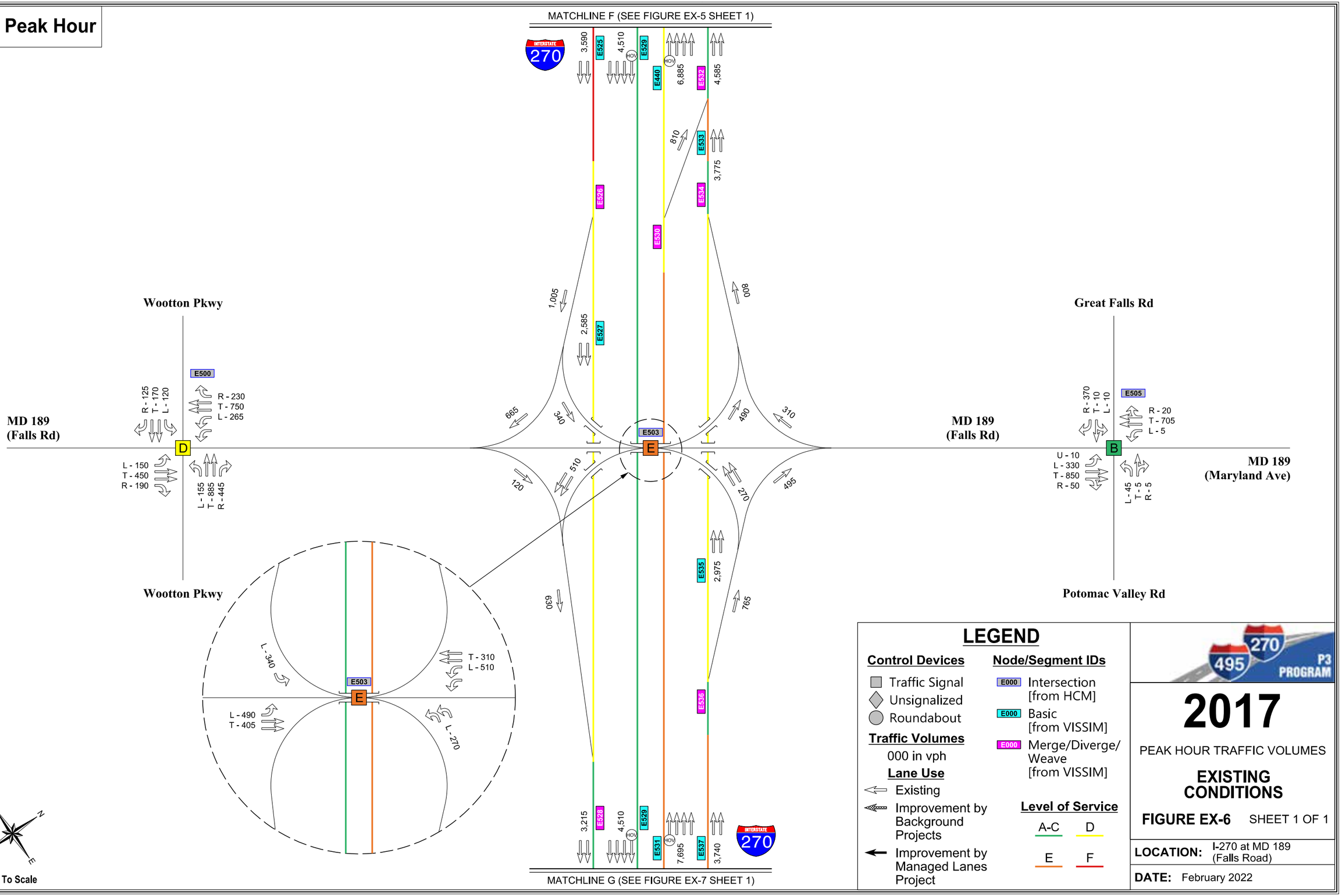
EXISTING CONDITIONS

FIGURE EX-6 SHEET 1 OF 1

LOCATION: I-270 at MD 189 (Falls Road)

DATE: February 2022

PM Peak Hour



LEGEND

Control Devices

- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes

000 in vph

Lane Use

- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs

- E000 Intersection [from HCM]
- E000 Basic [from VISSIM]
- E000 Merge/Diverge/ Weave [from VISSIM]

Level of Service

A-C D E F

I-270 495 P3 PROGRAM

2017

PEAK HOUR TRAFFIC VOLUMES

EXISTING CONDITIONS

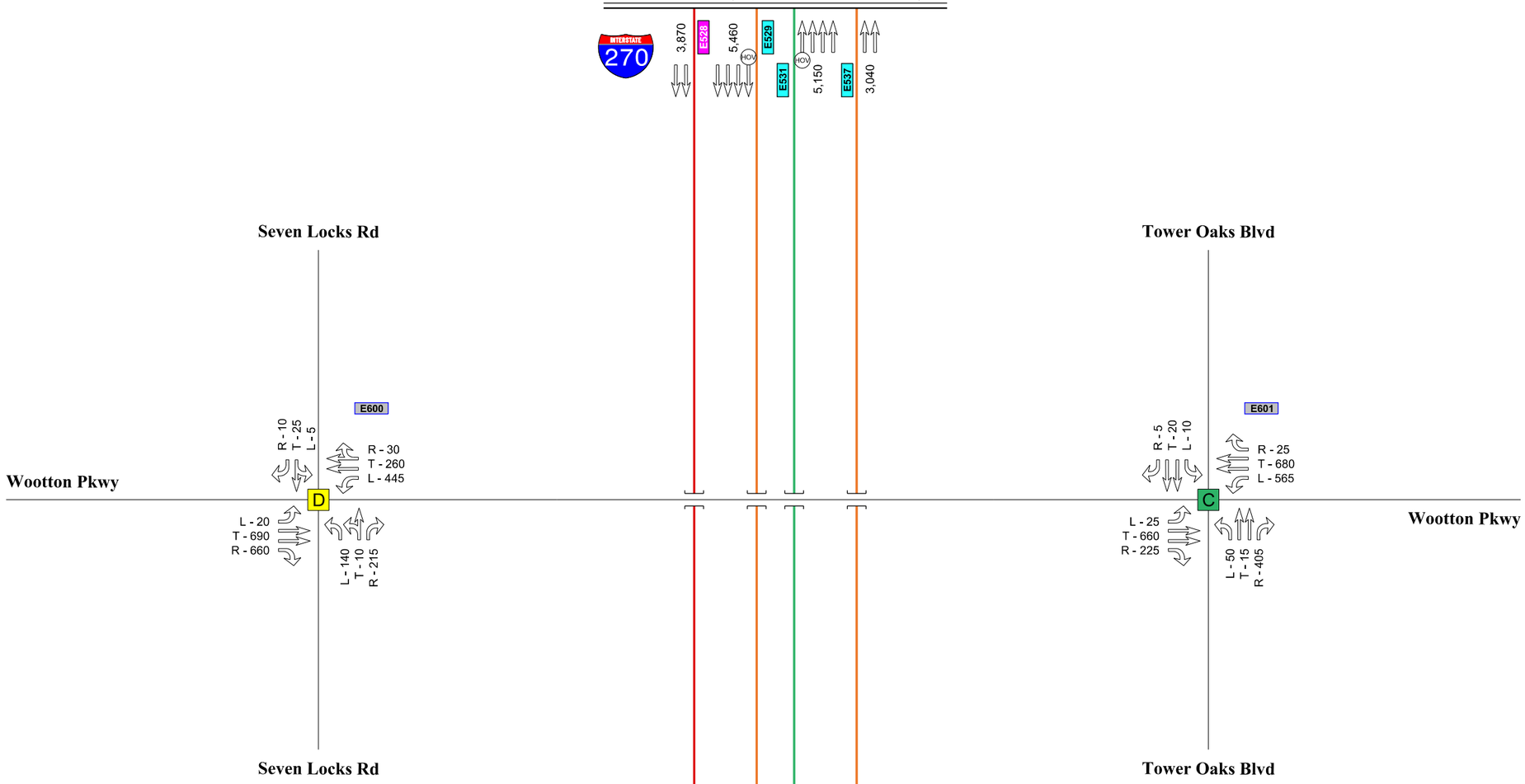
FIGURE EX-6 SHEET 1 OF 1

LOCATION: I-270 at MD 189 (Falls Road)

DATE: February 2022

AM Peak Hour

MATCHLINE G (SEE FIGURE EX-6 SHEET 1)



MATCHLINE H (SEE FIGURE EX-8 SHEET 1)

N
W E
S
Not To Scale

LEGEND

Control Devices
- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes
000 in vph

Lane Use
- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs
- E000 Intersection [from HCM]
- E000 Basic [from VISSIM]
- E000 Merge/Diverge/ Weave [from VISSIM]

Level of Service

A-C	D
E	F

I-270 / I-495 P3 PROGRAM

2017

PEAK HOUR TRAFFIC VOLUMES

EXISTING CONDITIONS

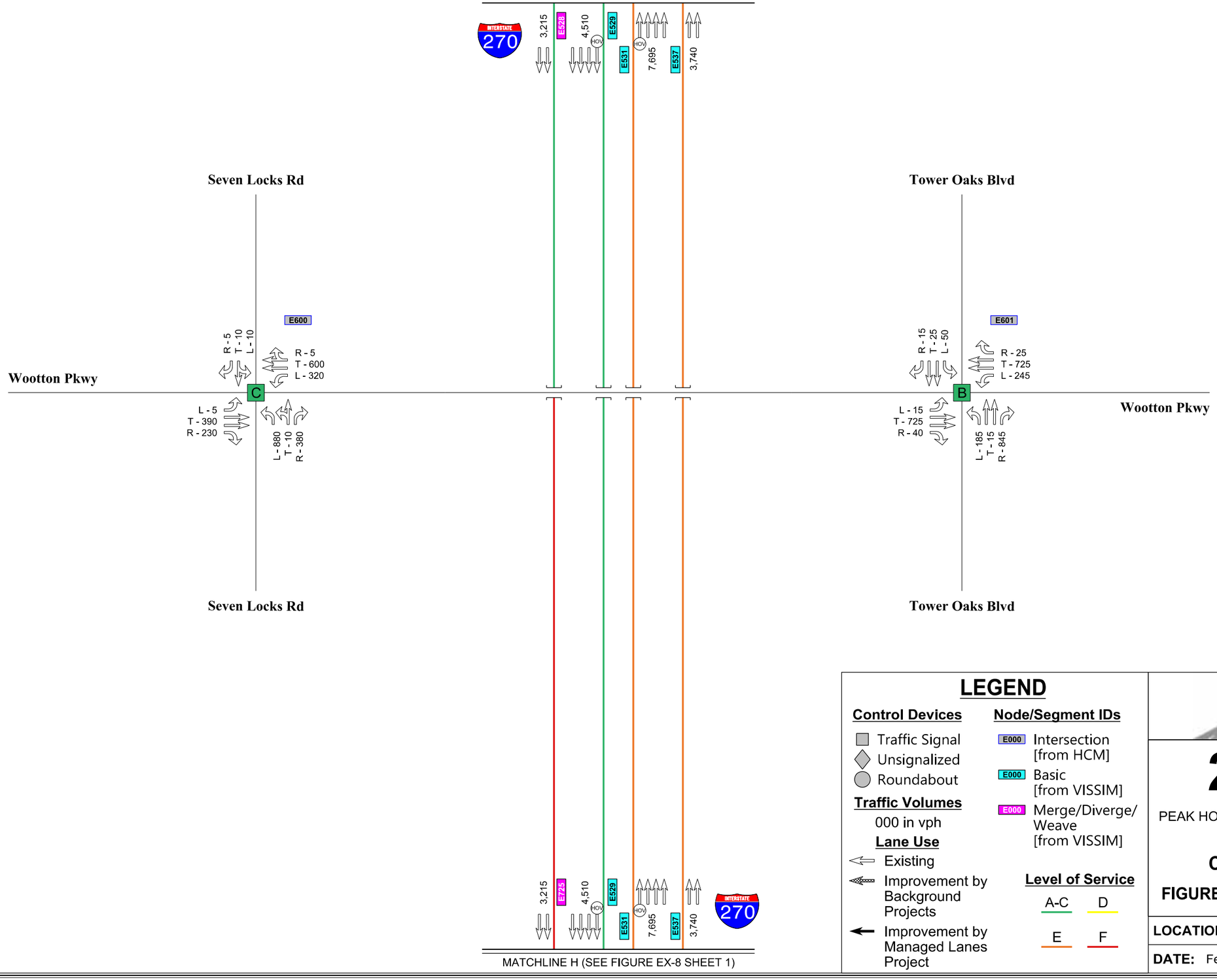
FIGURE EX-7 SHEET 1 OF 1

LOCATION: I-270 at Wootton Parkway

DATE: February 2022

PM Peak Hour

MATCHLINE G (SEE FIGURE EX-6 SHEET 1)



MATCHLINE H (SEE FIGURE EX-8 SHEET 1)

N
W
E
S
Not To Scale

LEGEND

Control Devices
- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes
000 in vph

Lane Use
- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs
- E000 Intersection [from HCM]
- E000 Basic [from VISSIM]
- E000 Merge/Diverge/ Weave [from VISSIM]

Level of Service

A-C	D
E	F

I-270 / I-495 P3 PROGRAM

2017

PEAK HOUR TRAFFIC VOLUMES

EXISTING CONDITIONS

FIGURE EX-7 SHEET 1 OF 1

LOCATION: I-270 at Wootton Parkway

DATE: February 2022

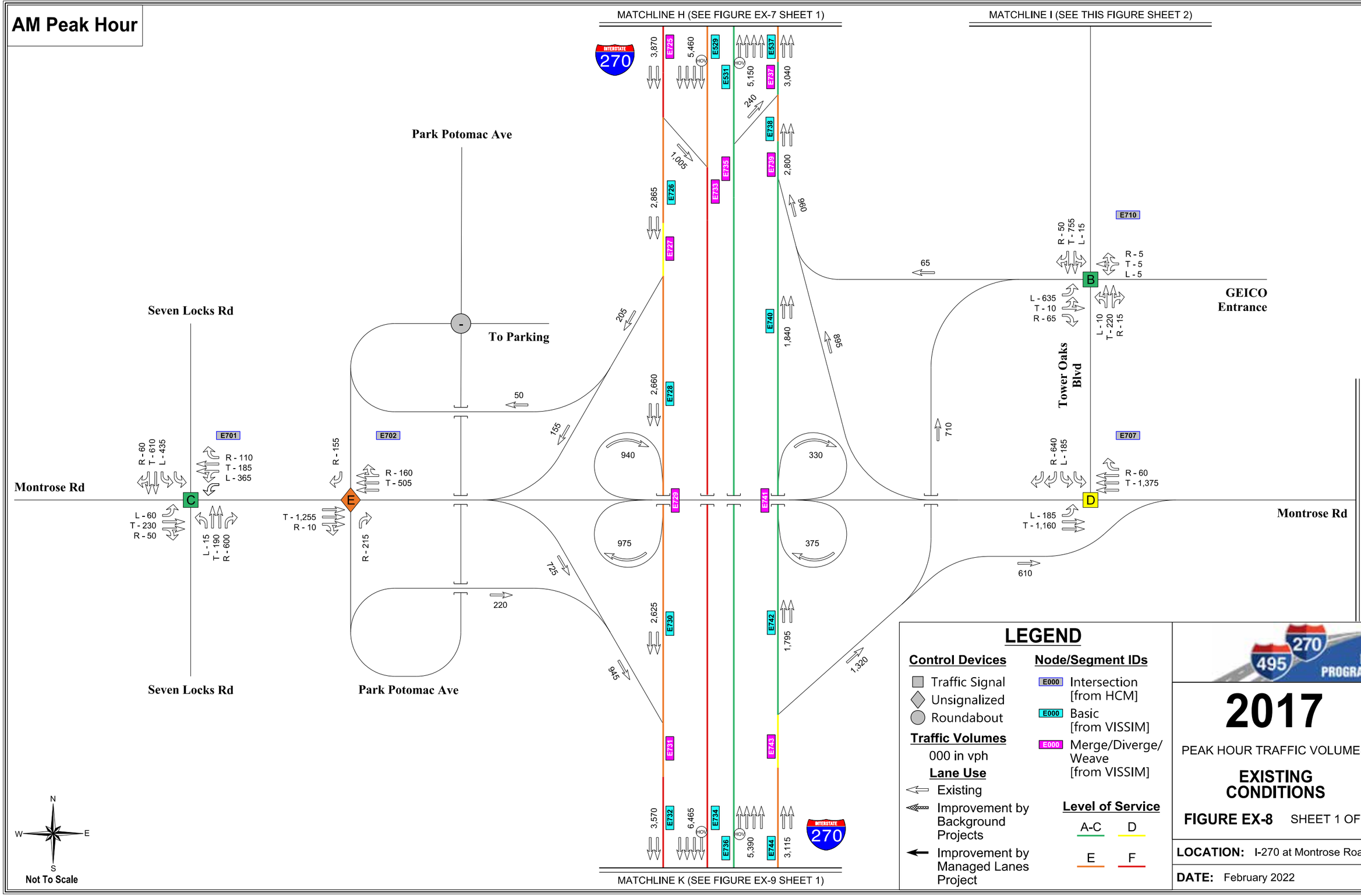
AM Peak Hour

MATCHLINE H (SEE FIGURE EX-7 SHEET 1)

MATCHLINE I (SEE THIS FIGURE SHEET 2)

MATCHLINE J (SEE THIS FIGURE SHEET 2)

MATCHLINE K (SEE FIGURE EX-9 SHEET 1)



LEGEND

Control Devices

- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes

000 in vph

Lane Use

- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs

- E000 Intersection [from HCM]
- E000 Basic [from VISSIM]
- E000 Merge/Diverge/ Weave [from VISSIM]

Level of Service

A-C D E F

2017

PEAK HOUR TRAFFIC VOLUMES

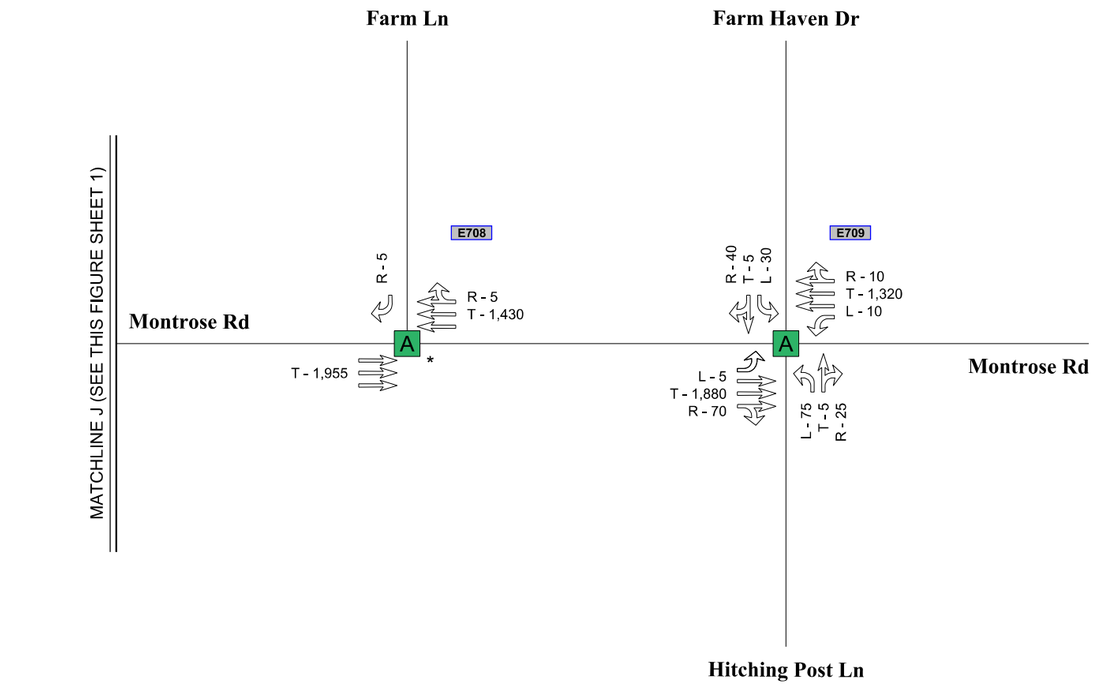
EXISTING CONDITIONS

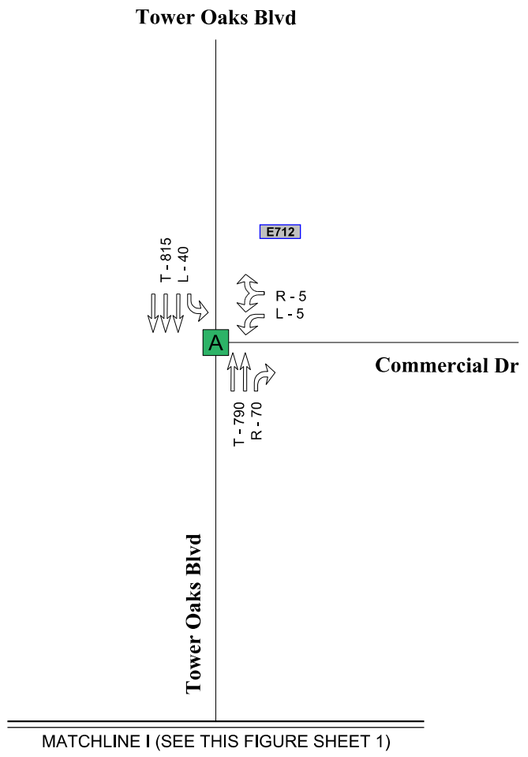
FIGURE EX-8 SHEET 1 OF 2

LOCATION: I-270 at Montrose Road

DATE: February 2022

AM Peak Hour





N
W E
S
Not To Scale

*Note: Montrose Road at Farm Lane is a Pedestrian Signal with Farm Lane being yield controlled

LEGEND

Control Devices
- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes
000 in vph

Lane Use
- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs
- E000 Intersection [from HCM]
- E000 Basic [from VISSIM]
- E000 Merge/Diverge/ Weave [from VISSIM]

Level of Service

A-C	D
E	F

I-270 P3 PROGRAM

2017

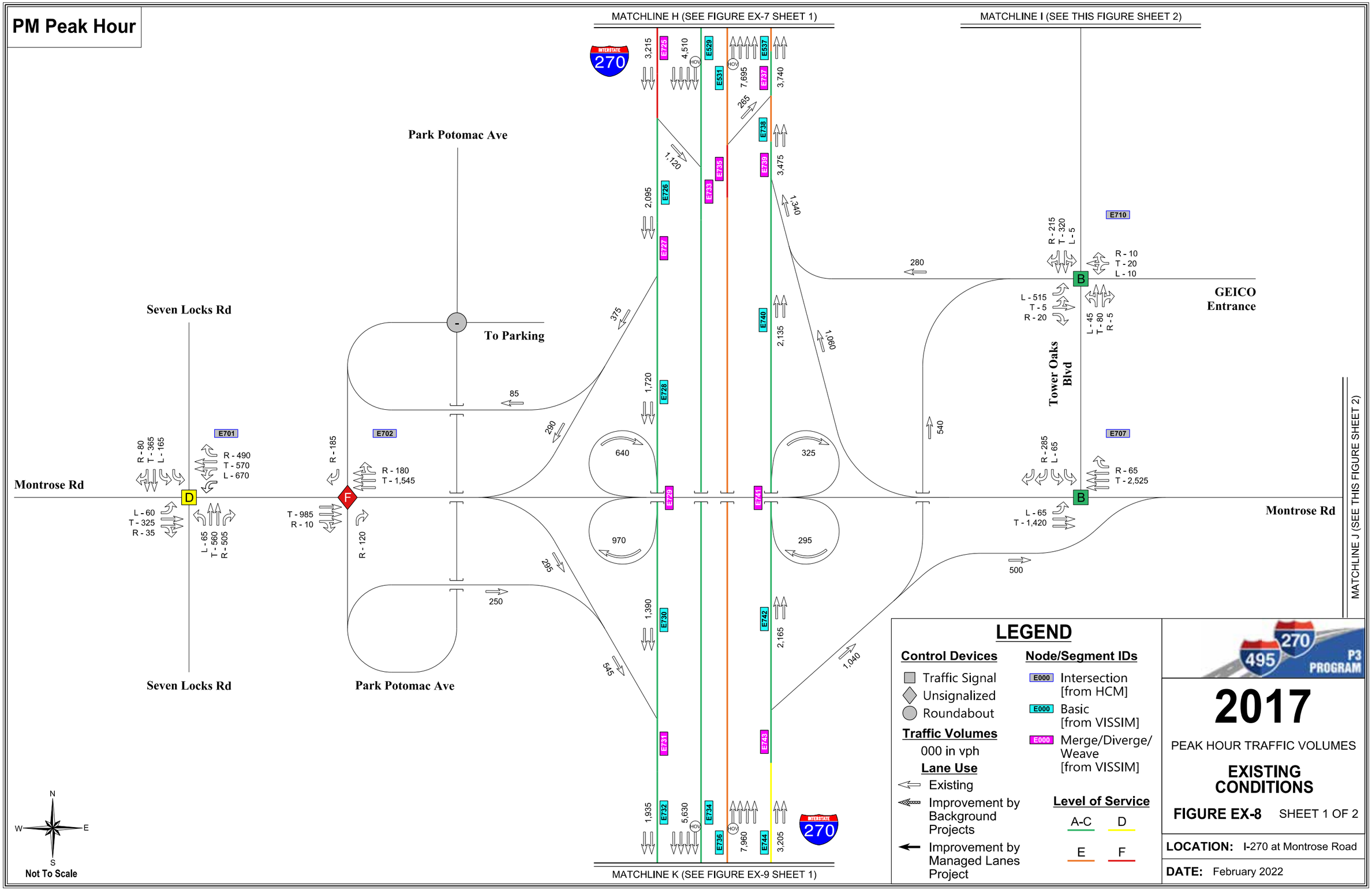
PEAK HOUR TRAFFIC VOLUMES

EXISTING CONDITIONS

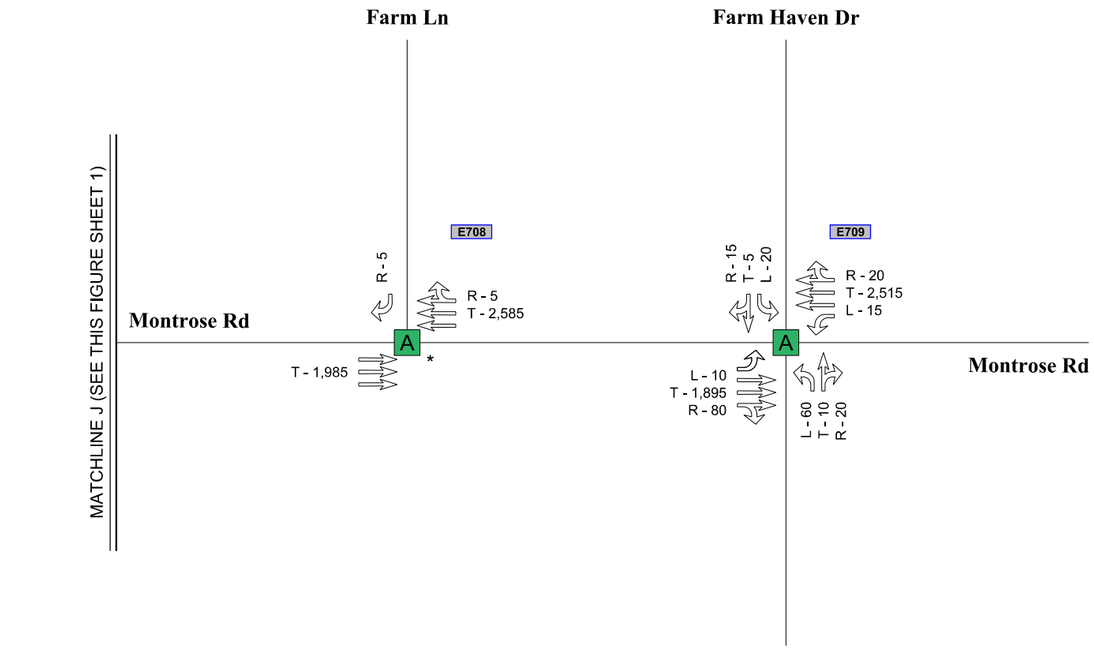
FIGURE EX-8 SHEET 2 OF 2

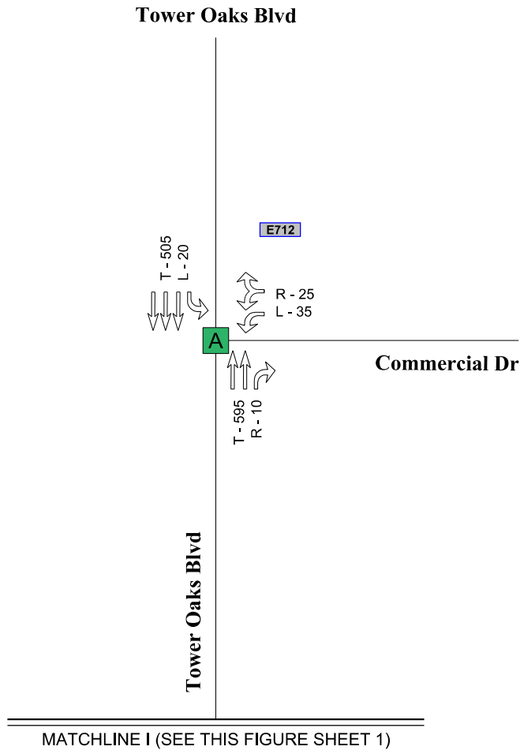
LOCATION: I-270 at Montrose Road

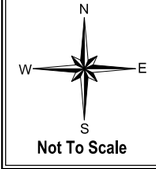
DATE: February 2022


PM Peak Hour
MATCHLINE H (SEE FIGURE EX-7 SHEET 1)
MATCHLINE I (SEE THIS FIGURE SHEET 2)
MATCHLINE J (SEE THIS FIGURE SHEET 2)
MATCHLINE K (SEE FIGURE EX-9 SHEET 1)
Park Potomac Ave
Seven Locks Rd
To Parking
Montrose Rd
GEICO Entrance
Tower Oaks Blvd
Not To Scale
LEGEND
Control Devices
Traffic Signal
Unsignalized
Roundabout
Traffic Volumes
000 in vph
Lane Use
Existing
Improvement by Background Projects
Improvement by Managed Lanes Project
Node/Segment IDs
Intersection [from HCM]
Basic [from VISSIM]
Merge/Diverge/ Weave [from VISSIM]
Level of Service
A-C
D
E
F
2017
PEAK HOUR TRAFFIC VOLUMES
EXISTING CONDITIONS
FIGURE EX-8
SHEET 1 OF 2
LOCATION: I-270 at Montrose Road
DATE: February 2022

PM Peak Hour







Not To Scale

*Note: Montrose Road at Farm Lane is a Pedestrian Signal with Farm Lane being yield controlled

LEGEND

Control Devices
- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes
000 in vph

Lane Use
- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs
- E000 Intersection [from HCM]
- E000 Basic [from VISSIM]
- E000 Merge/Diverge/ Weave [from VISSIM]

Level of Service

A-C	D
E	F

270 495 P3 PROGRAM

2017

PEAK HOUR TRAFFIC VOLUMES

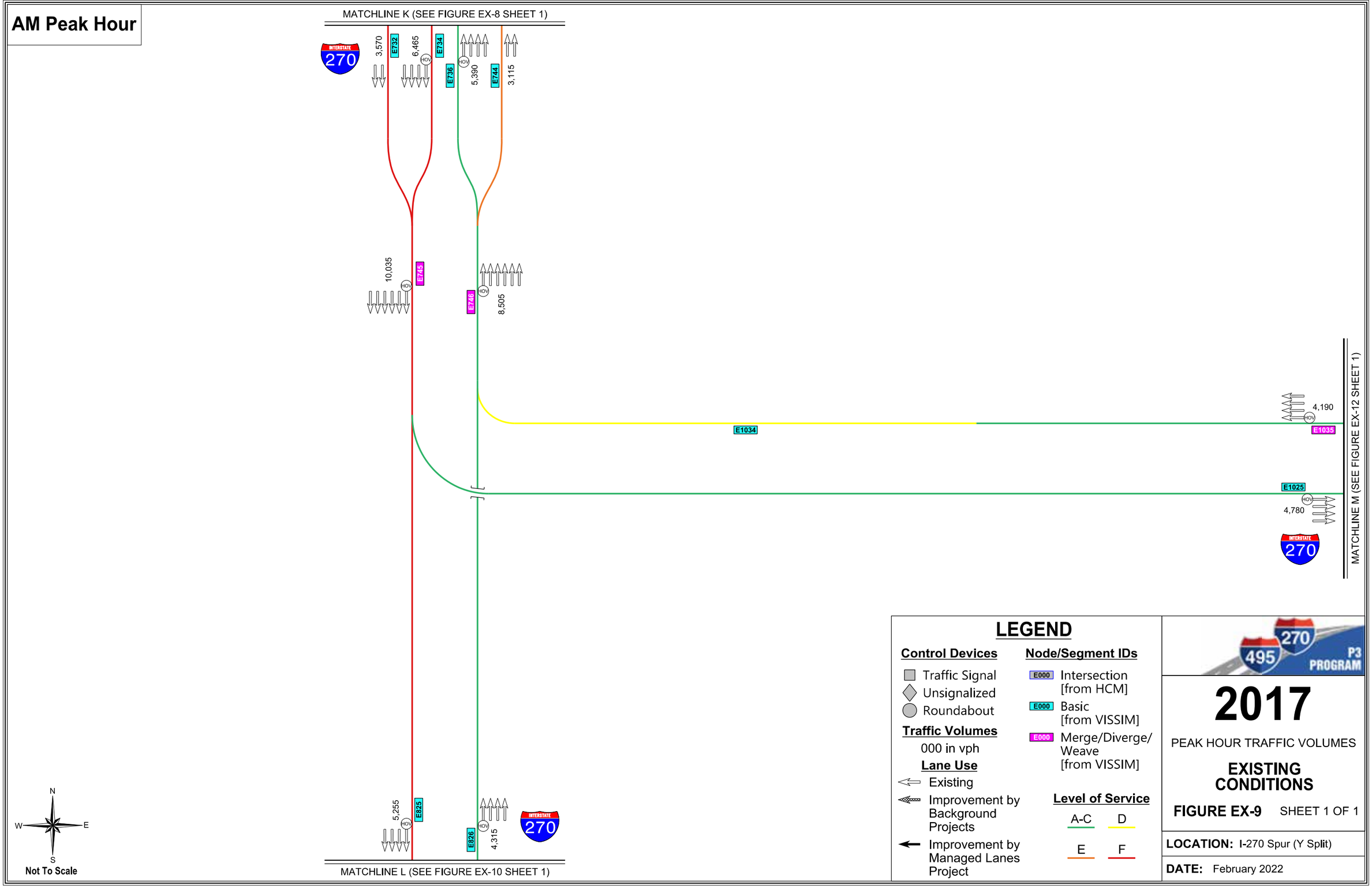
EXISTING CONDITIONS

FIGURE EX-8 SHEET 2 OF 2

LOCATION: I-270 at Montrose Road

DATE: February 2022

AM Peak Hour



LEGEND

Control Devices

- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes

000 in vph

Lane Use

- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs

- E000 Intersection [from HCM]
- E000 Basic [from VISSIM]
- E000 Merge/Diverge/ Weave [from VISSIM]

Level of Service

A-C D E F

495 270 P3 PROGRAM

2017

PEAK HOUR TRAFFIC VOLUMES

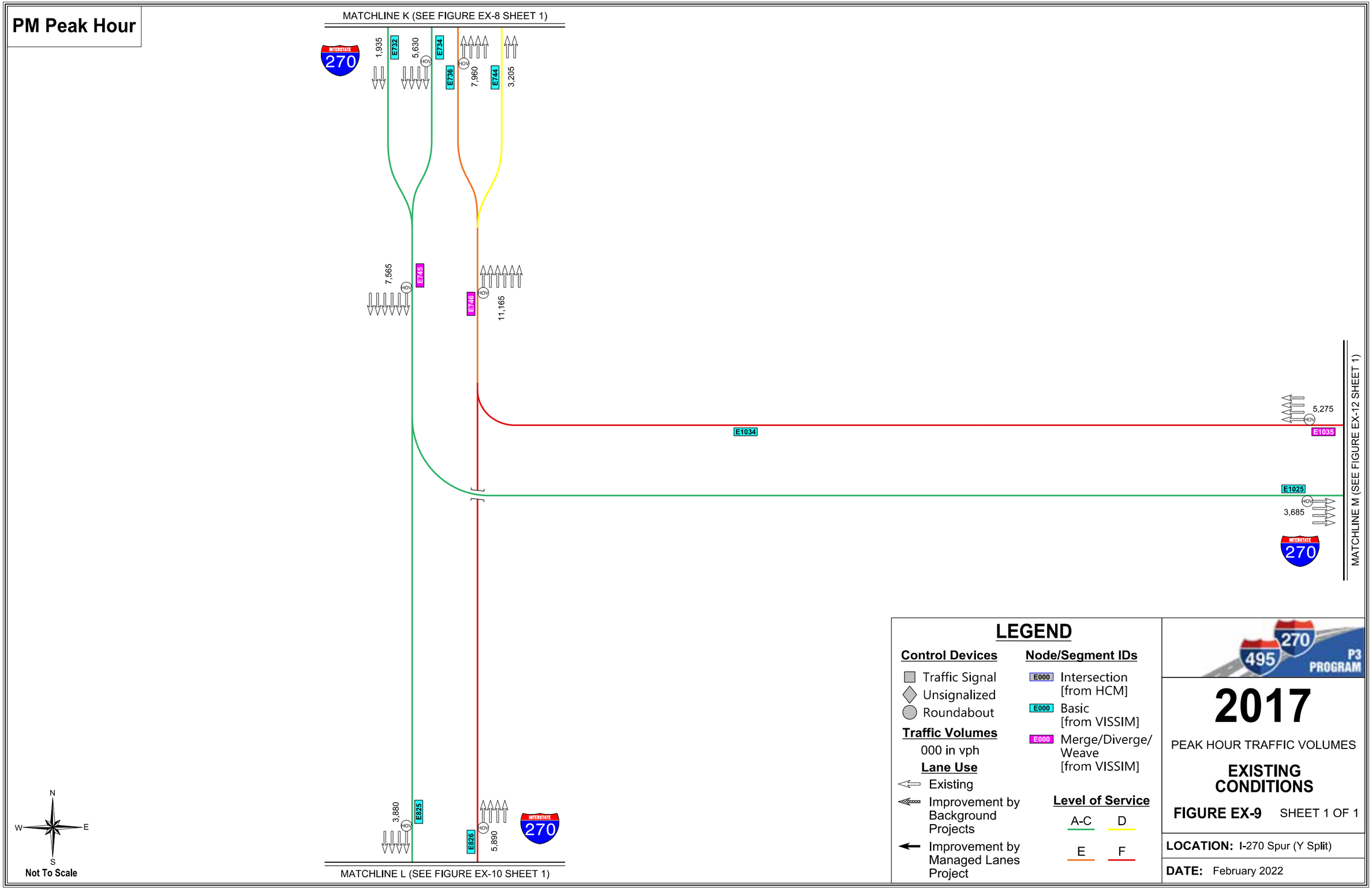
EXISTING CONDITIONS

FIGURE EX-9 SHEET 1 OF 1

LOCATION: I-270 Spur (Y Split)

DATE: February 2022

PM Peak Hour



LEGEND

Control Devices

- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes

000 in vph

Lane Use

- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs

- E000 Intersection [from HCM]
- E000 Basic [from VISSIM]
- E000 Merge/Diverge/ Weave [from VISSIM]

Level of Service

A-C | D | E | F

I-270 495 P3 PROGRAM

2017

PEAK HOUR TRAFFIC VOLUMES

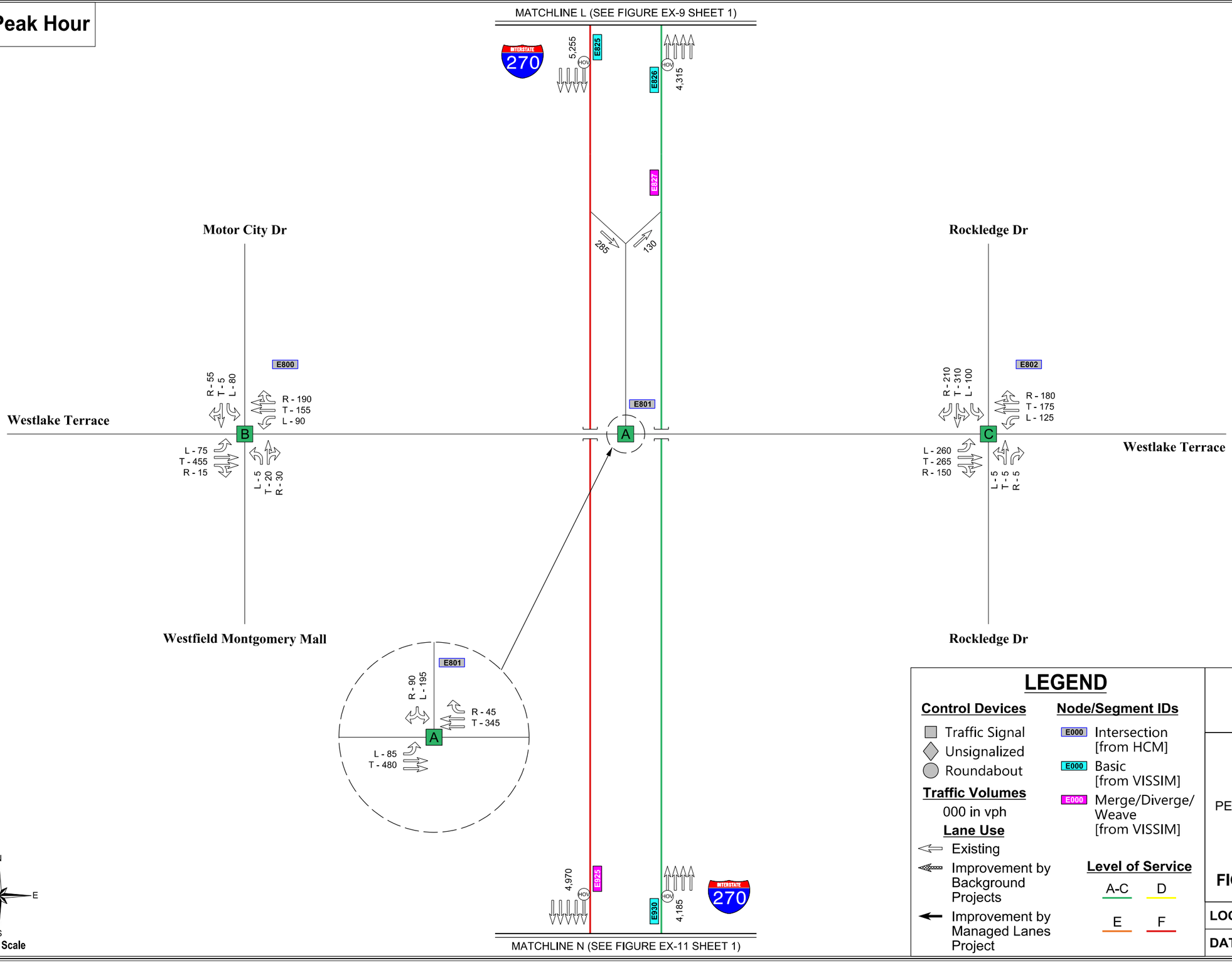
EXISTING CONDITIONS

FIGURE EX-9 SHEET 1 OF 1

LOCATION: I-270 Spur (Y Split)

DATE: February 2022

AM Peak Hour



LEGEND

Control Devices

- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes

000 in vph

Lane Use

- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs

- E000 Intersection [from HCM]
- E000 Basic [from VISSIM]
- E000 Merge/Diverge/ Weave [from VISSIM]

Level of Service

A-C D E F

I-270 495 P3 PROGRAM

2017

PEAK HOUR TRAFFIC VOLUMES

EXISTING CONDITIONS

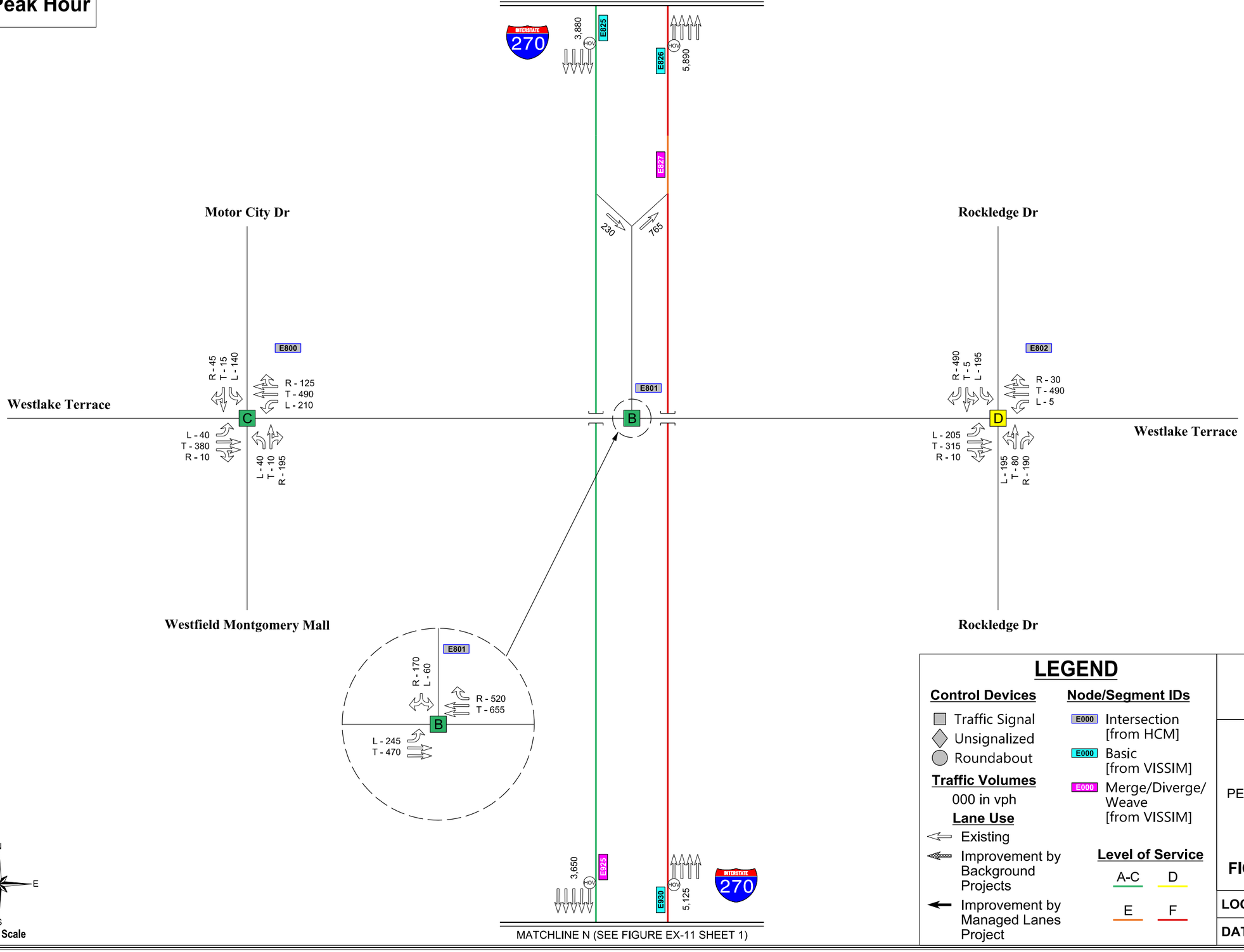
FIGURE EX-10 SHEET 1 OF 1

LOCATION: I-270 at Westlake Terrace

DATE: February 2022

PM Peak Hour

MATCHLINE L (SEE FIGURE EX-9 SHEET 1)



MATCHLINE N (SEE FIGURE EX-11 SHEET 1)

LEGEND

Control Devices

- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes

000 in vph

Lane Use

- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs

- E000 Intersection [from HCM]
- E000 Basic [from VISSIM]
- E000 Merge/Diverge/ Weave [from VISSIM]

Level of Service

A-C D E F

270 495 P3 PROGRAM

2017

PEAK HOUR TRAFFIC VOLUMES

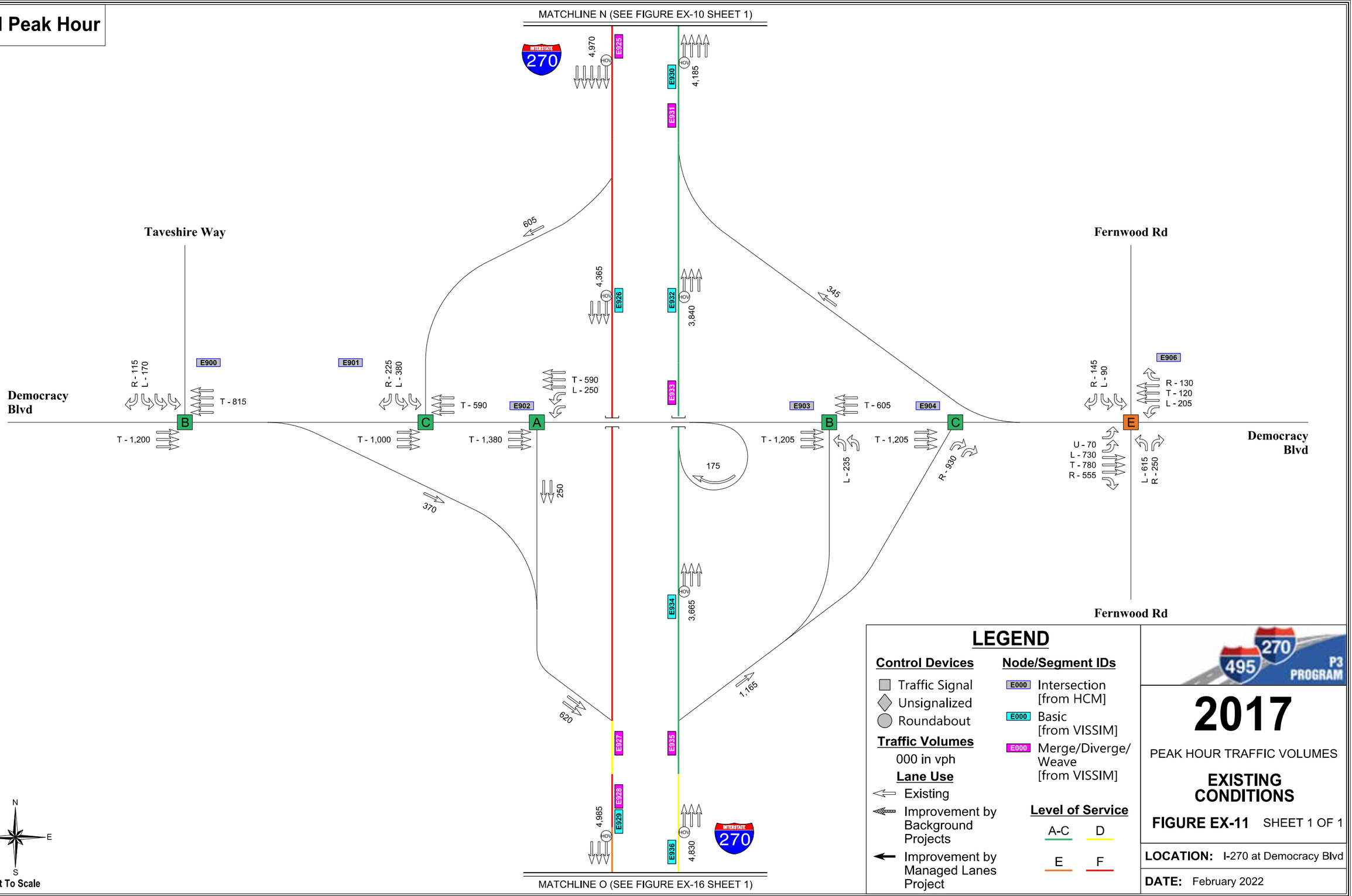
EXISTING CONDITIONS

FIGURE EX-10 SHEET 1 OF 1

LOCATION: I-270 at Westlake Terrace

DATE: February 2022

AM Peak Hour



LEGEND

Control Devices

- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes

000 in vph

Lane Use

- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs

- E000 Intersection [from HCM]
- E000 Basic [from VISSIM]
- E000 Merge/Diverge/ Weave [from VISSIM]

Level of Service

A-C D E F

I-270 495 P3 PROGRAM

2017

PEAK HOUR TRAFFIC VOLUMES

EXISTING CONDITIONS

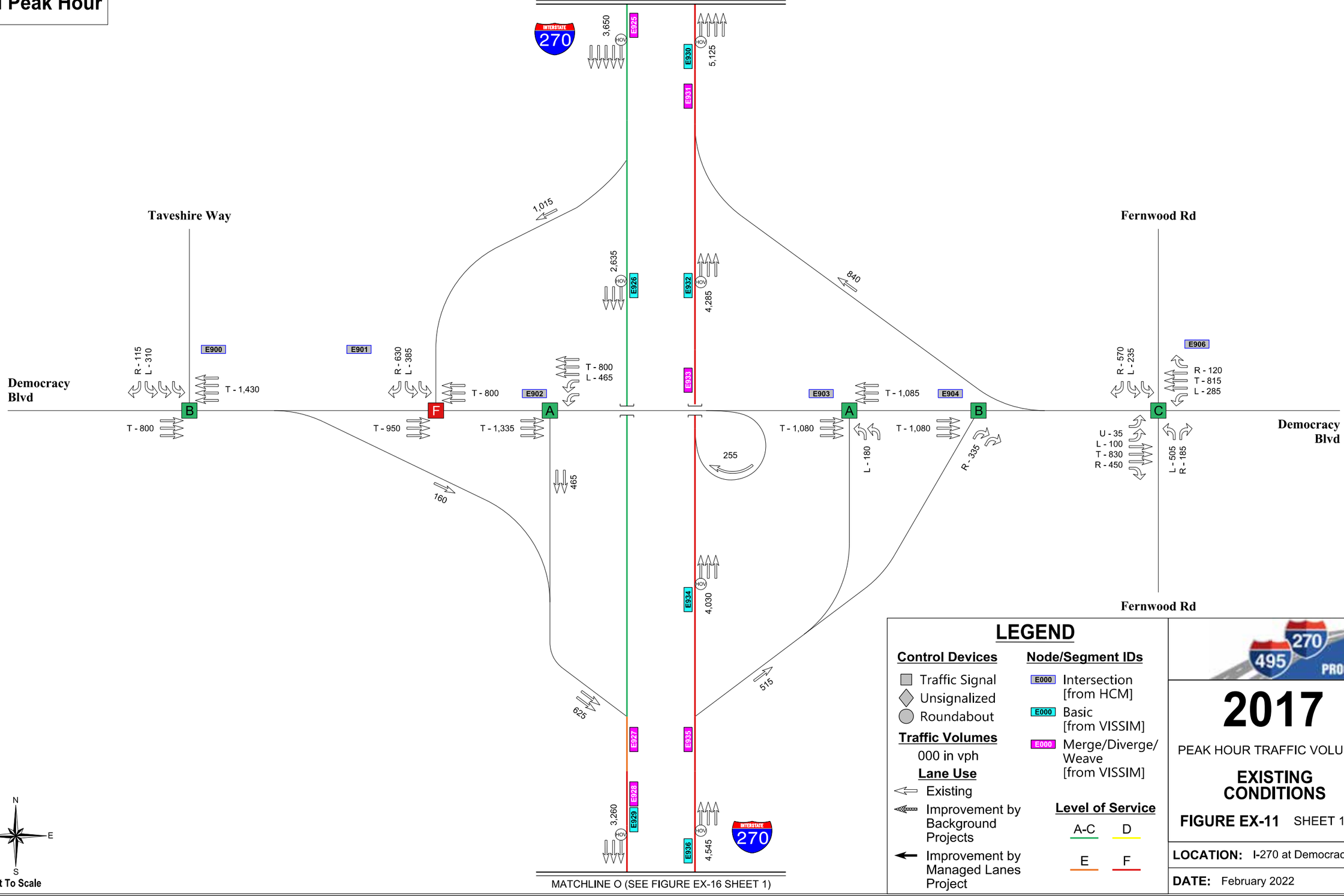
FIGURE EX-11 SHEET 1 OF 1

LOCATION: I-270 at Democracy Blvd

DATE: February 2022

PM Peak Hour

MATCHLINE N (SEE FIGURE EX-10 SHEET 1)



MATCHLINE O (SEE FIGURE EX-16 SHEET 1)

N
W
E
S
Not To Scale

LEGEND

Control Devices
- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes
000 in vph

Lane Use
- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs
- E000 Intersection [from HCM]
- E000 Basic [from VISSIM]
- E000 Merge/Diverge/ Weave [from VISSIM]

Level of Service

A-C	D
E	F

I-270 / I-495 P3 PROGRAM

2017

PEAK HOUR TRAFFIC VOLUMES

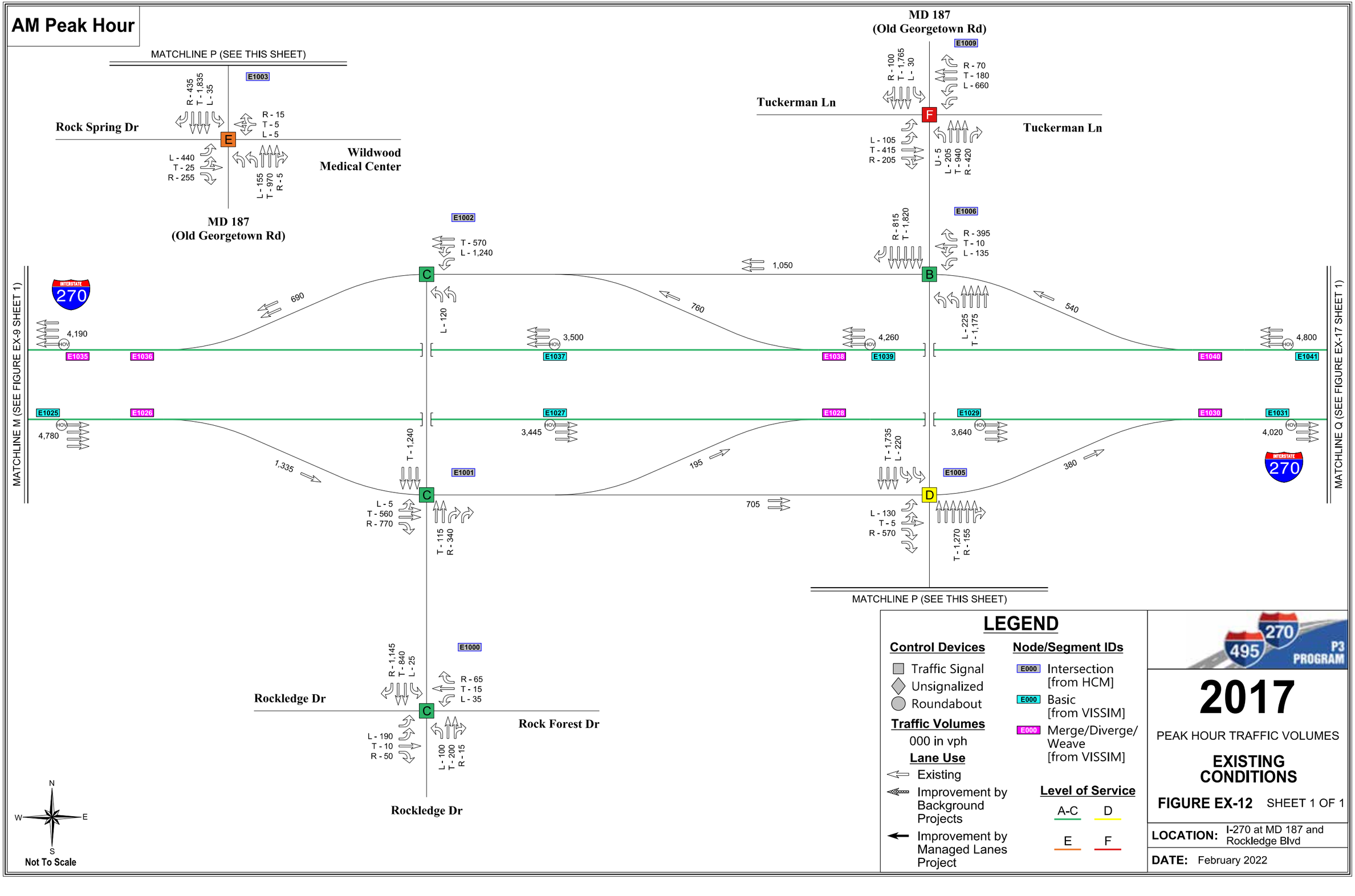
EXISTING CONDITIONS

FIGURE EX-11 SHEET 1 OF 1

LOCATION: I-270 at Democracy Blvd

DATE: February 2022

AM Peak Hour



LEGEND

Control Devices

- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes

000 in vph

Lane Use

- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs

- E000 Intersection [from HCM]
- E000 Basic [from VISSIM]
- E000 Merge/Diverge/ Weave [from VISSIM]

Level of Service

A-C D E F

2017

PEAK HOUR TRAFFIC VOLUMES

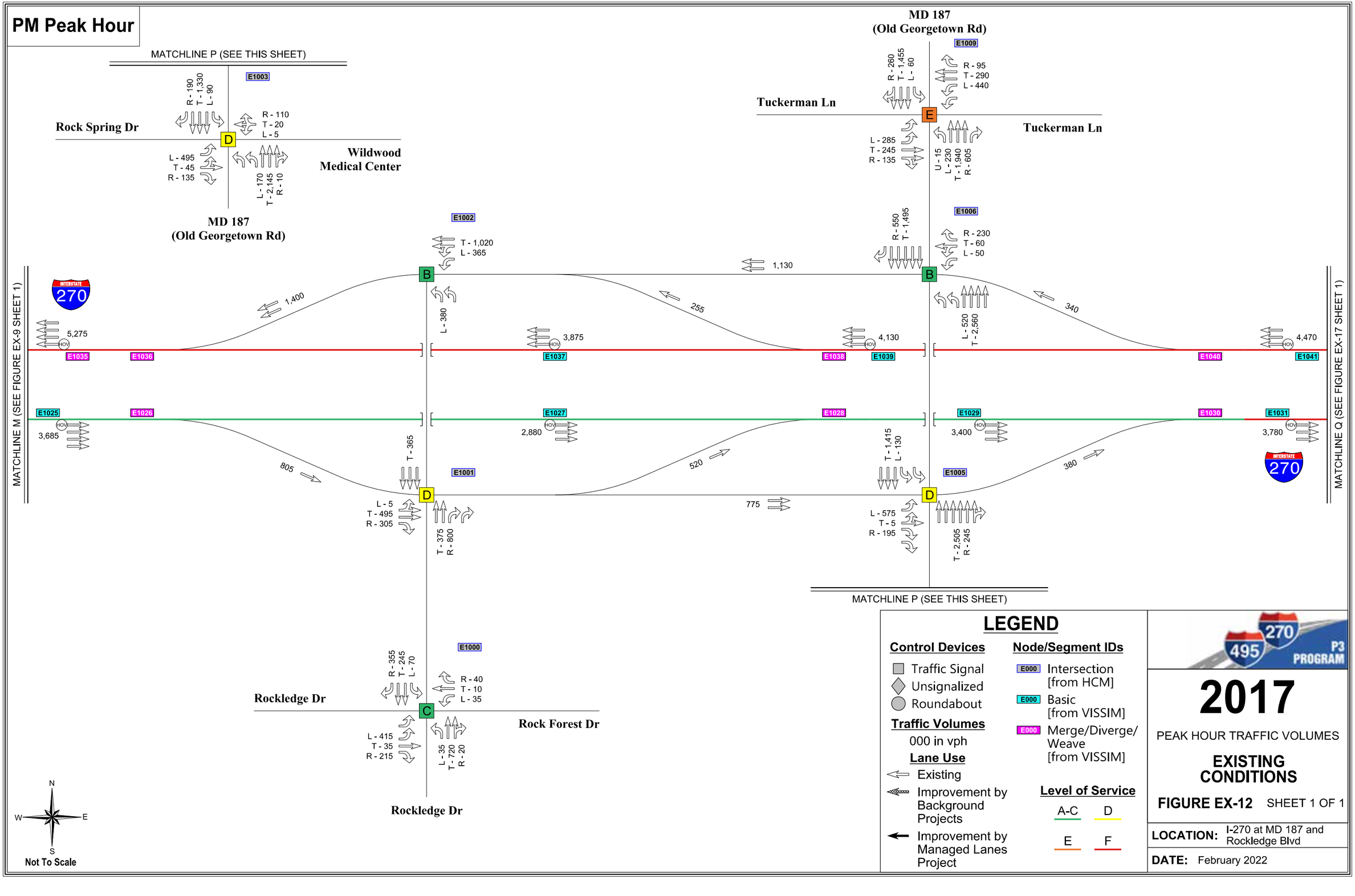
EXISTING CONDITIONS

FIGURE EX-12 SHEET 1 OF 1

LOCATION: I-270 at MD 187 and Rockledge Blvd

DATE: February 2022

PM Peak Hour



LEGEND

Control Devices

- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes

000 in vph

Lane Use

- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs

- E000 Intersection [from HCM]
- E000 Basic [from VISSIM]
- E000 Merge/Diverge/ Weave [from VISSIM]

Level of Service

A-C D E F

2017

PEAK HOUR TRAFFIC VOLUMES

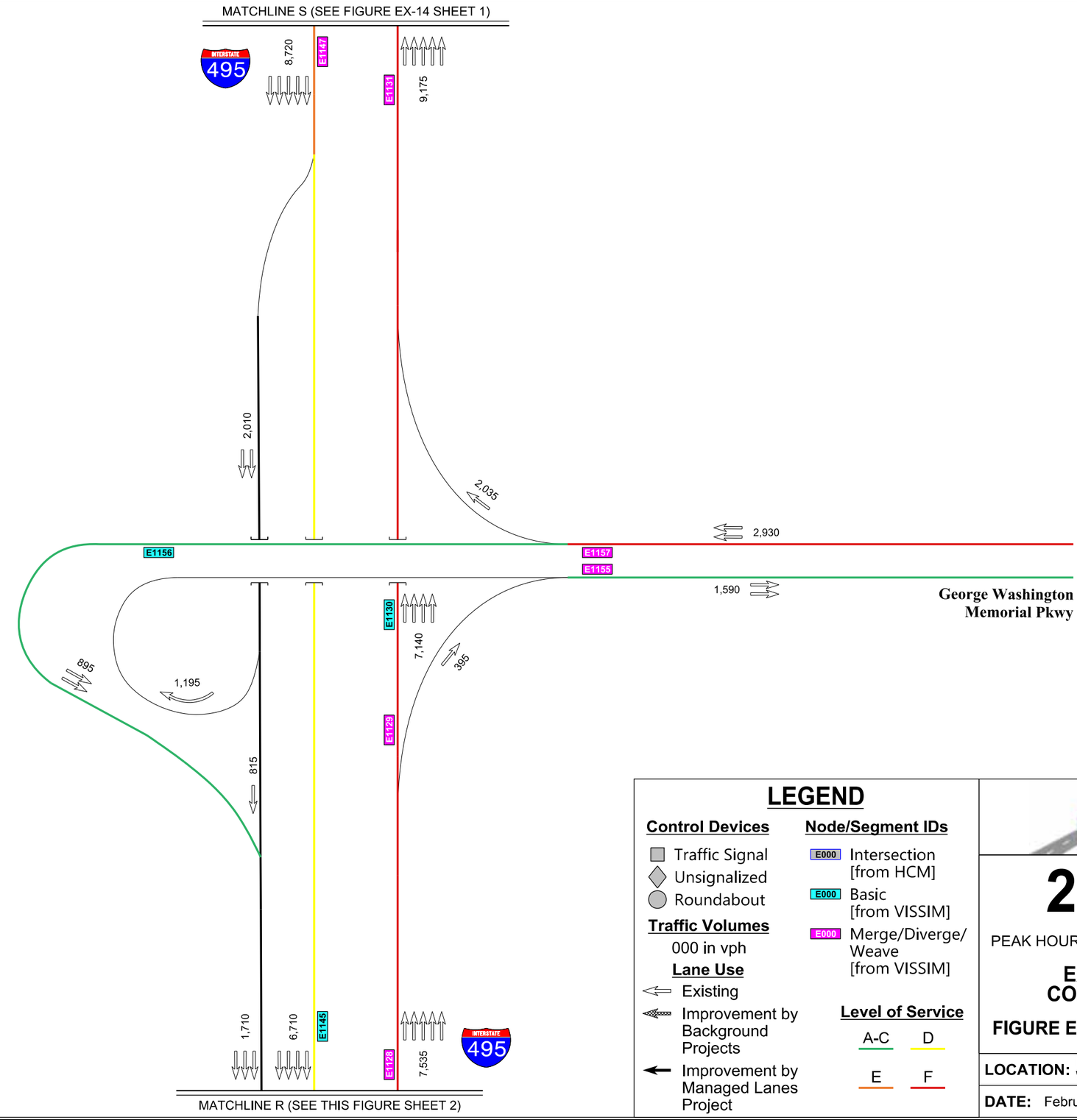
EXISTING CONDITIONS

FIGURE EX-12 SHEET 1 OF 1

LOCATION: I-270 at MD 187 and Rockledge Blvd

DATE: February 2022

AM Peak Hour



LEGEND

Control Devices
- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes
000 in vph

Lane Use
- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs
- E000 Intersection [from HCM]
- E000 Basic [from VISSIM]
- E000 Merge/Diverge/ Weave [from VISSIM]

Level of Service

A-C	D
E	F

Not To Scale

I-495 & I-270 P3 PROGRAM

2017

PEAK HOUR TRAFFIC VOLUMES

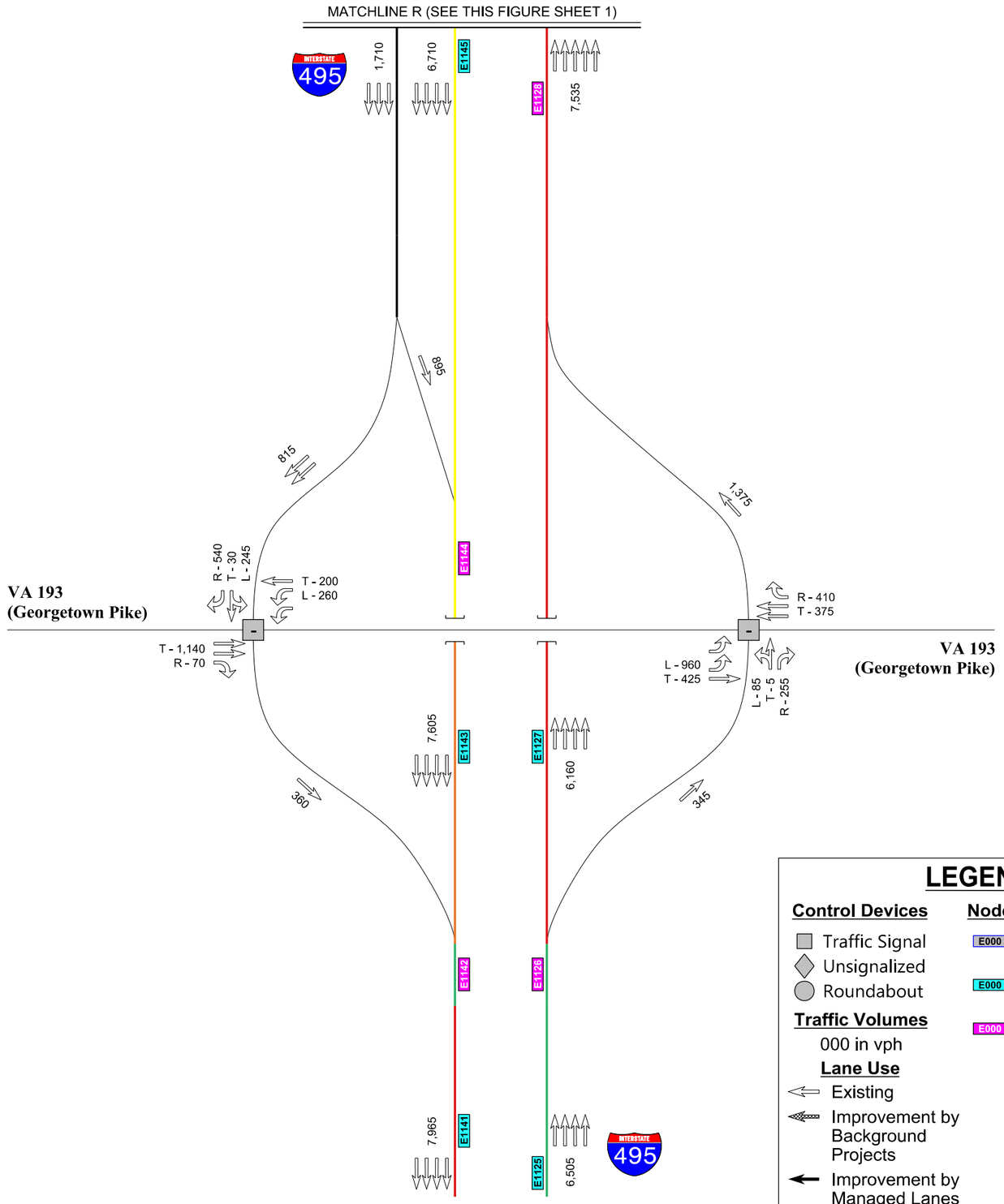
EXISTING CONDITIONS

FIGURE EX-13 SHEET 1 OF 2

LOCATION: I-495 at VA 193/George Washington Mem.Pkwy.

DATE: February 2022

AM Peak Hour



LEGEND

Control Devices
- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes
000 in vph

Lane Use
- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs
- E000 Intersection [from HCM]
- E000 Basic [from VISSIM]
- E000 Merge/Diverge/ Weave [from VISSIM]

Level of Service

A-C	D
E	F

Not To Scale

I-495 & I-270 P3 PROGRAM

2017

PEAK HOUR TRAFFIC VOLUMES

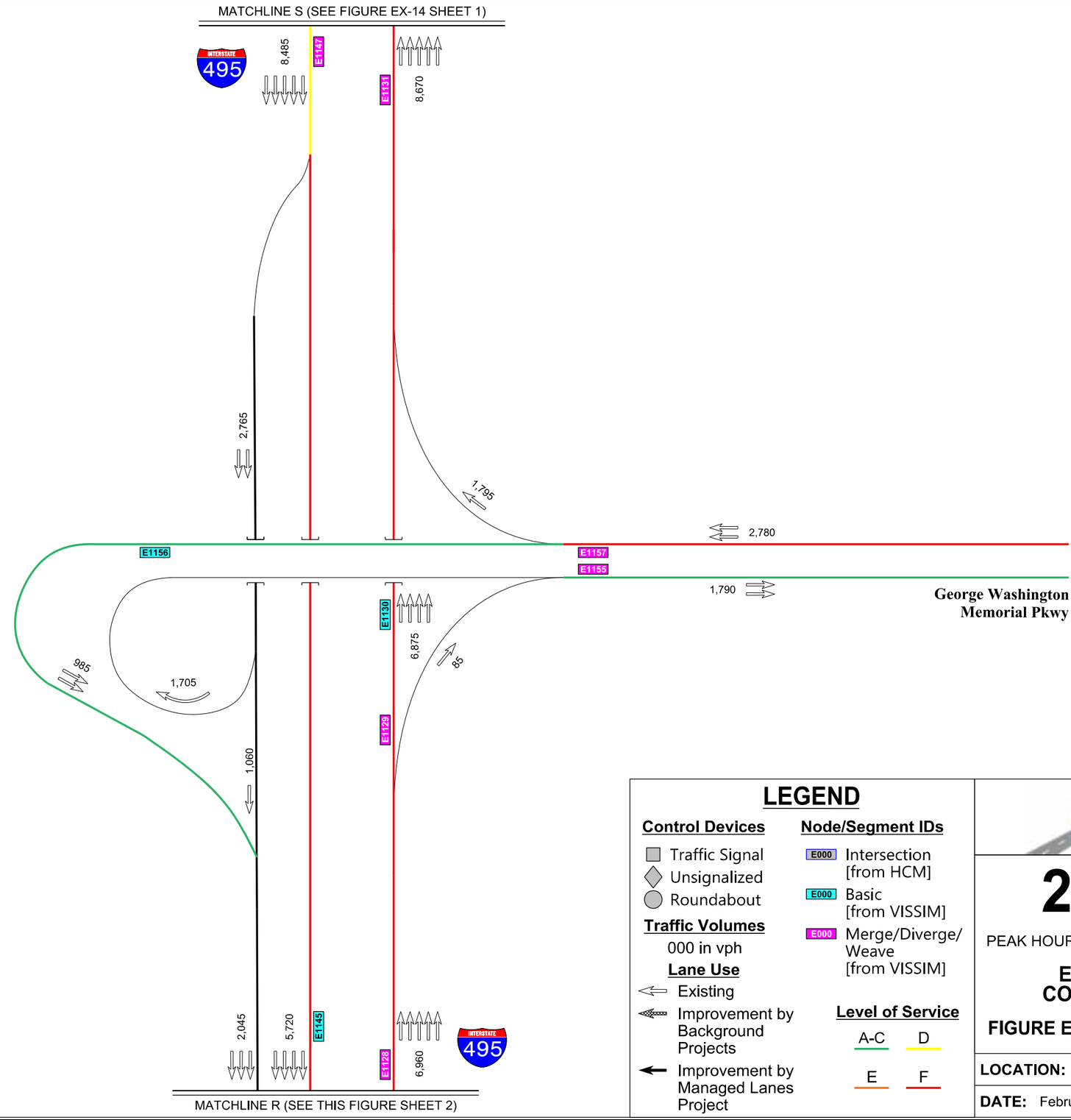
EXISTING CONDITIONS

FIGURE EX-13 SHEET 2 OF 2

LOCATION: I-495 at VA 193/George Washington Mem.Pkwy.

DATE: February 2022

PM Peak Hour



LEGEND

Control Devices
- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes
000 in vph

Lane Use
- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs
- E000 Intersection [from HCM]
- E000 Basic [from VISSIM]
- E000 Merge/Diverge/ Weave [from VISSIM]

Level of Service
A-C D E F

Not To Scale

I-495 & I-270 P3 PROGRAM

2017

PEAK HOUR TRAFFIC VOLUMES

EXISTING CONDITIONS

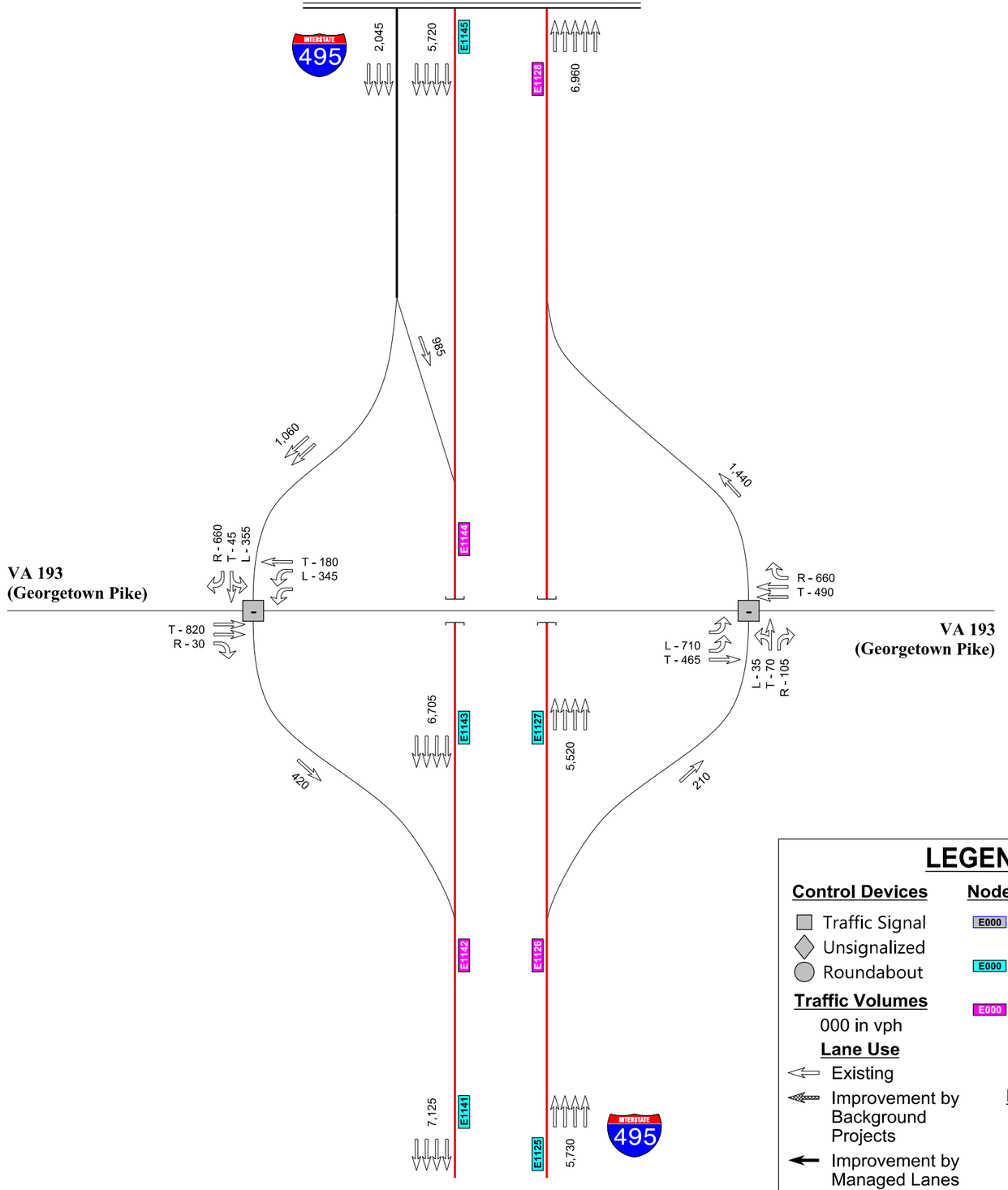
FIGURE EX-13 SHEET 1 OF 2

LOCATION: I-495 at VA 193/George Washington Mem.Pkwy.

DATE: February 2022

PM Peak Hour

MATCHLINE R (SEE THIS FIGURE SHEET 1)



LEGEND

Control Devices

- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes

000 in vph

Lane Use

- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs

- E000 Intersection [from HCM]
- E000 Basic [from VISSIM]
- E000 Merge/Diverge/ Weave [from VISSIM]

Level of Service

A-C D E F

Not To Scale

I-495 & I-270 P3 PROGRAM

2017

PEAK HOUR TRAFFIC VOLUMES

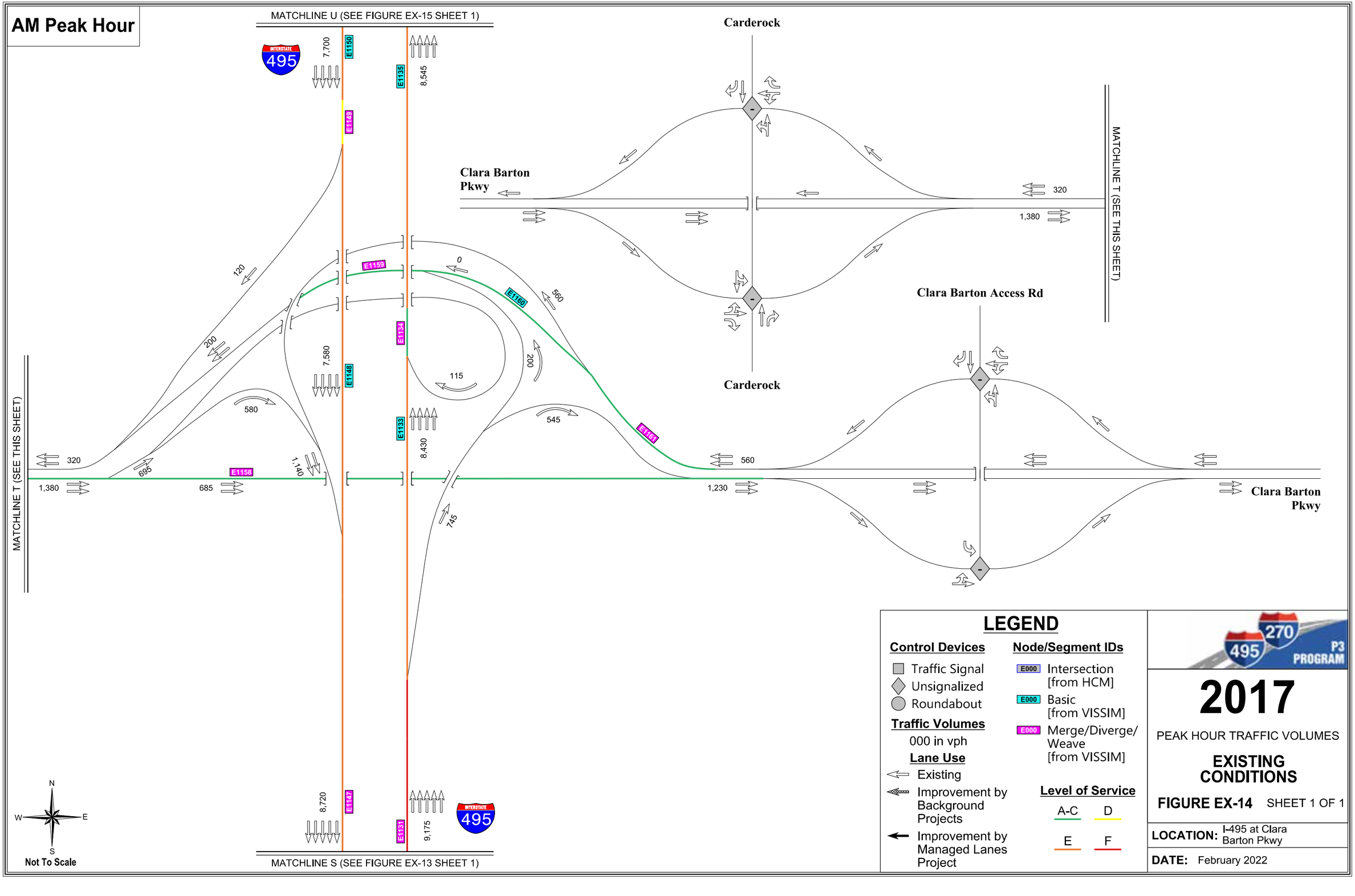
EXISTING CONDITIONS

FIGURE EX-13 SHEET 2 OF 2

LOCATION: I-495 at VA 193/George Washington Mem.Pkwy.

DATE: February 2022

AM Peak Hour



LEGEND

Control Devices

- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes

000 in vph

Lane Use

- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs

- E000 Intersection [from HCM]
- E000 Basic [from VISSIM]
- E000 Merge/Diverge/ Weave [from VISSIM]

Level of Service

A-C D E F

I-495 & I-270 P3 PROGRAM

2017

PEAK HOUR TRAFFIC VOLUMES

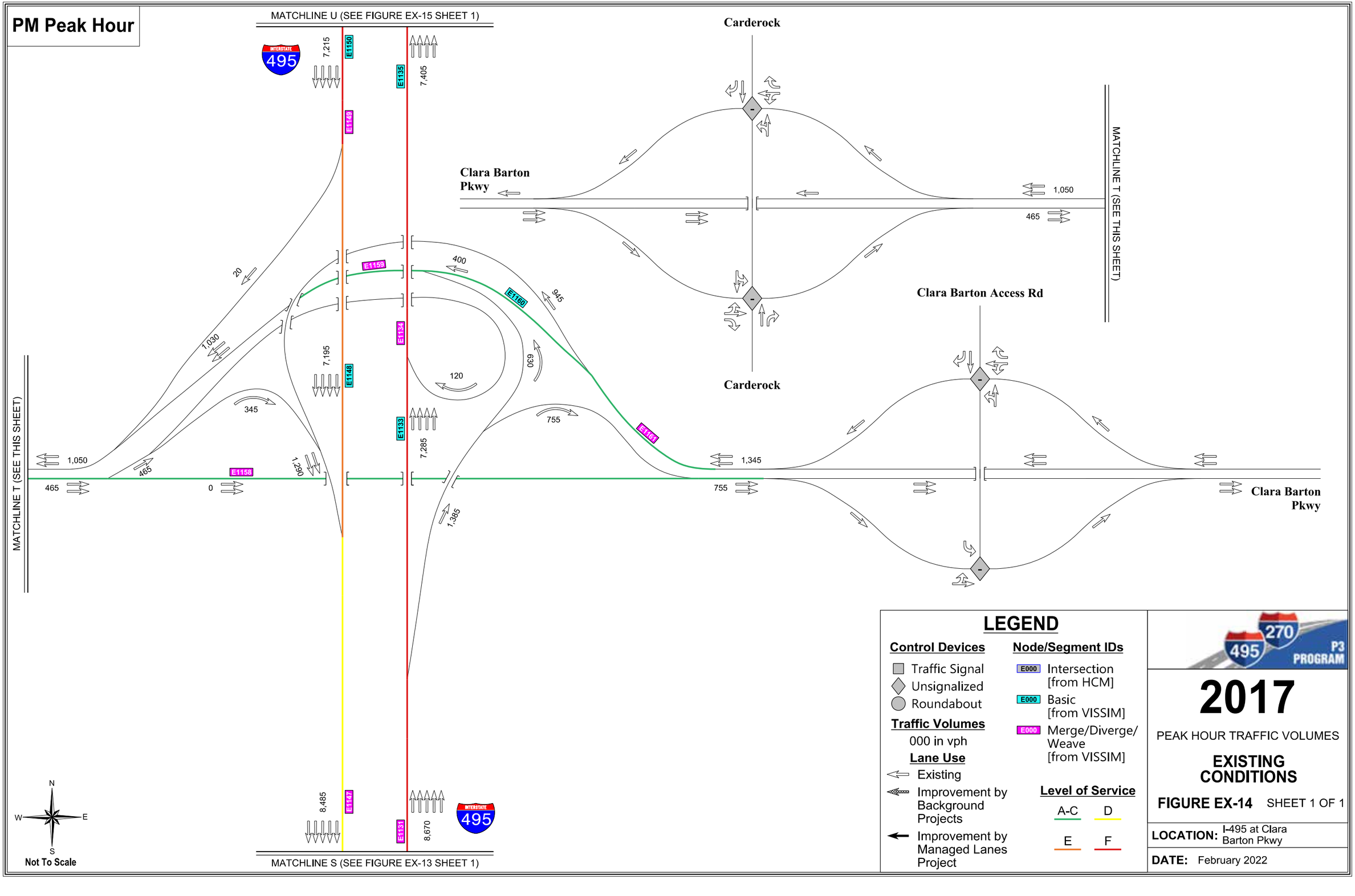
EXISTING CONDITIONS

FIGURE EX-14 SHEET 1 OF 1

LOCATION: I-495 at Clara Barton Pkwy

DATE: February 2022

PM Peak Hour



LEGEND

Control Devices

- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes

000 in vph

Lane Use

- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs

- E000 Intersection [from HCM]
- E000 Basic [from VISSIM]
- E000 Merge/Diverge/ Weave [from VISSIM]

Level of Service

A-C D E F

495 270 P3 PROGRAM

2017

PEAK HOUR TRAFFIC VOLUMES

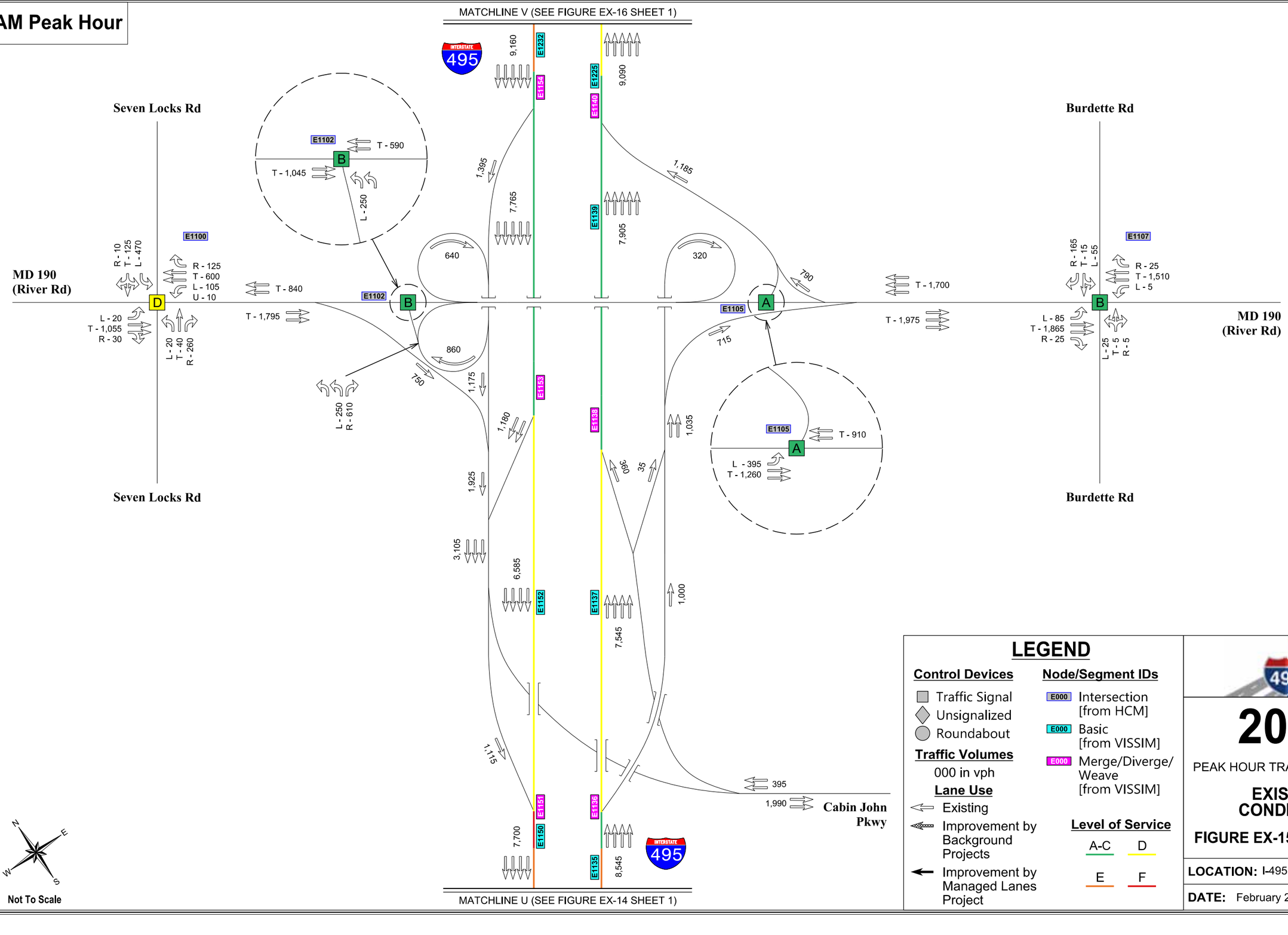
EXISTING CONDITIONS

FIGURE EX-14 SHEET 1 OF 1

LOCATION: I-495 at Clara Barton Pkwy

DATE: February 2022

AM Peak Hour



Not To Scale

LEGEND

Control Devices
- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes
000 in vph

Lane Use
- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs
- E000 Intersection [from HCM]
- E000 Basic [from VISSIM]
- E000 Merge/Diverge/ Weave [from VISSIM]

Level of Service
A-C D E F

I-495 & I-270 P3 PROGRAM

2017

PEAK HOUR TRAFFIC VOLUMES

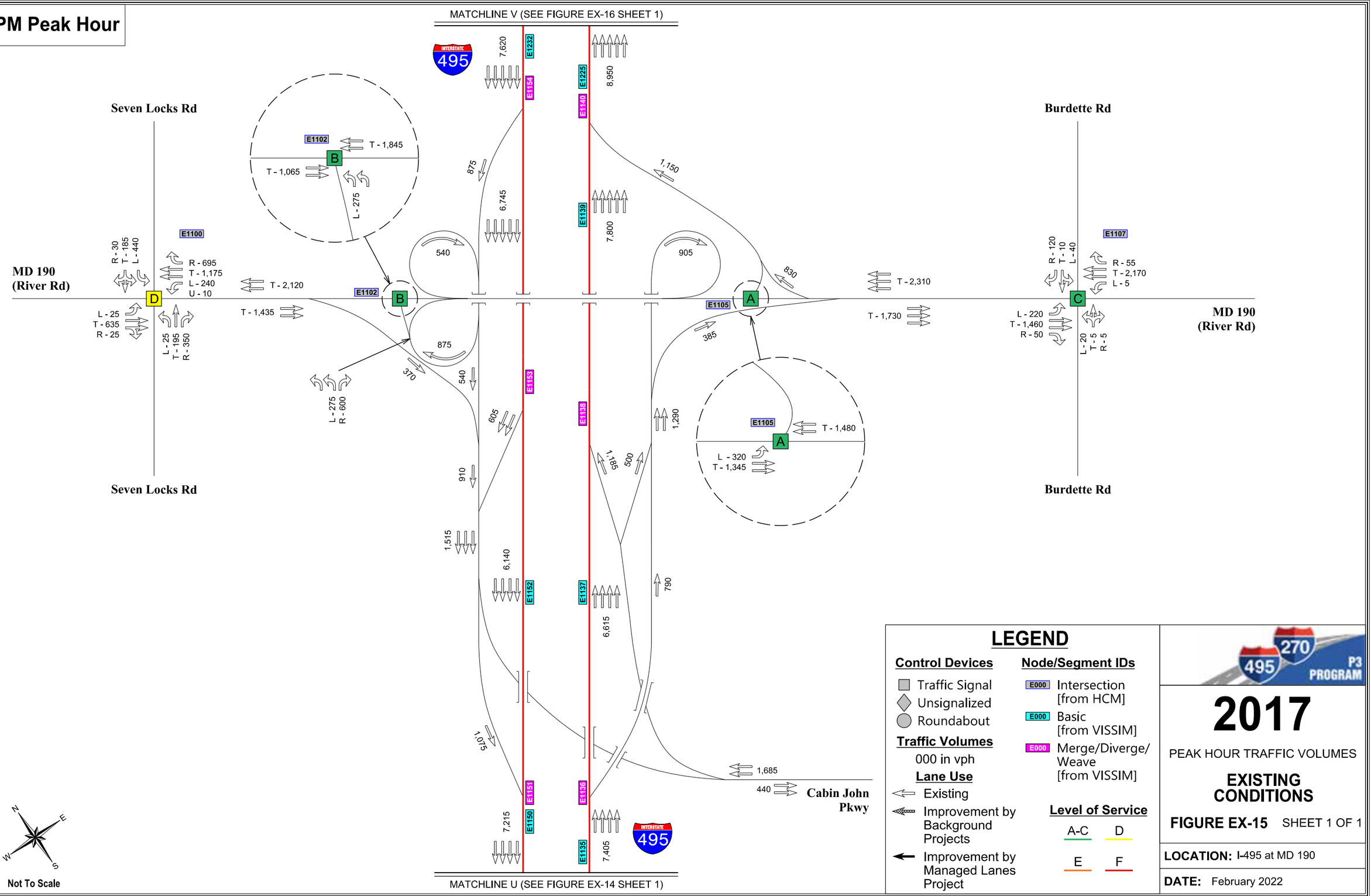
EXISTING CONDITIONS

FIGURE EX-15 SHEET 1 OF 1

LOCATION: I-495 at MD 190

DATE: February 2022

PM Peak Hour



LEGEND

Control Devices

- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes

000 in vph

Lane Use

- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs

- E000 Intersection [from HCM]
- E000 Basic [from VISSIM]
- E000 Merge/Diverge/ Weave [from VISSIM]

Level of Service

A-C D E F

495 270 P3 PROGRAM

2017

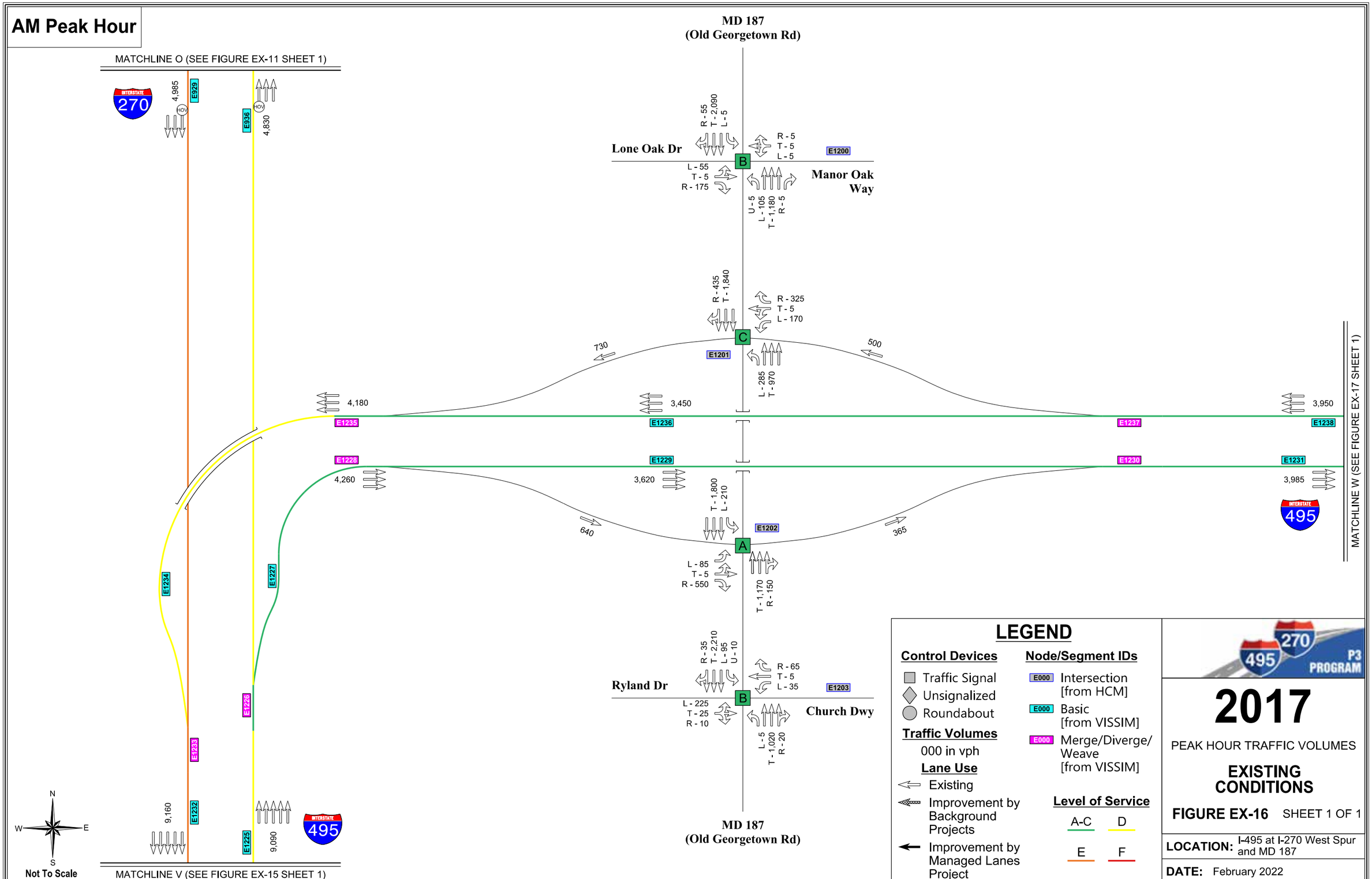
PEAK HOUR TRAFFIC VOLUMES

EXISTING CONDITIONS

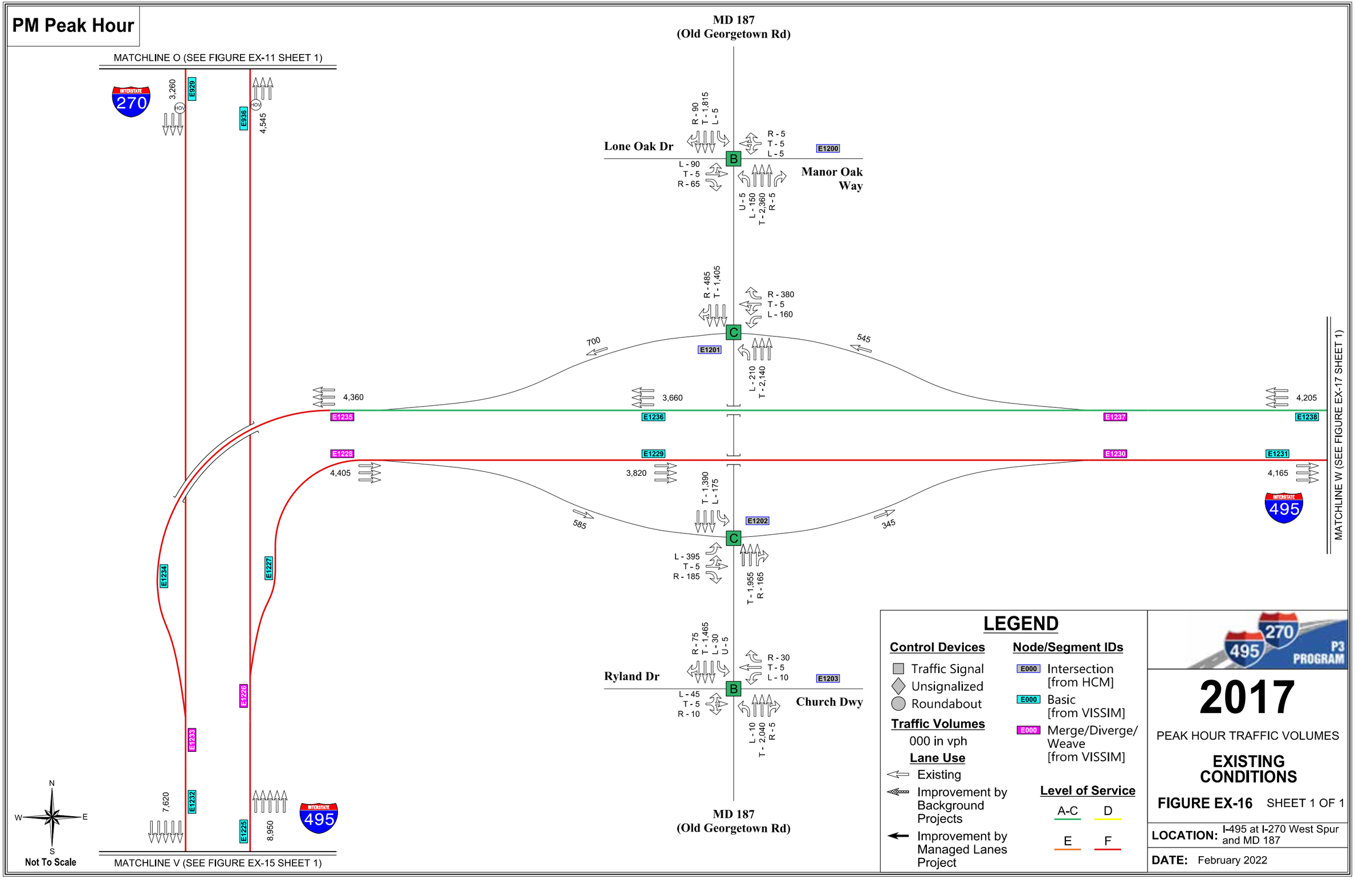
FIGURE EX-15 SHEET 1 OF 1

LOCATION: I-495 at MD 190

DATE: February 2022


AM Peak Hour
MATCHLINE O (SEE FIGURE EX-11 SHEET 1)
MATCHLINE V (SEE FIGURE EX-15 SHEET 1)
MATCHLINE W (SEE FIGURE EX-17 SHEET 1)
MD 187
(Old Georgetown Rd)
Lone Oak Dr
Manor Oak Way
Ryland Dr
Church Dwy
270
495
HOV
4,985
4,830
9,160
9,090
4,180
3,450
3,950
4,260
3,620
3,985
730
500
640
365
E929
E936
E1200
E1201
E1202
E1203
E1235
E1236
E1237
E1238
E1228
E1229
E1230
E1231
E1234
E1227
E1226
E1233
E1232
E1225
R - 55
T - 2,090
L - 5
R - 5
T - 5
L - 5
L - 55
T - 5
R - 175
U - 5
L - 105
T - 1,180
R - 5
R - 435
T - 1,840
R - 325
T - 5
L - 170
L - 285
T - 970
T - 1,800
L - 210
L - 85
T - 5
R - 550
T - 1,170
R - 150
R - 35
T - 2,210
L - 95
U - 10
R - 65
T - 5
L - 35
L - 225
T - 25
R - 10
L - 5
T - 1,020
R - 20
N
S
E
W
Not To Scale
LEGEND
Control Devices
Traffic Signal
Unsignalized
Roundabout
Traffic Volumes
000 in vph
Lane Use
Existing
Improvement by Background Projects
Improvement by Managed Lanes Project
Node/Segment IDs
E000 Intersection [from HCM]
E000 Basic [from VISSIM]
E000 Merge/Diverge/ Weave [from VISSIM]
Level of Service
A-C
D
E
F
P3 PROGRAM
2017
PEAK HOUR TRAFFIC VOLUMES
EXISTING CONDITIONS
FIGURE EX-16
SHEET 1 OF 1
LOCATION: I-495 at I-270 West Spur and MD 187
DATE: February 2022

PM Peak Hour



LEGEND

Control Devices

- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes

000 in vph

Lane Use

- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs

- E000 Intersection [from HCM]
- E000 Basic [from VISSIM]
- E000 Merge/Diverge/ Weave [from VISSIM]

Level of Service

A-C D E F

I-495 & I-270 P3 PROGRAM

2017

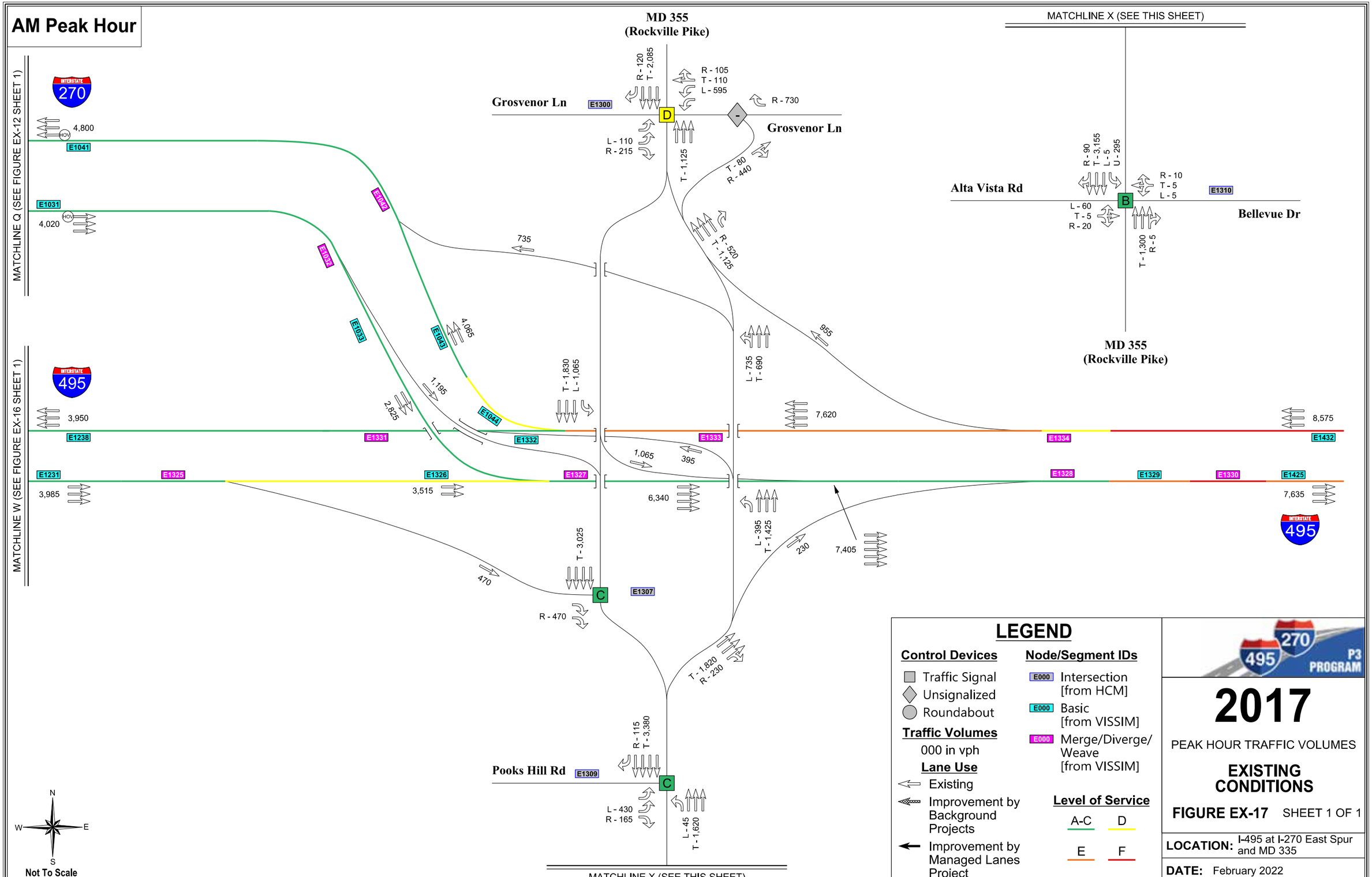
PEAK HOUR TRAFFIC VOLUMES

EXISTING CONDITIONS

FIGURE EX-16 SHEET 1 OF 1

LOCATION: I-495 at I-270 West Spur and MD 187

DATE: February 2022


AM Peak Hour
MD 355
(Rockville Pike)
MATCHLINE X (SEE THIS SHEET)
MATCHLINE Q (SEE FIGURE EX-12 SHEET 1)
MATCHLINE W (SEE FIGURE EX-16 SHEET 1)
Grosvenor Ln
Alta Vista Rd
Bellevue Dr
Pooks Hill Rd
270
495
E1041
E1031
E1032
E1033
E1042
E1043
E1044
E1238
E1231
E1325
E1326
E1327
E1331
E1332
E1333
E1334
E1432
E1328
E1329
E1330
E1425
E1300
E1310
E1307
E1309
4,800
4,020
3,950
3,985
3,515
735
4,065
1,195
2,825
1,065
395
6,340
7,620
8,575
7,635
7,405
230
955
470
R - 120
T - 2,085
R - 105
T - 110
L - 595
R - 730
L - 110
R - 215
T - 1,125
T - 80
R - 440
R - 520
T - 1,125
L - 735
T - 690
T - 1,830
L - 1,065
L - 395
T - 1,425
T - 3,025
R - 470
T - 1,820
R - 230
R - 115
T - 3,380
L - 430
R - 165
L - 45
T - 1,620
R - 90
T - 3,155
L - 5
U - 295
R - 10
T - 5
L - 5
L - 60
T - 5
R - 20
T - 1,300
R - 5
N
S
E
W
Not To Scale
LEGEND
Control Devices
Traffic Signal
Unsignalized
Roundabout
Traffic Volumes
000 in vph
Lane Use
Existing
Improvement by Background Projects
Improvement by Managed Lanes Project
Node/Segment IDs
E000 Intersection [from HCM]
E000 Basic [from VISSIM]
E000 Merge/Diverge/ Weave [from VISSIM]
Level of Service
A-C
D
E
F
P3 PROGRAM
2017
PEAK HOUR TRAFFIC VOLUMES
EXISTING CONDITIONS
FIGURE EX-17
SHEET 1 OF 1
LOCATION: I-495 at I-270 East Spur and MD 335
DATE: February 2022

PM Peak Hour

MATCHLINE Q (SEE FIGURE EX-12 SHEET 1)

MATCHLINE W (SEE FIGURE EX-16 SHEET 1)

MATCHLINE X (SEE THIS SHEET)

MATCHLINE X (SEE THIS SHEET)

MD 355 (Rockville Pike)

Grosvenor Ln E1300 — D — - — **Grosvenor Ln**

R - 125, T - 1,570
R - 135, T - 135, L - 220
R - 400
L - 150, R - 170
T - 1,735
T - 90, R - 800
R - 890, T - 1,795

Alta Vista Rd E1310 — C — **Bellevue Dr**

R - 125, T - 1,790, L - 5, U - 230
R - 5, T - 5, L - 10
L - 85, T - 5, R - 15
U - 5, L - 10, T - 2,855, R - 5

MD 355 (Rockville Pike)

INTERSTATE 270

E1041: 4,470 (HOV)
E1031: 3,780 (HOV)
E1042
E1037
E1033
E1043: 3,335
1,135
1,020
L - 1,135, T - 1,605

INTERSTATE 495

E1238: 4,205
E1331
920
2,860
E1044
T - 1,120, L - 840
E1332
E1333
840
310
E1334: 7,230
E1432: 8,250

E1231: 4,165
E1325
E1326: 3,840
E1327
6,700
E1328
E1329
E1330
E1425: 7,835

L - 310, T - 2,740
295
7,540
INTERSTATE 495

T - 2,040
325
B — E1307
R - 325

T - 3,050, R - 295

R - 285, T - 2,080
Pooks Hill Rd E1309 — B
L - 235, R - 70
L - 65, T - 3,110

N W E S

Not To Scale

LEGEND

Control Devices
- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes
000 in vph

Lane Use
- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs
- E000 Intersection [from HCM]
- E000 Basic [from VISSIM]
- E000 Merge/Diverge/ Weave [from VISSIM]

Level of Service
A-C, D, E, F

I-270 / I-495 P3 PROGRAM

2017

PEAK HOUR TRAFFIC VOLUMES

EXISTING CONDITIONS

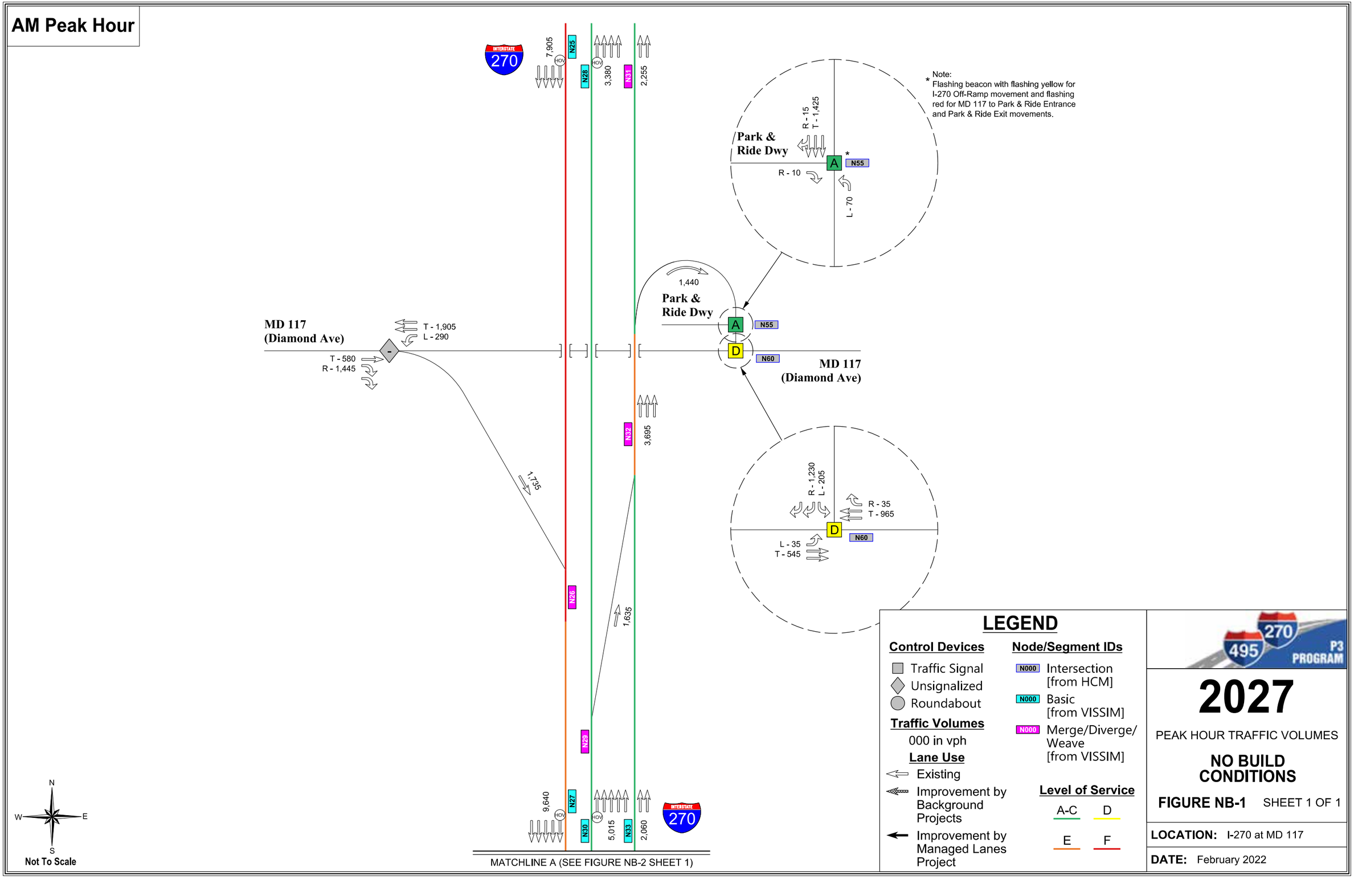
FIGURE EX-17 SHEET 1 OF 1

LOCATION: I-495 at I-270 East Spur and MD 335

DATE: February 2022

2027 NO BUILD CONDITIONS GRAPHICS

AM Peak Hour



LEGEND

Control Devices
- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes
000 in vph

Lane Use
- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs
- N000 Intersection [from HCM]
- N000 Basic [from VISSIM]
- N000 Merge/Diverge/ Weave [from VISSIM]

Level of Service
A-C D E F

I-270 495 P3 PROGRAM

2027

PEAK HOUR TRAFFIC VOLUMES

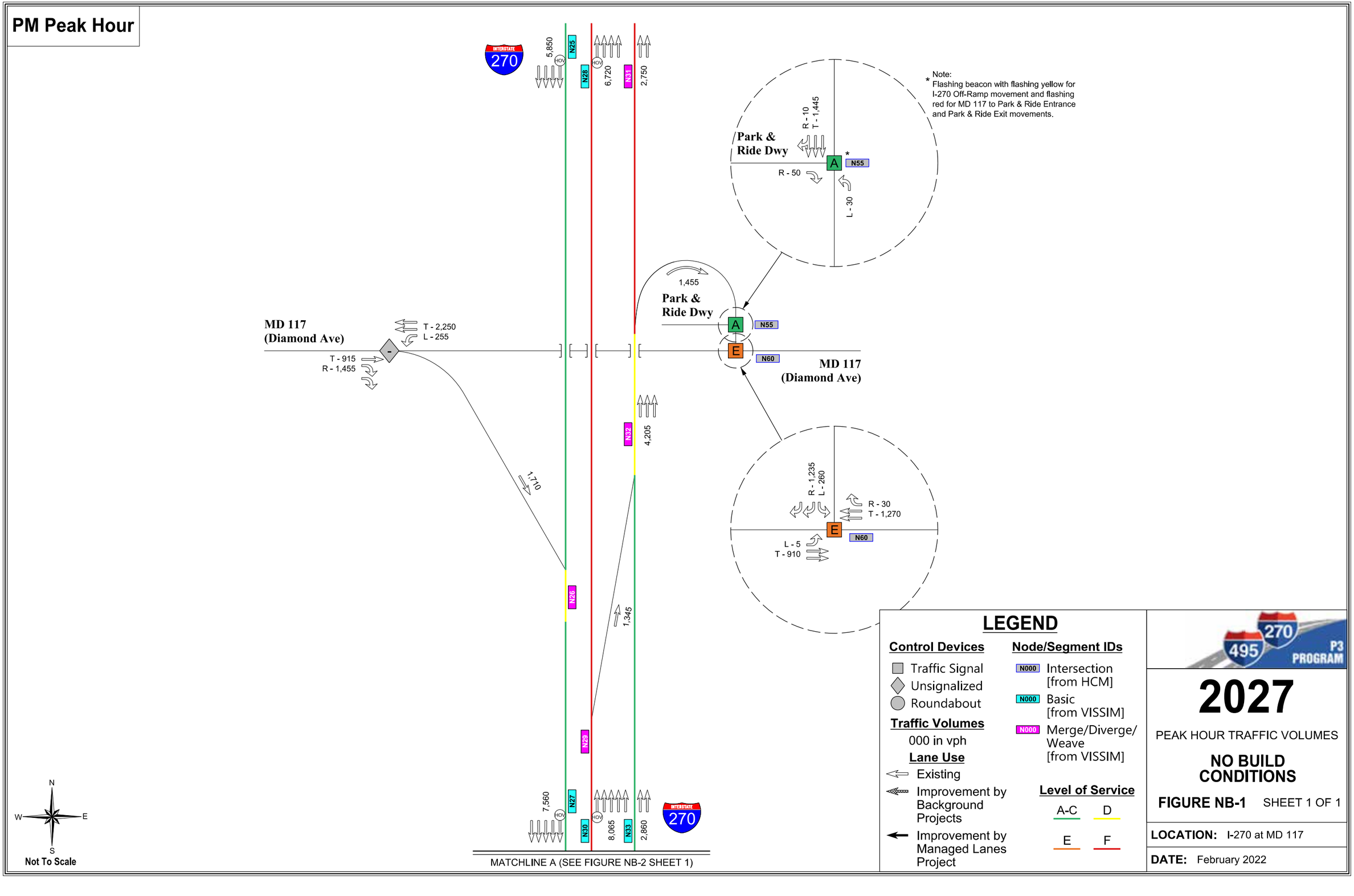
NO BUILD CONDITIONS

FIGURE NB-1 SHEET 1 OF 1

LOCATION: I-270 at MD 117

DATE: February 2022

PM Peak Hour



LEGEND

Control Devices
- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes
000 in vph

Lane Use
- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs
- N000 Intersection [from HCM]
- N000 Basic [from VISSIM]
- N000 Merge/Diverge/ Weave [from VISSIM]

Level of Service
A-C D E F

I-270 495 P3 PROGRAM

2027

PEAK HOUR TRAFFIC VOLUMES

NO BUILD CONDITIONS

FIGURE NB-1 SHEET 1 OF 1

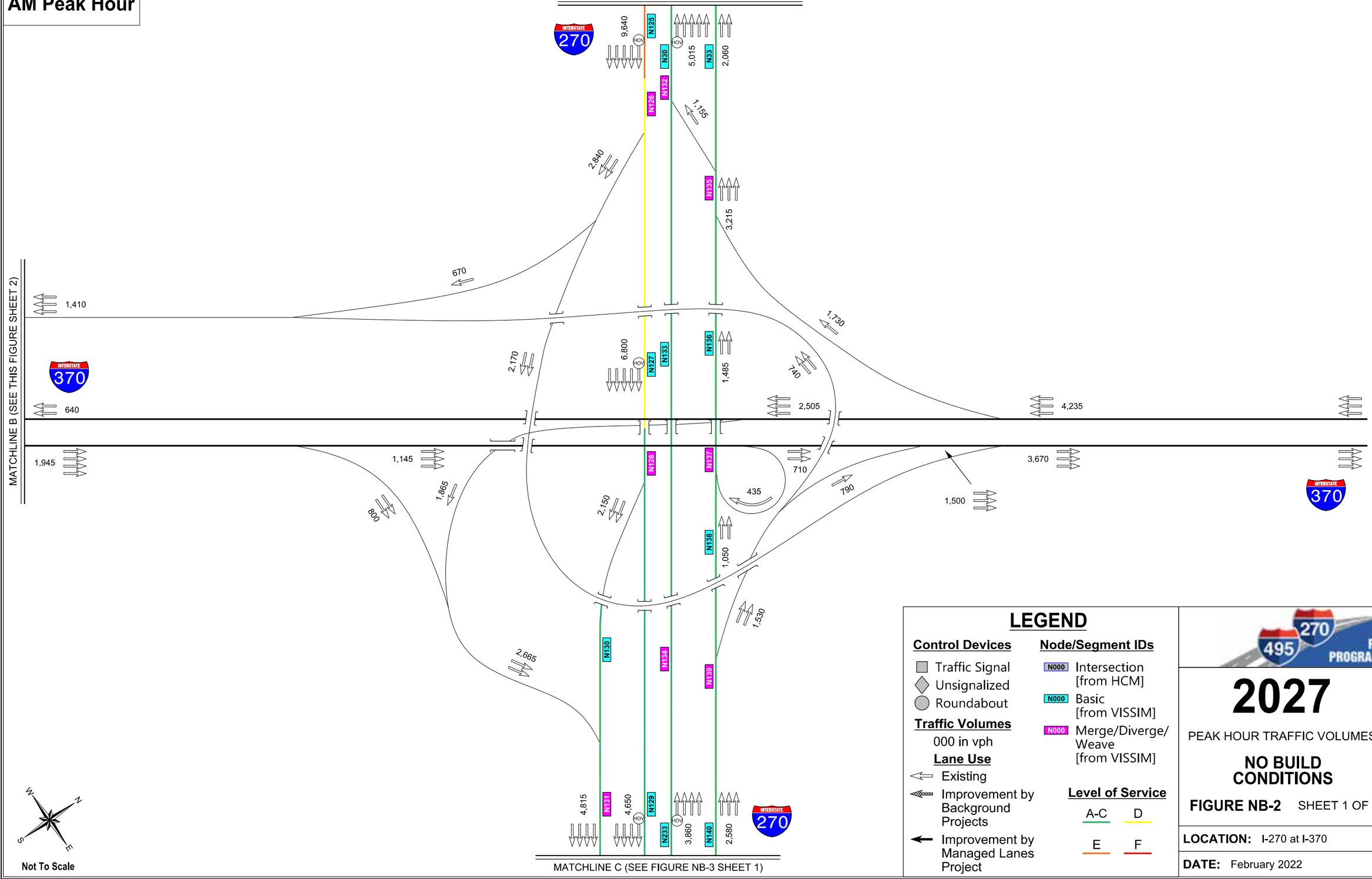
LOCATION: I-270 at MD 117

DATE: February 2022

AM Peak Hour

MATCHLINE A (SEE FIGURE NB-1 SHEET 1)

MATCHLINE B (SEE THIS FIGURE SHEET 2)



MATCHLINE C (SEE FIGURE NB-3 SHEET 1)

Not To Scale

LEGEND

Control Devices
- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes
000 in vph

Lane Use
- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs
- N000 Intersection [from HCM]
- N000 Basic [from VISSIM]
- N000 Merge/Diverge/ Weave [from VISSIM]

Level of Service
A-C D E F

P3 PROGRAM

2027

PEAK HOUR TRAFFIC VOLUMES

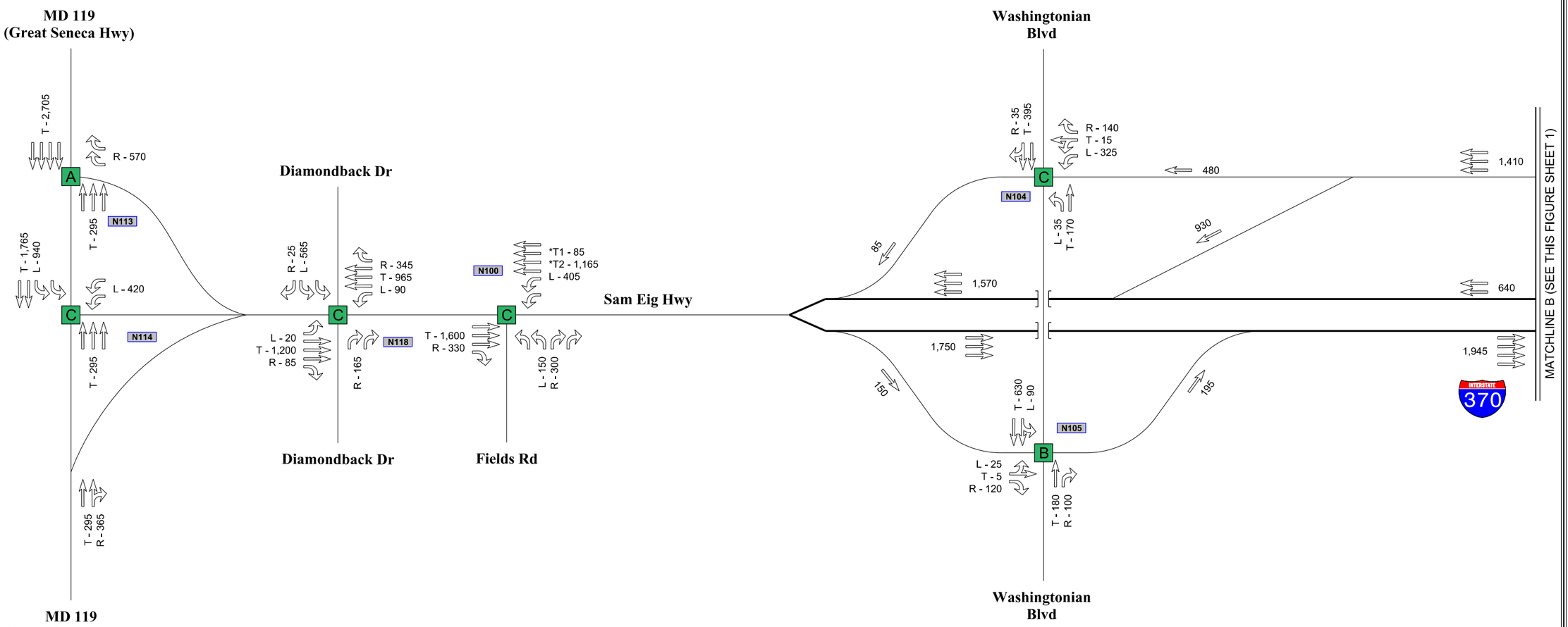
NO BUILD CONDITIONS

FIGURE NB-2 SHEET 1 OF 2

LOCATION: I-270 at I-370

DATE: February 2022

AM Peak Hour



LEGEND

Control Devices
- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes
000 in vph

Lane Use
- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs
- N000 Intersection [from HCM]
- N000 Basic [from VISSIM]
- N000 Merge/Diverge/ Weave [from VISSIM]

Level of Service
A-C D E F

Not To Scale

*T1 represents vehicles arriving from I-370 (Sam Eig Hwy)
*T2 represents vehicles arriving from Washingtonian Blvd Ramp

I-495 & I-270 P3 PROGRAM

2027

PEAK HOUR TRAFFIC VOLUMES

NO BUILD CONDITIONS

FIGURE NB-2 SHEET 2 OF 2

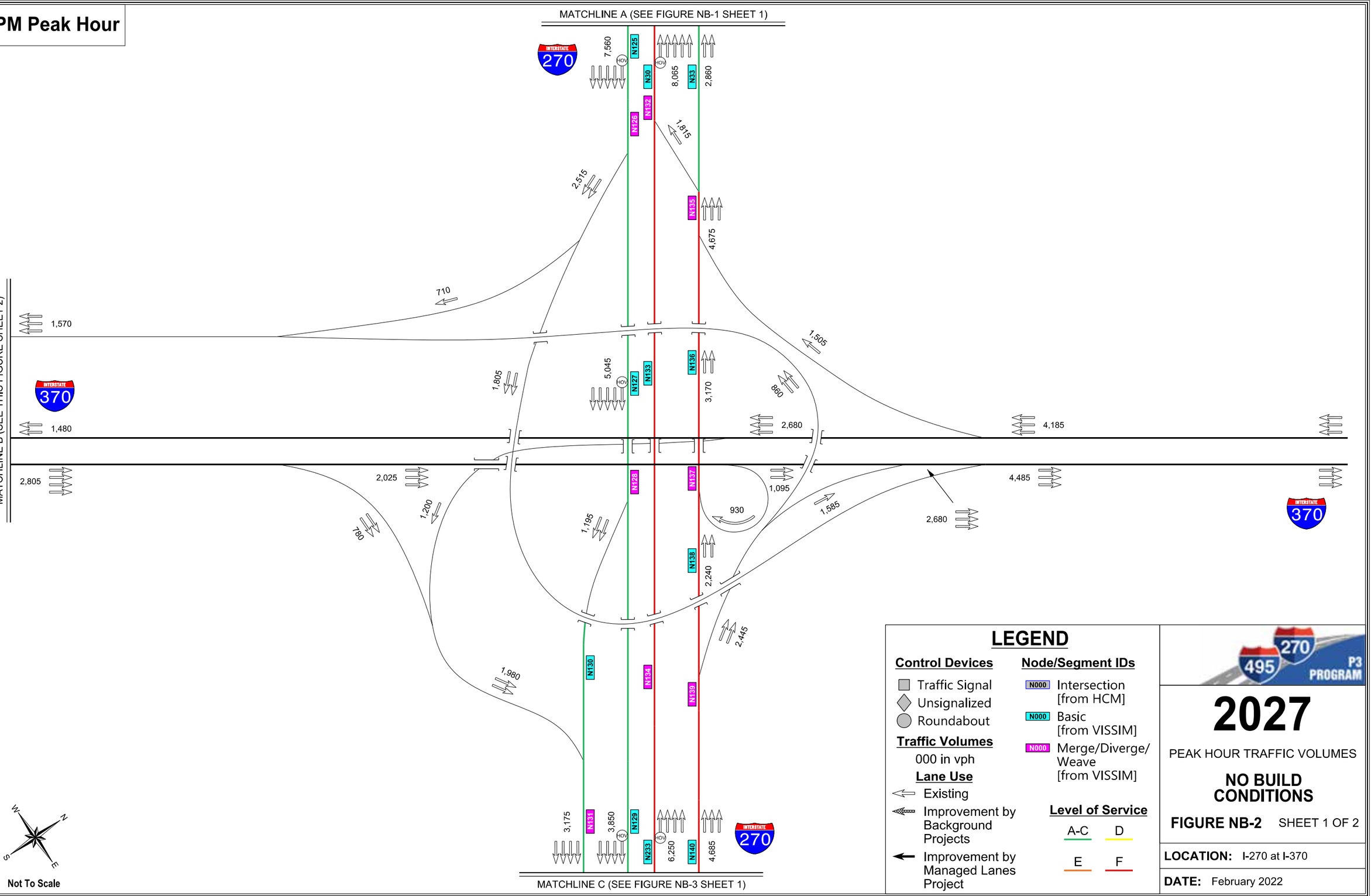
LOCATION: I-270 at I-370

DATE: February 2022

PM Peak Hour

MATCHLINE A (SEE FIGURE NB-1 SHEET 1)

MATCHLINE B (SEE THIS FIGURE SHEET 2)



MATCHLINE C (SEE FIGURE NB-3 SHEET 1)

Not To Scale

LEGEND

Control Devices
- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes
000 in vph

Lane Use
- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs
- N000 Intersection [from HCM]
- N000 Basic [from VISSIM]
- N000 Merge/Diverge/ Weave [from VISSIM]

Level of Service
A-C D E F

I-270 / I-495 P3 PROGRAM

2027

PEAK HOUR TRAFFIC VOLUMES

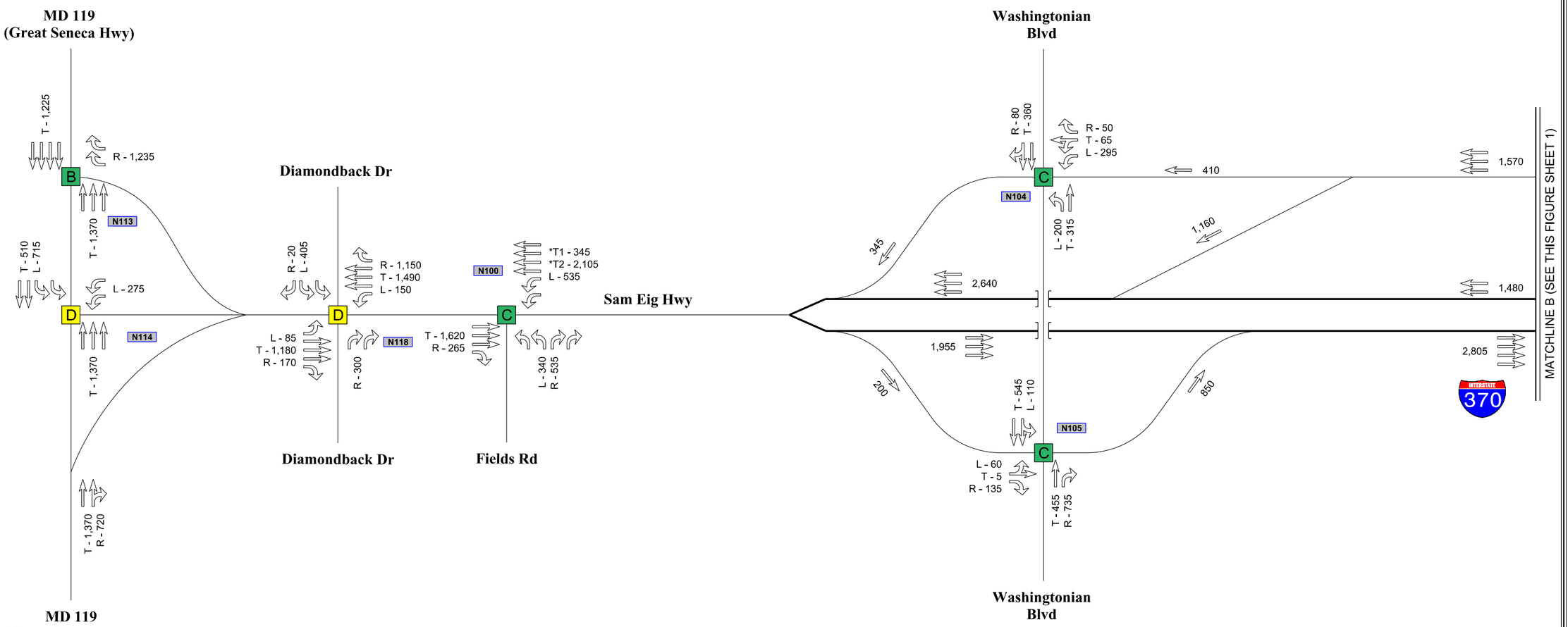
NO BUILD CONDITIONS

FIGURE NB-2 SHEET 1 OF 2

LOCATION: I-270 at I-370

DATE: February 2022

PM Peak Hour



LEGEND

Control Devices

- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes

000 in vph

Lane Use

- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs

- N000 Intersection [from HCM]
- N000 Basic [from VISSIM]
- N000 Merge/Diverge/ Weave [from VISSIM]

Level of Service

A-C D E F

Not To Scale

*T1 represents vehicles arriving from I-370 (Sam Eig Hwy)
*T2 represents vehicles arriving from Washingtonian Blvd Ramp

2027

PEAK HOUR TRAFFIC VOLUMES

NO BUILD CONDITIONS

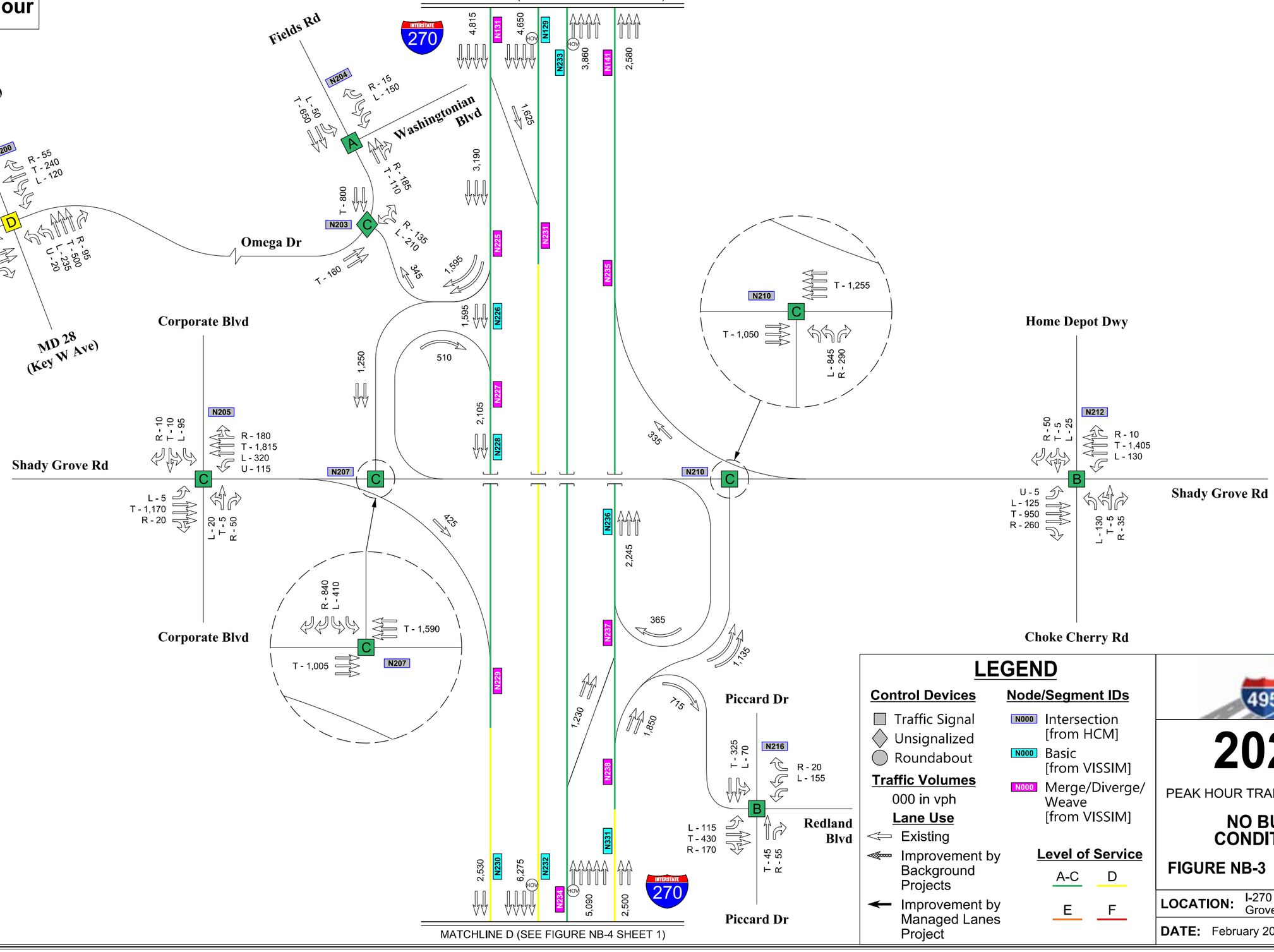
FIGURE NB-2 SHEET 2 OF 2

LOCATION: I-270 at I-370

DATE: February 2022

AM Peak Hour

MATCHLINE C (SEE FIGURE NB-2 SHEET 1)



MATCHLINE D (SEE FIGURE NB-4 SHEET 1)

Not To Scale

LEGEND

Control Devices
- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes
000 in vph

Lane Use
- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs
- N000 Intersection [from HCM]
- N000 Basic [from VISSIM]
- N000 Merge/Diverge/ Weave [from VISSIM]

Level of Service
A-C D E F

I-270 / I-495 P3 PROGRAM

2027

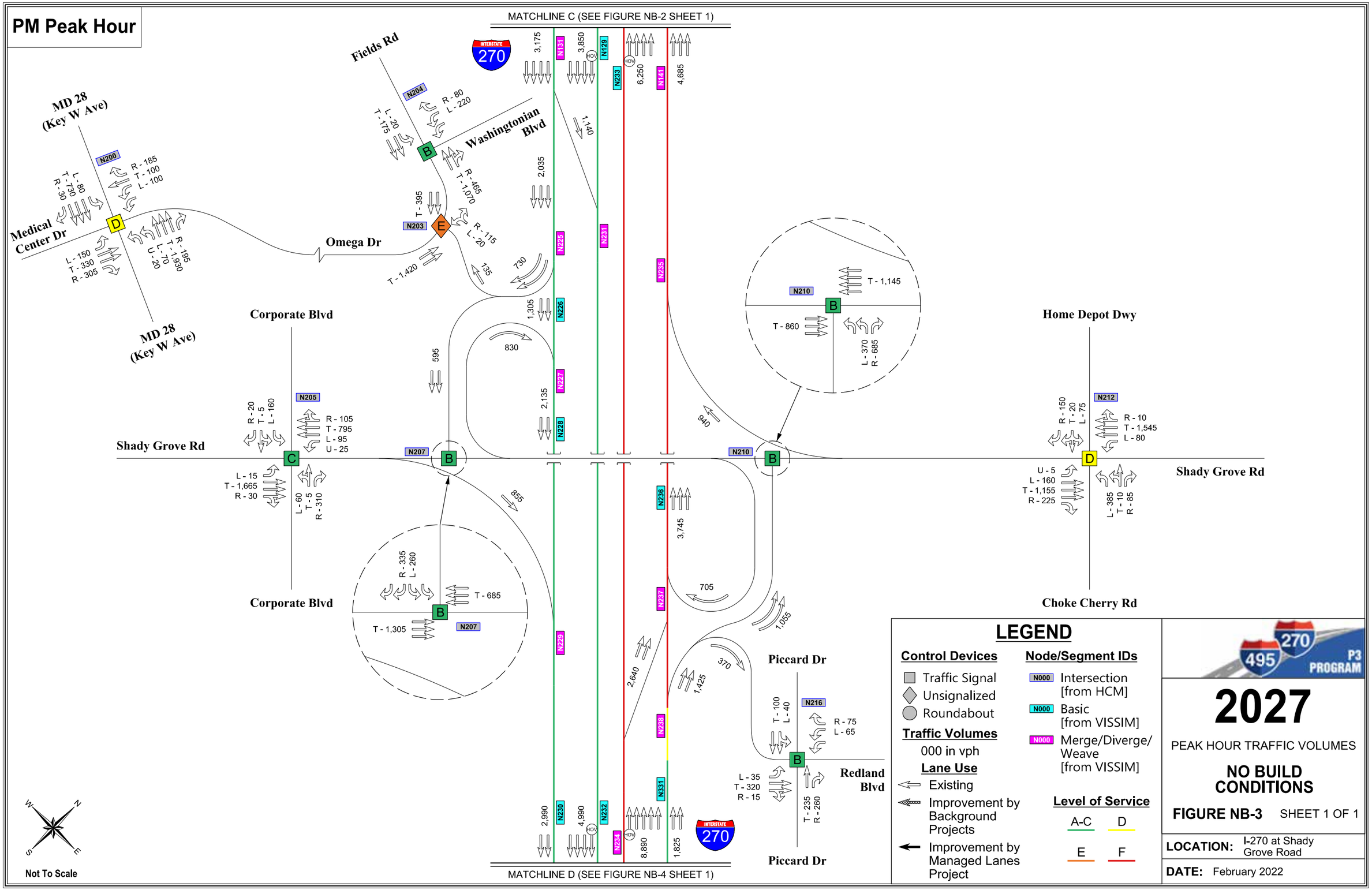
PEAK HOUR TRAFFIC VOLUMES

NO BUILD CONDITIONS

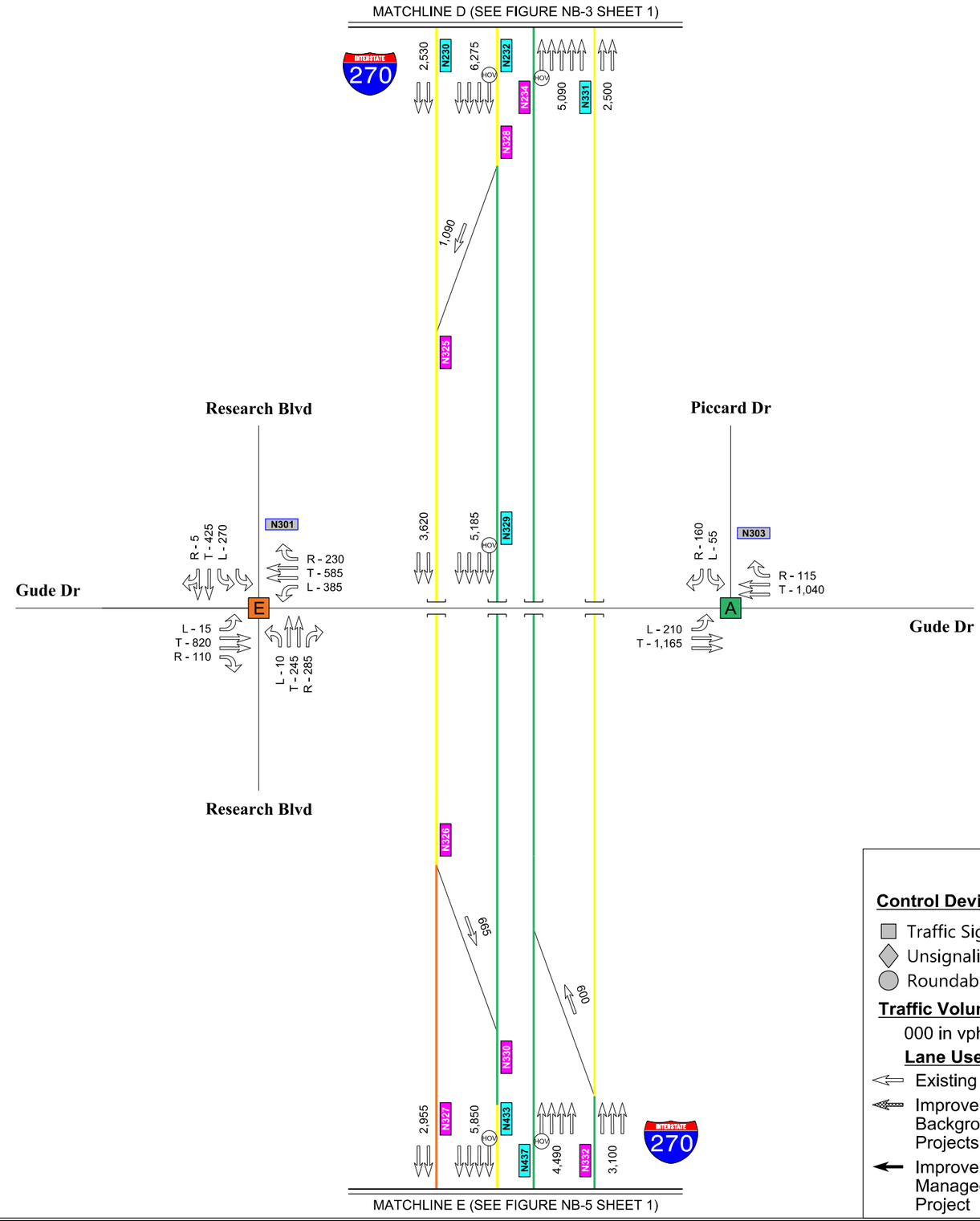
FIGURE NB-3 SHEET 1 OF 1

LOCATION: I-270 at Shady Grove Road

DATE: February 2022


PM Peak Hour
MATCHLINE C (SEE FIGURE NB-2 SHEET 1)
MATCHLINE D (SEE FIGURE NB-4 SHEET 1)
Fields Rd
Washingtonian Blvd
MD 28 (Key W Ave)
Medical Center Dr
Omega Dr
Corporate Blvd
Shady Grove Rd
Home Depot Dwy
Choke Cherry Rd
Piccard Dr
Redland Blvd
INTERSTATE 270
N200
N203
N204
N205
N207
N210
N212
N216
N225
N226
N227
N228
N229
N230
N231
N232
N233
N234
N235
N236
N237
N238
N331
N131
N129
N141
N207
N210
N212
N216
N207
N205
N204
N203
N200
N131
N129
N141
N225
N226
N227
N228
N229
N230
N231
N232
N233
N234
N235
N236
N237
N238
N331
3,175
3,850
6,250
4,685
1,140
2,035
730
135
1,305
830
595
2,135
940
855
3,745
705
1,055
370
1,425
2,640
2,990
4,990
8,890
1,825
T - 1,420
T - 395
R - 80
L - 220
L - 20
T - 175
R - 465
T - 1,070
R - 115
L - 20
R - 185
T - 100
L - 100
L - 80
T - 730
R - 30
L - 150
T - 330
R - 305
R - 195
T - 1,930
L - 70
U - 20
R - 20
T - 5
L - 160
R - 105
T - 795
L - 95
U - 25
L - 15
T - 1,665
R - 30
L - 60
T - 5
R - 310
R - 335
L - 260
T - 685
T - 1,305
T - 1,145
T - 860
L - 370
R - 685
R - 150
T - 20
L - 75
R - 10
T - 1,545
L - 80
U - 5
L - 160
T - 1,155
R - 225
L - 385
T - 10
R - 85
T - 100
L - 40
R - 75
L - 65
L - 35
T - 320
R - 15
T - 235
R - 260
HOV
Not To Scale
LEGEND
Control Devices
Traffic Signal
Unsignalized
Roundabout
Traffic Volumes
000 in vph
Lane Use
Existing
Improvement by Background Projects
Improvement by Managed Lanes Project
Node/Segment IDs
N000 Intersection [from HCM]
N000 Basic [from VISSIM]
N000 Merge/Diverge/ Weave [from VISSIM]
Level of Service
A-C
D
E
F
495
270
P3 PROGRAM
2027
PEAK HOUR TRAFFIC VOLUMES
NO BUILD CONDITIONS
FIGURE NB-3
SHEET 1 OF 1
LOCATION: I-270 at Shady Grove Road
DATE: February 2022

AM Peak Hour



Not To Scale

LEGEND

Control Devices
- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes
000 in vph

Lane Use
- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs
- N000 Intersection [from HCM]
- N000 Basic [from VISSIM]
- N000 Merge/Diverge/ Weave [from VISSIM]

Level of Service
A-C D E F

270 495 P3 PROGRAM

2027

PEAK HOUR TRAFFIC VOLUMES

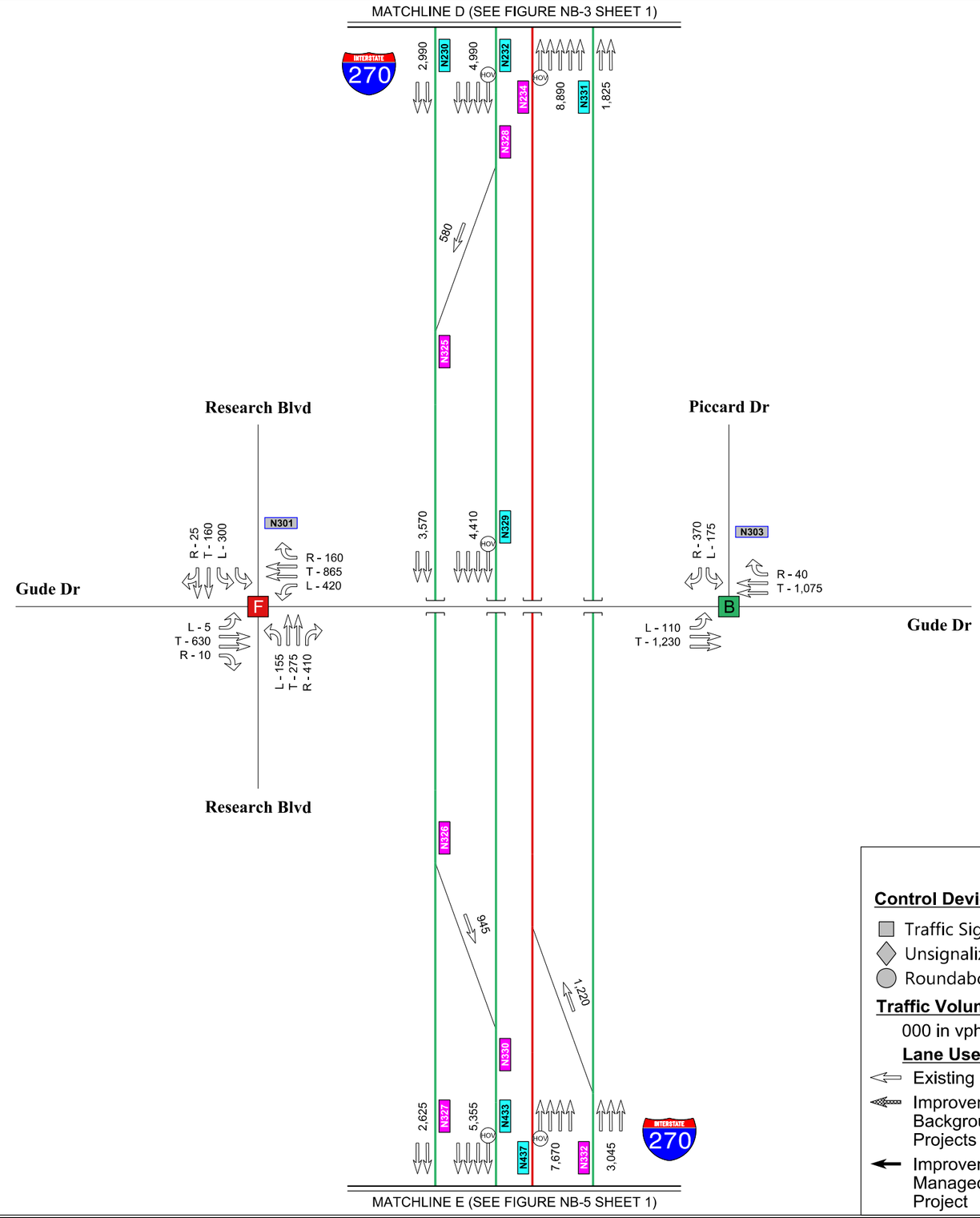
NO BUILD CONDITIONS

FIGURE NB-4 SHEET 1 OF 1

LOCATION: I-270 at Gude Drive

DATE: February 2022

PM Peak Hour



Not To Scale

LEGEND

Control Devices
- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes
000 in vph

Lane Use
- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs
- N000 Intersection [from HCM]
- N000 Basic [from VISSIM]
- N000 Merge/Diverge/ Weave [from VISSIM]

Level of Service
A-C D E F

I-270 / 495 P3 PROGRAM

2027

PEAK HOUR TRAFFIC VOLUMES

NO BUILD CONDITIONS

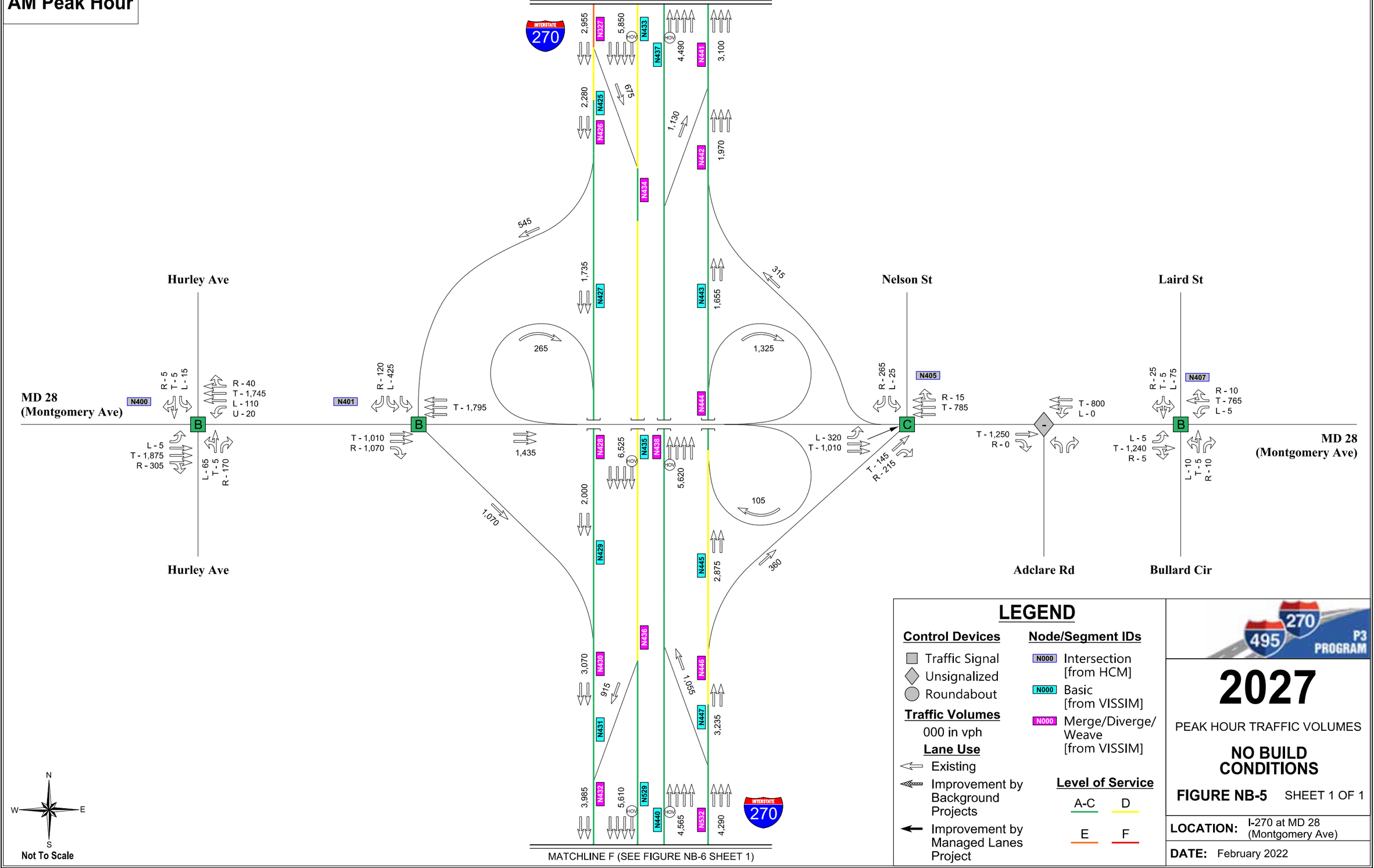
FIGURE NB-4 SHEET 1 OF 1

LOCATION: I-270 at Gude Drive

DATE: February 2022

AM Peak Hour

MATCHLINE E (SEE FIGURE NB-4 SHEET 1)



N
W
E
S
Not To Scale

LEGEND

Control Devices
- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes
000 in vph

Lane Use
- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs
- N000 Intersection [from HCM]
- N000 Basic [from VISSIM]
- N000 Merge/Diverge/ Weave [from VISSIM]

Level of Service
A-C D E F

I-270 / I-495 P3 PROGRAM

2027

PEAK HOUR TRAFFIC VOLUMES

NO BUILD CONDITIONS

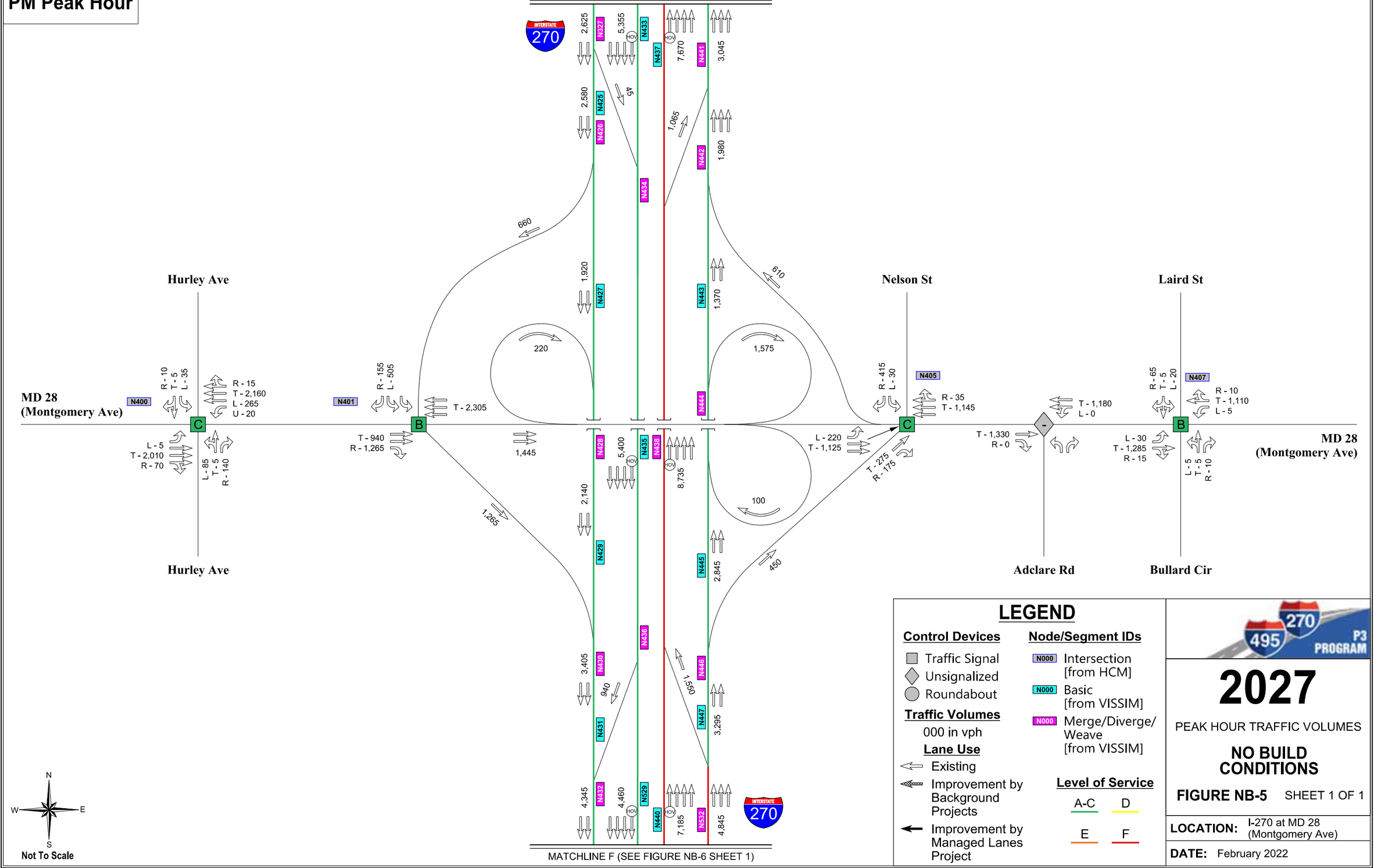
FIGURE NB-5 SHEET 1 OF 1

LOCATION: I-270 at MD 28 (Montgomery Ave)

DATE: February 2022

PM Peak Hour

MATCHLINE E (SEE FIGURE NB-4 SHEET 1)



MATCHLINE F (SEE FIGURE NB-6 SHEET 1)

N
W
E
S
Not To Scale

LEGEND

Control Devices
- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes
000 in vph

Lane Use
- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs
- N000 Intersection [from HCM]
- N000 Basic [from VISSIM]
- N000 Merge/Diverge/ Weave [from VISSIM]

Level of Service
A-C D E F

I-270 / I-495 P3 PROGRAM

2027

PEAK HOUR TRAFFIC VOLUMES

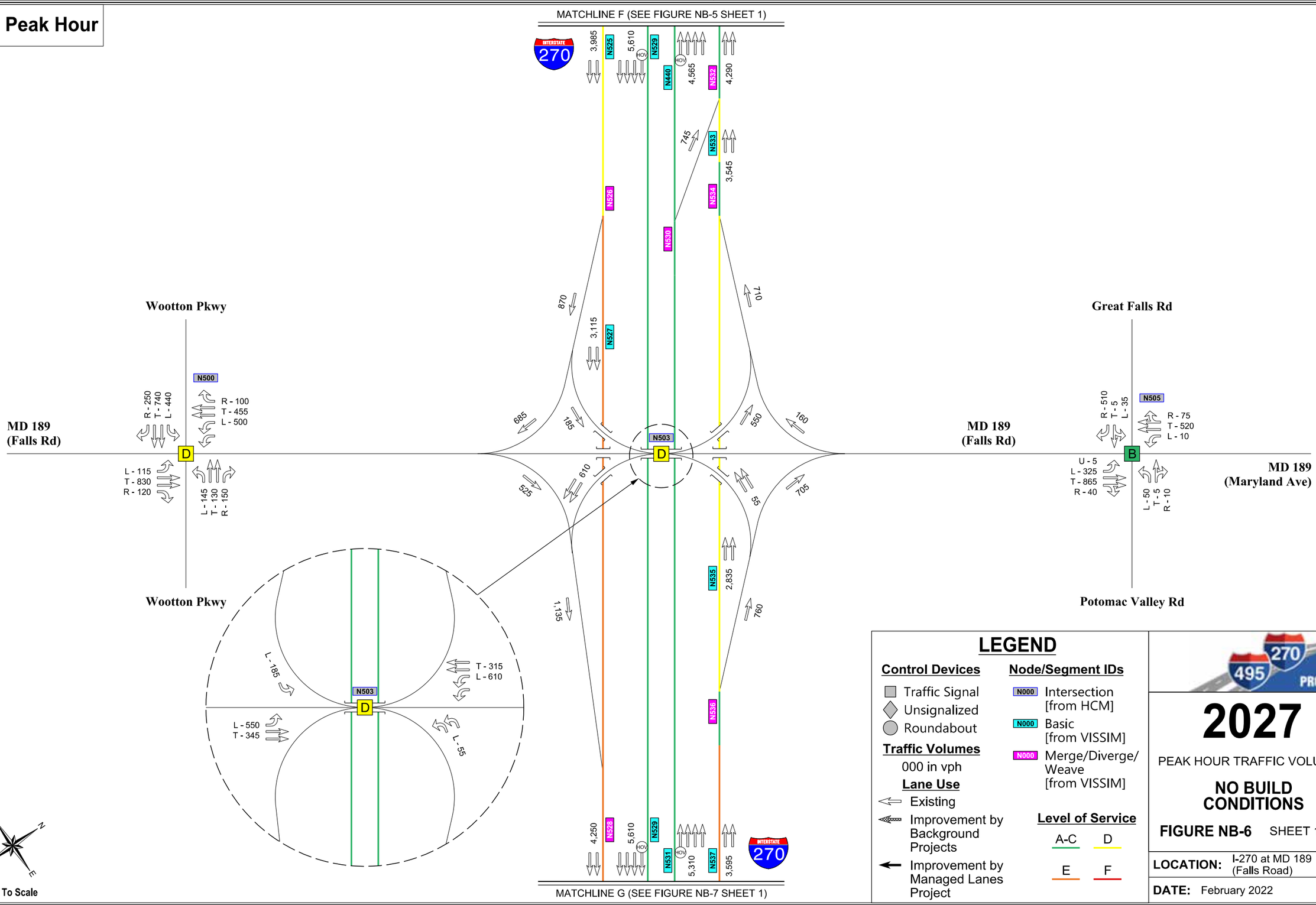
NO BUILD CONDITIONS

FIGURE NB-5 SHEET 1 OF 1

LOCATION: I-270 at MD 28 (Montgomery Ave)

DATE: February 2022

AM Peak Hour



LEGEND

Control Devices

- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes

000 in vph

Lane Use

- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs

- N000 Intersection [from HCM]
- N000 Basic [from VISSIM]
- N000 Merge/Diverge/ Weave [from VISSIM]

Level of Service

A-C D E F

I-270 / 495 P3 PROGRAM

2027

PEAK HOUR TRAFFIC VOLUMES

NO BUILD CONDITIONS

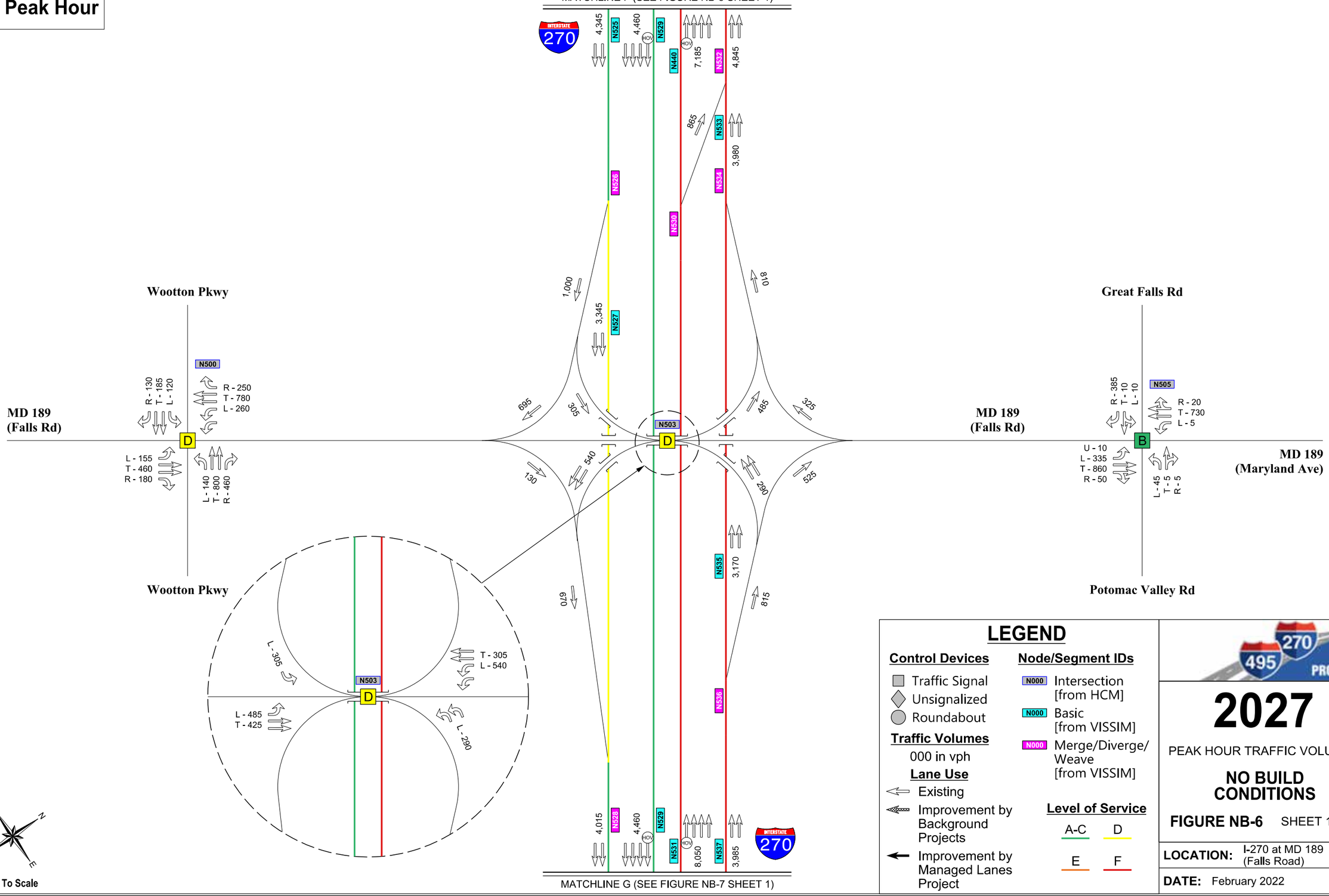
FIGURE NB-6 SHEET 1 OF 1

LOCATION: I-270 at MD 189 (Falls Road)

DATE: February 2022

PM Peak Hour

MATCHLINE F (SEE FIGURE NB-5 SHEET 1)



LEGEND

Control Devices
- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes
000 in vph

Lane Use
- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs
- N000 Intersection [from HCM]
- N000 Basic [from VISSIM]
- N000 Merge/Diverge/ Weave [from VISSIM]

Level of Service
A-C D E F

I-270 495 P3 PROGRAM

2027

PEAK HOUR TRAFFIC VOLUMES

NO BUILD CONDITIONS

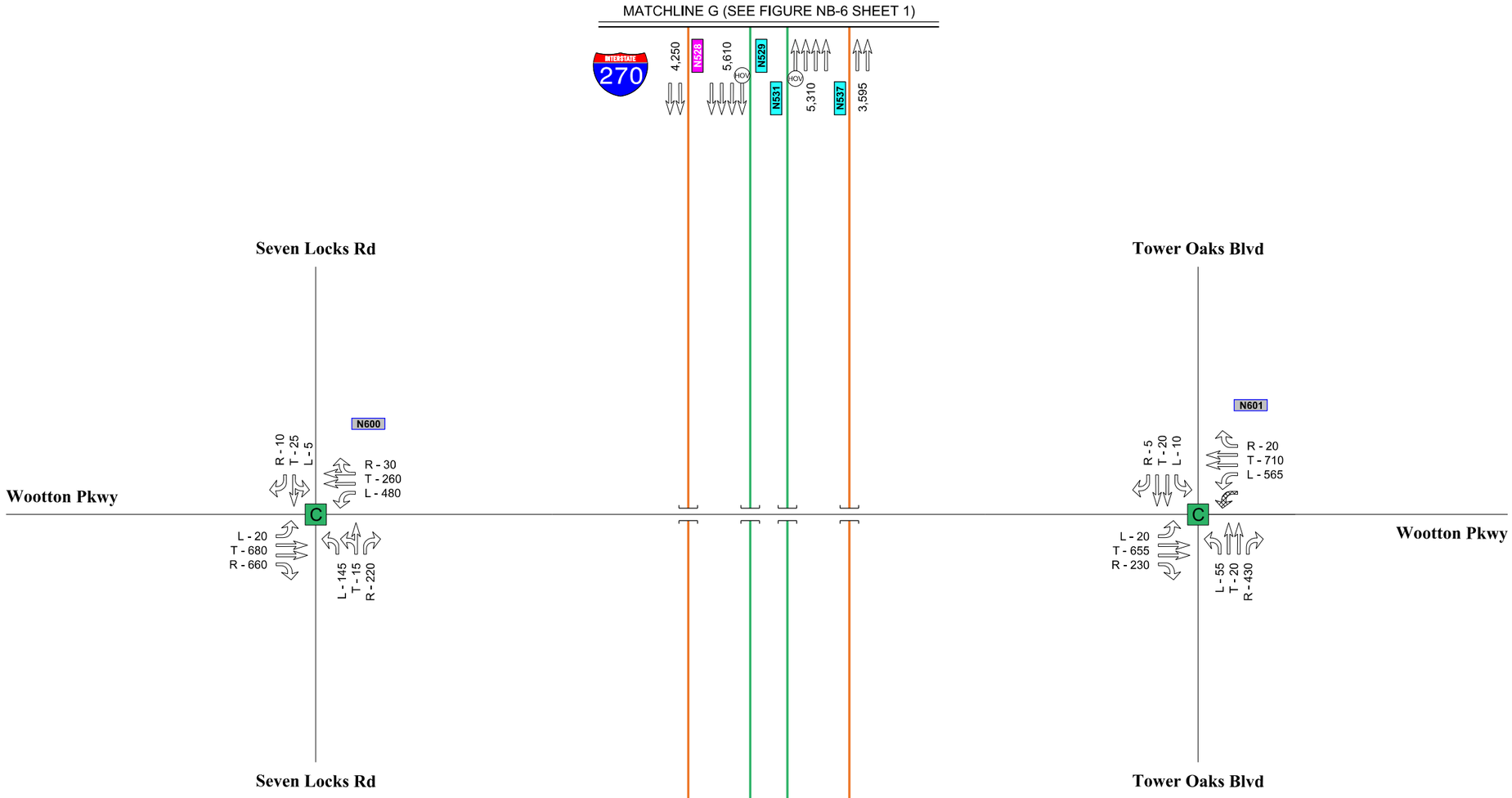
FIGURE NB-6 SHEET 1 OF 1

LOCATION: I-270 at MD 189 (Falls Road)

DATE: February 2022

AM Peak Hour

MATCHLINE G (SEE FIGURE NB-6 SHEET 1)



MATCHLINE H (SEE FIGURE NB-8 SHEET 1)

N
W E
S
Not To Scale

LEGEND

Control Devices
- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes
000 in vph

Lane Use
- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs
- N000 Intersection [from HCM]
- N000 Basic [from VISSIM]
- N000 Merge/Diverge/ Weave [from VISSIM]

Level of Service
A-C D E F

I-270 / I-495 P3 PROGRAM

2027

PEAK HOUR TRAFFIC VOLUMES

NO BUILD CONDITIONS

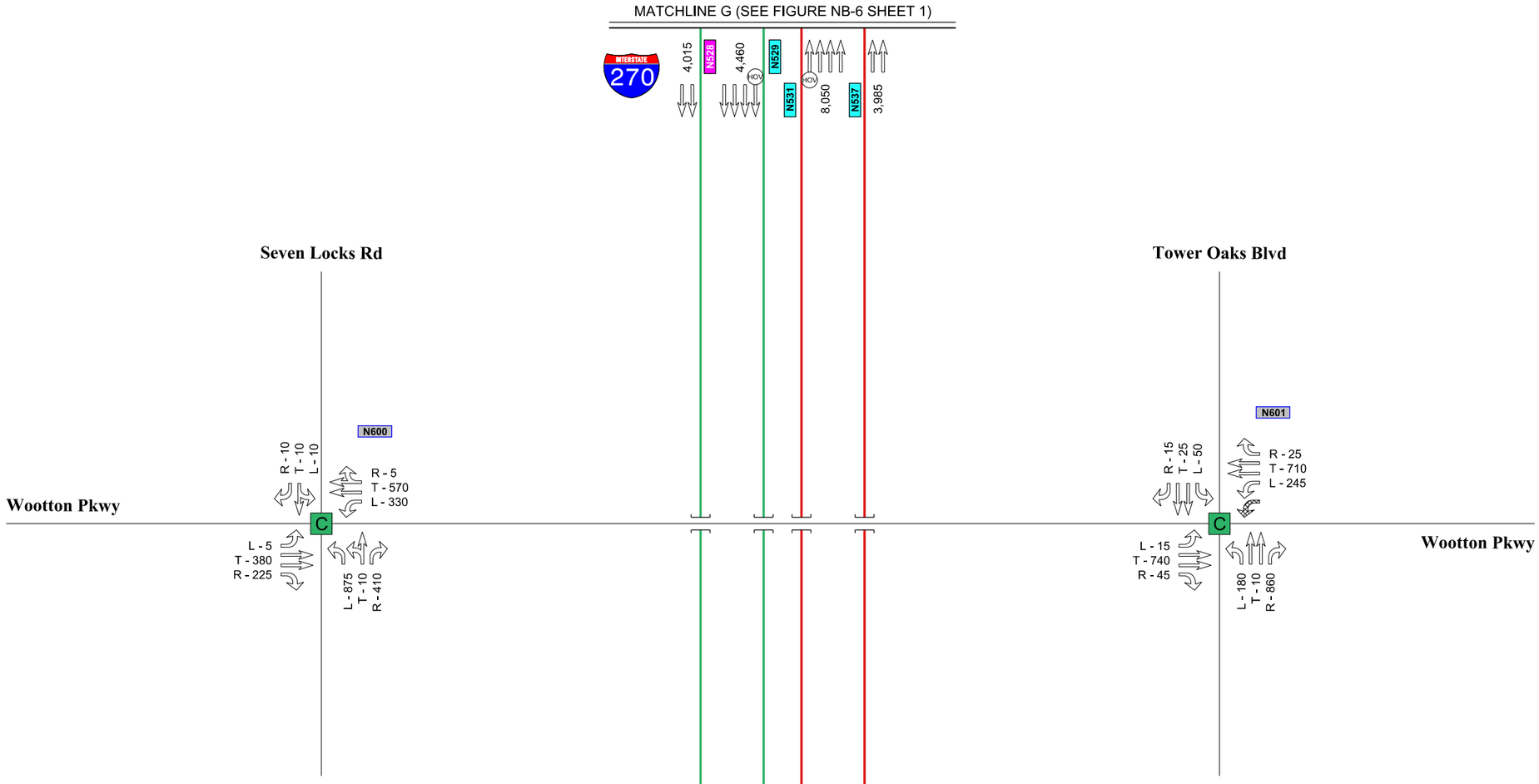
FIGURE NB-7 SHEET 1 OF 1

LOCATION: I-270 at Wootton Parkway

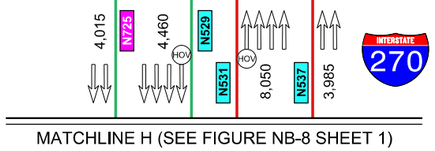
DATE: February 2022

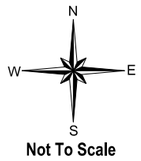
PM Peak Hour

MATCHLINE G (SEE FIGURE NB-6 SHEET 1)



MATCHLINE H (SEE FIGURE NB-8 SHEET 1)





Not To Scale

LEGEND

Control Devices

- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes

000 in vph

Lane Use

- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs

- N000 Intersection [from HCM]
- N000 Basic [from VISSIM]
- N000 Merge/Diverge/ Weave [from VISSIM]

Level of Service

A-C D E F

I-270 / I-495 P3 PROGRAM

2027

PEAK HOUR TRAFFIC VOLUMES

NO BUILD CONDITIONS

FIGURE NB-7 SHEET 1 OF 1

LOCATION: I-270 at Wootton Parkway

DATE: February 2022

AM Peak Hour

MATCHLINE H (SEE FIGURE NB-7 SHEET 1)

MATCHLINE I (SEE THIS FIGURE SHEET 2)

MATCHLINE J (SEE THIS FIGURE SHEET 2)

MATCHLINE K (SEE FIGURE NB-9 SHEET 1)

INTERSTATE 270

HOV

Park Potomac Ave

Seven Locks Rd

Montrose Rd

Tower Oaks Blvd

GEICO Entrance

To Parking

N725 4,250
N529 5,610
N537
N531 5,310
N737 3,595
585
N738
1,475
N735
N739 3,010
N733
N726 2,775
1,090
N727
50
N710
R - 15 T - 670 L - 15
R - 5 T - 5 L - 5
B
L - 645 T - 10 R - 65
L - 30 T - 245 R - 20
170
N740 1,920
1,040
N728 2,605
65
105
720
N701
R - 65 T - 640 L - 450
R - 115 T - 200 L - 395
C
L - 65 T - 240 R - 55
L - 15 T - 200 R - 620
N702
R - 105
R - 220 T - 605
E
T - 1,290 R - 20
R - 220
1,100
1,015
N729
N741
280
380
N707
R - 510 L - 230
R - 135 T - 2,070
B
L - 160 T - 1,230
675
755
210
N730 2,690
N742 1,820
965
1,395
N731
N743
N732 3,655
7,085
N734
N736
5,895
N744 3,215

N
W E
S
Not To Scale

LEGEND

Control Devices
- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes
000 in vph

Lane Use
- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs
- N000 Intersection [from HCM]
- N000 Basic [from VISSIM]
- N000 Merge/Diverge/ Weave [from VISSIM]

Level of Service
A-C D E F

I-270 / I-495 P3 PROGRAM

2027

PEAK HOUR TRAFFIC VOLUMES

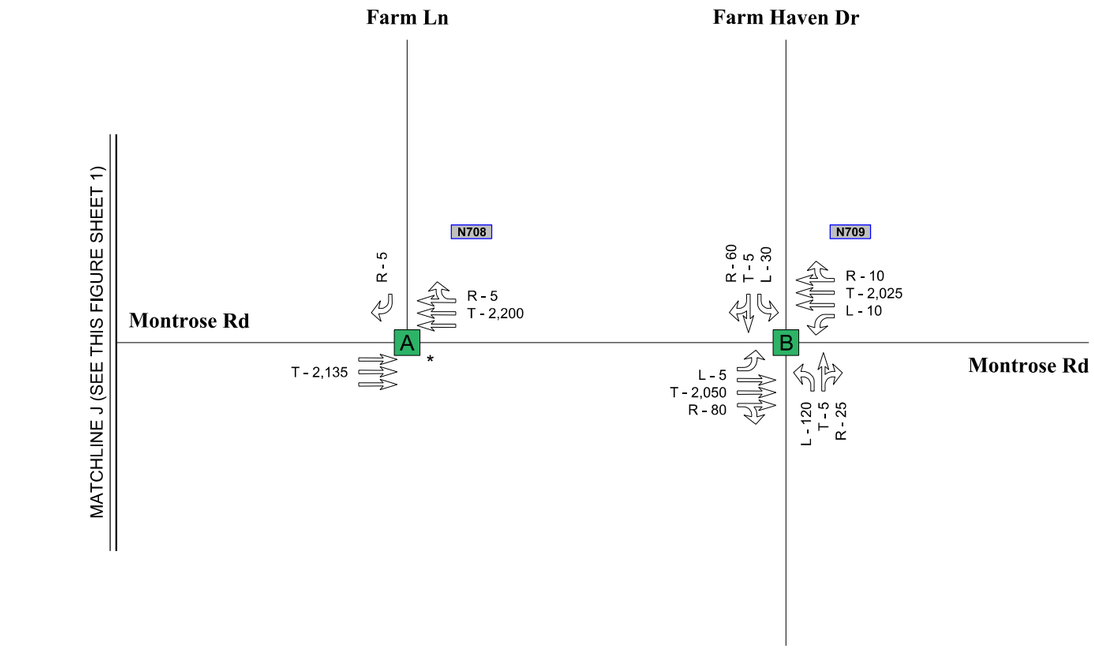
NO BUILD CONDITIONS

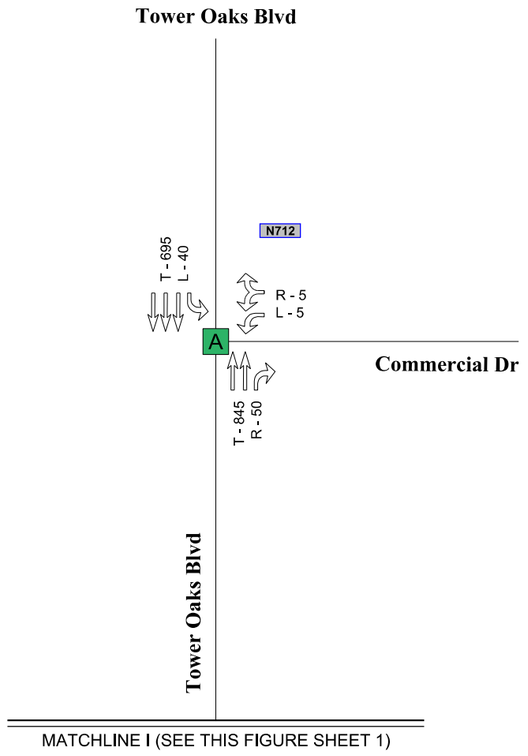
FIGURE NB-8 SHEET 1 OF 2

LOCATION: I-270 at Montrose Road

DATE: February 2022

AM Peak Hour





N
W E
S
Not To Scale

*Note: Montrose Road at Farm Lane is a Pedestrian Signal with Farm Lane being yield controlled

LEGEND

Control Devices
- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes
000 in vph

Lane Use
- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs
- N000 Intersection [from HCM]
- N000 Basic [from VISSIM]
- N000 Merge/Diverge/ Weave [from VISSIM]

Level of Service
A-C D E F

I-495 I-270 P3 PROGRAM

2027

PEAK HOUR TRAFFIC VOLUMES

NO BUILD CONDITIONS

FIGURE NB-8 SHEET 2 OF 2

LOCATION: I-270 at Montrose Road

DATE: February 2022

PM Peak Hour

MATCHLINE H (SEE FIGURE NB-7 SHEET 1)

MATCHLINE I (SEE THIS FIGURE SHEET 2)

MATCHLINE J (SEE THIS FIGURE SHEET 2)

MATCHLINE K (SEE FIGURE NB-9 SHEET 1)

Park Potomac Ave

Seven Locks Rd

Montrose Rd

Tower Oaks Blvd

GEICO Entrance

To Parking

Seven Locks Rd

Park Potomac Ave

Montrose Rd

Tower Oaks Blvd

GEICO Entrance

Not To Scale

LEGEND

Control Devices
- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes
000 in vph

Lane Use
- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs
- N000 Intersection [from HCM]
- N000 Basic [from VISSIM]
- N000 Merge/Diverge/ Weave [from VISSIM]

Level of Service
A-C D E F

P3 PROGRAM

2027

PEAK HOUR TRAFFIC VOLUMES

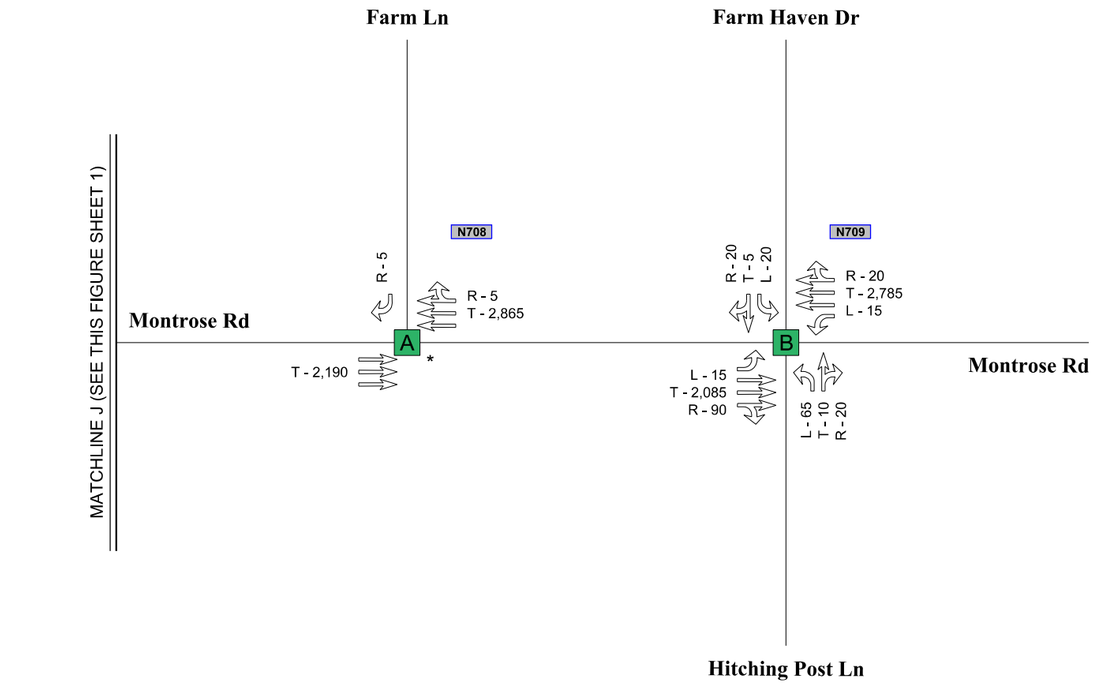
NO BUILD CONDITIONS

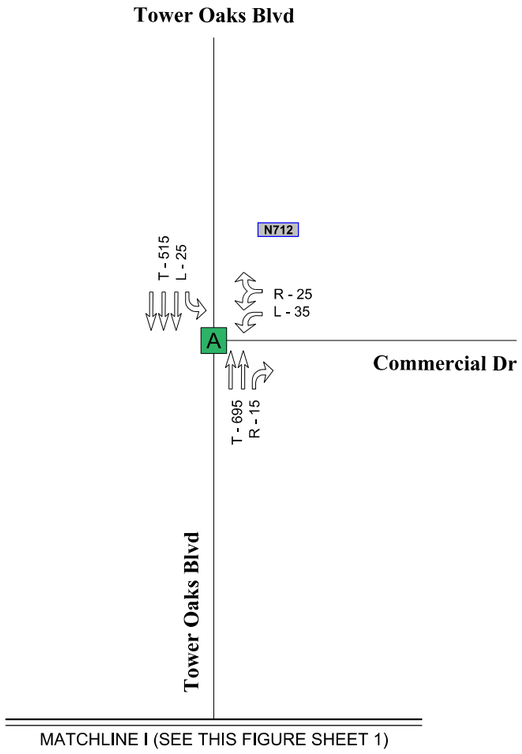
FIGURE NB-8 SHEET 1 OF 2

LOCATION: I-270 at Montrose Road

DATE: February 2022

PM Peak Hour





N
W E
S
Not To Scale

*Note: Montrose Road at Farm Lane is a Pedestrian Signal with Farm Lane being yield controlled

LEGEND

Control Devices
- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes
000 in vph

Lane Use
- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs
- N000 Intersection [from HCM]
- N000 Basic [from VISSIM]
- N000 Merge/Diverge/ Weave [from VISSIM]

Level of Service
A-C D E F

270 495 P3 PROGRAM

2027

PEAK HOUR TRAFFIC VOLUMES

NO BUILD CONDITIONS

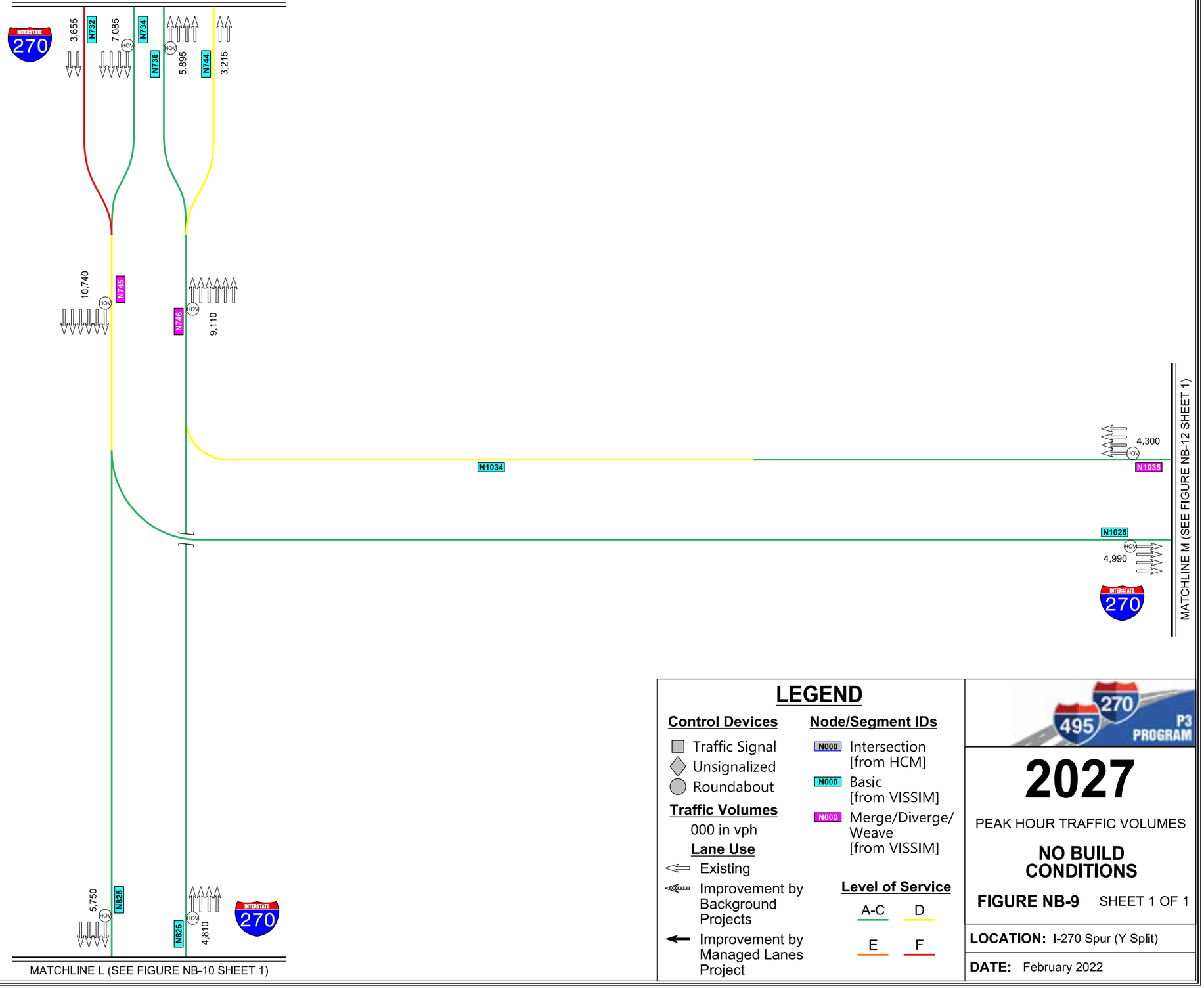
FIGURE NB-8 SHEET 2 OF 2

LOCATION: I-270 at Montrose Road

DATE: February 2022

AM Peak Hour

MATCHLINE K (SEE FIGURE NB-8 SHEET 1)



MATCHLINE L (SEE FIGURE NB-10 SHEET 1)

MATCHLINE M (SEE FIGURE NB-12 SHEET 1)

N
W E
S
Not To Scale

LEGEND

Control Devices
- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes
000 in vph

Lane Use
- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs
- N000 Intersection [from HCM]
- N000 Basic [from VISSIM]
- N000 Merge/Diverge/ Weave [from VISSIM]

Level of Service

A-C	D
E	F

495 270 P3 PROGRAM

2027

PEAK HOUR TRAFFIC VOLUMES

NO BUILD CONDITIONS

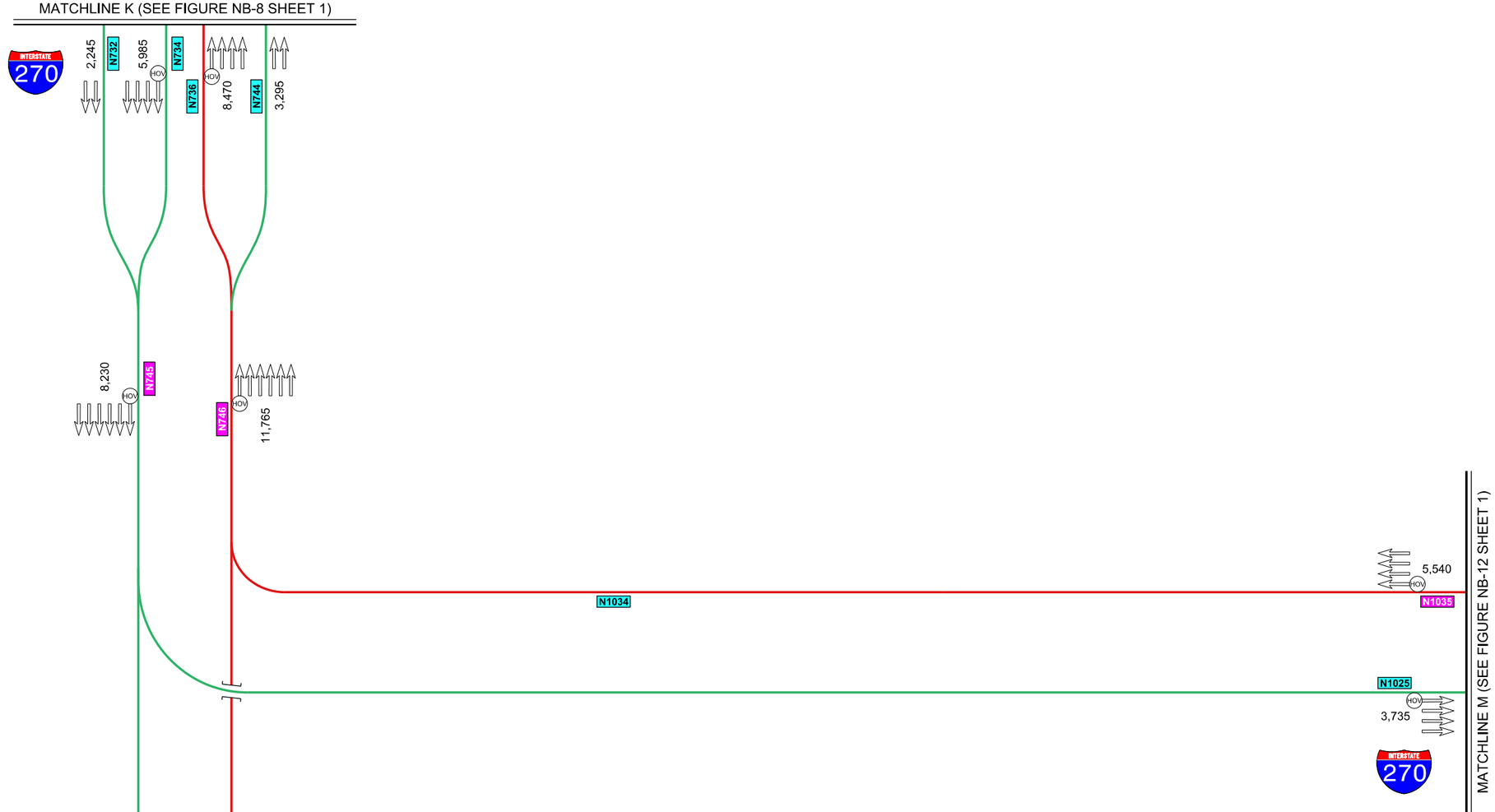
FIGURE NB-9 SHEET 1 OF 1

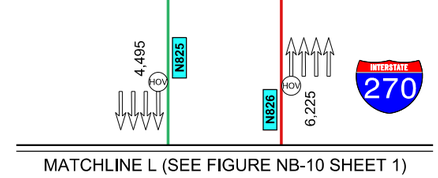
LOCATION: I-270 Spur (Y Split)

DATE: February 2022

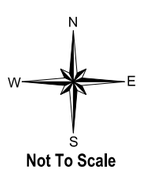
PM Peak Hour

MATCHLINE K (SEE FIGURE NB-8 SHEET 1)





MATCHLINE L (SEE FIGURE NB-10 SHEET 1)



Not To Scale

LEGEND

Control Devices
- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes
000 in vph

Lane Use
- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs
- N000 Intersection [from HCM]
- N000 Basic [from VISSIM]
- N000 Merge/Diverge/ Weave [from VISSIM]

Level of Service
A-C D E F

I-270 / I-495 P3 PROGRAM

2027

PEAK HOUR TRAFFIC VOLUMES

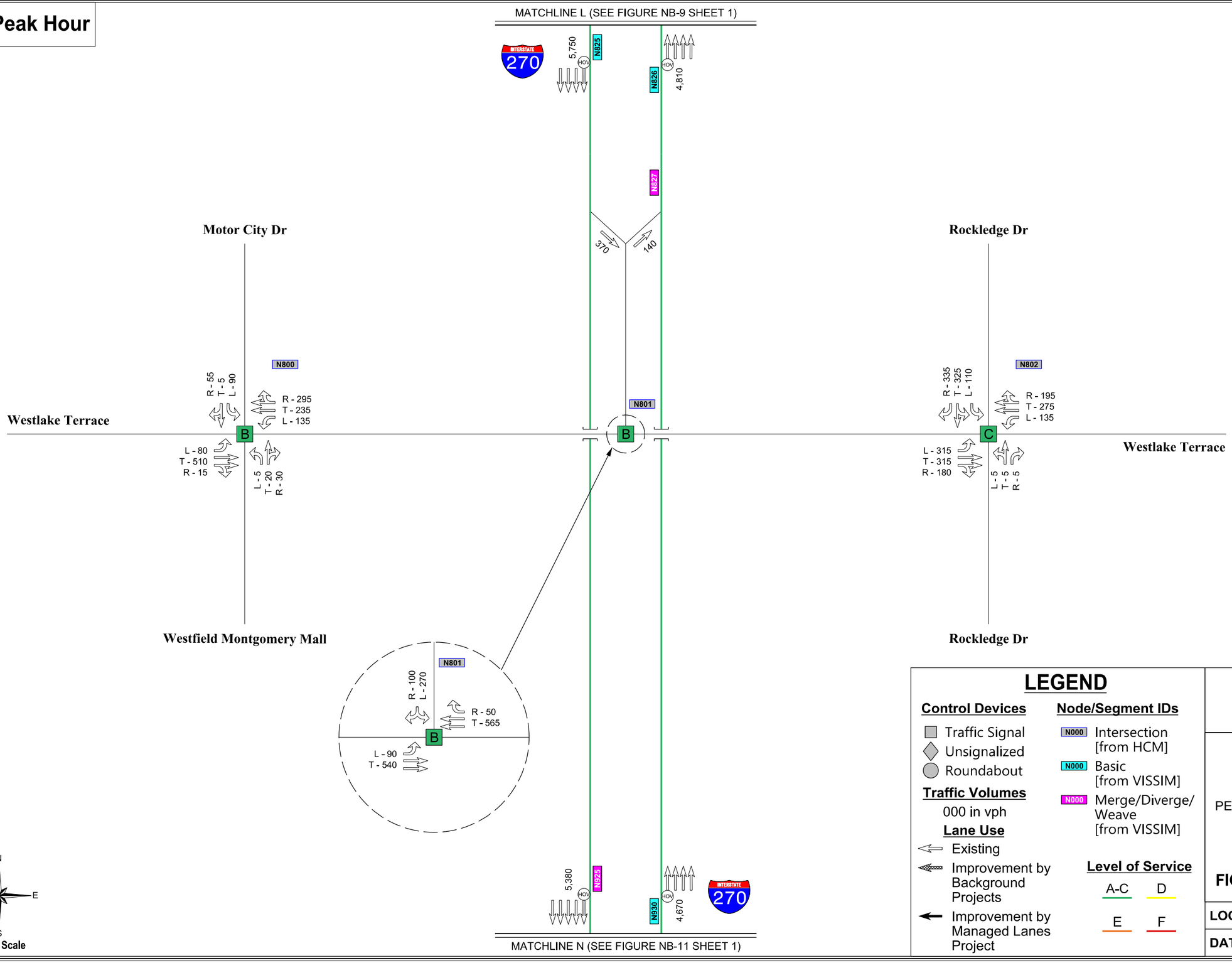
NO BUILD CONDITIONS

FIGURE NB-9 SHEET 1 OF 1

LOCATION: I-270 Spur (Y Split)

DATE: February 2022

AM Peak Hour



LEGEND

Control Devices

- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes

000 in vph

Lane Use

- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs

- N000 Intersection [from HCM]
- N000 Basic [from VISSIM]
- N000 Merge/Diverge/ Weave [from VISSIM]

Level of Service

A-C D E F

I-270 495 P3 PROGRAM

2027

PEAK HOUR TRAFFIC VOLUMES

NO BUILD CONDITIONS

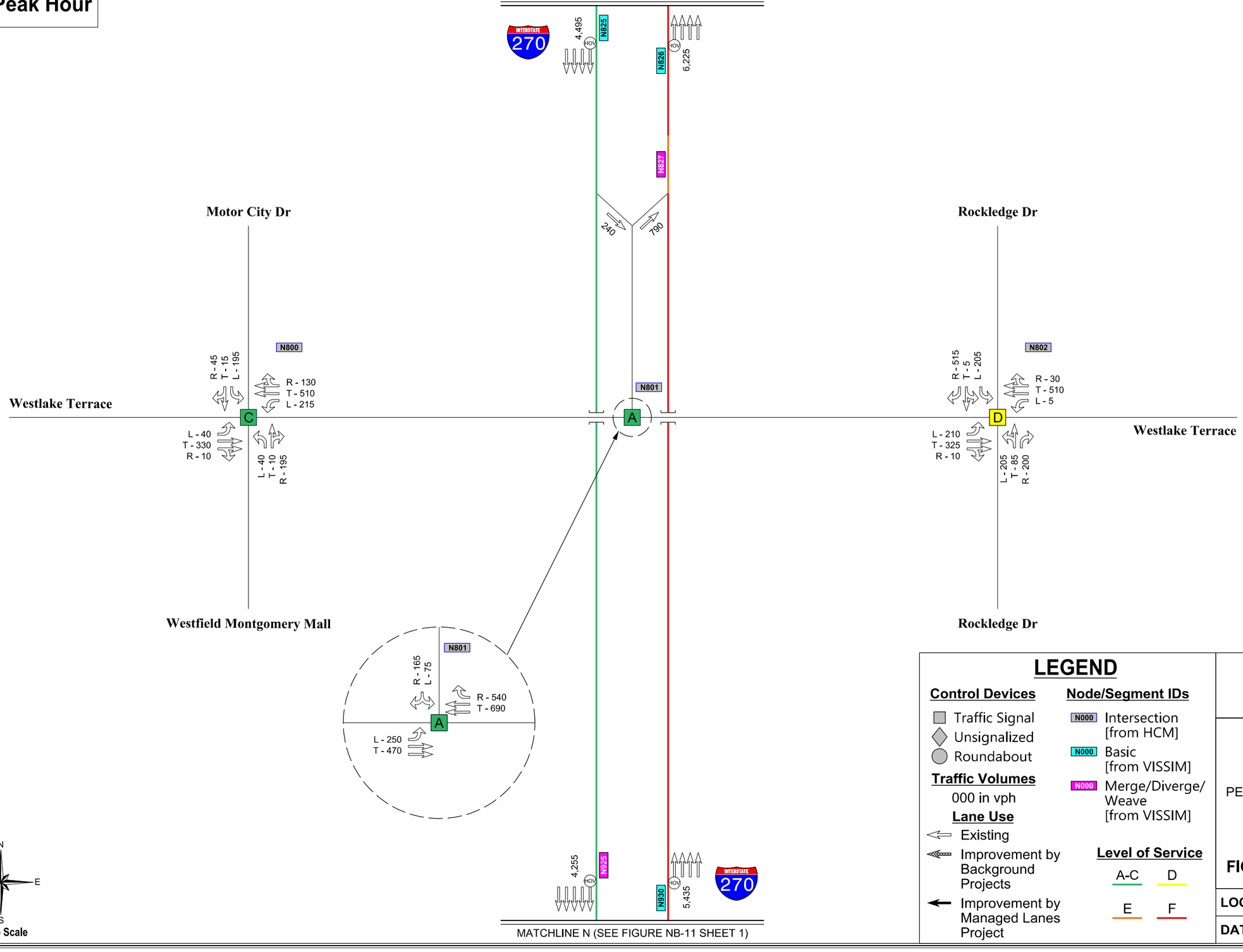
FIGURE NB-10 SHEET 1 OF 1

LOCATION: I-270 at Westlake Terrace

DATE: February 2022

PM Peak Hour

MATCHLINE L (SEE FIGURE NB-9 SHEET 1)



MATCHLINE N (SEE FIGURE NB-11 SHEET 1)

N

W E

S

Not To Scale

LEGEND

Control Devices

- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes

000 in vph

Lane Use

- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs

- N000 Intersection [from HCM]
- N000 Basic [from VISSIM]
- N000 Merge/Diverge/ Weave [from VISSIM]

Level of Service

A-C D E F

I-270 / 495 P3 PROGRAM

2027

PEAK HOUR TRAFFIC VOLUMES

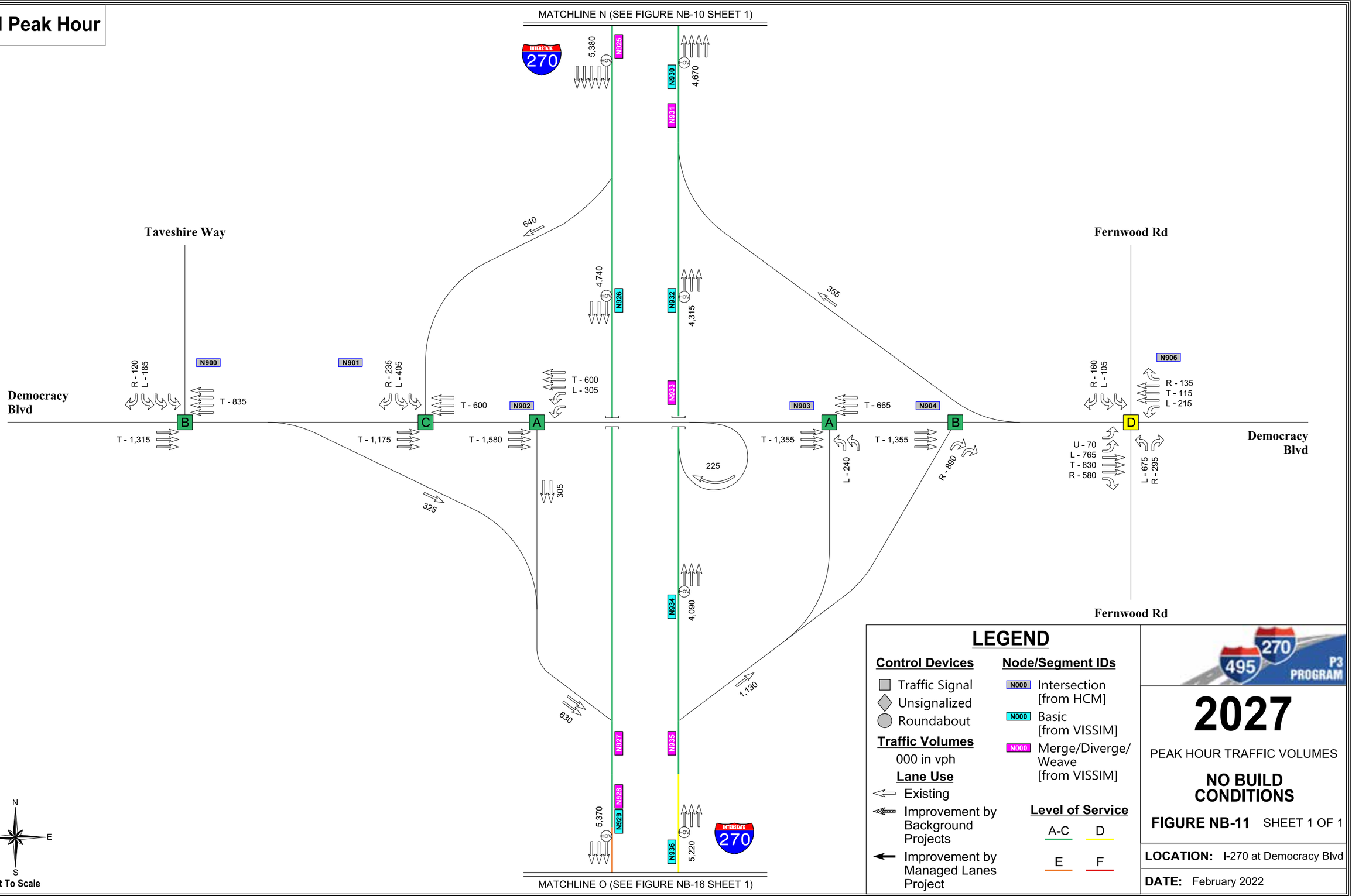
NO BUILD CONDITIONS

FIGURE NB-10 SHEET 1 OF 1

LOCATION: I-270 at Westlake Terrace

DATE: February 2022

AM Peak Hour



LEGEND

Control Devices
- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes
000 in vph

Lane Use
- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs
- N000 Intersection [from HCM]
- N000 Basic [from VISSIM]
- N000 Merge/Diverge/ Weave [from VISSIM]

Level of Service

A-C	D
E	F

N
W E
S
Not To Scale

I-270 / I-495 P3 PROGRAM

2027

PEAK HOUR TRAFFIC VOLUMES

NO BUILD CONDITIONS

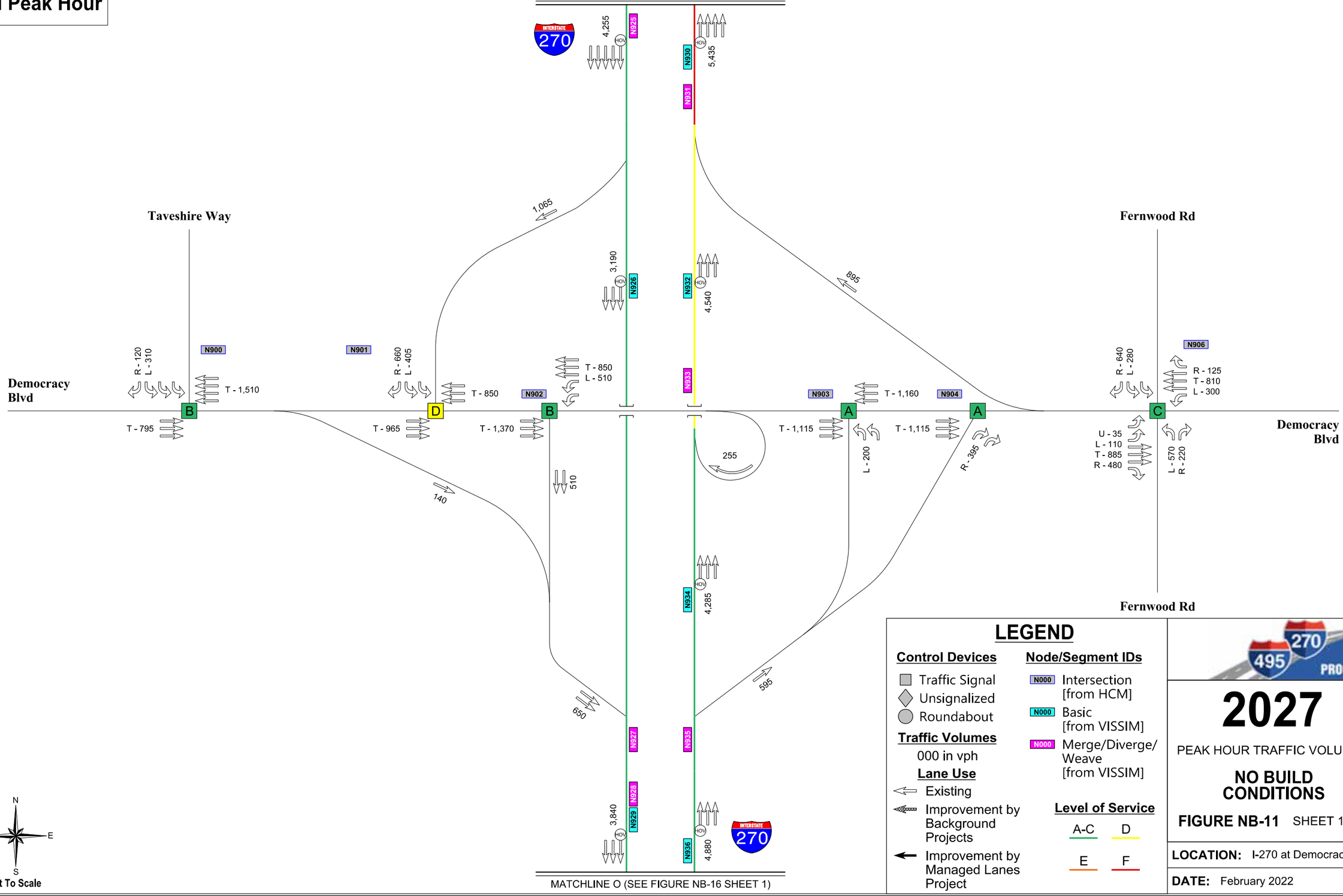
FIGURE NB-11 SHEET 1 OF 1

LOCATION: I-270 at Democracy Blvd

DATE: February 2022

PM Peak Hour

MATCHLINE N (SEE FIGURE NB-10 SHEET 1)



MATCHLINE O (SEE FIGURE NB-16 SHEET 1)

N
W
E
S
Not To Scale

LEGEND

Control Devices
- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes
000 in vph

Lane Use
- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs
- N000 Intersection [from HCM]
- N000 Basic [from VISSIM]
- N000 Merge/Diverge/ Weave [from VISSIM]

Level of Service

A-C	D
E	F

I-270 495 P3 PROGRAM

2027

PEAK HOUR TRAFFIC VOLUMES

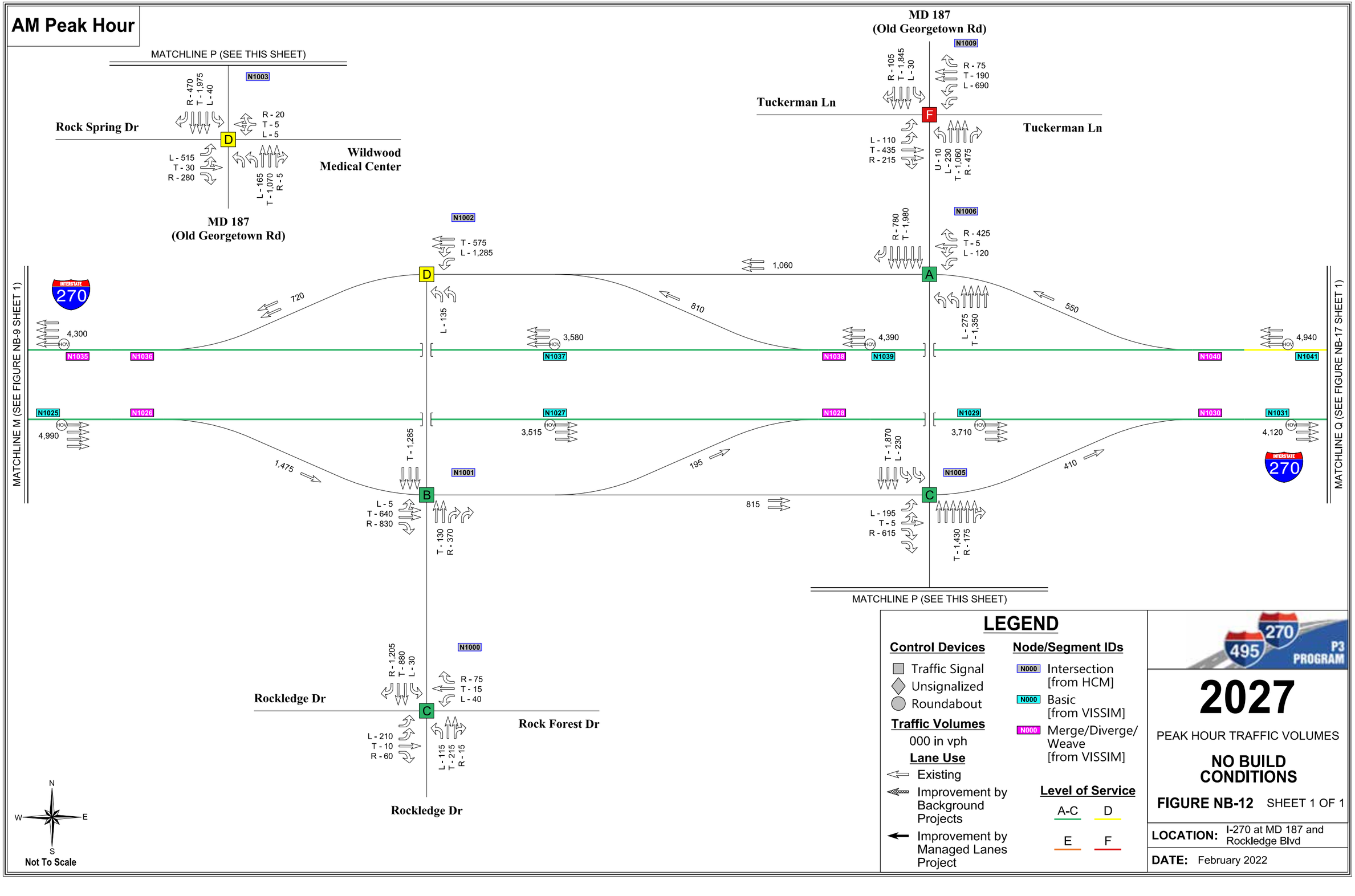
NO BUILD CONDITIONS

FIGURE NB-11 SHEET 1 OF 1

LOCATION: I-270 at Democracy Blvd

DATE: February 2022

AM Peak Hour



LEGEND

Control Devices

- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes

000 in vph

Lane Use

- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs

- N000 Intersection [from HCM]
- N000 Basic [from VISSIM]
- N000 Merge/Diverge/ Weave [from VISSIM]

Level of Service

A-C D E F

I-270 / 495 P3 PROGRAM

2027

PEAK HOUR TRAFFIC VOLUMES

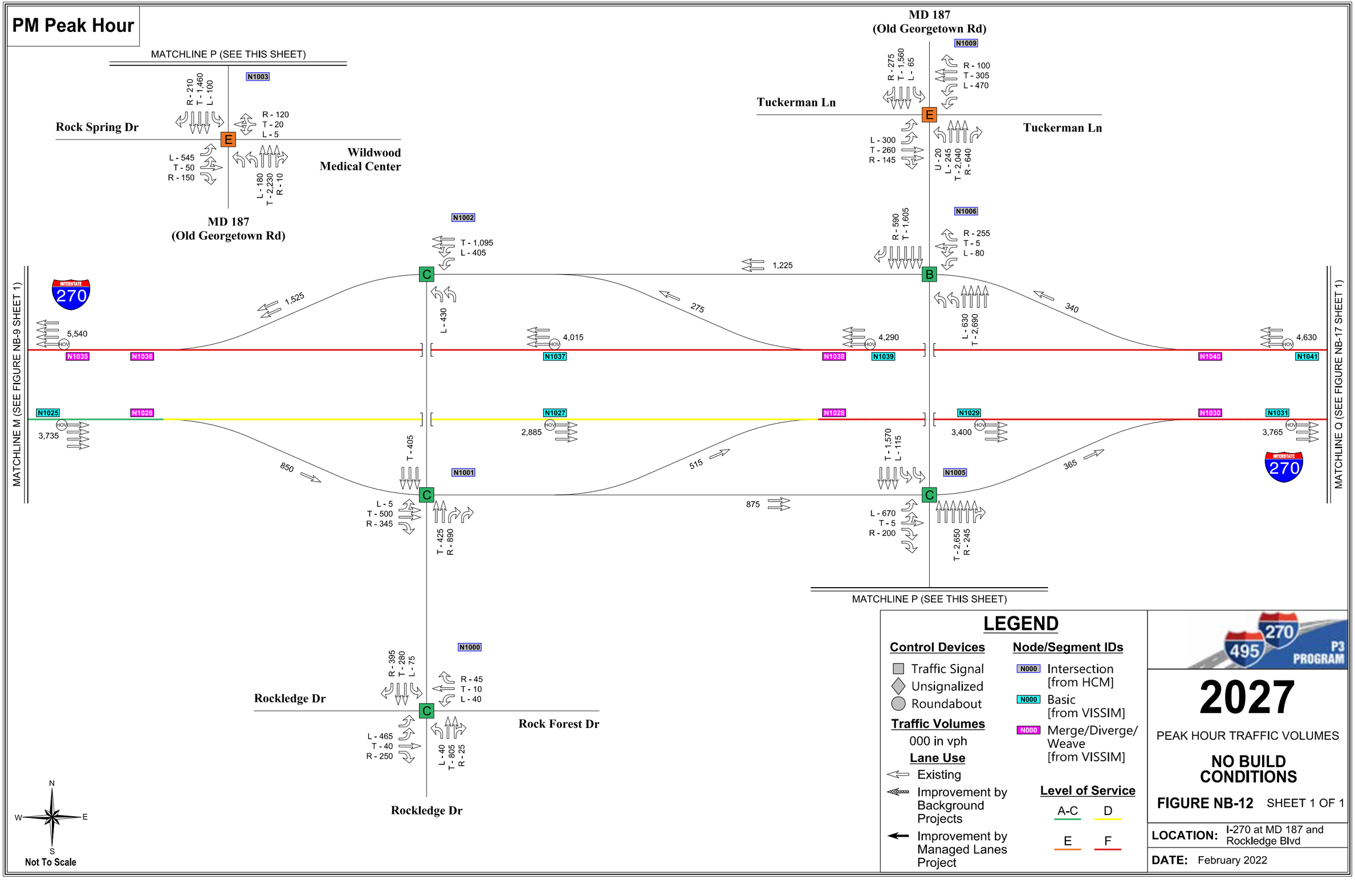
NO BUILD CONDITIONS

FIGURE NB-12 SHEET 1 OF 1

LOCATION: I-270 at MD 187 and Rockledge Blvd

DATE: February 2022

PM Peak Hour



LEGEND

Control Devices

- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes

000 in vph

Lane Use

- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs

- N000 Intersection [from HCM]
- N000 Basic [from VISSIM]
- N000 Merge/Diverge/ Weave [from VISSIM]

Level of Service

A-C D E F

2027

PEAK HOUR TRAFFIC VOLUMES

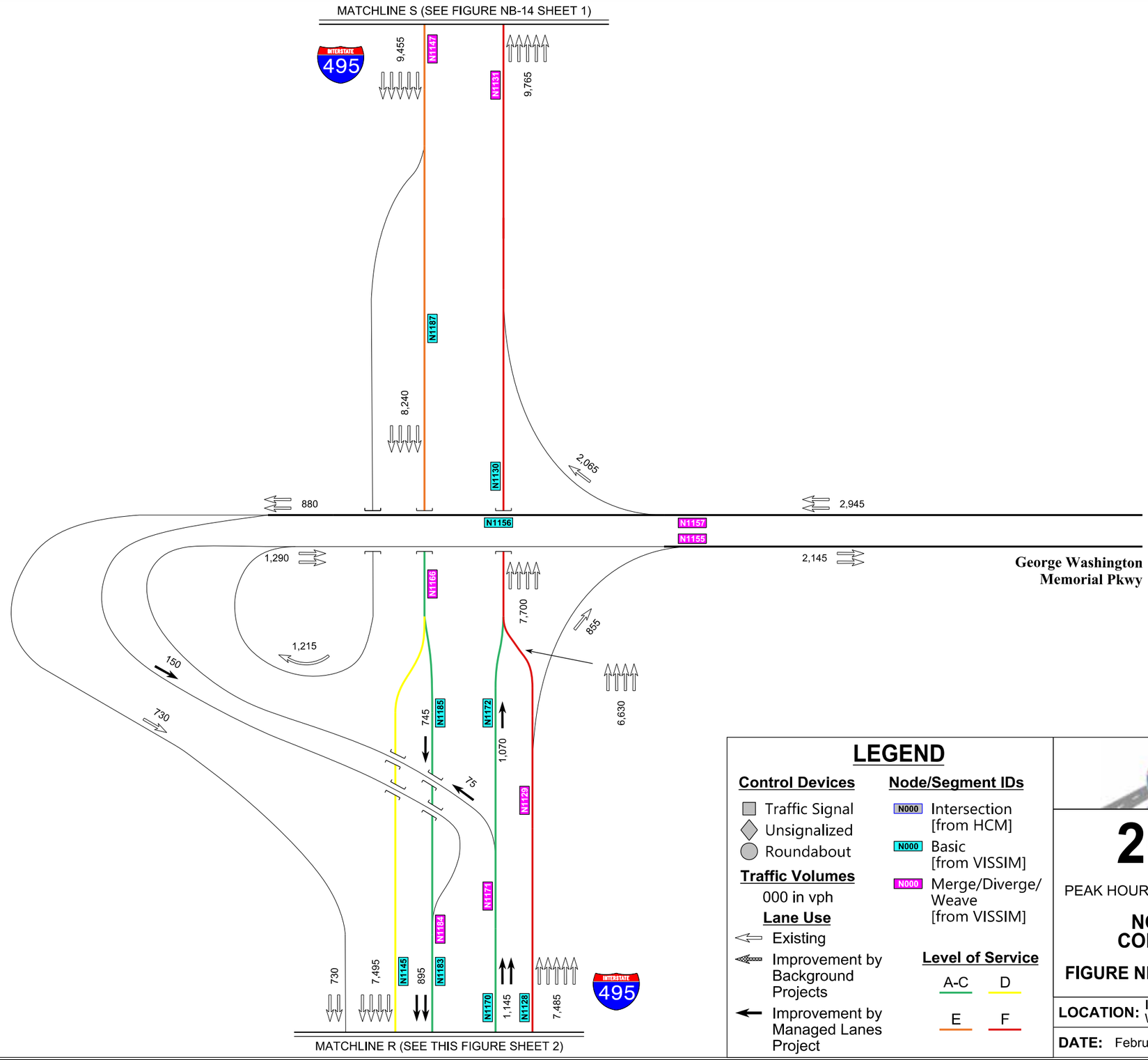
NO BUILD CONDITIONS

FIGURE NB-12 SHEET 1 OF 1

LOCATION: I-270 at MD 187 and Rockledge Blvd

DATE: February 2022

AM Peak Hour



Not To Scale

LEGEND

Control Devices
- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes
000 in vph

Lane Use
- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs
- N000 Intersection [from HCM]
- N000 Basic [from VISSIM]
- N000 Merge/Diverge/ Weave [from VISSIM]

Level of Service
A-C D E F

I-495 & I-270 P3 PROGRAM

2027

PEAK HOUR TRAFFIC VOLUMES

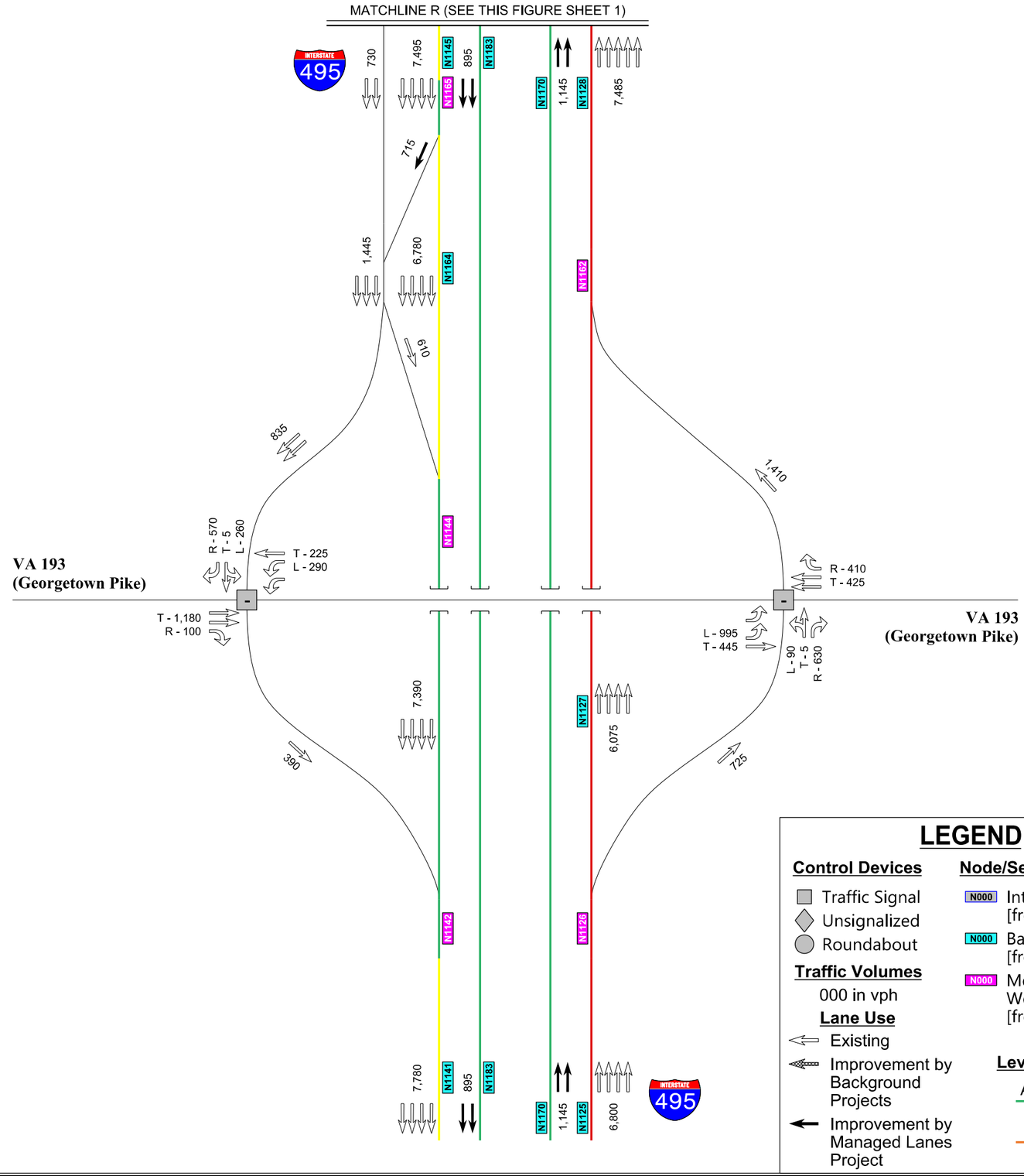
NO BUILD CONDITIONS

FIGURE NB-13 SHEET 1 OF 2

LOCATION: I-495 at VA 193/George Washington Mem.Pkwy.

DATE: February 2022

AM Peak Hour



LEGEND

Control Devices

- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes

000 in vph

Lane Use

- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs

- N000 Intersection [from HCM]
- N000 Basic [from VISSIM]
- N000 Merge/Diverge/ Weave [from VISSIM]

Level of Service

A-C D E F

Not To Scale

I-495 & I-270 P3 PROGRAM

2027

PEAK HOUR TRAFFIC VOLUMES

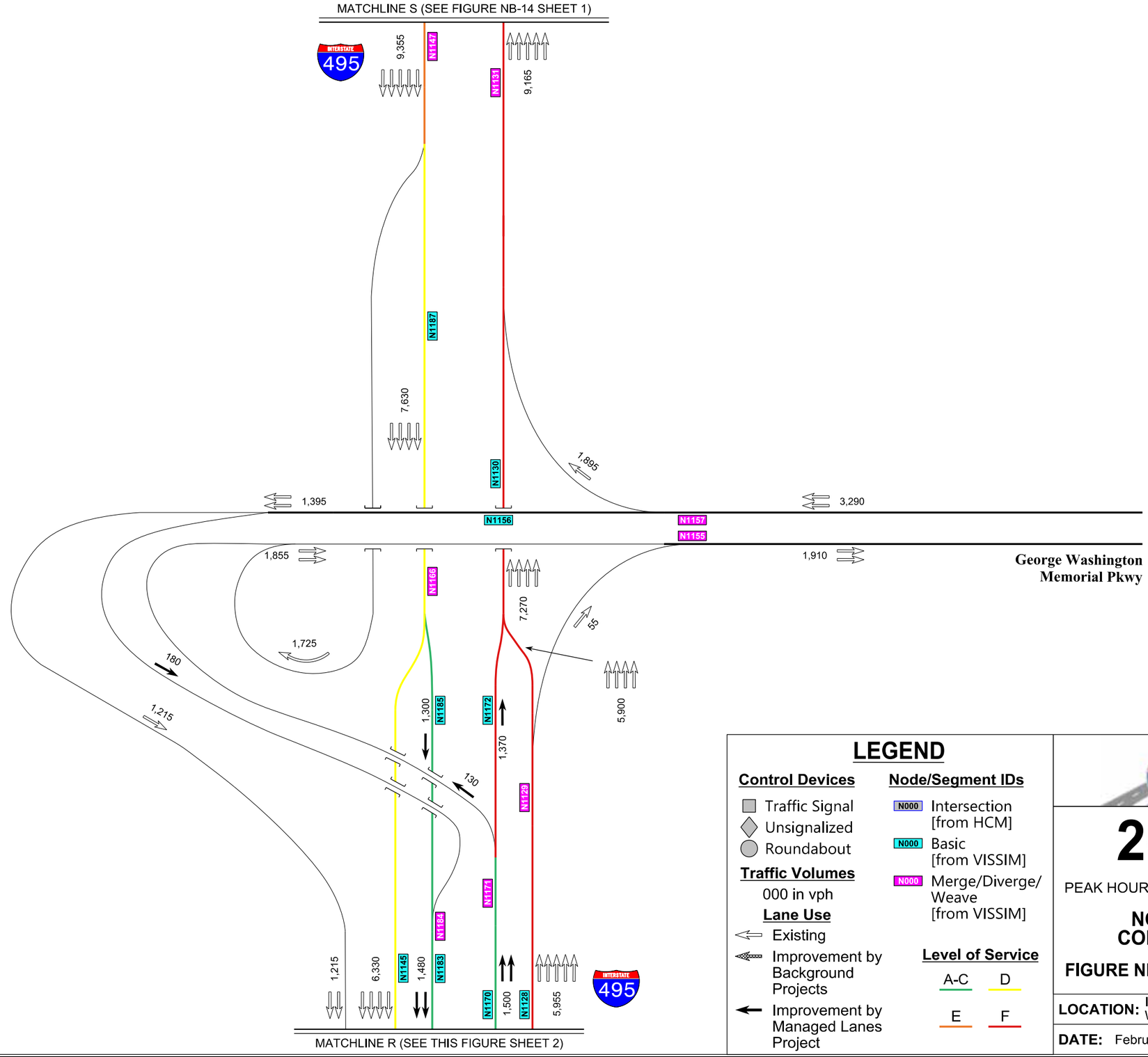
NO BUILD CONDITIONS

FIGURE NB-13 SHEET 2 OF 2

LOCATION: I-495 at VA 193/George Washington Mem.Pkwy.

DATE: February 2022

PM Peak Hour



Not To Scale

LEGEND

Control Devices
- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes
000 in vph

Lane Use
- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs
- N000 Intersection [from HCM]
- N000 Basic [from VISSIM]
- N000 Merge/Diverge/ Weave [from VISSIM]

Level of Service
A-C D E F

495 270 P3 PROGRAM

2027

PEAK HOUR TRAFFIC VOLUMES

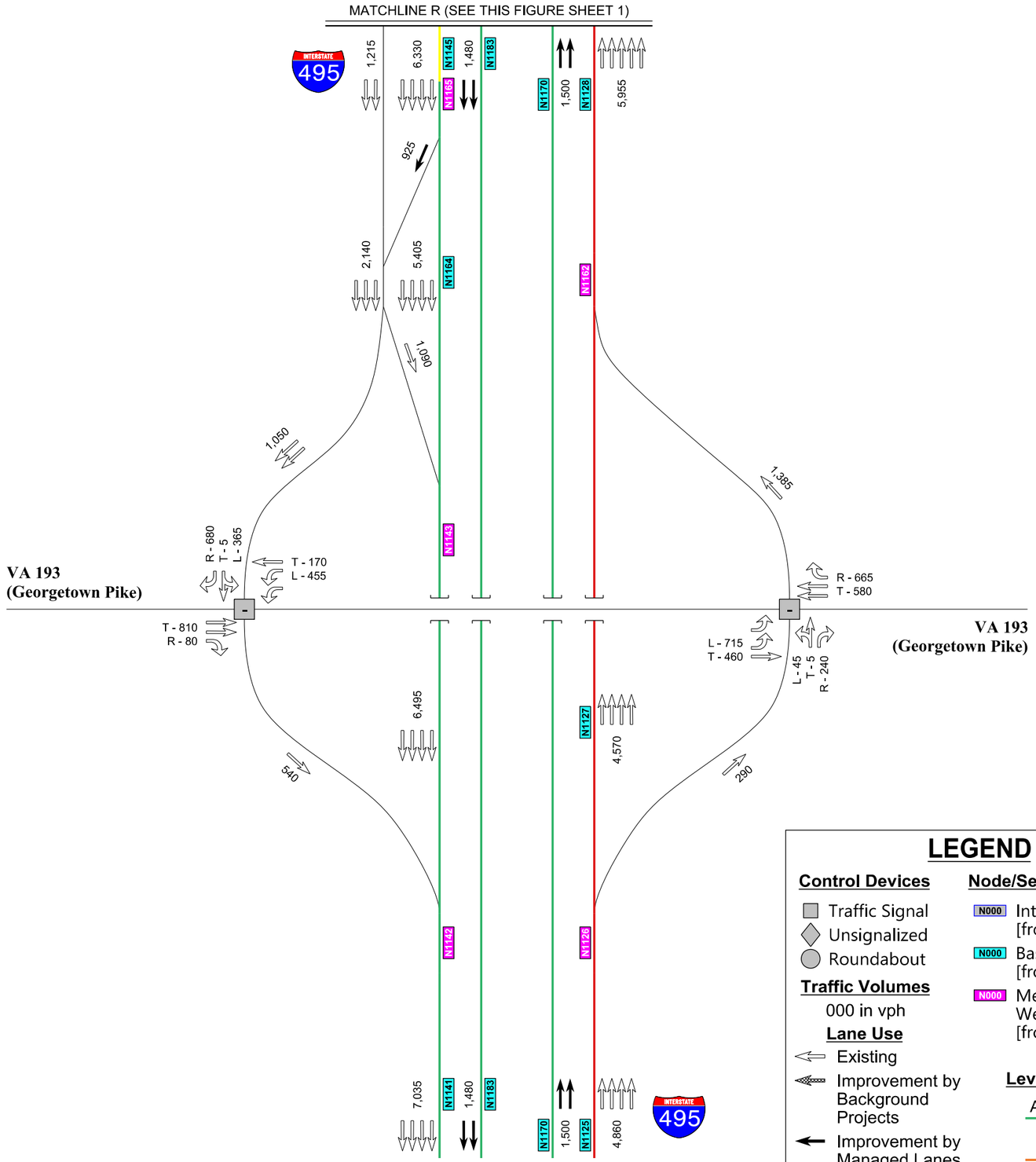
NO BUILD CONDITIONS

FIGURE NB-13 SHEET 1 OF 2

LOCATION: I-495 at VA 193/George Washington Mem.Pkwy.

DATE: February 2022

PM Peak Hour



LEGEND

Control Devices

- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes

000 in vph

Lane Use

- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs

- N000 Intersection [from HCM]
- N000 Basic [from VISSIM]
- N000 Merge/Diverge/ Weave [from VISSIM]

Level of Service

A-C D E F

Not To Scale

I-495 & I-270 P3 PROGRAM

2027

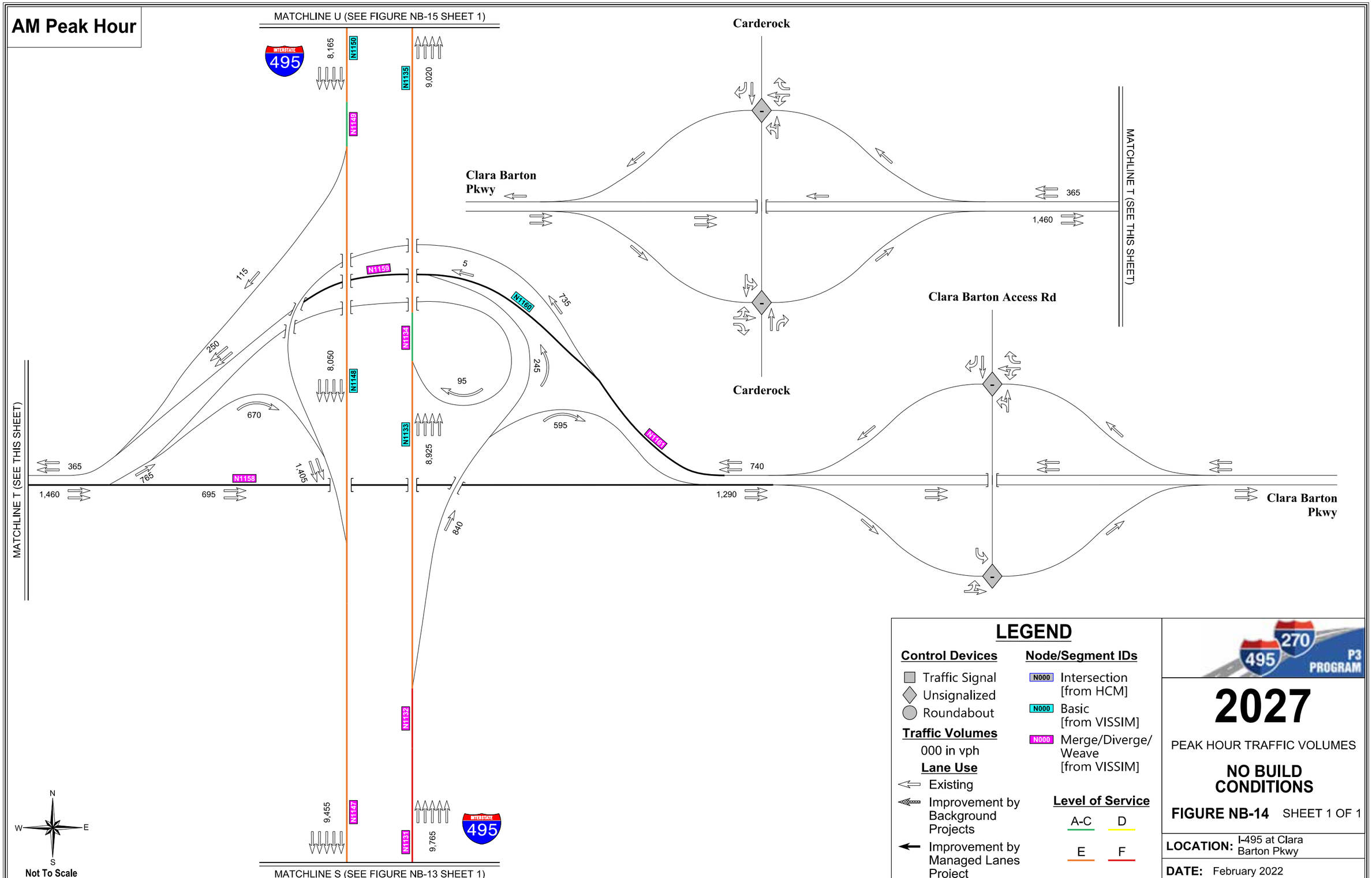
PEAK HOUR TRAFFIC VOLUMES

NO BUILD CONDITIONS

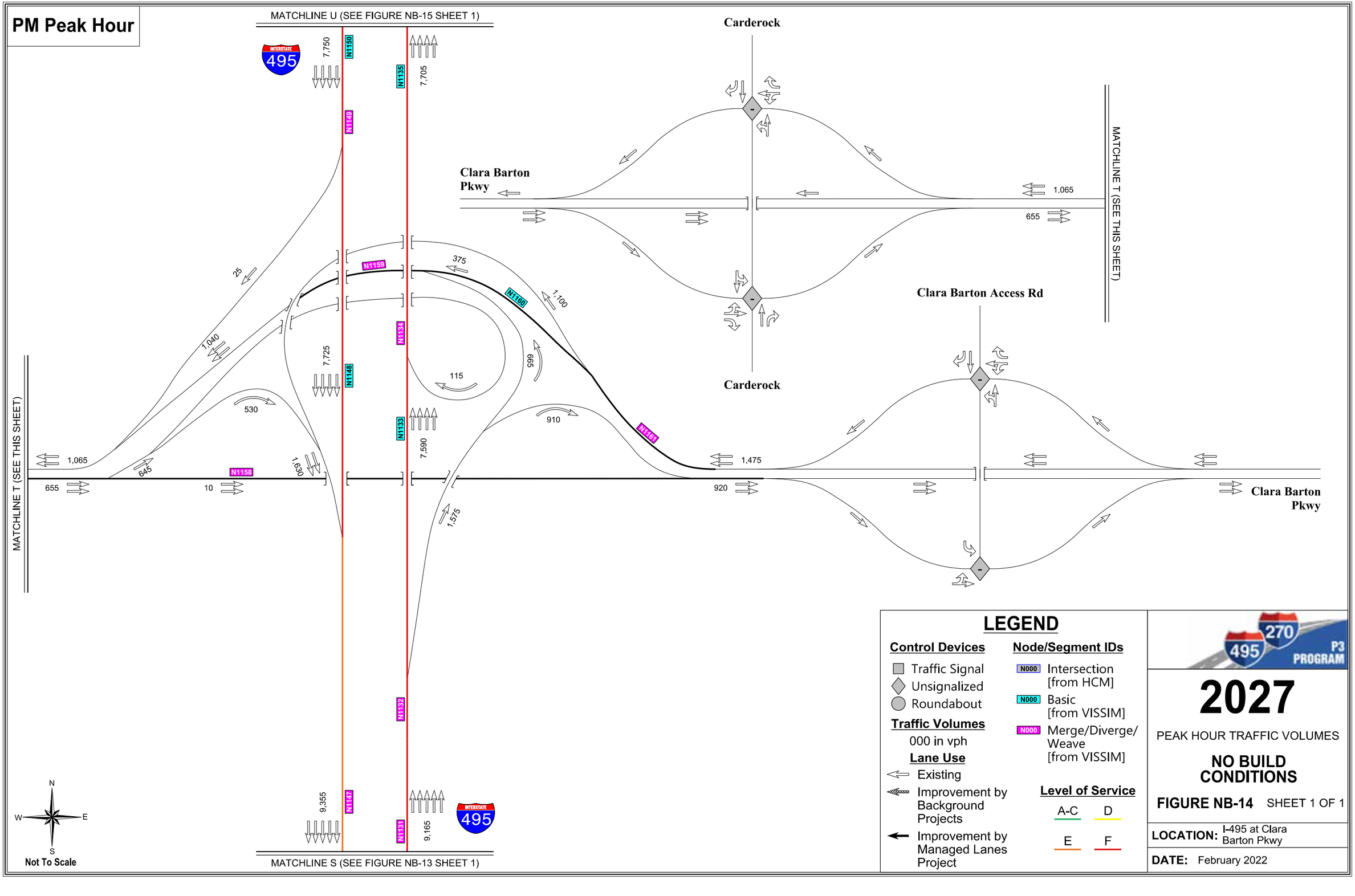
FIGURE NB-13 SHEET 2 OF 2

LOCATION: I-495 at VA 193/George Washington Mem.Pkwy.

DATE: February 2022


AM Peak Hour
MATCHLINE U (SEE FIGURE NB-15 SHEET 1)
MATCHLINE S (SEE FIGURE NB-13 SHEET 1)
MATCHLINE T (SEE THIS SHEET)
MATCHLINE T (SEE THIS SHEET)
Carderock
Carderock
Clara Barton Pkwy
Clara Barton Access Rd
Clara Barton Pkwy
495
8,165
9,020
N1150
N1135
N1149
N1159
N1160
N1134
N1148
N1133
N1161
N1158
N1132
N1147
N1131
115
250
670
8,050
5
735
245
95
595
8,925
365
765
1,460
695
1,405
740
1,290
840
9,455
9,765
365
1,460
N
W
E
S
Not To Scale
LEGEND
Control Devices
Traffic Signal
Unsignalized
Roundabout
Traffic Volumes
000 in vph
Lane Use
Existing
Improvement by Background Projects
Improvement by Managed Lanes Project
Node/Segment IDs
N000 Intersection [from HCM]
N000 Basic [from VISSIM]
N000 Merge/Diverge/ Weave [from VISSIM]
Level of Service
A-C
D
E
F
495
270
P3 PROGRAM
2027
PEAK HOUR TRAFFIC VOLUMES
NO BUILD CONDITIONS
FIGURE NB-14
SHEET 1 OF 1
LOCATION: I-495 at Clara Barton Pkwy
DATE: February 2022

PM Peak Hour



LEGEND

Control Devices

- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes

000 in vph

Lane Use

- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs

- N000 Intersection [from HCM]
- N000 Basic [from VISSIM]
- N000 Merge/Diverge/ Weave [from VISSIM]

Level of Service

A-C D E F

I-495 & I-270 P3 PROGRAM

2027

PEAK HOUR TRAFFIC VOLUMES

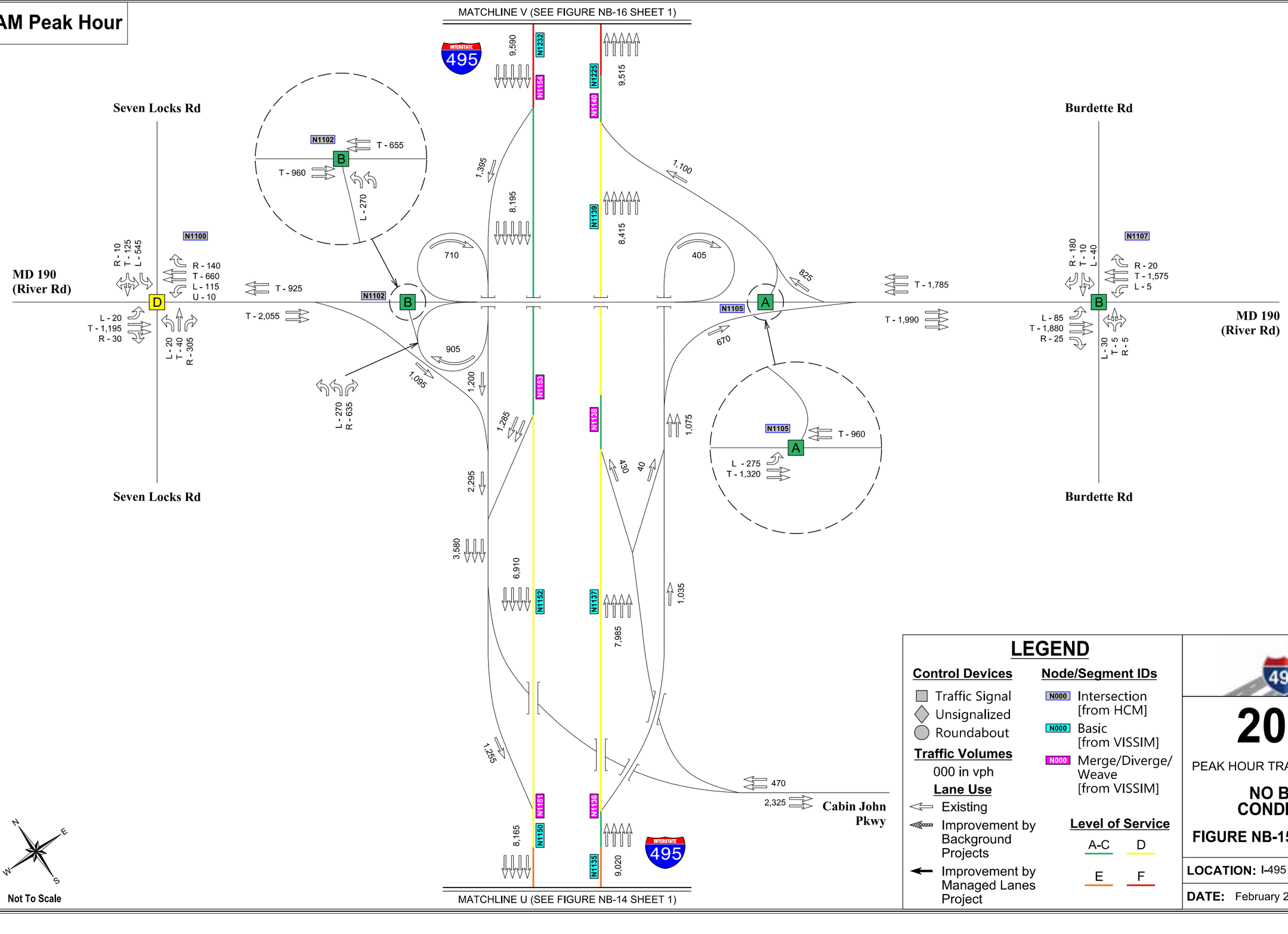
NO BUILD CONDITIONS

FIGURE NB-14 SHEET 1 OF 1

LOCATION: I-495 at Clara Barton Pkwy

DATE: February 2022

AM Peak Hour



LEGEND

Control Devices
- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes
000 in vph

Lane Use
- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs
- N000 Intersection [from HCM]
- N000 Basic [from VISSIM]
- N000 Merge/Diverge/ Weave [from VISSIM]

Level of Service
A-C D E F

I-495 & I-270 P3 PROGRAM

2027

PEAK HOUR TRAFFIC VOLUMES

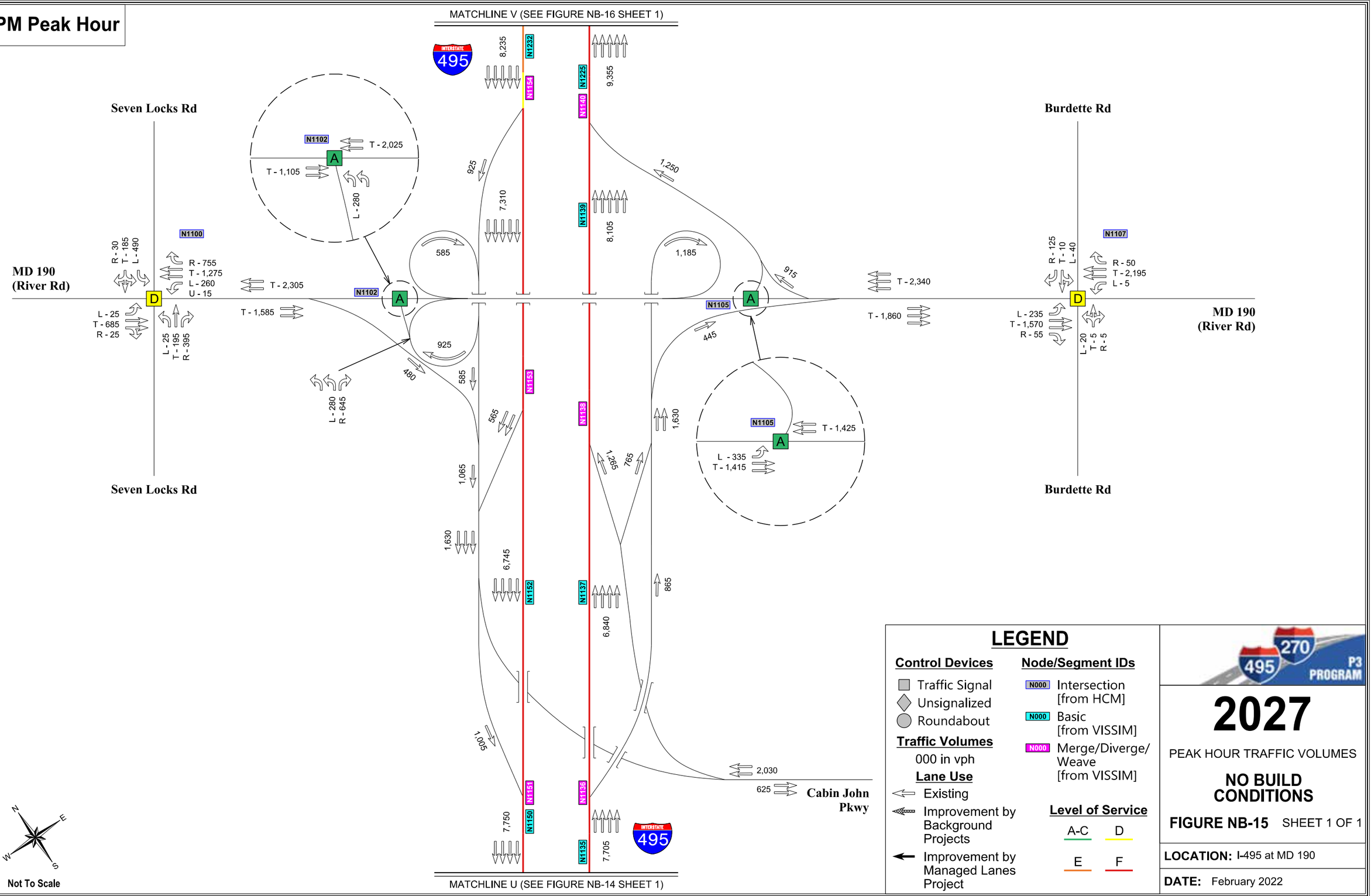
NO BUILD CONDITIONS

FIGURE NB-15 SHEET 1 OF 1

LOCATION: I-495 at MD 190

DATE: February 2022

PM Peak Hour



Not To Scale

LEGEND

Control Devices

- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes

000 in vph

Lane Use

- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs

- N000 Intersection [from HCM]
- N000 Basic [from VISSIM]
- N000 Merge/Diverge/ Weave [from VISSIM]

Level of Service

A-C D E F

I-495 & I-270 P3 PROGRAM

2027

PEAK HOUR TRAFFIC VOLUMES

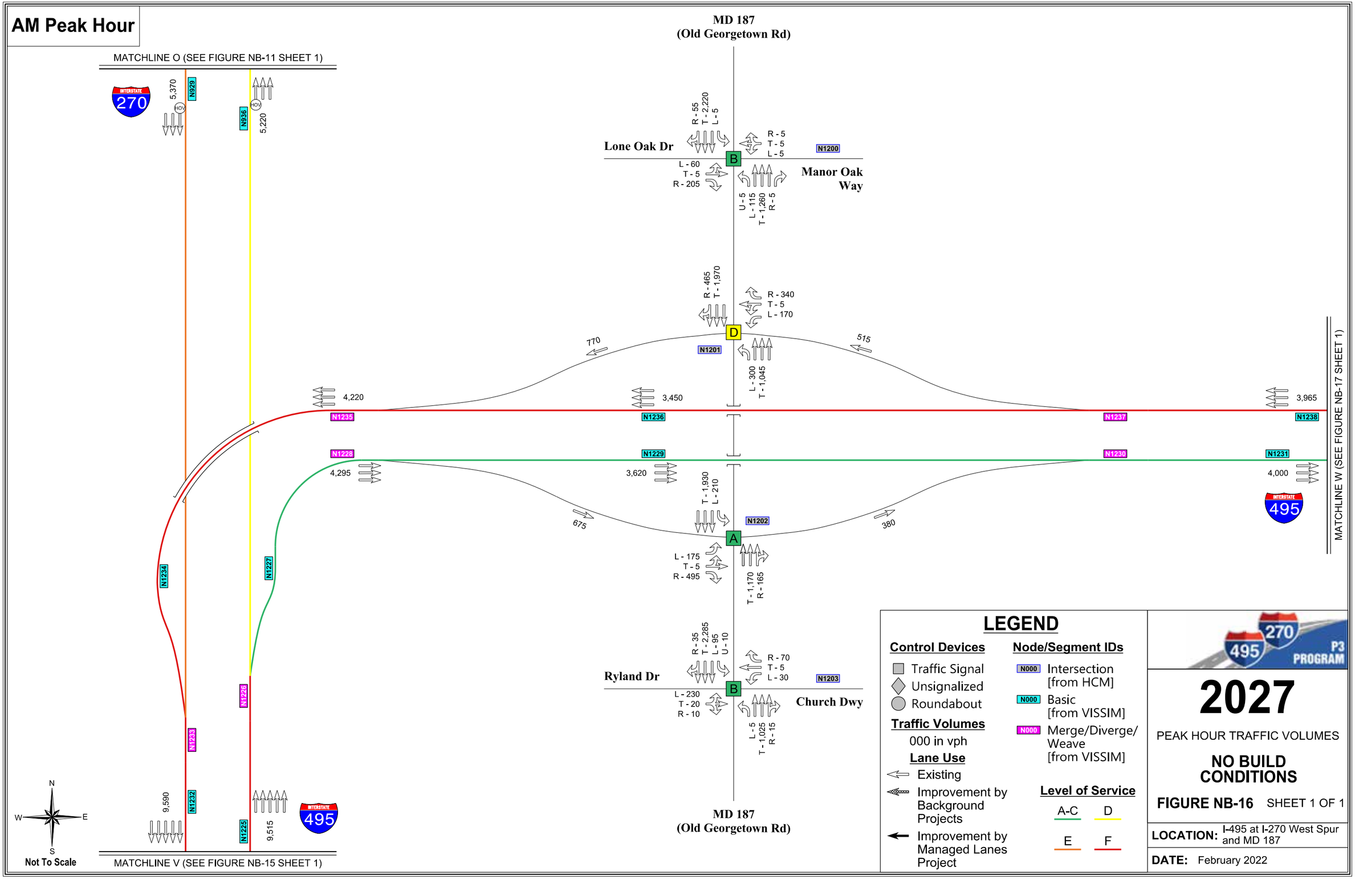
NO BUILD CONDITIONS

FIGURE NB-15 SHEET 1 OF 1

LOCATION: I-495 at MD 190

DATE: February 2022

AM Peak Hour



LEGEND

Control Devices

- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes

000 in vph

Lane Use

- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs

- N000 Intersection [from HCM]
- N000 Basic [from VISSIM]
- N000 Merge/Diverge/ Weave [from VISSIM]

Level of Service

A-C | D | E | F

I-495 & I-270 P3 PROGRAM

2027

PEAK HOUR TRAFFIC VOLUMES

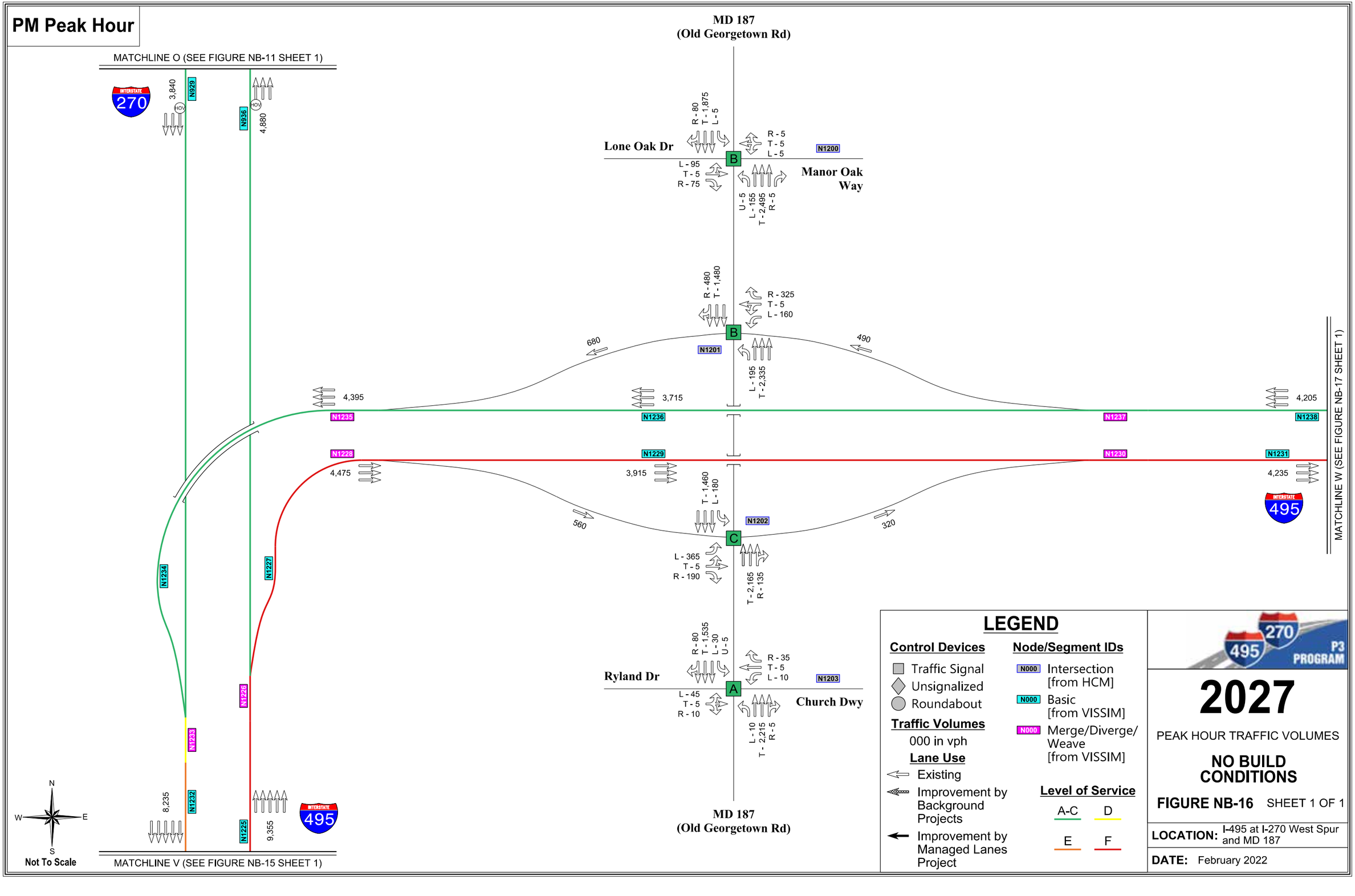
NO BUILD CONDITIONS

FIGURE NB-16 SHEET 1 OF 1

LOCATION: I-495 at I-270 West Spur and MD 187

DATE: February 2022

PM Peak Hour



LEGEND

Control Devices

- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes

000 in vph

Lane Use

- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs

- N000 Intersection [from HCM]
- N000 Basic [from VISSIM]
- N000 Merge/Diverge/ Weave [from VISSIM]

Level of Service

A-C D E F

I-495 & I-270 P3 PROGRAM

2027

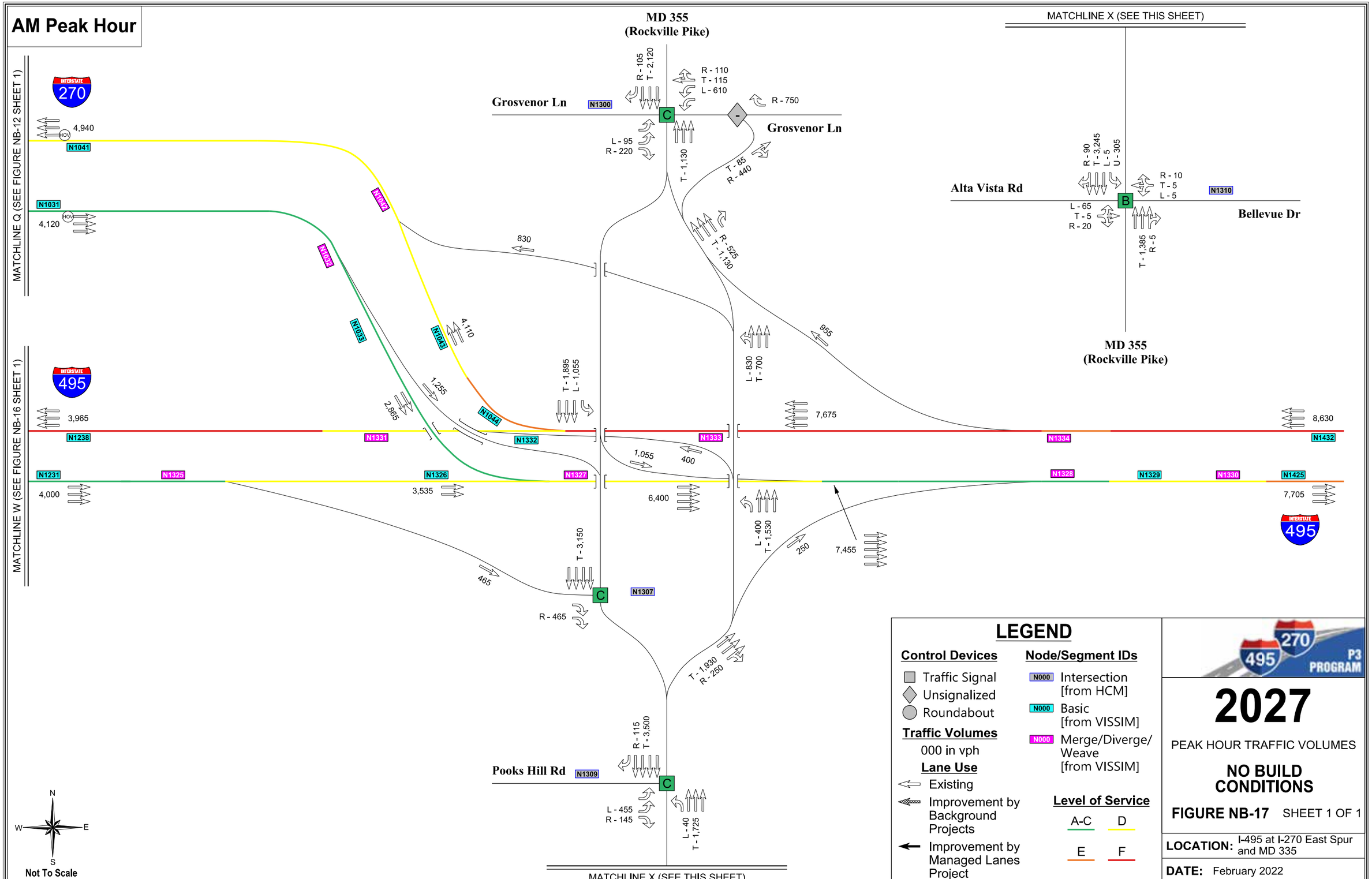
PEAK HOUR TRAFFIC VOLUMES

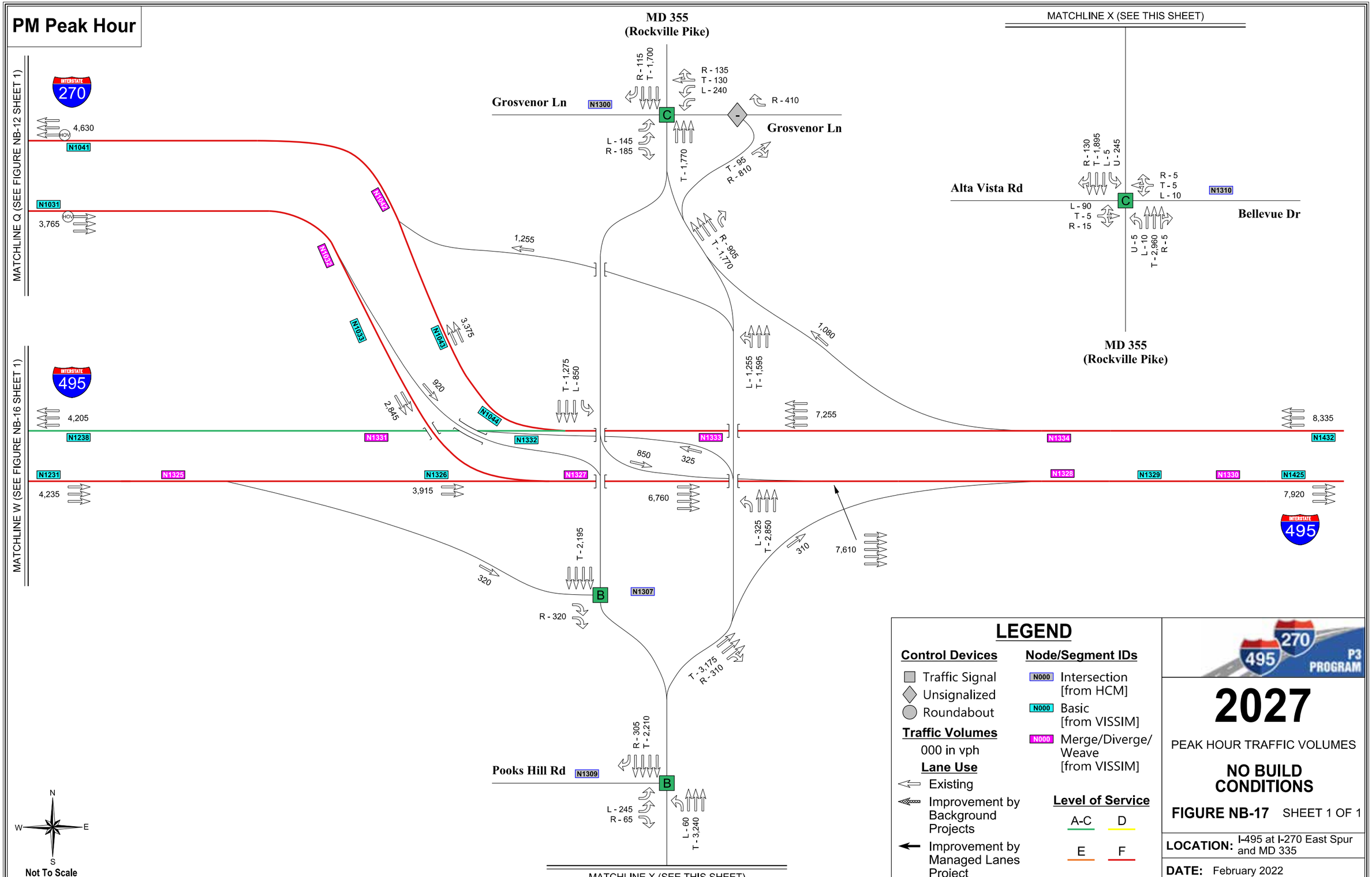
NO BUILD CONDITIONS

FIGURE NB-16 SHEET 1 OF 1

LOCATION: I-495 at I-270 West Spur and MD 187

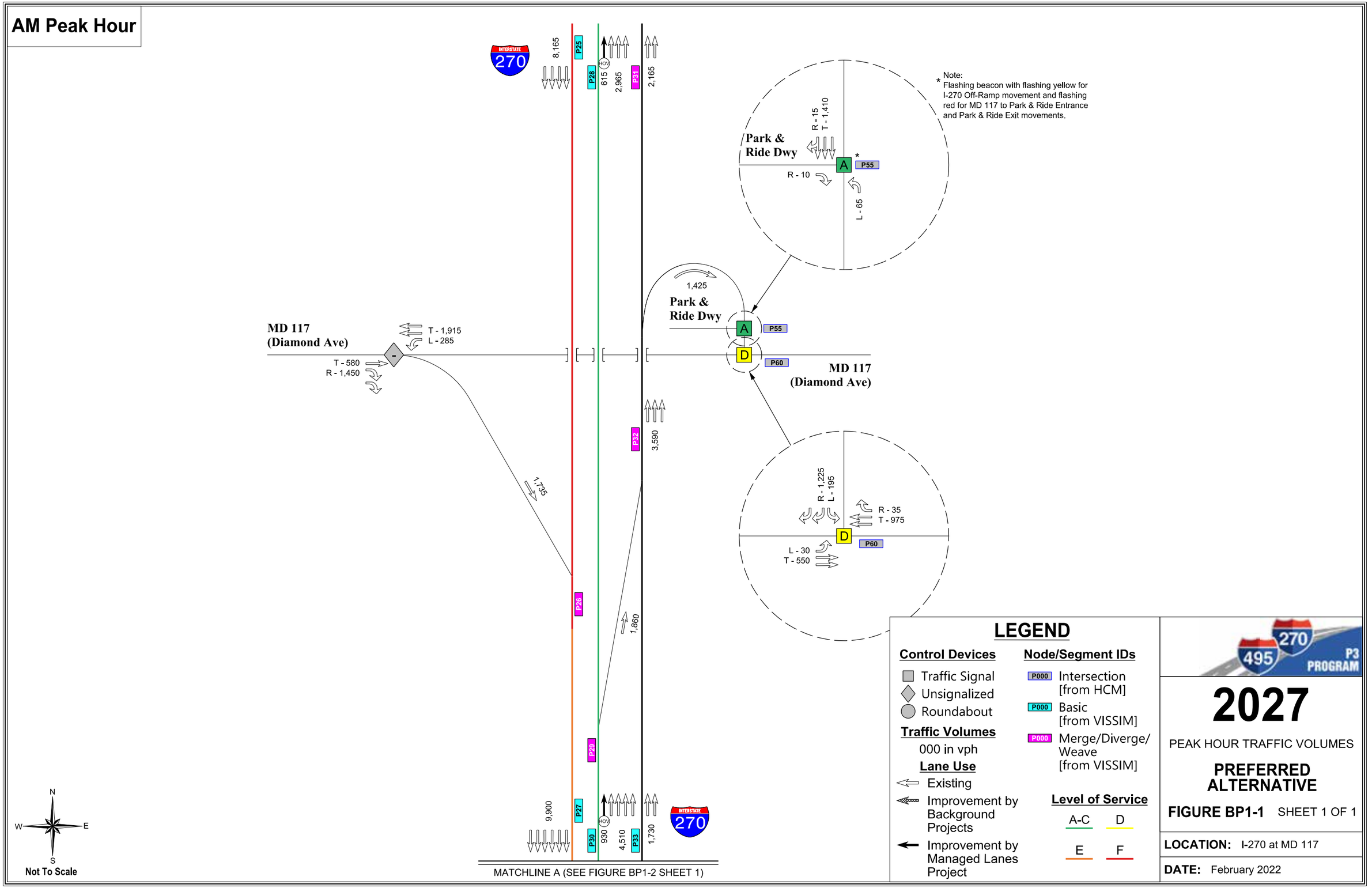
DATE: February 2022


AM Peak Hour
MD 355
(Rockville Pike)
MATCHLINE X (SEE THIS SHEET)
MATCHLINE Q (SEE FIGURE NB-12 SHEET 1)
MATCHLINE W (SEE FIGURE NB-16 SHEET 1)
270
495
Grosvenor Ln
N1300
R - 105
T - 2,120
R - 110
T - 115
L - 610
R - 750
L - 95
R - 220
T - 1,130
T - 85
R - 440
Alta Vista Rd
N1310
R - 90
T - 3,245
L - 5
U - 305
R - 10
T - 5
L - 5
L - 65
T - 5
R - 20
T - 1,385
R - 5
Bellevue Dr
MD 355
(Rockville Pike)
4,940
N1041
N1031
4,120
N1042
N1032
N1033
N1043
4,110
830
R - 525
T - 1,130
955
L - 830
T - 700
T - 1,895
L - 1,055
1,255
2,865
N1044
3,965
N1238
N1331
N1332
N1333
7,675
N1334
8,630
N1432
1,055
400
N1231
N1325
N1326
N1327
N1328
N1329
N1330
N1425
4,000
3,535
6,400
7,705
L - 400
T - 1,530
250
7,455
T - 3,150
465
N1307
R - 465
T - 1,930
R - 250
R - 115
T - 3,500
Pooks Hill Rd
N1309
L - 455
R - 145
L - 40
T - 1,725
N
W
E
S
Not To Scale
MATCHLINE X (SEE THIS SHEET)
LEGEND
Control Devices
Traffic Signal
Unsignalized
Roundabout
Traffic Volumes
000 in vph
Lane Use
Existing
Improvement by Background Projects
Improvement by Managed Lanes Project
Node/Segment IDs
N000 Intersection [from HCM]
N000 Basic [from VISSIM]
N000 Merge/Diverge/ Weave [from VISSIM]
Level of Service
A-C
D
E
F
495
270
P3 PROGRAM
2027
PEAK HOUR TRAFFIC VOLUMES
NO BUILD CONDITIONS
FIGURE NB-17
SHEET 1 OF 1
LOCATION: I-495 at I-270 East Spur and MD 335
DATE: February 2022


PM Peak Hour
MD 355
(Rockville Pike)
MATCHLINE X (SEE THIS SHEET)
MATCHLINE Q (SEE FIGURE NB-12 SHEET 1)
MATCHLINE W (SEE FIGURE NB-16 SHEET 1)
270
495
Grosvenor Ln
N1300
R - 115
T - 1,700
R - 135
T - 130
L - 240
R - 410
L - 145
R - 185
T - 1,770
T - 95
R - 810
R - 905
T - 1,770
Alta Vista Rd
N1310
R - 130
T - 1,895
L - 5
U - 245
R - 5
T - 5
L - 10
L - 90
T - 5
R - 15
U - 5
L - 10
T - 2,960
R - 5
Bellevue Dr
MD 355
(Rockville Pike)
4,630
N1041
N1031
3,765
N1042
N1032
N1033
N1043
3,375
1,255
1,080
L - 1,255
T - 1,595
T - 1,275
L - 850
920
2,845
N1044
4,205
N1238
N1331
N1332
N1333
7,255
N1334
8,335
N1432
850
325
N1231
N1325
N1326
N1327
N1328
N1329
N1330
N1425
4,235
3,915
6,760
7,920
L - 325
T - 2,850
310
7,610
T - 2,195
320
N1307
R - 320
T - 3,175
R - 310
R - 305
T - 2,210
Pooks Hill Rd
N1309
L - 245
R - 65
L - 60
T - 3,240
N
W
E
S
Not To Scale
MATCHLINE X (SEE THIS SHEET)
LEGEND
Control Devices
Traffic Signal
Unsignalized
Roundabout
Traffic Volumes
000 in vph
Lane Use
Existing
Improvement by Background Projects
Improvement by Managed Lanes Project
Node/Segment IDs
N000 Intersection [from HCM]
N000 Basic [from VISSIM]
N000 Merge/Diverge/ Weave [from VISSIM]
Level of Service
A-C
D
E
F
495
270
P3 PROGRAM
2027
PEAK HOUR TRAFFIC VOLUMES
NO BUILD CONDITIONS
FIGURE NB-17
SHEET 1 OF 1
LOCATION: I-495 at I-270 East Spur and MD 335
DATE: February 2022

2027 PREFERRED ALTERNATIVE GRAPHICS

AM Peak Hour



LEGEND

Control Devices
- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes
000 in vph

Lane Use
- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs
- P000 Intersection [from HCM]
- P000 Basic [from VISSIM]
- P000 Merge/Diverge/ Weave [from VISSIM]

Level of Service
A-C D E F

I-270 495 P3 PROGRAM

2027

PEAK HOUR TRAFFIC VOLUMES

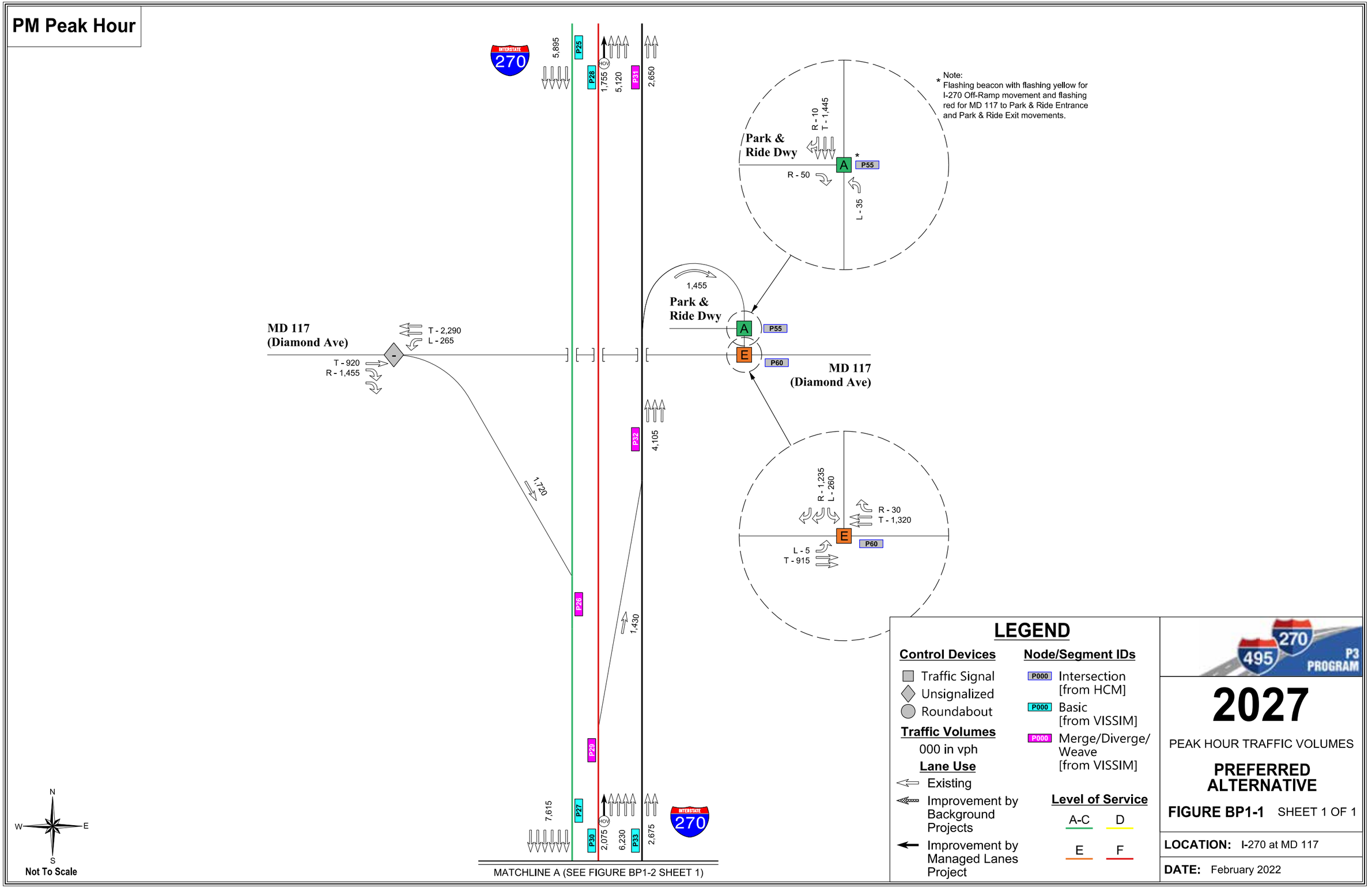
PREFERRED ALTERNATIVE

FIGURE BP1-1 SHEET 1 OF 1

LOCATION: I-270 at MD 117

DATE: February 2022

PM Peak Hour



LEGEND

Control Devices
- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes
000 in vph

Lane Use
- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs
- P000 Intersection [from HCM]
- P000 Basic [from VISSIM]
- P000 Merge/Diverge/ Weave [from VISSIM]

Level of Service
A-C D E F

I-270 495 P3 PROGRAM

2027

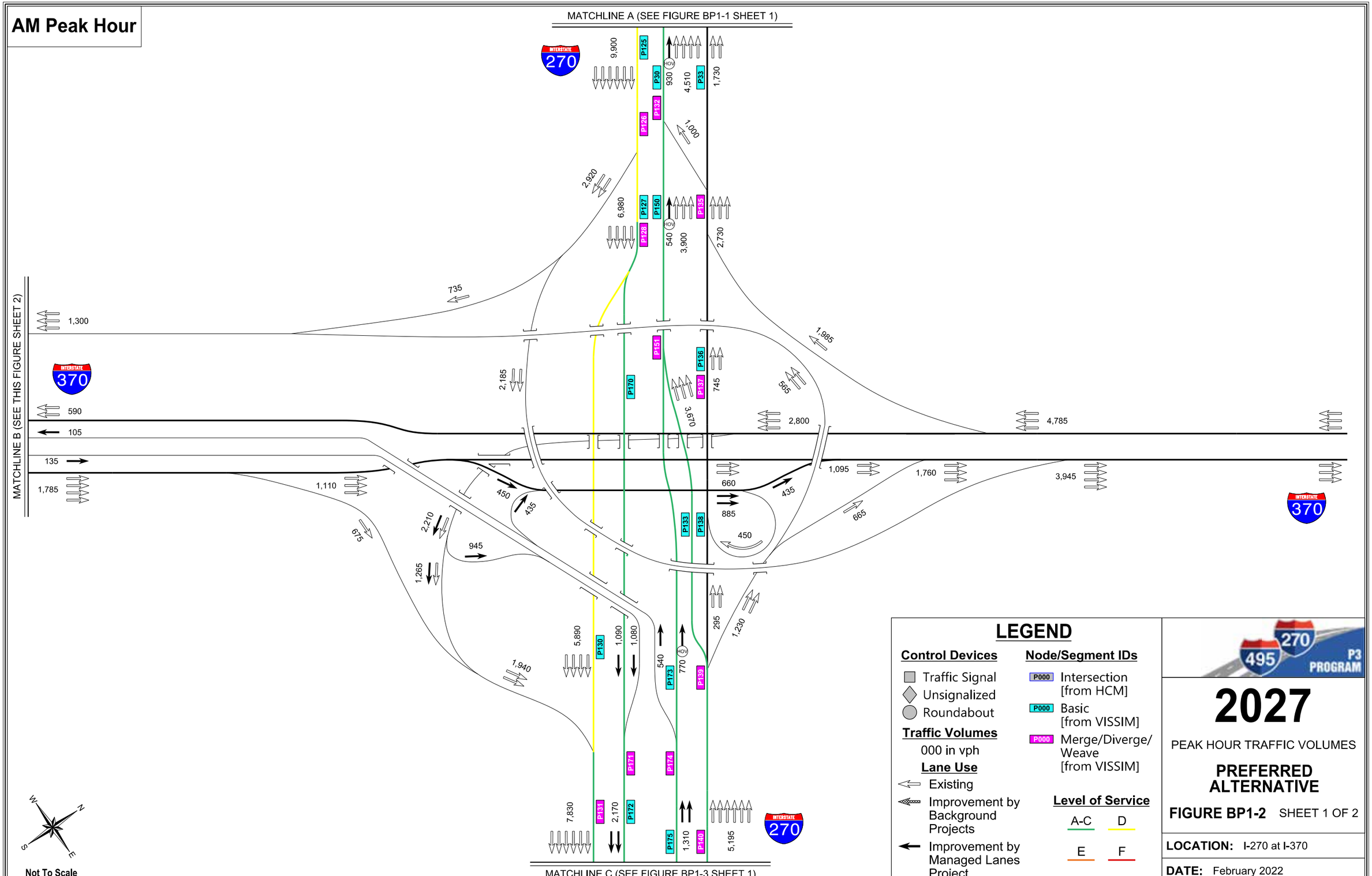
PEAK HOUR TRAFFIC VOLUMES

PREFERRED ALTERNATIVE

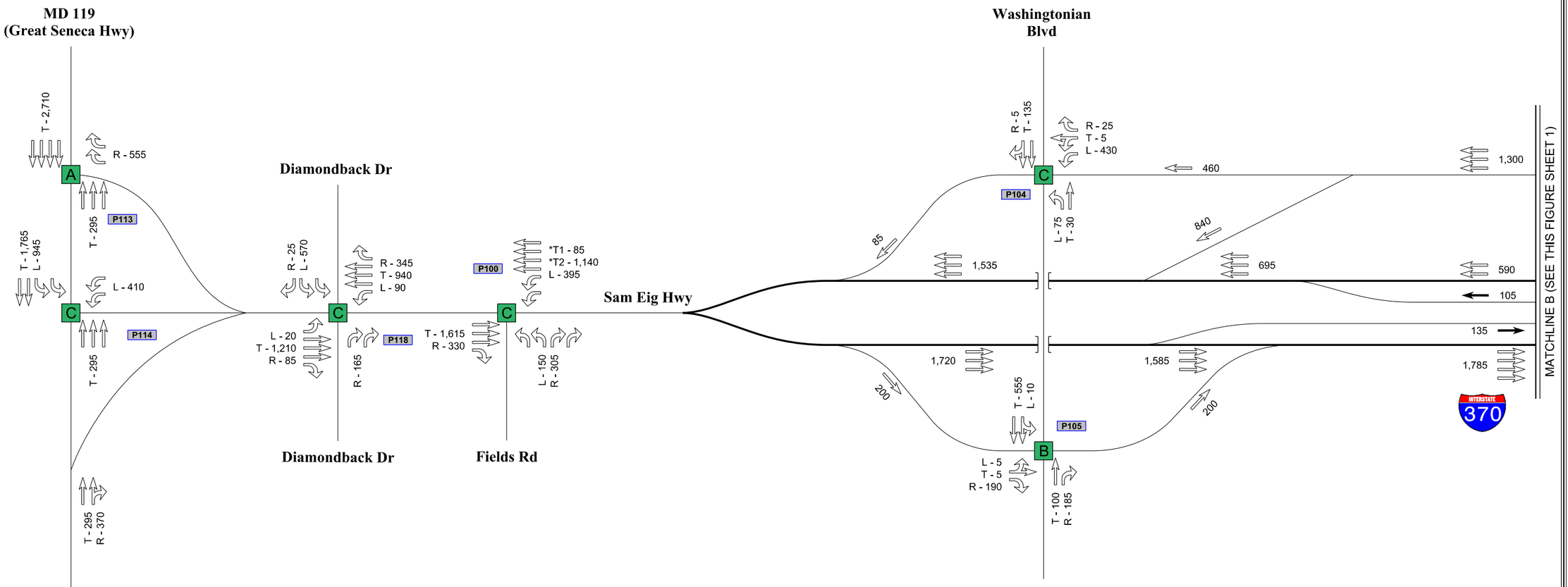
FIGURE BP1-1 SHEET 1 OF 1

LOCATION: I-270 at MD 117

DATE: February 2022


AM Peak Hour
MATCHLINE A (SEE FIGURE BP1-1 SHEET 1)
MATCHLINE B (SEE THIS FIGURE SHEET 2)
MATCHLINE C (SEE FIGURE BP1-3 SHEET 1)
INTERSTATE 270
INTERSTATE 370
P125
P30
P33
P132
P126
P127
P150
P135
P128
P151
P136
P170
P137
P133
P138
P130
P173
P139
P171
P174
P131
P172
P175
P140
9,900
930
4,510
1,730
1,000
2,920
6,980
540
3,900
2,730
735
1,300
1,985
2,185
745
565
3,670
590
105
135
1,785
1,110
2,800
4,785
1,095
1,760
3,945
660
885
450
435
665
675
2,210
945
1,265
295
1,230
5,890
1,090
1,080
1,940
770
7,830
2,170
1,310
5,195
Not To Scale
LEGEND
Control Devices
Traffic Signal
Unsignalized
Roundabout
Traffic Volumes
000 in vph
Lane Use
Existing
Improvement by Background Projects
Improvement by Managed Lanes Project
Node/Segment IDs
P000 Intersection [from HCM]
P000 Basic [from VISSIM]
P000 Merge/Diverge/ Weave [from VISSIM]
Level of Service
A-C
D
E
F
495
270
P3 PROGRAM
2027
PEAK HOUR TRAFFIC VOLUMES
PREFERRED ALTERNATIVE
FIGURE BP1-2
SHEET 1 OF 2
LOCATION: I-270 at I-370
DATE: February 2022

AM Peak Hour



*T1 represents vehicles arriving from I-370 (Sam Eig Hwy)
*T2 represents vehicles arriving from Washingtonian Blvd Ramp

Not To Scale

LEGEND

Control Devices
- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes
000 in vph

Lane Use
- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs
- P000 Intersection [from HCM]
- P000 Basic [from VISSIM]
- P000 Merge/Diverge/ Weave [from VISSIM]

Level of Service
A-C D E F

I-270 / I-495 P3 PROGRAM

2027

PEAK HOUR TRAFFIC VOLUMES

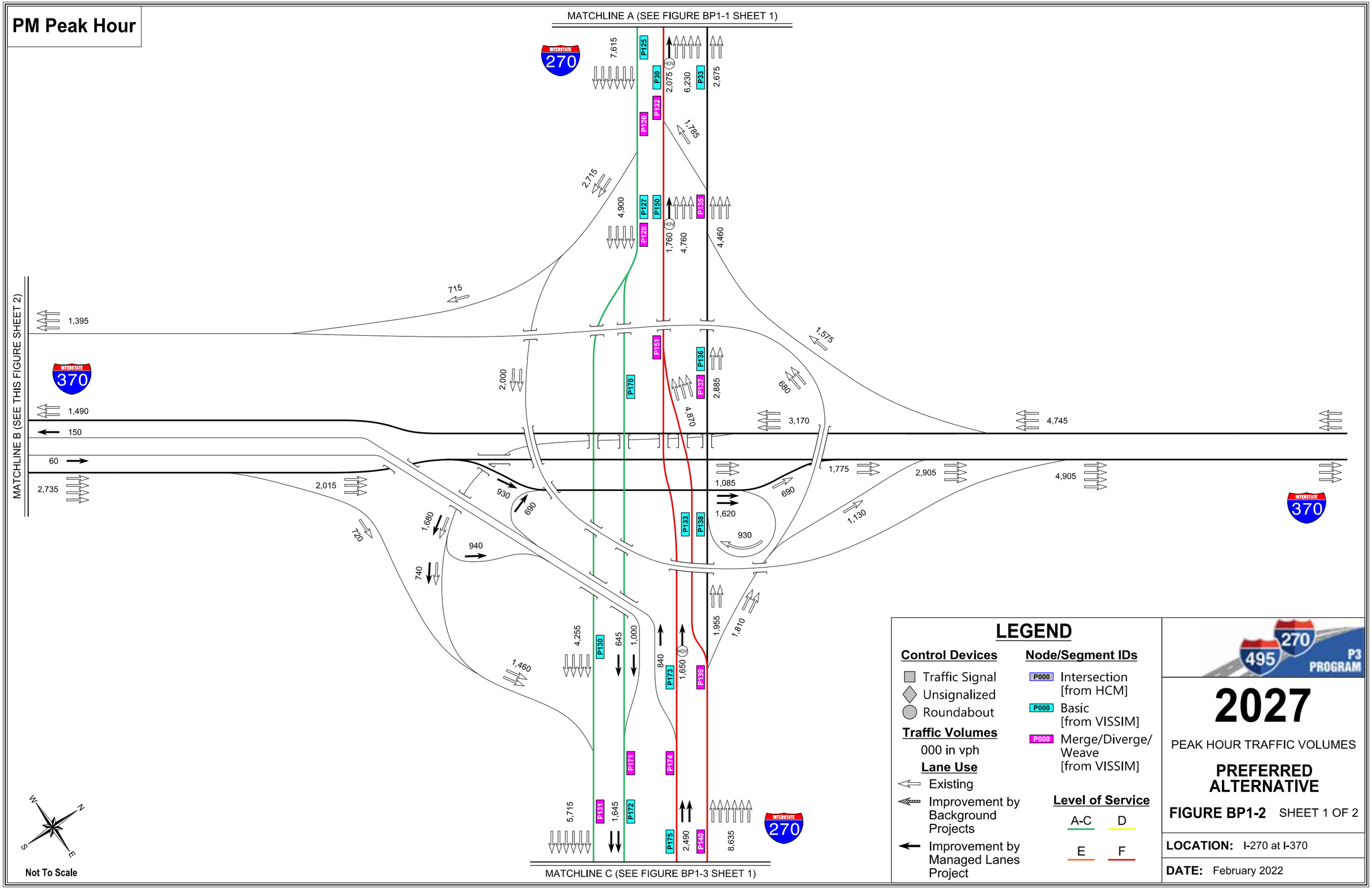
PREFERRED ALTERNATIVE

FIGURE BP1-2 SHEET 2 OF 2

LOCATION: I-270 at I-370

DATE: February 2022

PM Peak Hour



LEGEND

Control Devices

- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes

000 in vph

Lane Use

- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs

- P000 Intersection [from HCM]
- P000 Basic [from VISSIM]
- P000 Merge/Diverge/ Weave [from VISSIM]

Level of Service

A-C D E F

I-270 / I-495 P3 PROGRAM

2027

PEAK HOUR TRAFFIC VOLUMES

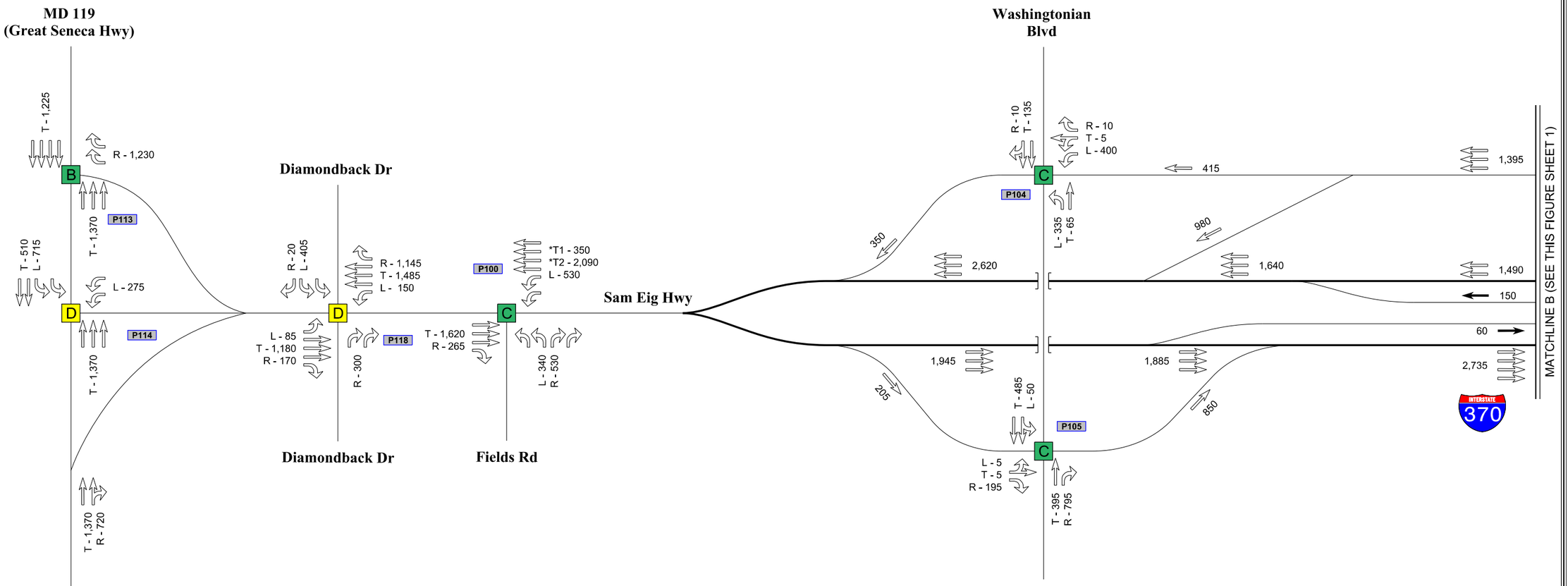
PREFERRED ALTERNATIVE

FIGURE BP1-2 SHEET 1 OF 2

LOCATION: I-270 at I-370

DATE: February 2022

PM Peak Hour



LEGEND

Control Devices
- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes
000 in vph

Lane Use
- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs
- P000 Intersection [from HCM]
- P000 Basic [from VISSIM]
- P000 Merge/Diverge/ Weave [from VISSIM]

Level of Service
A-C D E F

Not To Scale

*T1 represents vehicles arriving from I-370 (Sam Eig Hwy)
*T2 represents vehicles arriving from Washingtonian Blvd Ramp

I-270 / I-495 P3 PROGRAM

2027

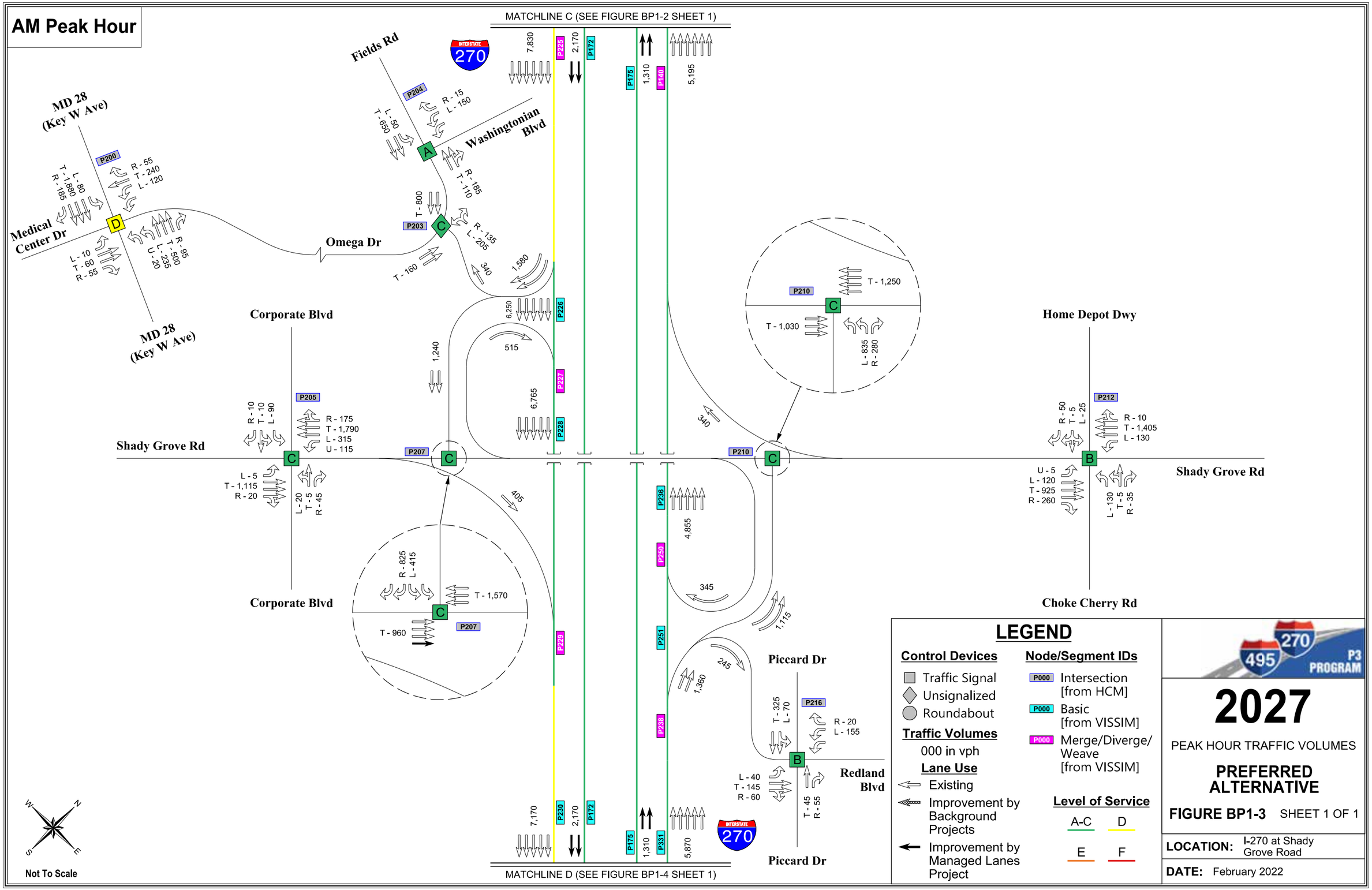
PEAK HOUR TRAFFIC VOLUMES

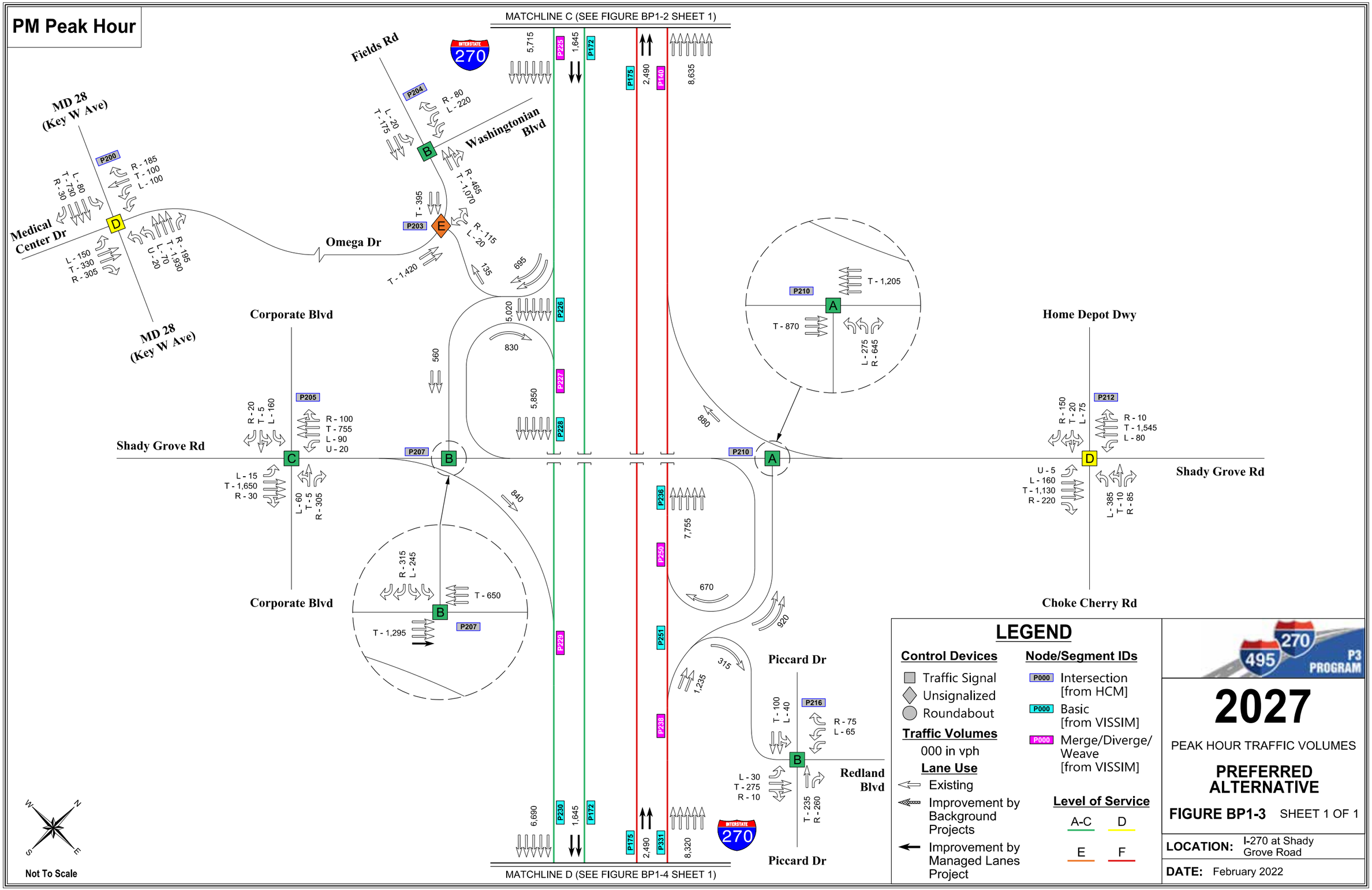
PREFERRED ALTERNATIVE

FIGURE BP1-2 SHEET 2 OF 2

LOCATION: I-270 at I-370

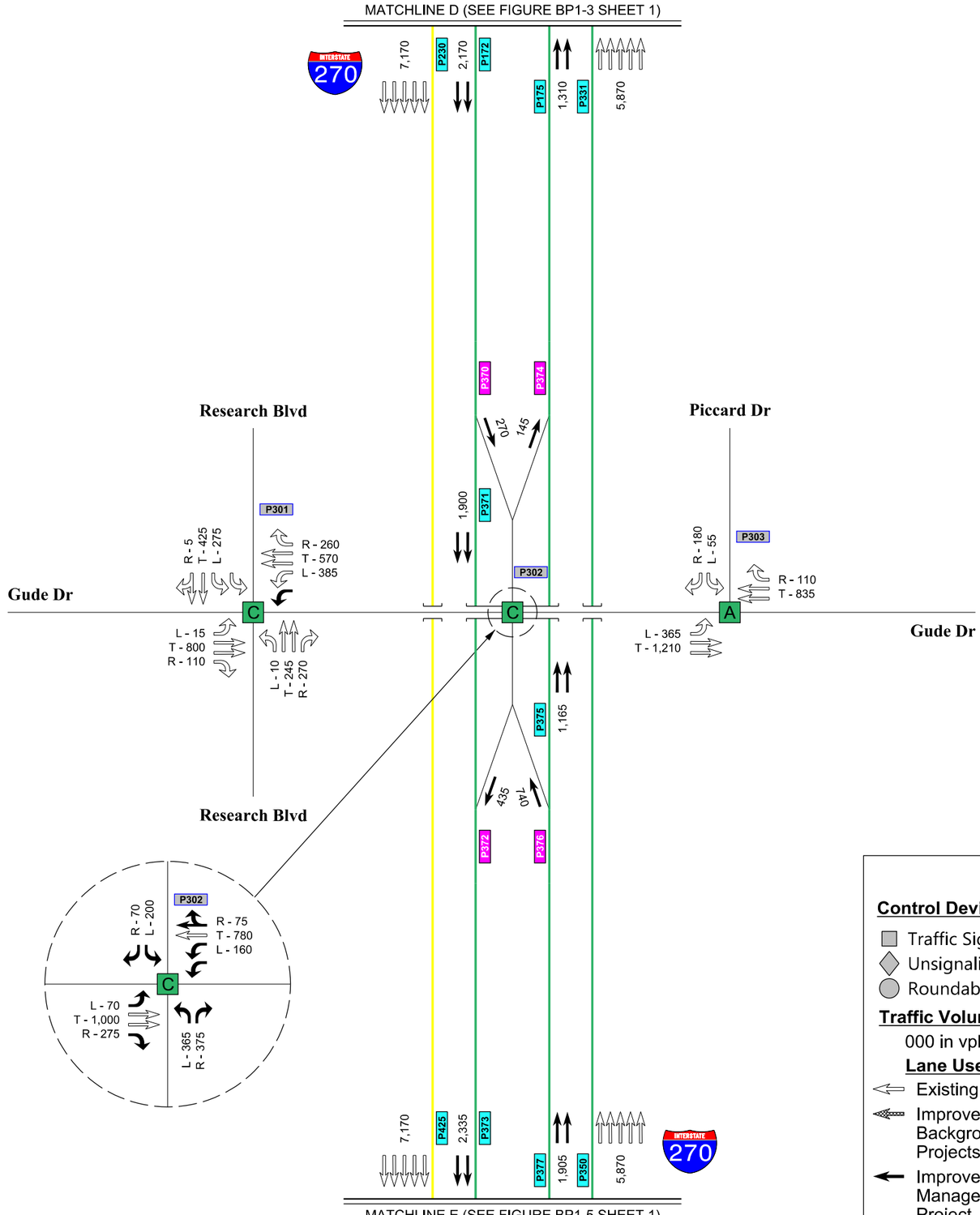
DATE: February 2022


AM Peak Hour
MATCHLINE C (SEE FIGURE BP1-2 SHEET 1)
MATCHLINE D (SEE FIGURE BP1-4 SHEET 1)
Fields Rd
Washingtonian Blvd
MD 28 (Key W Ave)
Medical Center Dr
Omega Dr
Corporate Blvd
Shady Grove Rd
Home Depot Dwy
Choke Cherry Rd
Piccard Dr
Redland Blvd
270
Not To Scale
LEGEND
Control Devices
Traffic Signal
Unsignalized
Roundabout
Traffic Volumes
000 in vph
Lane Use
Existing
Improvement by Background Projects
Improvement by Managed Lanes Project
Node/Segment IDs
P000 Intersection [from HCM]
P000 Basic [from VISSIM]
P000 Merge/Diverge/ Weave [from VISSIM]
Level of Service
A-C
D
E
F
495
270
P3 PROGRAM
2027
PEAK HOUR TRAFFIC VOLUMES
PREFERRED ALTERNATIVE
FIGURE BP1-3
SHEET 1 OF 1
LOCATION: I-270 at Shady Grove Road
DATE: February 2022


PM Peak Hour
MATCHLINE C (SEE FIGURE BP1-2 SHEET 1)
MATCHLINE D (SEE FIGURE BP1-4 SHEET 1)
Fields Rd
Washingtonian Blvd
MD 28 (Key W Ave)
Medical Center Dr
Omega Dr
Corporate Blvd
Shady Grove Rd
Home Depot Dwy
Choke Cherry Rd
Piccard Dr
Redland Blvd
270
495
P3 PROGRAM
LEGEND
Control Devices
Traffic Signal
Unsignalized
Roundabout
Traffic Volumes
000 in vph
Lane Use
Existing
Improvement by Background Projects
Improvement by Managed Lanes Project
Node/Segment IDs
P000 Intersection [from HCM]
P000 Basic [from VISSIM]
P000 Merge/Diverge/ Weave [from VISSIM]
Level of Service
A-C
D
E
F
2027
PEAK HOUR TRAFFIC VOLUMES
PREFERRED ALTERNATIVE
FIGURE BP1-3
SHEET 1 OF 1
LOCATION: I-270 at Shady Grove Road
DATE: February 2022
Not To Scale

AM Peak Hour

MATCHLINE D (SEE FIGURE BP1-3 SHEET 1)



MATCHLINE E (SEE FIGURE BP1-5 SHEET 1)

Not To Scale

LEGEND

Control Devices
- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes
000 in vph

Lane Use
- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs
- P000 Intersection [from HCM]
- P000 Basic [from VISSIM]
- P000 Merge/Diverge/ Weave [from VISSIM]

Level of Service

A-C	D
E	F

I-270 / 495 P3 PROGRAM

2027

PEAK HOUR TRAFFIC VOLUMES

PREFERRED ALTERNATIVE

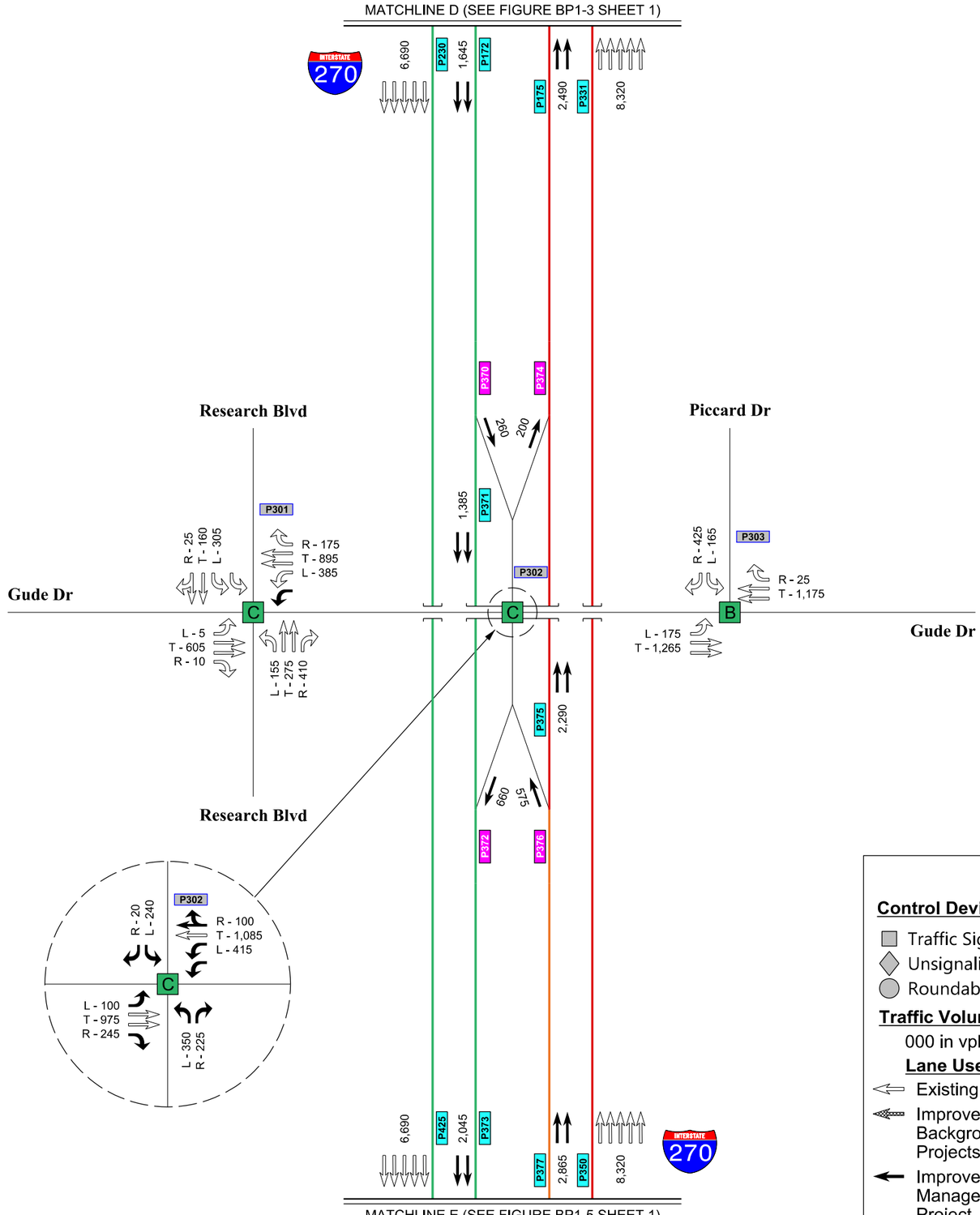
FIGURE BP1-4 SHEET 1 OF 1

LOCATION: I-270 at Gude Drive

DATE: February 2022

PM Peak Hour

MATCHLINE D (SEE FIGURE BP1-3 SHEET 1)



MATCHLINE E (SEE FIGURE BP1-5 SHEET 1)

Not To Scale

LEGEND

Control Devices
- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes
000 in vph

Lane Use
- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs
- P000 Intersection [from HCM]
- P000 Basic [from VISSIM]
- P000 Merge/Diverge/ Weave [from VISSIM]

Level of Service
A-C D E F

I-270 495 P3 PROGRAM

2027

PEAK HOUR TRAFFIC VOLUMES

PREFERRED ALTERNATIVE

FIGURE BP1-4 SHEET 1 OF 1

LOCATION: I-270 at Gude Drive

DATE: February 2022

AM Peak Hour

MATCHLINE E (SEE FIGURE BP1-4 SHEET 1)

INTERSTATE 270

P425 7,170 | P373 2,335 | P377 1,905 | P350 5,870

P426 | P442

485

P427 6,685

310

P443 5,560

265

1,340

P444

Hurley Ave

Nelson St

Laird St

MD 28 (Montgomery Ave)

P400 — R - 5, T - 5, L - 15 | R - 40, T - 1,740, L - 110, U - 15

P401 — R - 95, L - 390 | T - 1,810

P405 — R - 265, L - 25 | R - 15, T - 780

P407 — R - 25, T - 5, L - 75 | R - 10, T - 760, L - 5

T - 795, L - 0

B — L - 5, T - 1,890, R - 305 | L - 65, T - 5, R - 170

B — T - 1,030, R - 1,060

C — L - 320, T - 980 | T - 135, R - 215

\- — T - 1,220, R - 0

B — L - 5, T - 1,210, R - 5 | L - 10, T - 5, R - 10

MD 28 (Montgomery Ave)

1,420

P428

6,950

1,060

120

350

P429 | P445

P430

6,780

Hurley Ave

Adclare Rd

Bullard Cir

P525 8,010 | P373 2,335 | P377 1,905 | P447 7,130

INTERSTATE 270

MATCHLINE F (SEE FIGURE BP1-6 SHEET 1)

N / W / E / S

Not To Scale

LEGEND

Control Devices
- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes
000 in vph

Lane Use
- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs
- P000 Intersection [from HCM]
- P000 Basic [from VISSIM]
- P000 Merge/Diverge/ Weave [from VISSIM]

Level of Service
A-C | D | E | F

I-270 / I-495 P3 PROGRAM

2027

PEAK HOUR TRAFFIC VOLUMES

PREFERRED ALTERNATIVE

FIGURE BP1-5 SHEET 1 OF 1

LOCATION: I-270 at MD 28 (Montgomery Ave)

DATE: February 2022

PM Peak Hour

MATCHLINE E (SEE FIGURE BP1-4 SHEET 1)

INTERSTATE 270

6,690 P425 2,045 P373 P377 2,865 P350 8,320

P426 P442

730 5,960 P427 580 P443 7,740

220 1,540

P444

Hurley Ave

Nelson St

Laird St

MD 28 (Montgomery Ave) P400 C

R - 10, T - 5, L - 40
R - 15, T - 2,190, L - 270, U - 15
L - 5, T - 2,000, R - 70
L - 85, T - 5, R - 140

P401 B

R - 230, L - 500
T - 2,260
T - 955, R - 1,240
1,455

P405 C

R - 405, L - 30
R - 40, T - 1,115
L - 220, T - 1,135
T - 260, R - 175

P407 B

R - 65, T - 5, L - 20
R - 10, T - 1,085, L - 5
T - 1,155, L - 0
T - 1,340, R - 0
L - 30, T - 1,295, R - 15
L - 5, T - 5, R - 10

MD 28 (Montgomery Ave)

P428 1,455 6,180 1,240 100 435 P445 9,180 P429 P430

Hurley Ave **Adclare Rd** **Bullard Cir**

7,420 P525 2,045 P373 P377 2,865 P447 9,615

INTERSTATE 270

MATCHLINE F (SEE FIGURE BP1-6 SHEET 1)

N W E S

Not To Scale

LEGEND

Control Devices
- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes
000 in vph

Lane Use
- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs
- P000 Intersection [from HCM]
- P000 Basic [from VISSIM]
- P000 Merge/Diverge/ Weave [from VISSIM]

Level of Service
A-C D E F

I-270 / I-495 P3 PROGRAM

2027

PEAK HOUR TRAFFIC VOLUMES

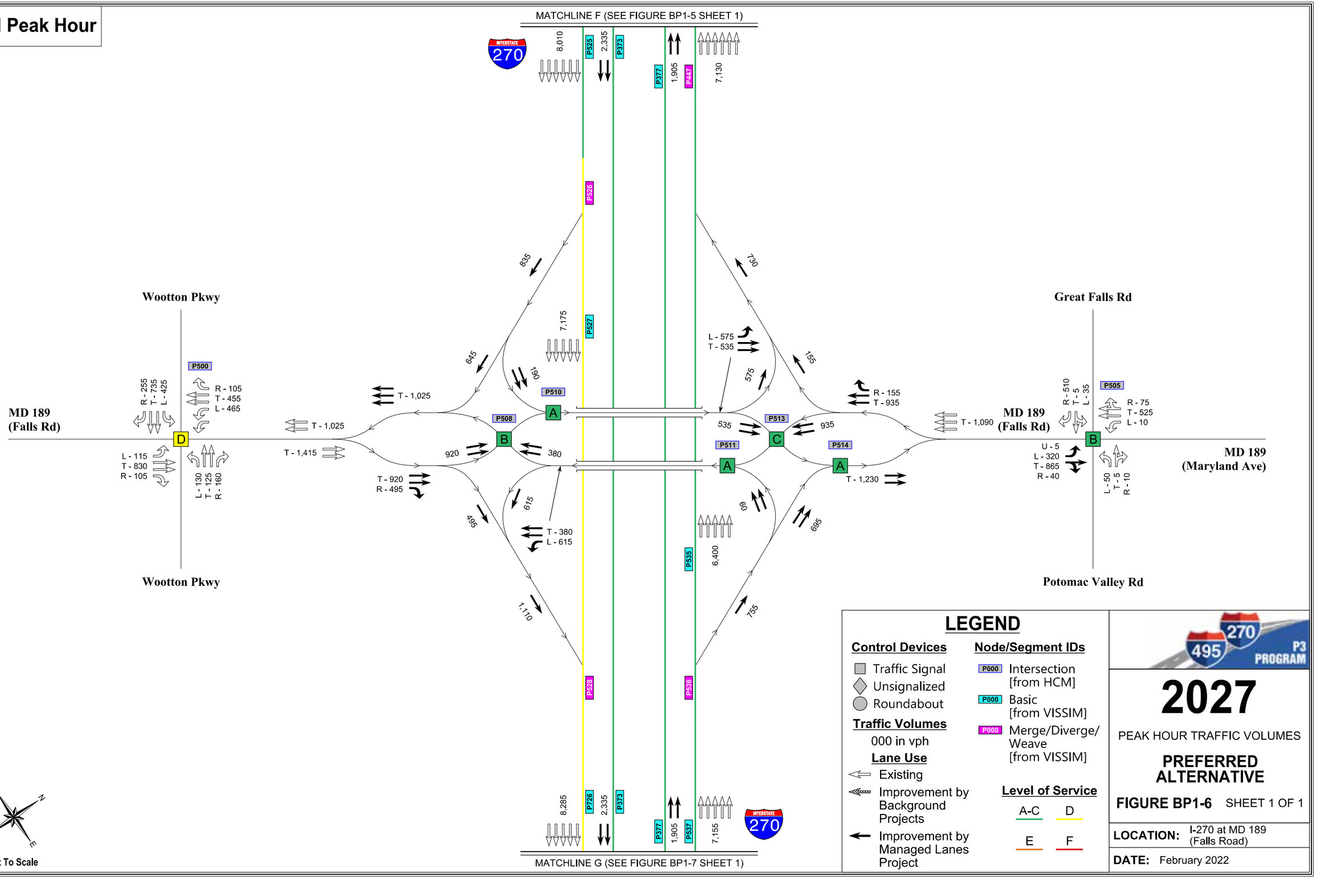
PREFERRED ALTERNATIVE

FIGURE BP1-5 SHEET 1 OF 1

LOCATION: I-270 at MD 28 (Montgomery Ave)

DATE: February 2022

AM Peak Hour



LEGEND

Control Devices

- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes

000 in vph

Lane Use

- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs

- P000 Intersection [from HCM]
- P000 Basic [from VISSIM]
- P000 Merge/Diverge/ Weave [from VISSIM]

Level of Service

A-C D E F

I-270 495 P3 PROGRAM

2027

PEAK HOUR TRAFFIC VOLUMES

PREFERRED ALTERNATIVE

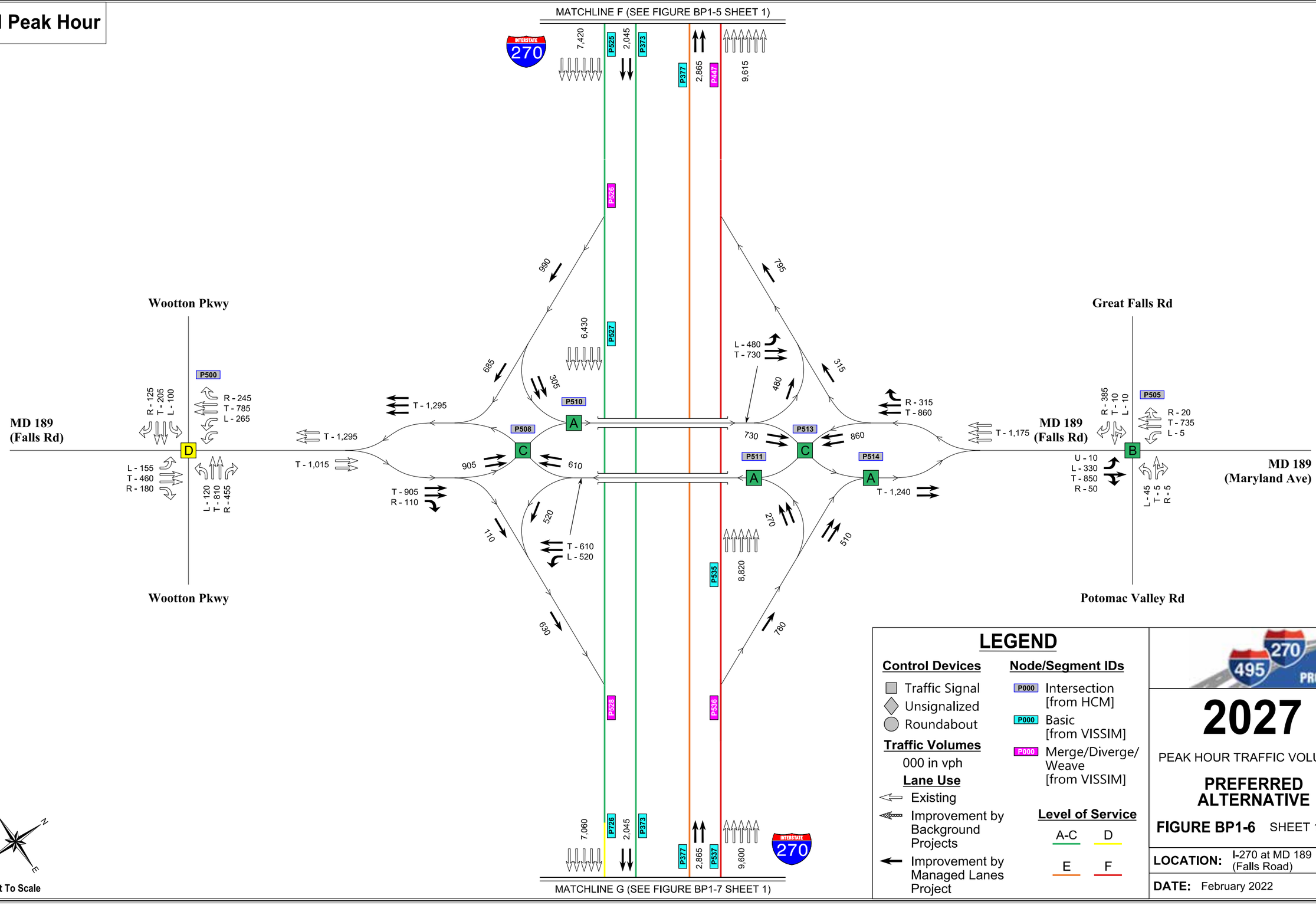
FIGURE BP1-6 SHEET 1 OF 1

LOCATION: I-270 at MD 189 (Falls Road)

DATE: February 2022

PM Peak Hour

MATCHLINE F (SEE FIGURE BP1-5 SHEET 1)



MATCHLINE G (SEE FIGURE BP1-7 SHEET 1)

LEGEND

Control Devices

- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes

000 in vph

Lane Use

- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs

- P000 Intersection [from HCM]
- P000 Basic [from VISSIM]
- P000 Merge/Diverge/ Weave [from VISSIM]

Level of Service

A-C D E F

Not To Scale

I-270 / I-495 P3 PROGRAM

2027

PEAK HOUR TRAFFIC VOLUMES

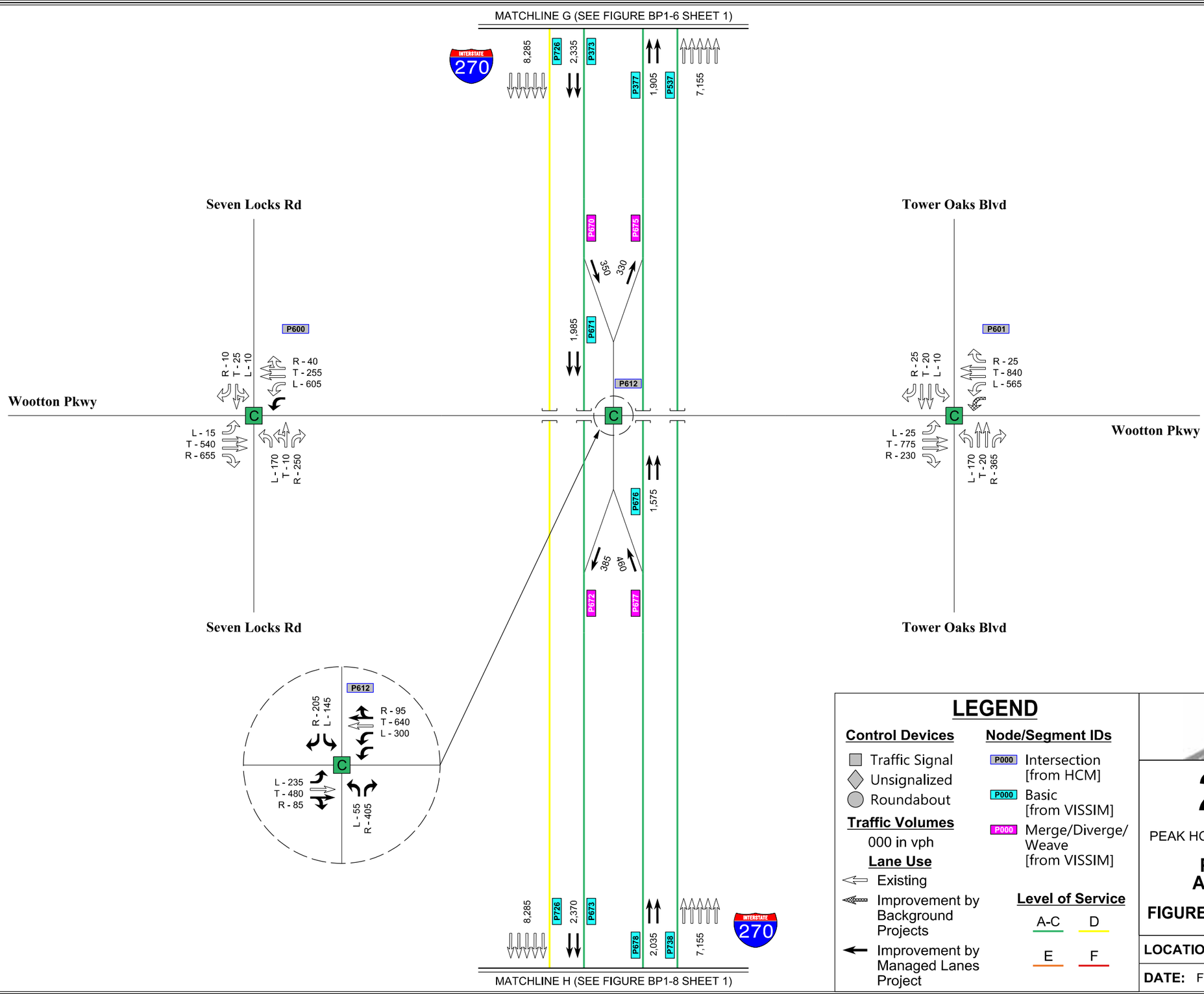
PREFERRED ALTERNATIVE

FIGURE BP1-6 SHEET 1 OF 1

LOCATION: I-270 at MD 189 (Falls Road)

DATE: February 2022

AM Peak Hour



N
W E
S
Not To Scale

LEGEND

Control Devices
- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes
000 in vph

Lane Use
- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs
- P000 Intersection [from HCM]
- P000 Basic [from VISSIM]
- P000 Merge/Diverge/ Weave [from VISSIM]

Level of Service
A-C D E F

I-270 495 P3 PROGRAM

2027

PEAK HOUR TRAFFIC VOLUMES

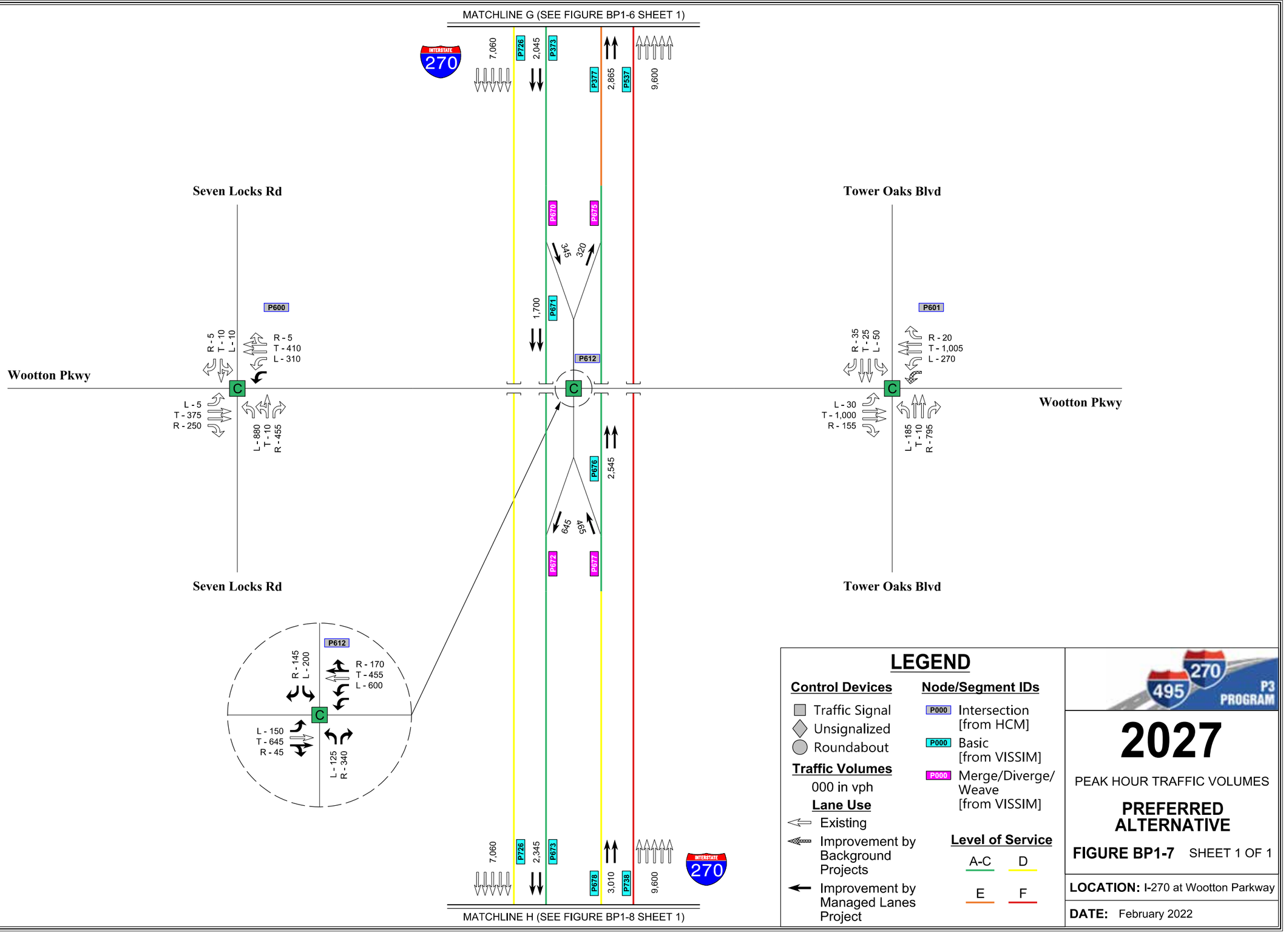
PREFERRED ALTERNATIVE

FIGURE BP1-7 SHEET 1 OF 1

LOCATION: I-270 at Wootton Parkway

DATE: February 2022

PM Peak Hour



LEGEND

Control Devices

- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes

000 in vph

Lane Use

- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs

- P000 Intersection [from HCM]
- P000 Basic [from VISSIM]
- P000 Merge/Diverge/ Weave [from VISSIM]

Level of Service

A-C D E F

I-270 495 P3 PROGRAM

2027

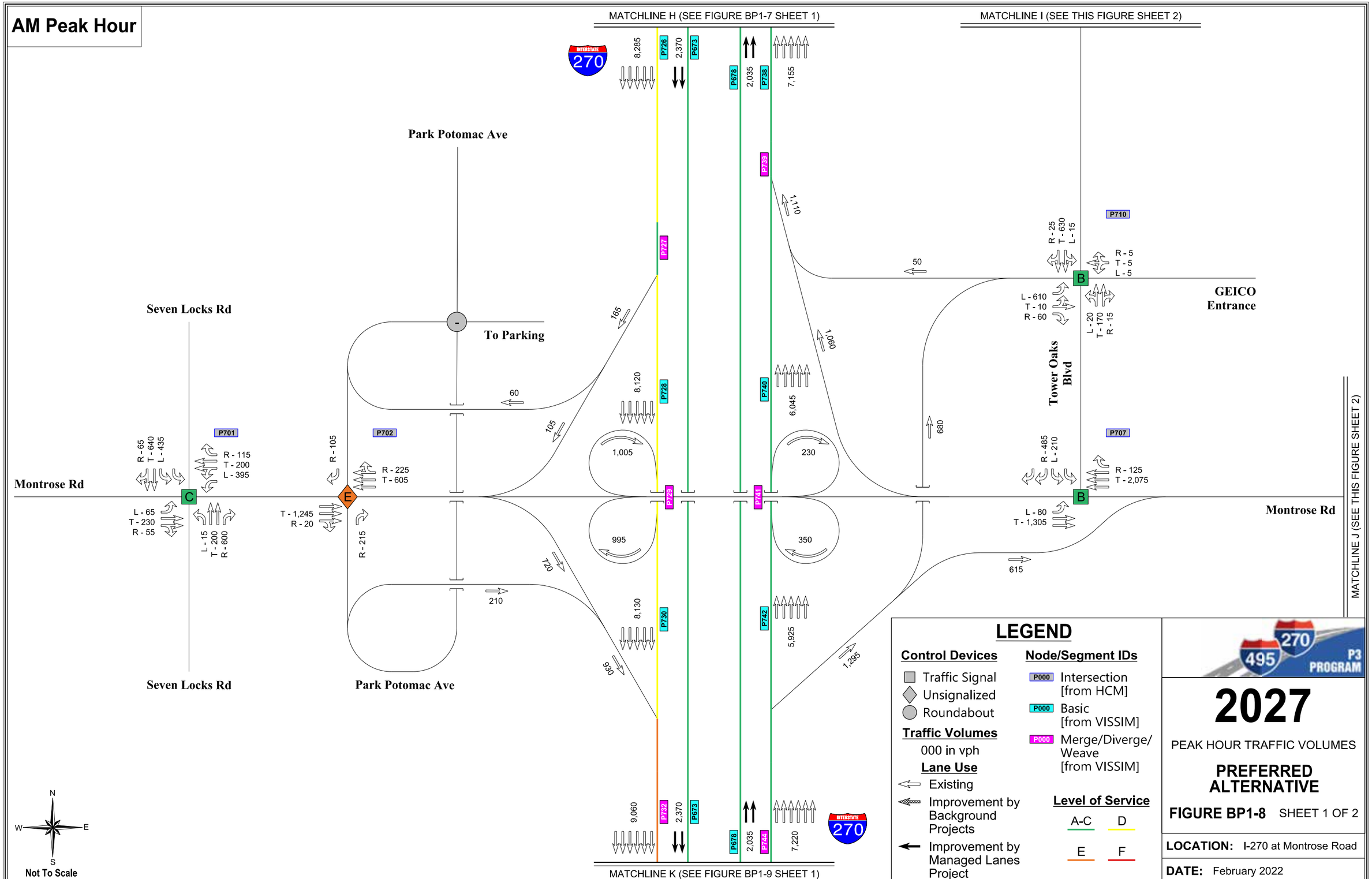
PEAK HOUR TRAFFIC VOLUMES

PREFERRED ALTERNATIVE

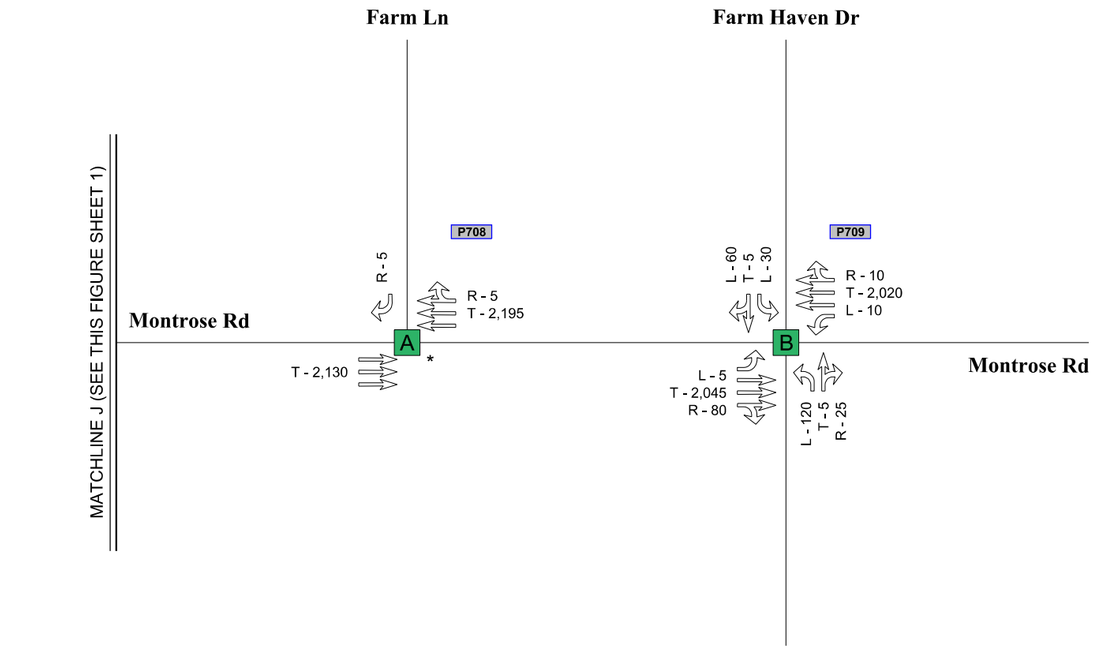
FIGURE BP1-7 SHEET 1 OF 1

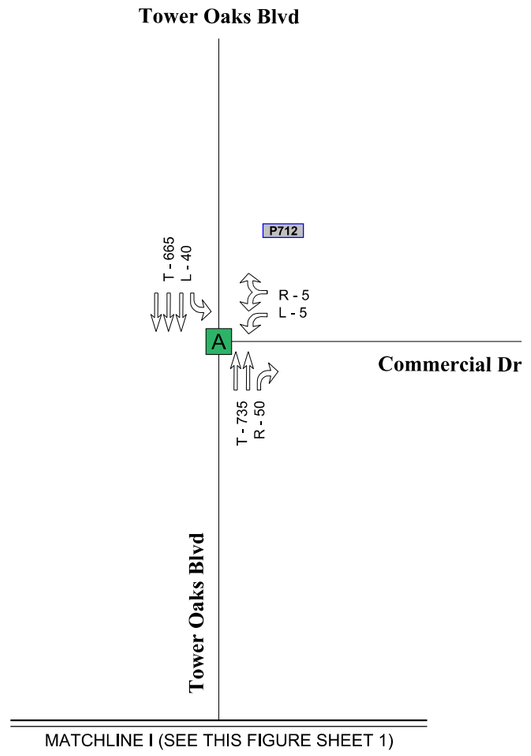
LOCATION: I-270 at Wootton Parkway

DATE: February 2022


AM Peak Hour
MATCHLINE H (SEE FIGURE BP1-7 SHEET 1)
MATCHLINE I (SEE THIS FIGURE SHEET 2)
MATCHLINE J (SEE THIS FIGURE SHEET 2)
MATCHLINE K (SEE FIGURE BP1-9 SHEET 1)
Park Potomac Ave
Seven Locks Rd
Montrose Rd
To Parking
GEICO Entrance
Tower Oaks Blvd
Not To Scale
LEGEND
Control Devices
Traffic Signal
Unsignalized
Roundabout
Traffic Volumes
000 in vph
Lane Use
Existing
Improvement by Background Projects
Improvement by Managed Lanes Project
Node/Segment IDs
P000 Intersection [from HCM]
P000 Basic [from VISSIM]
P000 Merge/Diverge/ Weave [from VISSIM]
Level of Service
A-C
D
E
F
2027
PEAK HOUR TRAFFIC VOLUMES
PREFERRED ALTERNATIVE
FIGURE BP1-8 SHEET 1 OF 2
LOCATION: I-270 at Montrose Road
DATE: February 2022

AM Peak Hour





N
W E
S
Not To Scale

*Note: Montrose Road at Farm Lane is a Pedestrian Signal with Farm Lane being yield controlled

LEGEND

Control Devices
- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes
000 in vph

Lane Use
- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs
- P000 Intersection [from HCM]
- P000 Basic [from VISSIM]
- P000 Merge/Diverge/ Weave [from VISSIM]

Level of Service
A-C D E F

I-270 495 P3 PROGRAM

2027

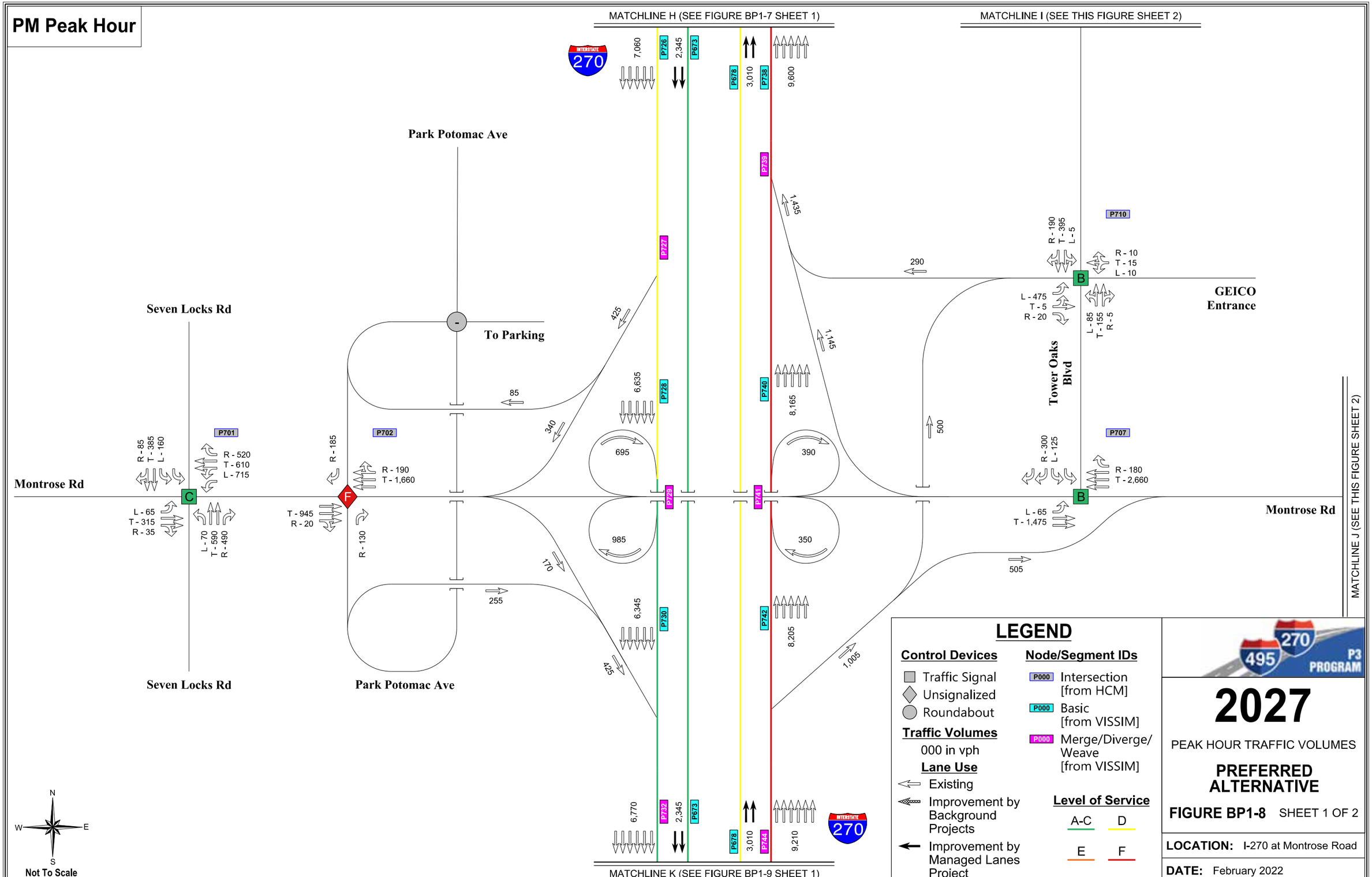
PEAK HOUR TRAFFIC VOLUMES

PREFERRED ALTERNATIVE

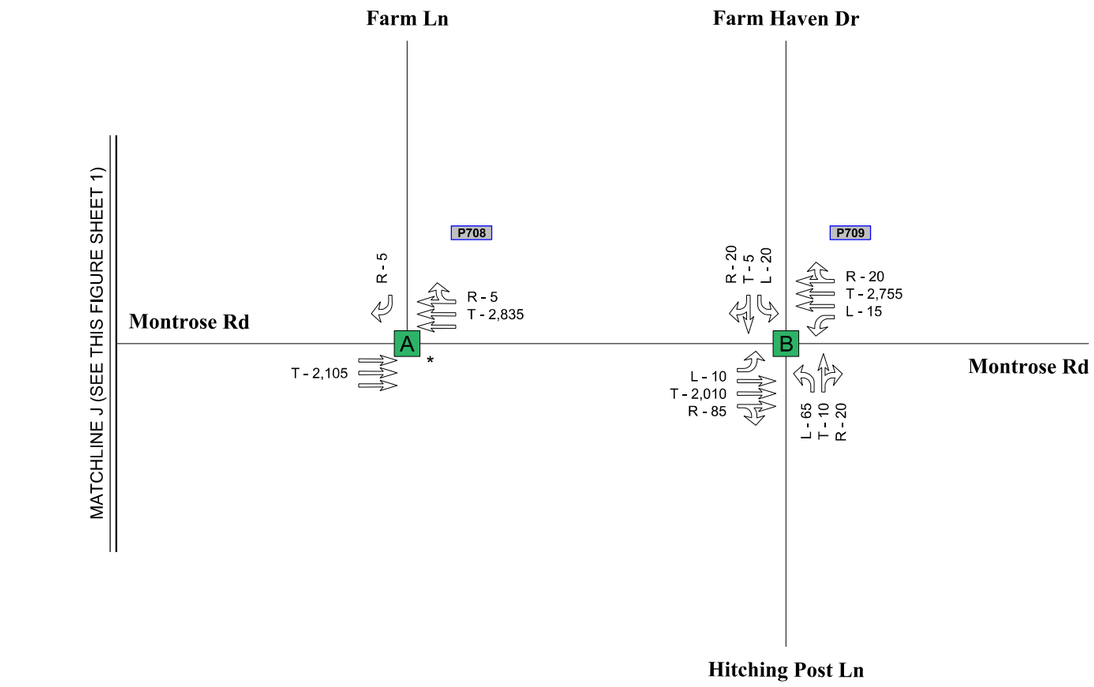
FIGURE BP1-8 SHEET 2 OF 2

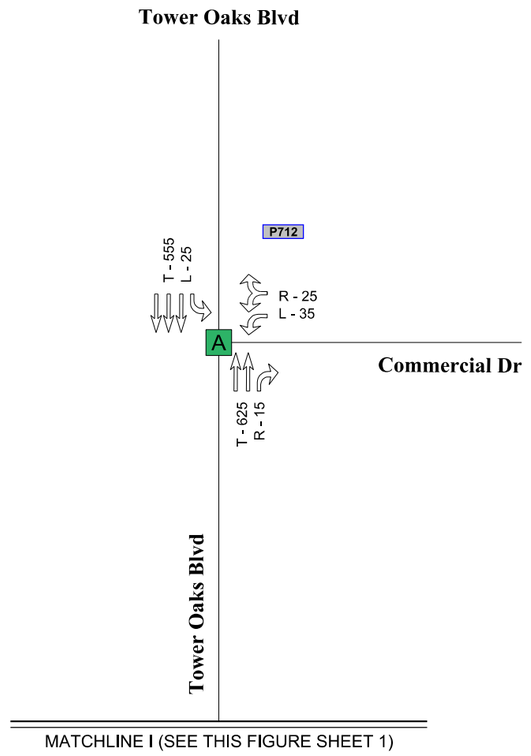
LOCATION: I-270 at Montrose Road

DATE: February 2022


PM Peak Hour
MATCHLINE H (SEE FIGURE BP1-7 SHEET 1)
MATCHLINE I (SEE THIS FIGURE SHEET 2)
MATCHLINE J (SEE THIS FIGURE SHEET 2)
MATCHLINE K (SEE FIGURE BP1-9 SHEET 1)
Park Potomac Ave
Seven Locks Rd
Montrose Rd
To Parking
GEICO Entrance
Tower Oaks Blvd
270
495
P3 PROGRAM
LEGEND
Control Devices
Traffic Signal
Unsignalized
Roundabout
Traffic Volumes
000 in vph
Lane Use
Existing
Improvement by Background Projects
Improvement by Managed Lanes Project
Node/Segment IDs
P000 Intersection [from HCM]
P000 Basic [from VISSIM]
P000 Merge/Diverge/ Weave [from VISSIM]
Level of Service
A-C
D
E
F
2027
PEAK HOUR TRAFFIC VOLUMES
PREFERRED ALTERNATIVE
FIGURE BP1-8 SHEET 1 OF 2
LOCATION: I-270 at Montrose Road
DATE: February 2022
Not To Scale

PM Peak Hour





N
W E
S
Not To Scale

*Note: Montrose Road at Farm Lane is a Pedestrian Signal with Farm Lane being yield controlled

LEGEND

Control Devices
- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes
000 in vph

Lane Use
- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs
- P000 Intersection [from HCM]
- P000 Basic [from VISSIM]
- P000 Merge/Diverge/ Weave [from VISSIM]

Level of Service

A-C	D
E	F

I-270 P3 PROGRAM

2027

PEAK HOUR TRAFFIC VOLUMES

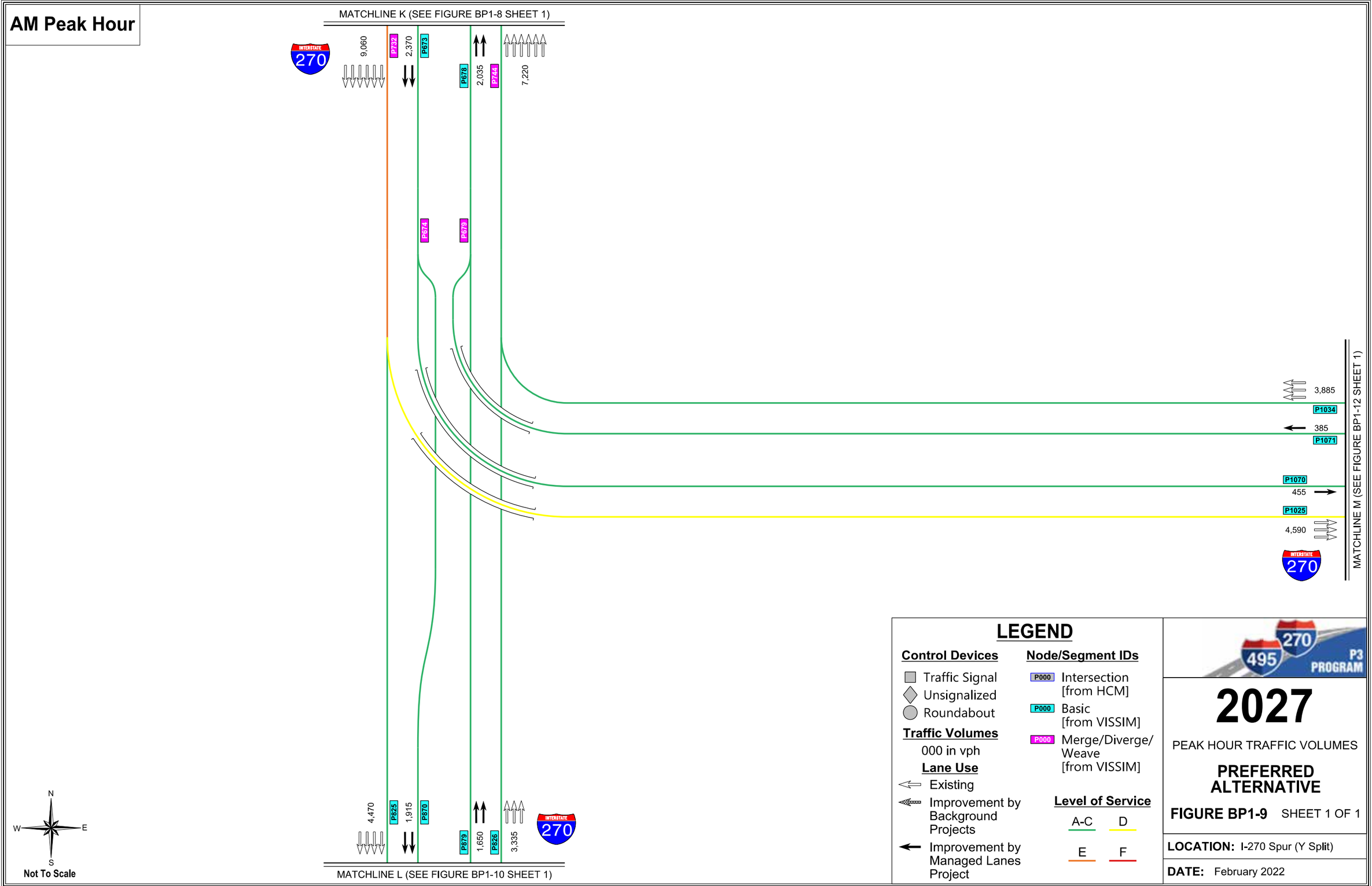
PREFERRED ALTERNATIVE

FIGURE BP1-8 SHEET 2 OF 2

LOCATION: I-270 at Montrose Road

DATE: February 2022

AM Peak Hour



LEGEND

Control Devices

- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes

000 in vph

Lane Use

- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs

- P000 Intersection [from HCM]
- P000 Basic [from VISSIM]
- P000 Merge/Diverge/ Weave [from VISSIM]

Level of Service

A-C D E F

I-270 / I-495 P3 PROGRAM

2027

PEAK HOUR TRAFFIC VOLUMES

PREFERRED ALTERNATIVE

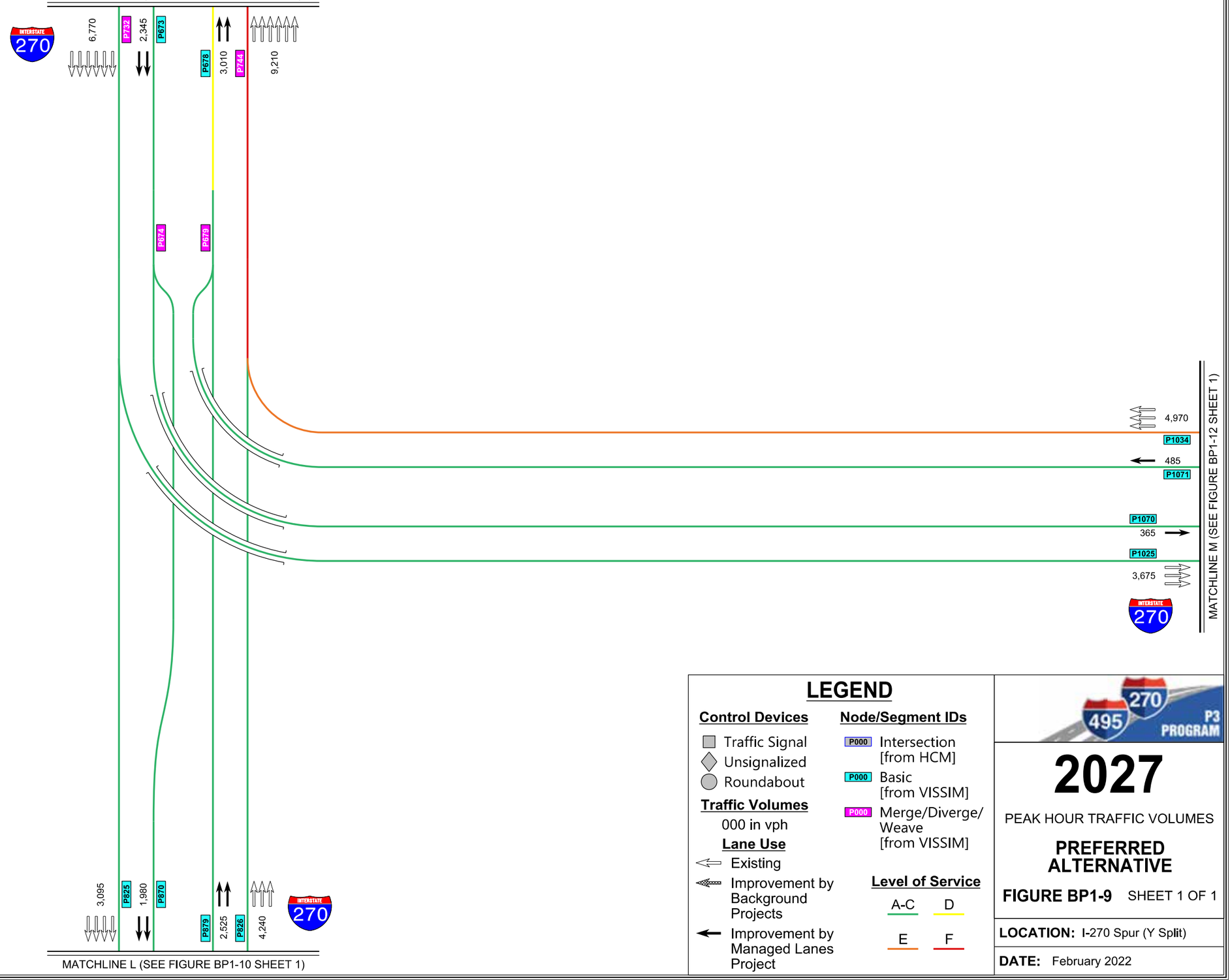
FIGURE BP1-9 SHEET 1 OF 1

LOCATION: I-270 Spur (Y Split)

DATE: February 2022

PM Peak Hour

MATCHLINE K (SEE FIGURE BP1-8 SHEET 1)



Not To Scale

MATCHLINE L (SEE FIGURE BP1-10 SHEET 1)

MATCHLINE M (SEE FIGURE BP1-12 SHEET 1)

LEGEND

Control Devices

- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes

000 in vph

Lane Use

- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs

- P000 Intersection [from HCM]
- P000 Basic [from VISSIM]
- P000 Merge/Diverge/ Weave [from VISSIM]

Level of Service

A-C D E F

I-270 / I-495 P3 PROGRAM

2027

PEAK HOUR TRAFFIC VOLUMES

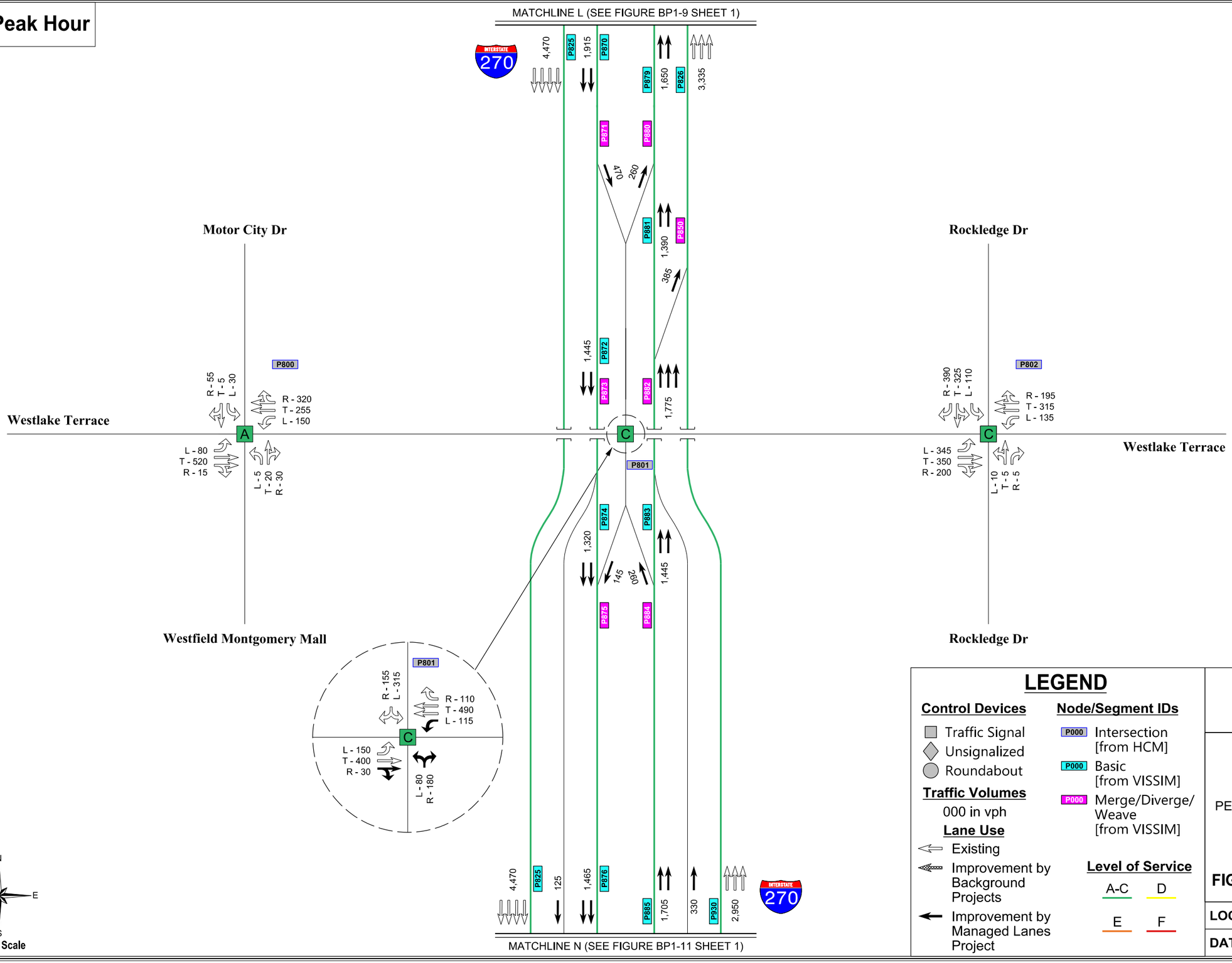
PREFERRED ALTERNATIVE

FIGURE BP1-9 SHEET 1 OF 1

LOCATION: I-270 Spur (Y Split)

DATE: February 2022

AM Peak Hour



LEGEND

Control Devices

- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes

000 in vph

Lane Use

- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs

- P000 Intersection [from HCM]
- P000 Basic [from VISSIM]
- P000 Merge/Diverge/ Weave [from VISSIM]

Level of Service

A-C D E F

I-270 / I-495 P3 PROGRAM

2027

PEAK HOUR TRAFFIC VOLUMES

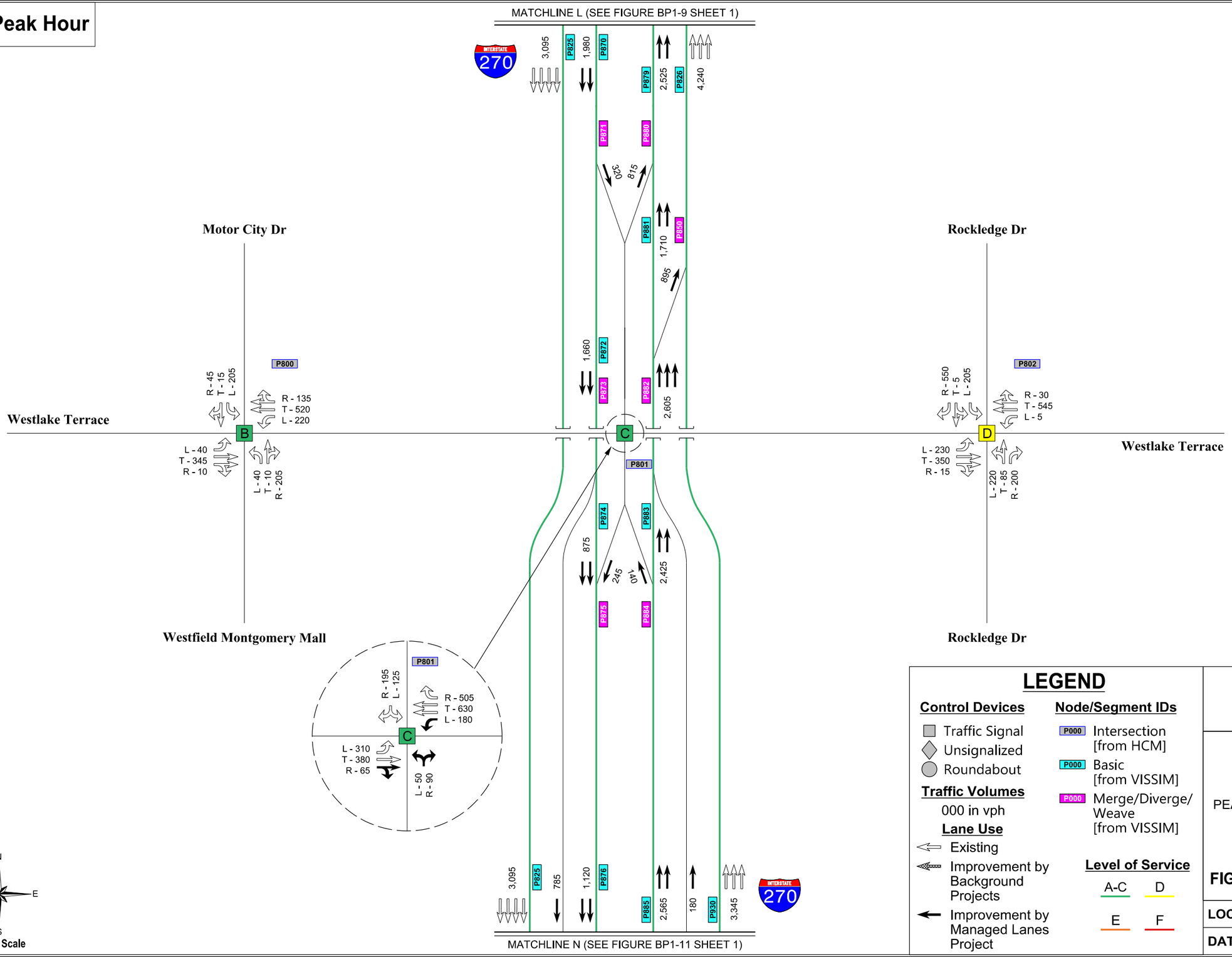
PREFERRED ALTERNATIVE

FIGURE BP1-10 SHEET 1 OF 1

LOCATION: I-270 at Westlake Terrace

DATE: February 2022

PM Peak Hour



LEGEND

Control Devices

- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes

000 in vph

Lane Use

- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs

- P000 Intersection [from HCM]
- P000 Basic [from VISSIM]
- P000 Merge/Diverge/ Weave [from VISSIM]

Level of Service

A-C D E F

I-270 / I-495 P3 PROGRAM

2027

PEAK HOUR TRAFFIC VOLUMES

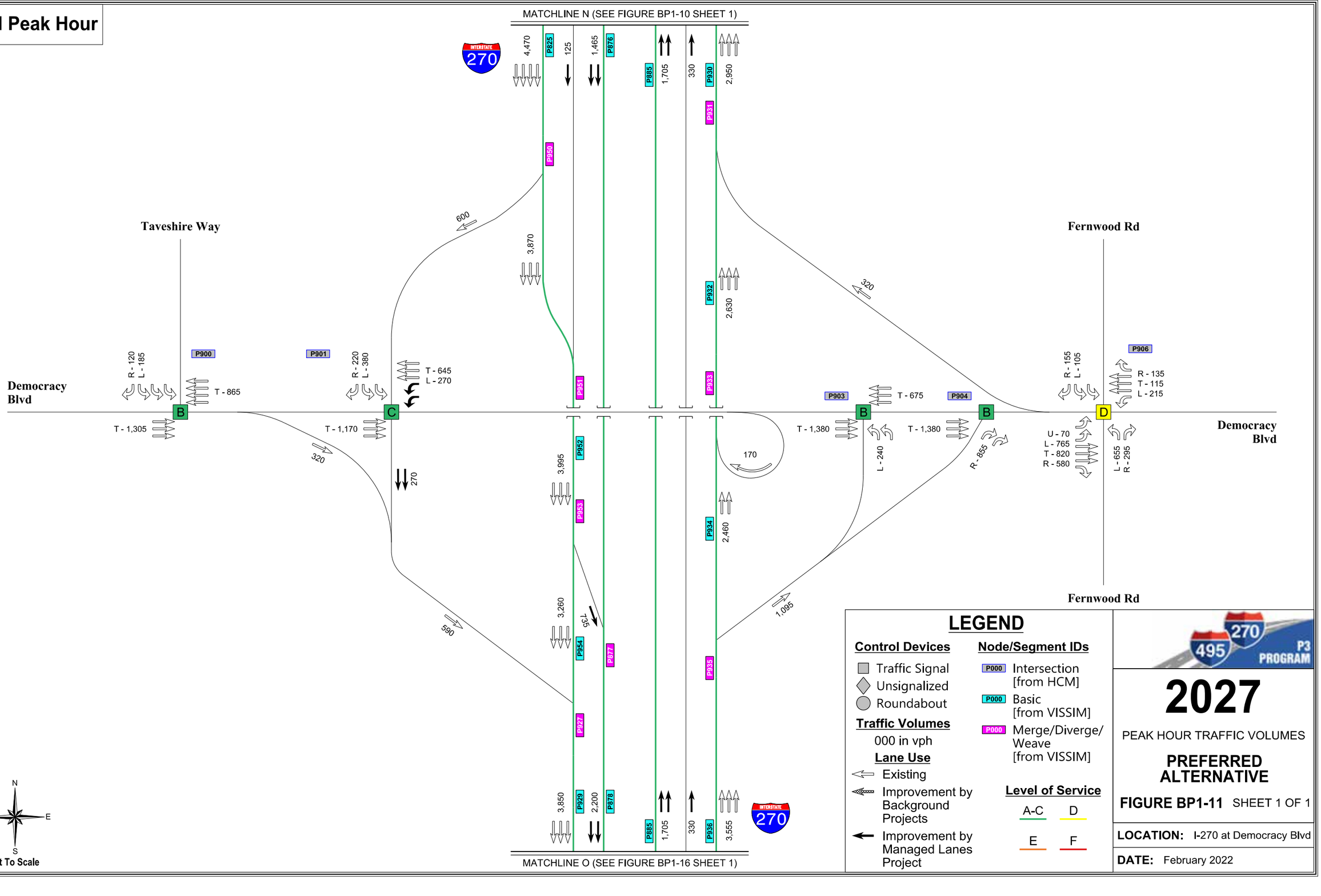
PREFERRED ALTERNATIVE

FIGURE BP1-10 SHEET 1 OF 1

LOCATION: I-270 at Westlake Terrace

DATE: February 2022

AM Peak Hour



LEGEND

Control Devices

- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes

000 in vph

Lane Use

- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs

- P000 Intersection [from HCM]
- P000 Basic [from VISSIM]
- P000 Merge/Diverge/ Weave [from VISSIM]

Level of Service

A-C D E F

I-495 I-270 P3 PROGRAM

2027

PEAK HOUR TRAFFIC VOLUMES

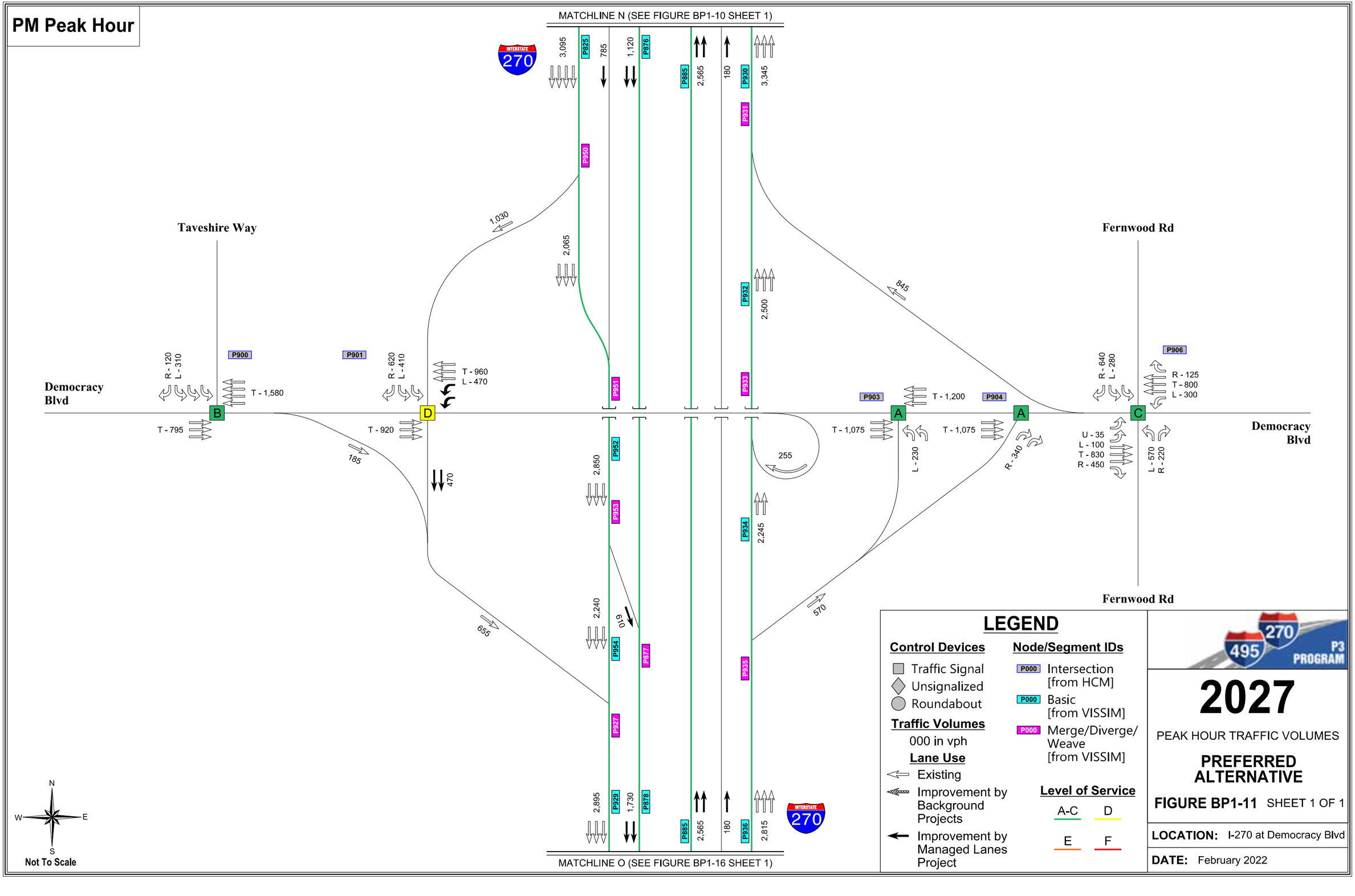
PREFERRED ALTERNATIVE

FIGURE BP1-11 SHEET 1 OF 1

LOCATION: I-270 at Democracy Blvd

DATE: February 2022

PM Peak Hour



LEGEND

Control Devices

- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes

000 in vph

Lane Use

- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs

- P000 Intersection [from HCM]
- P000 Basic [from VISSIM]
- P000 Merge/Diverge/ Weave [from VISSIM]

Level of Service

A-C D E F

N W E S

Not To Scale

I-270 495 P3 PROGRAM

2027

PEAK HOUR TRAFFIC VOLUMES

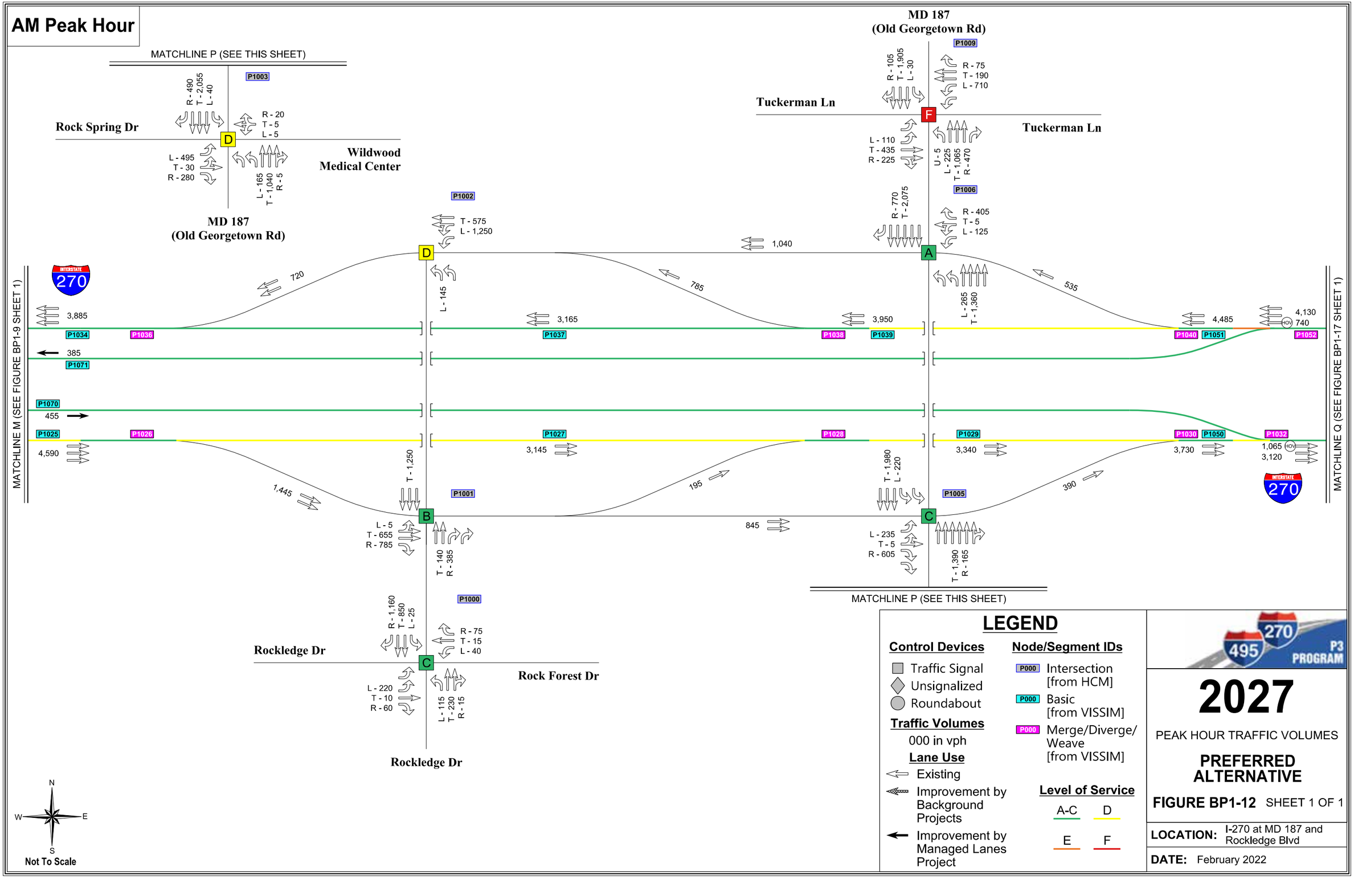
PREFERRED ALTERNATIVE

FIGURE BP1-11 SHEET 1 OF 1

LOCATION: I-270 at Democracy Blvd

DATE: February 2022

AM Peak Hour



LEGEND

Control Devices

- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes

000 in vph

Lane Use

- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs

- P000 Intersection [from HCM]
- P000 Basic [from VISSIM]
- P000 Merge/Diverge/ Weave [from VISSIM]

Level of Service

A-C D E F

I-270 495 P3 PROGRAM

2027

PEAK HOUR TRAFFIC VOLUMES

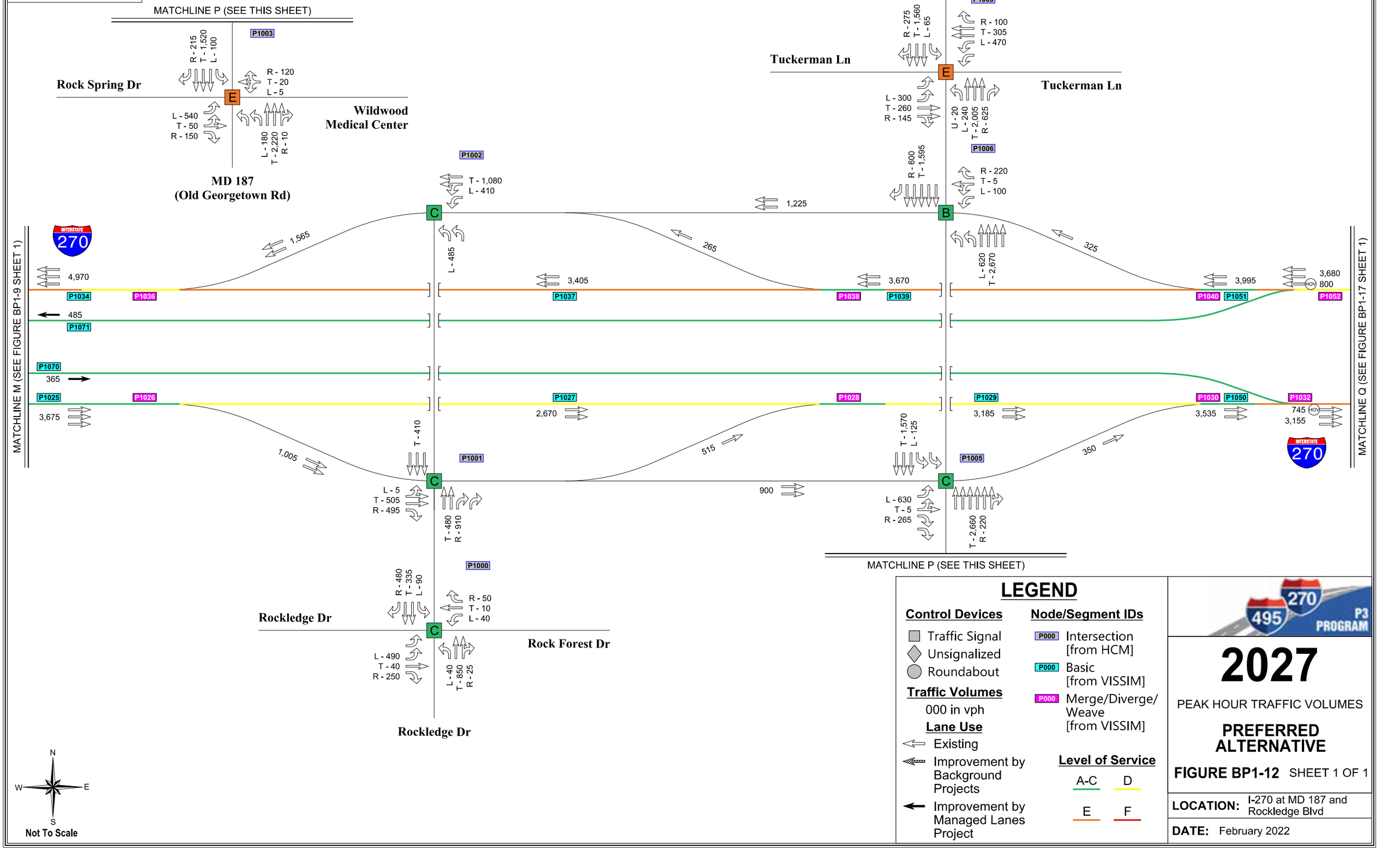
PREFERRED ALTERNATIVE

FIGURE BP1-12 SHEET 1 OF 1

LOCATION: I-270 at MD 187 and Rockledge Blvd

DATE: February 2022

PM Peak Hour



LEGEND

Control Devices

- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes

000 in vph

Lane Use

- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs

- P000 Intersection [from HCM]
- P000 Basic [from VISSIM]
- P000 Merge/Diverge/ Weave [from VISSIM]

Level of Service

A-C D E F

I-270 495 P3 PROGRAM

2027

PEAK HOUR TRAFFIC VOLUMES

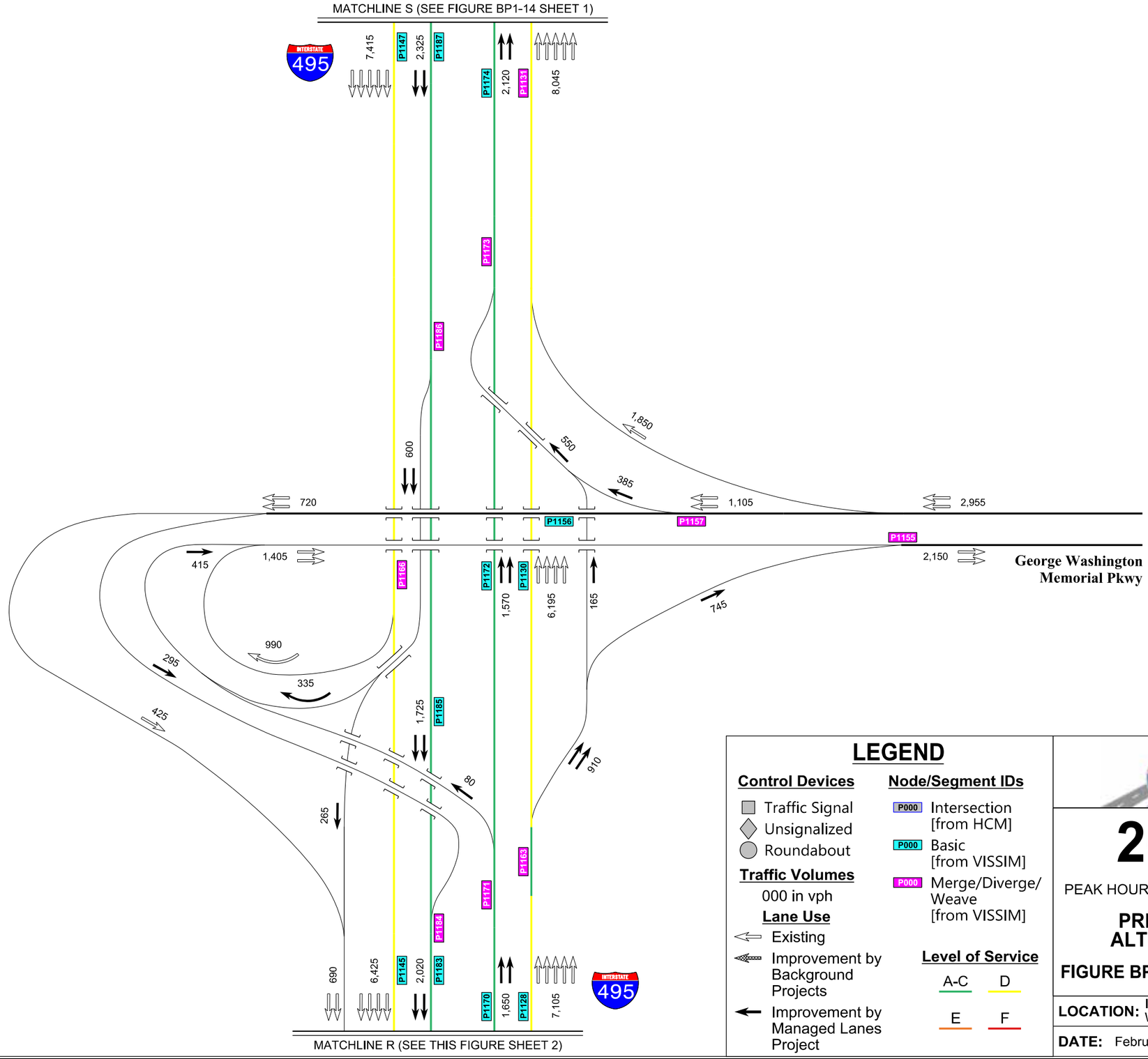
PREFERRED ALTERNATIVE

FIGURE BP1-12 SHEET 1 OF 1

LOCATION: I-270 at MD 187 and Rockledge Blvd

DATE: February 2022

AM Peak Hour



Not To Scale

LEGEND

Control Devices
- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes
000 in vph

Lane Use
- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs
- P000 Intersection [from HCM]
- P000 Basic [from VISSIM]
- P000 Merge/Diverge/ Weave [from VISSIM]

Level of Service
A-C D E F

I-495 & I-270 P3 PROGRAM

2027

PEAK HOUR TRAFFIC VOLUMES

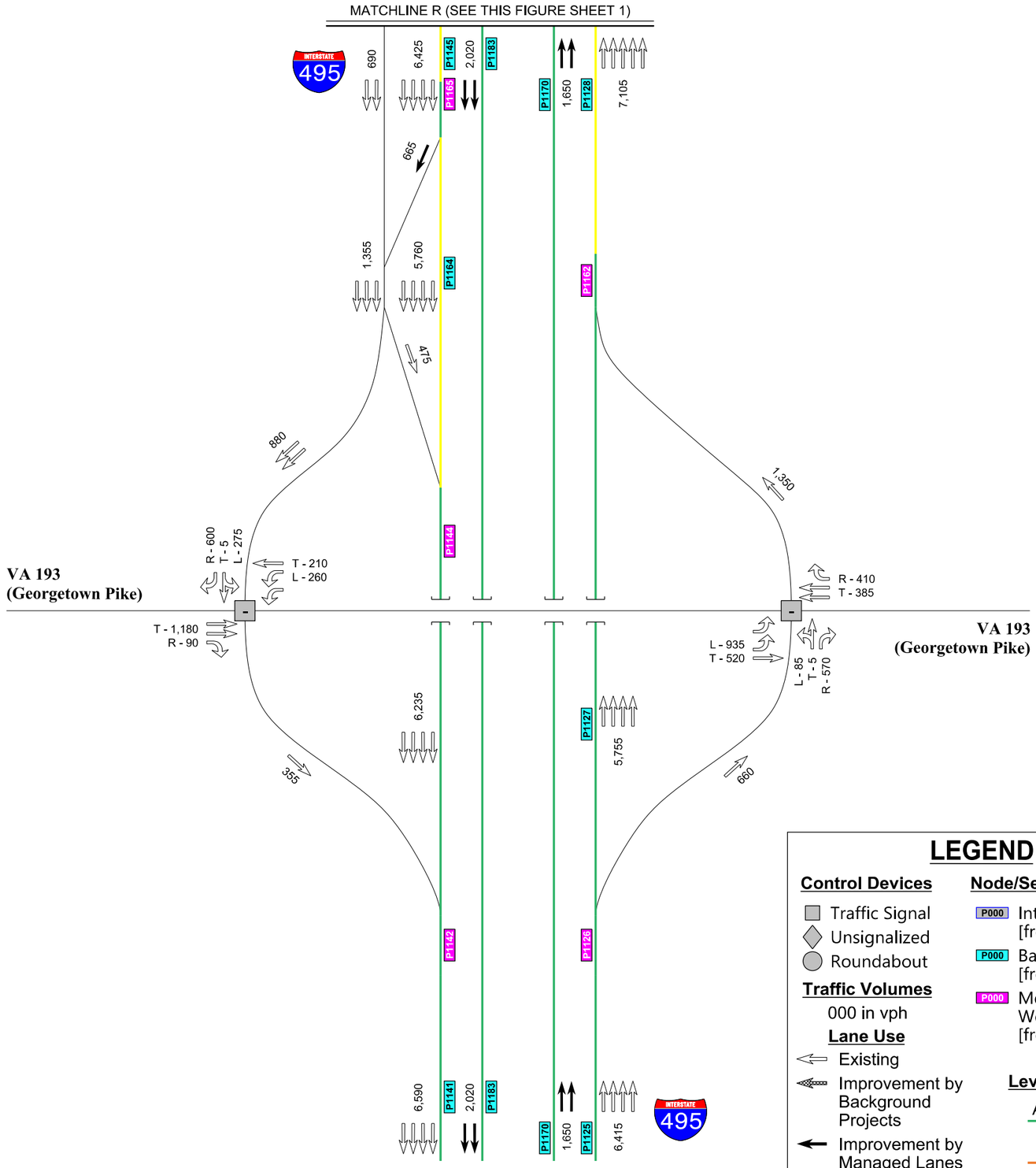
PREFERRED ALTERNATIVE

FIGURE BP1-13 SHEET 1 OF 2

LOCATION: I-495 at VA 193/George Washington Mem.Pkwy.

DATE: February 2022

AM Peak Hour



LEGEND

Control Devices

- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes

000 in vph

Lane Use

- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs

- P000 Intersection [from HCM]
- P000 Basic [from VISSIM]
- P000 Merge/Diverge/ Weave [from VISSIM]

Level of Service

A-C D E F

Not To Scale

I-495 & I-270 P3 PROGRAM

2027

PEAK HOUR TRAFFIC VOLUMES

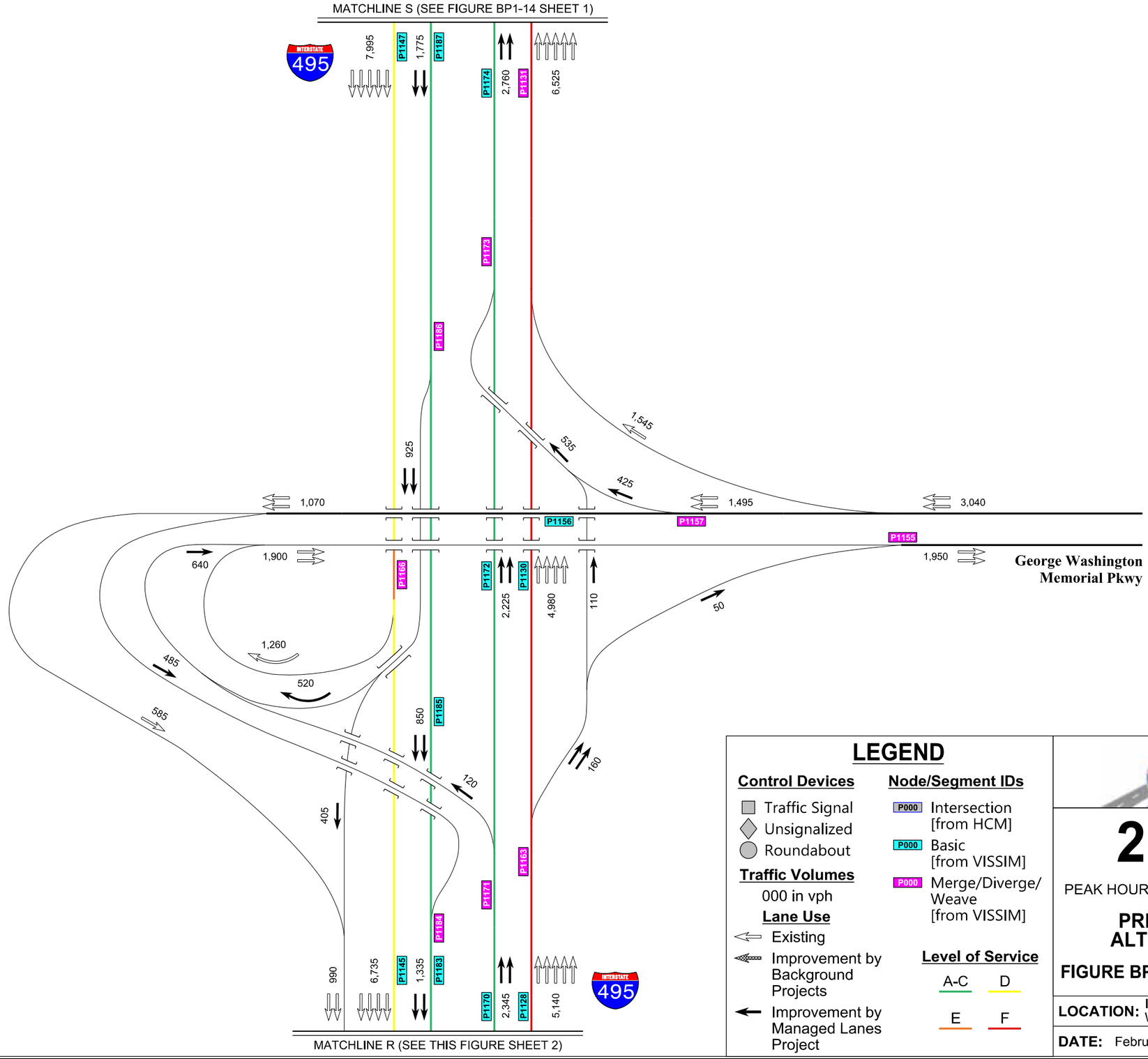
PREFERRED ALTERNATIVE

FIGURE BP1-13 SHEET 2 OF 2

LOCATION: I-495 at VA 193/George Washington Mem.Pkwy.

DATE: February 2022

PM Peak Hour



Not To Scale

LEGEND

Control Devices
- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes
000 in vph

Lane Use
- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs
- P000 Intersection [from HCM]
- P000 Basic [from VISSIM]
- P000 Merge/Diverge/ Weave [from VISSIM]

Level of Service
A-C D E F

I-495 & I-270 P3 PROGRAM

2027

PEAK HOUR TRAFFIC VOLUMES

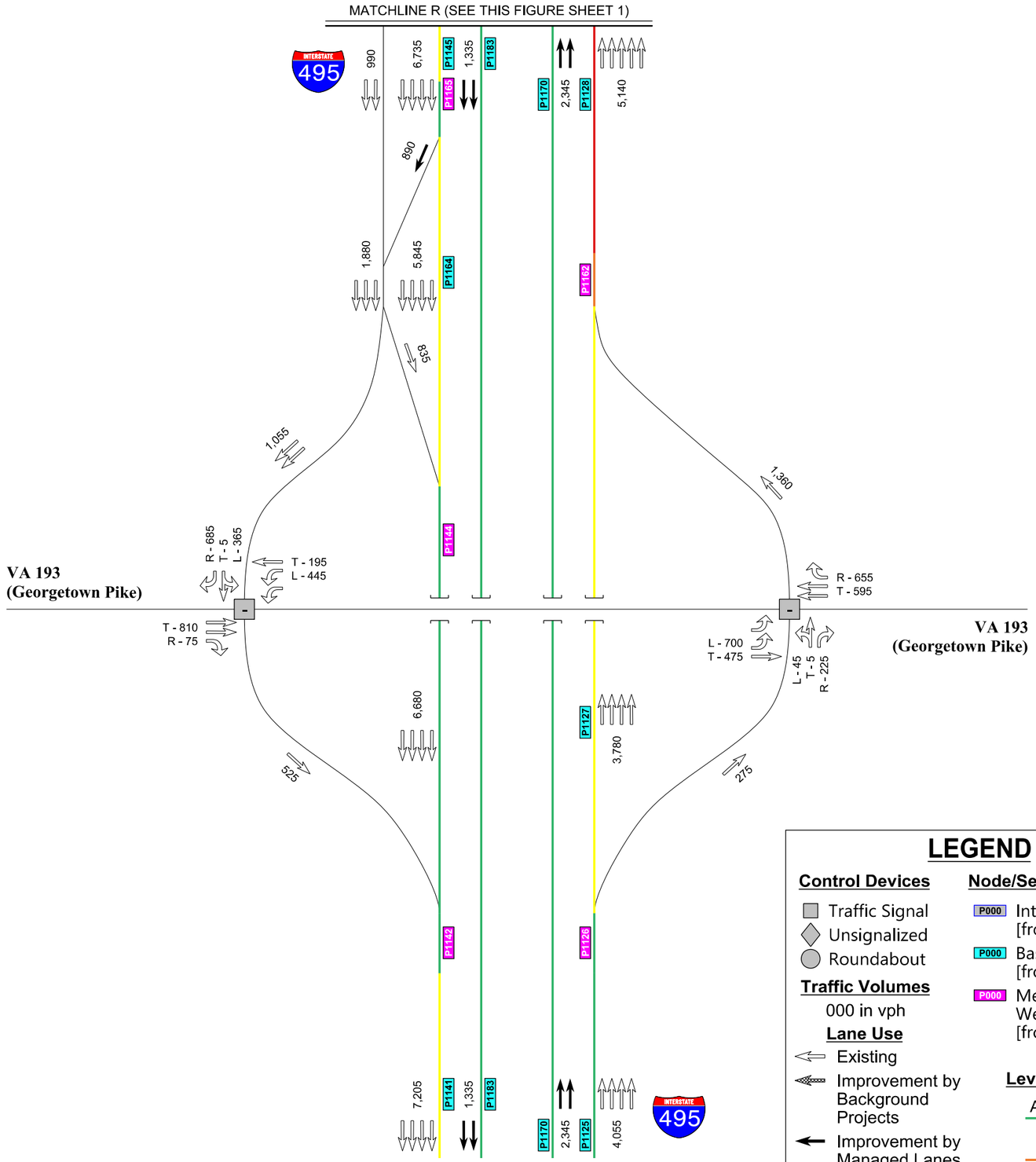
PREFERRED ALTERNATIVE

FIGURE BP1-13 SHEET 1 OF 2

LOCATION: I-495 at VA 193/George Washington Mem.Pkwy.

DATE: February 2022

PM Peak Hour



LEGEND

Control Devices

- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes

000 in vph

Lane Use

- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs

- P000 Intersection [from HCM]
- P000 Basic [from VISSIM]
- P000 Merge/Diverge/ Weave [from VISSIM]

Level of Service

A-C D E F

Not To Scale

I-495 270 P3 PROGRAM

2027

PEAK HOUR TRAFFIC VOLUMES

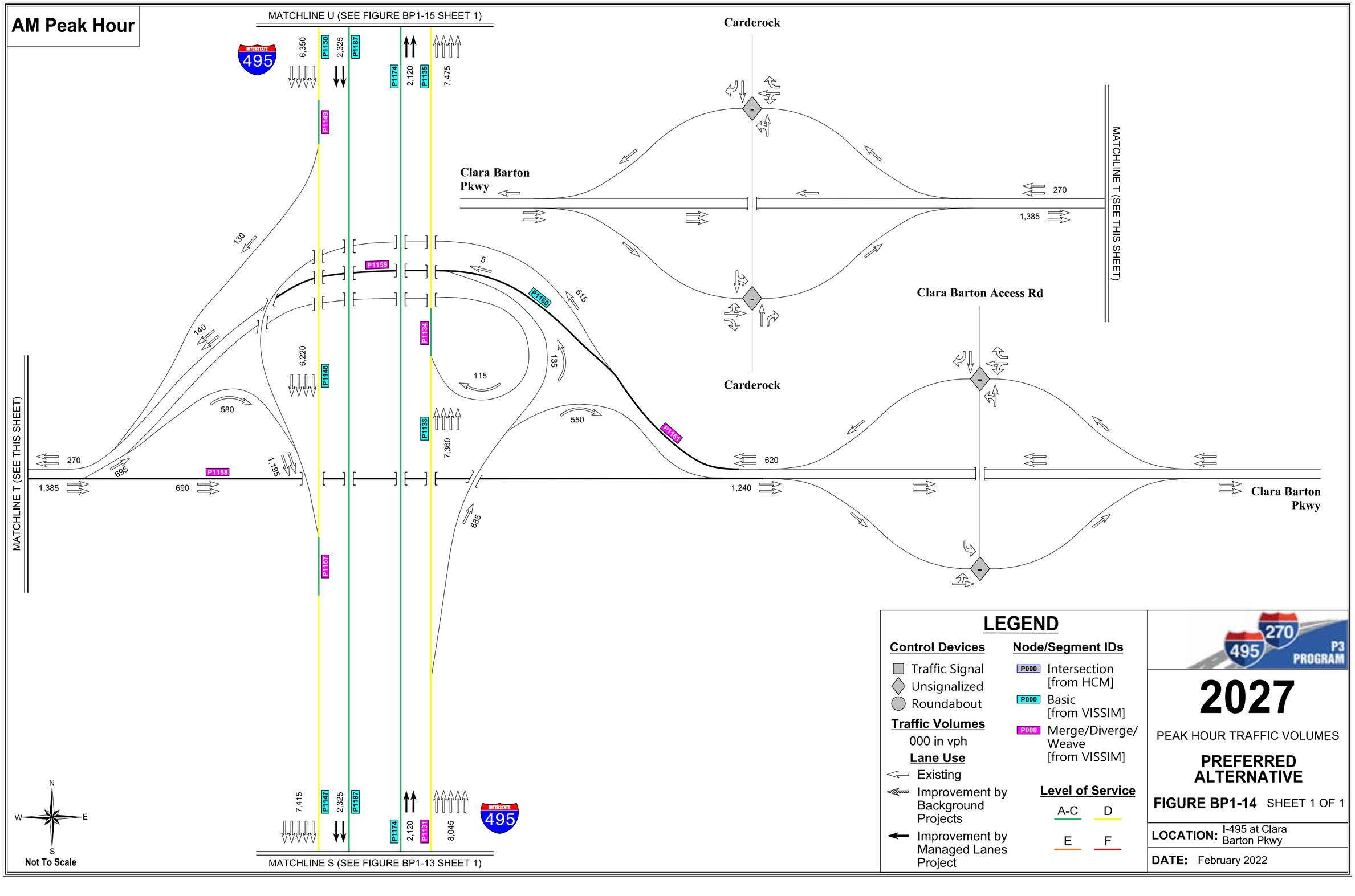
PREFERRED ALTERNATIVE

FIGURE BP1-13 SHEET 2 OF 2

LOCATION: I-495 at VA 193/George Washington Mem.Pkwy.

DATE: February 2022

AM Peak Hour



LEGEND

Control Devices

- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes

000 in vph

Lane Use

- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs

- P000 Intersection [from HCM]
- P000 Basic [from VISSIM]
- P000 Merge/Diverge/ Weave [from VISSIM]

Level of Service

A-C D E F

I-495 & I-270 P3 PROGRAM

2027

PEAK HOUR TRAFFIC VOLUMES

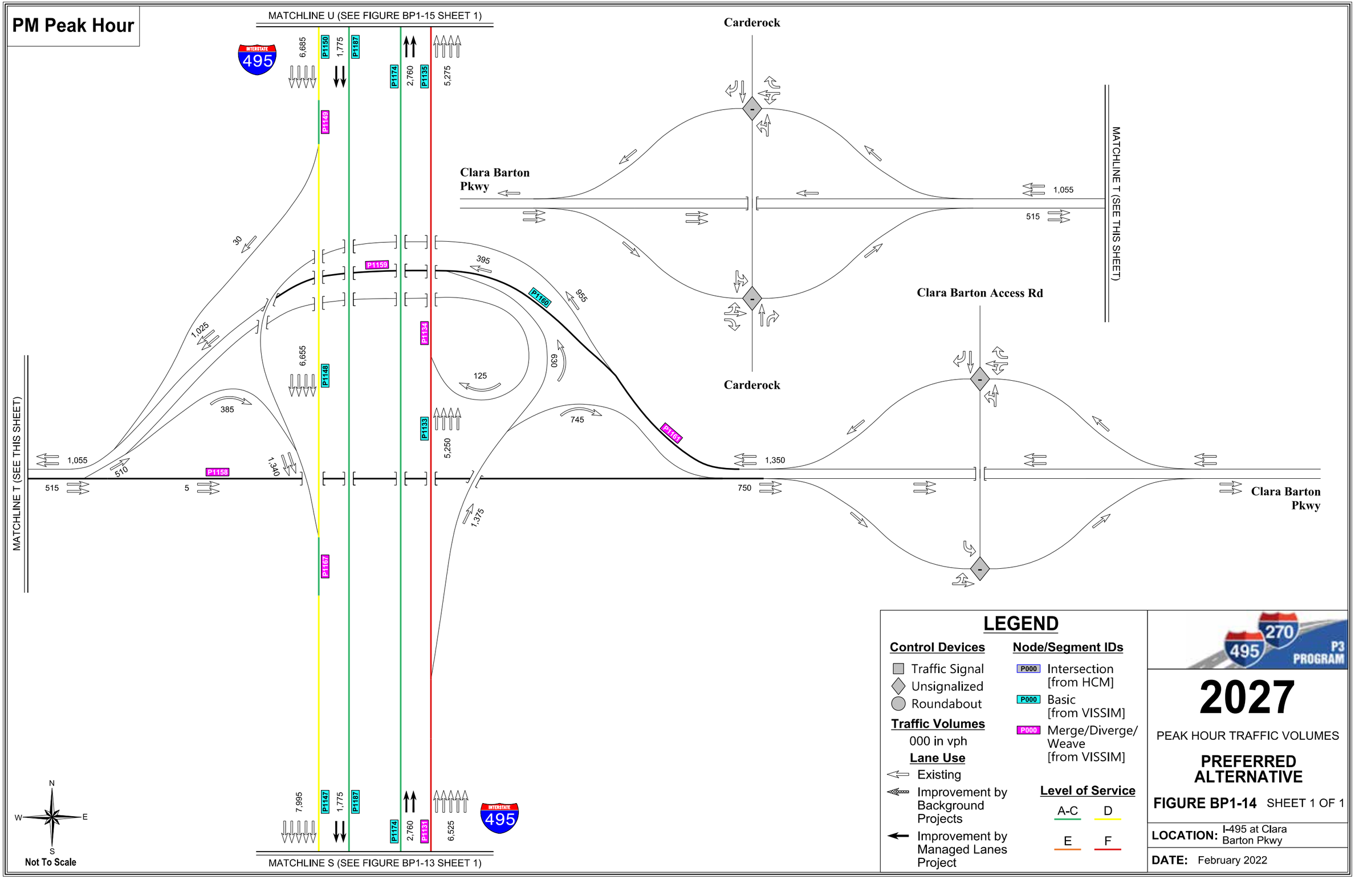
PREFERRED ALTERNATIVE

FIGURE BP1-14 SHEET 1 OF 1

LOCATION: I-495 at Clara Barton Pkwy

DATE: February 2022

PM Peak Hour



LEGEND

Control Devices

- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes

000 in vph

Lane Use

- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs

- P000 Intersection [from HCM]
- P000 Basic [from VISSIM]
- P000 Merge/Diverge/ Weave [from VISSIM]

Level of Service

A-C D E F

I-495 & I-270 P3 PROGRAM

2027

PEAK HOUR TRAFFIC VOLUMES

PREFERRED ALTERNATIVE

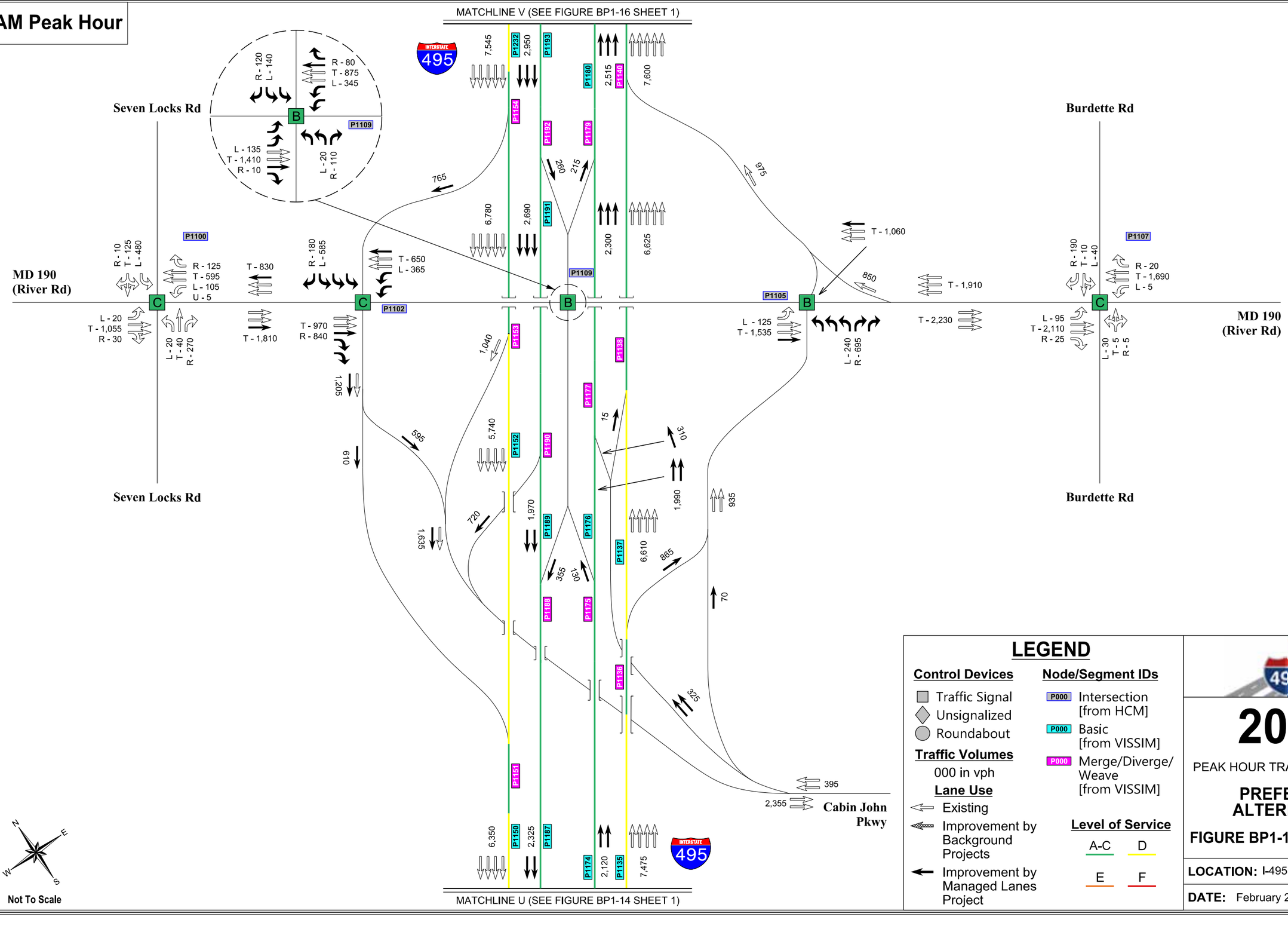
FIGURE BP1-14 SHEET 1 OF 1

LOCATION: I-495 at Clara Barton Pkwy

DATE: February 2022

AM Peak Hour

MATCHLINE V (SEE FIGURE BP1-16 SHEET 1)



MATCHLINE U (SEE FIGURE BP1-14 SHEET 1)

Not To Scale

LEGEND

Control Devices

- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes

000 in vph

Lane Use

- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs

- P000 Intersection [from HCM]
- P000 Basic [from VISSIM]
- P000 Merge/Diverge/ Weave [from VISSIM]

Level of Service

A-C D E F

I-495 & I-270 P3 PROGRAM

2027

PEAK HOUR TRAFFIC VOLUMES

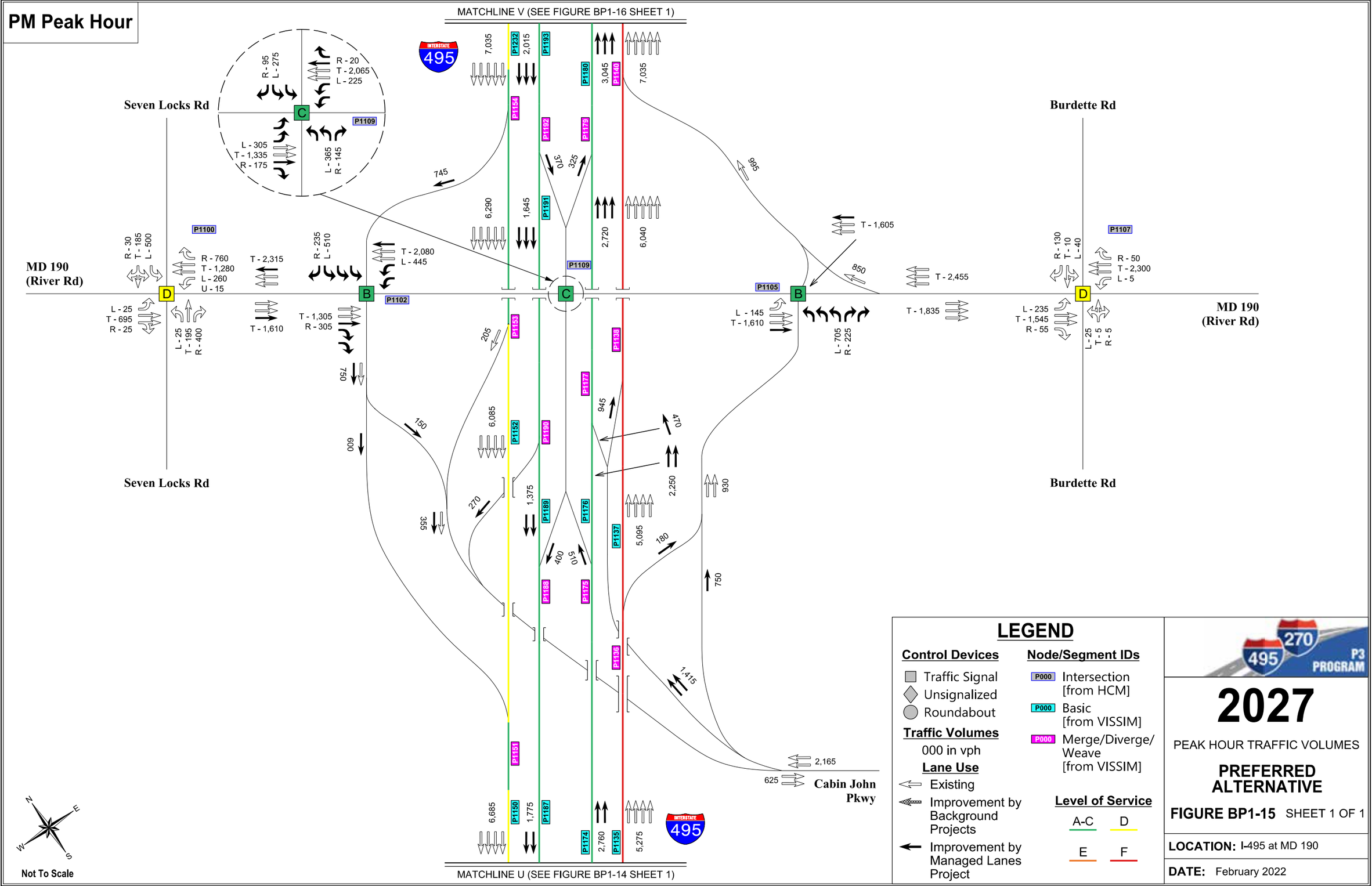
PREFERRED ALTERNATIVE

FIGURE BP1-15 SHEET 1 OF 1

LOCATION: I-495 at MD 190

DATE: February 2022

PM Peak Hour



LEGEND

Control Devices

- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes

000 in vph

Lane Use

- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs

- P000 Intersection [from HCM]
- P000 Basic [from VISSIM]
- P000 Merge/Diverge/ Weave [from VISSIM]

Level of Service

A-C D E F

I-495 & I-270 P3 PROGRAM

2027

PEAK HOUR TRAFFIC VOLUMES

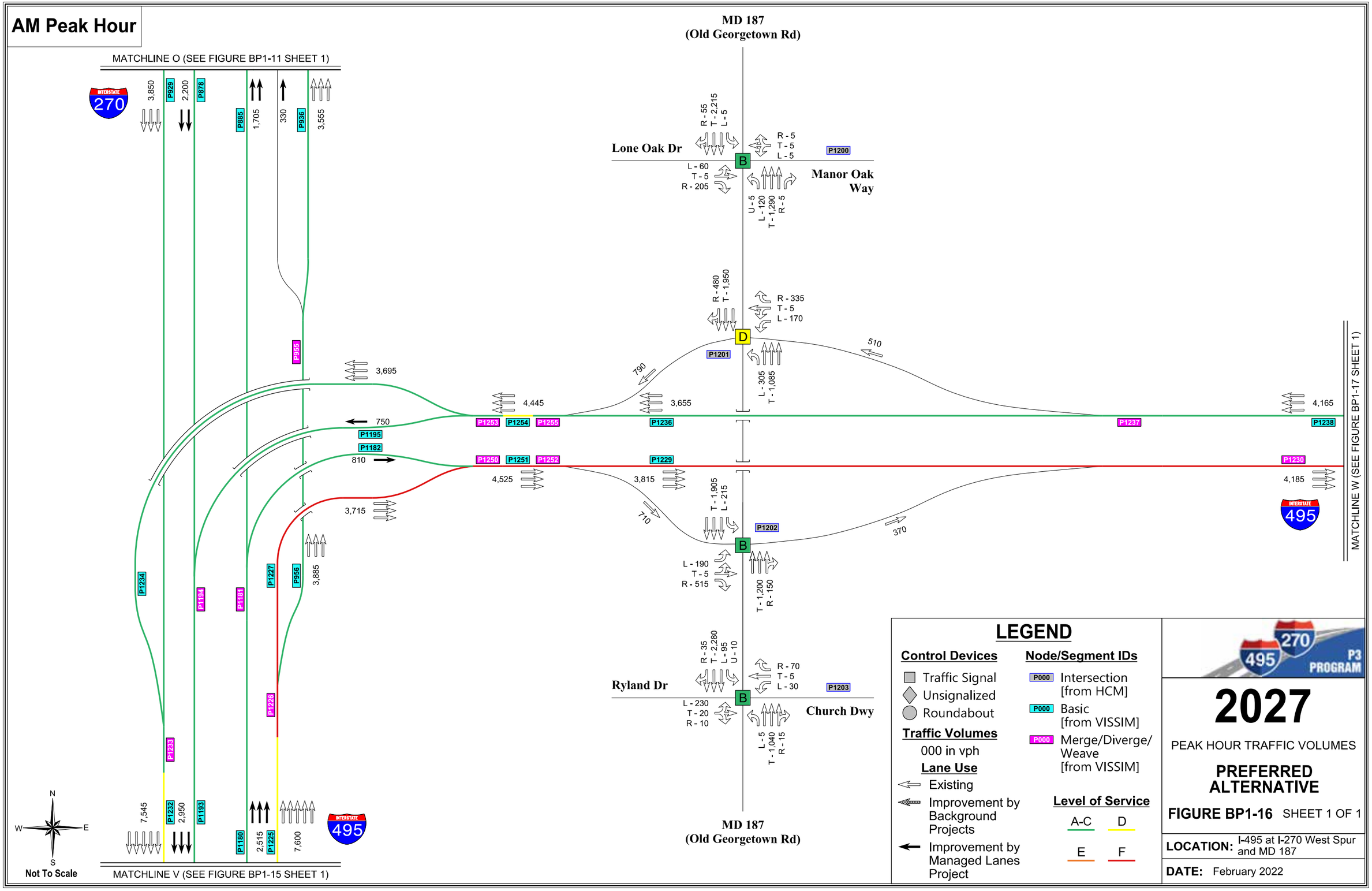
PREFERRED ALTERNATIVE

FIGURE BP1-15 SHEET 1 OF 1

LOCATION: I-495 at MD 190

DATE: February 2022

AM Peak Hour



LEGEND

Control Devices

- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes

000 in vph

Lane Use

- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs

- P000 Intersection [from HCM]
- P000 Basic [from VISSIM]
- P000 Merge/Diverge/ Weave [from VISSIM]

Level of Service

A-C D E F

I-270 / I-495 P3 PROGRAM

2027

PEAK HOUR TRAFFIC VOLUMES

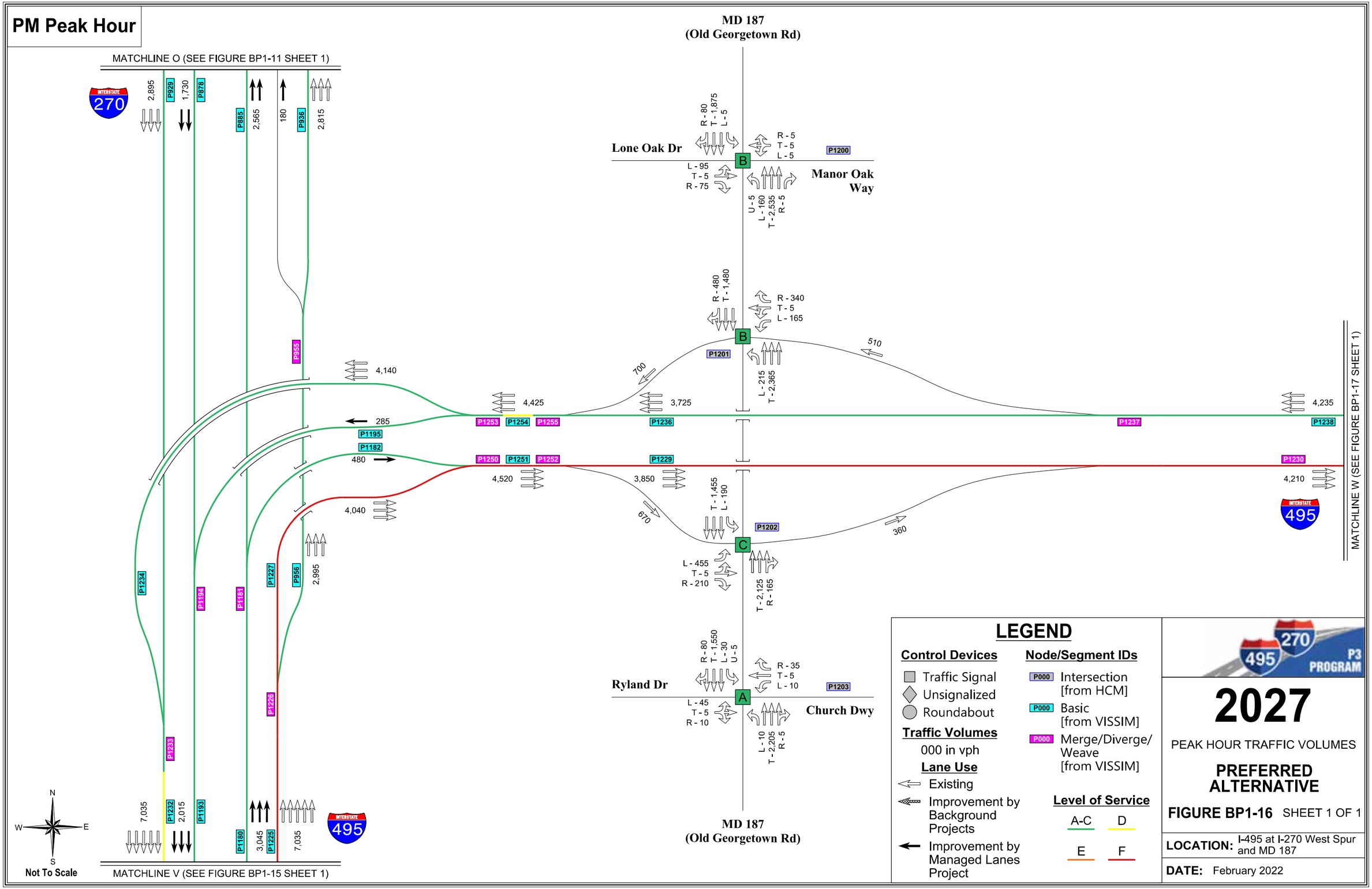
PREFERRED ALTERNATIVE

FIGURE BP1-16 SHEET 1 OF 1

LOCATION: I-495 at I-270 West Spur and MD 187

DATE: February 2022

PM Peak Hour



LEGEND

Control Devices

- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes

000 in vph

Lane Use

- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs

- P000 Intersection [from HCM]
- P000 Basic [from VISSIM]
- P000 Merge/Diverge/ Weave [from VISSIM]

Level of Service

A-C D E F

I-270 / I-495 P3 PROGRAM

2027

PEAK HOUR TRAFFIC VOLUMES

PREFERRED ALTERNATIVE

FIGURE BP1-16 SHEET 1 OF 1

LOCATION: I-495 at I-270 West Spur and MD 187

DATE: February 2022

AM Peak Hour

MATCHLINE Q (SEE FIGURE BP1-12 SHEET 1)

MATCHLINE W (SEE FIGURE BP1-16 SHEET 1)

MATCHLINE X (SEE THIS SHEET)

MATCHLINE X (SEE THIS SHEET)

MD 355 (Rockville Pike)

Grosvenor Ln P1300

R - 125
T - 2,140

R - 110
T - 105
L - 620

R - 750

L - 110
R - 220

T - 1,175

T - 85
R - 460

R - 545
T - 1,175

Grosvenor Ln

INTERSTATE 270

4,130
HOV 740
P1041

P1032
1,065 HOV
3,120

P1042

770

P1033

P1043

4,100

975

T - 1,925
L - 1,055

L - 770
T - 745

INTERSTATE 495

4,165
P1238

2,930

1,255

P1044

P1331

P1332

P1333

7,860

P1334

8,835
P1432

1,055

405

P1325

P1326

P1327

P1328

P1330

P1425

4,185

3,715

6,645

7,950

INTERSTATE 495

T - 3,180

L - 405
T - 1,515

250

7,700

470

C P1307

R - 470

T - 1,920
R - 250

Pooks Hill Rd P1309

R - 120
T - 3,530

L - 455
R - 175

L - 50
T - 1,715

Alta Vista Rd

R - 95
T - 3,310
L - 5
U - 295

R - 10
T - 5
L - 5

P1310

L - 65
T - 5
R - 20

T - 1,395
R - 5

Bellevue Dr

MD 355 (Rockville Pike)

N
W E
S

Not To Scale

LEGEND

Control Devices

- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes

000 in vph

Lane Use

- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs

- P000 Intersection [from HCM]
- P000 Basic [from VISSIM]
- P000 Merge/Diverge/ Weave [from VISSIM]

Level of Service

A-C D E F

INTERSTATE 270 INTERSTATE 495 P3 PROGRAM

2027

PEAK HOUR TRAFFIC VOLUMES

PREFERRED ALTERNATIVE

FIGURE BP1-17 SHEET 1 OF 1

LOCATION: I-495 at I-270 East Spur and MD 335

DATE: February 2022

PM Peak Hour

MATCHLINE Q (SEE FIGURE BP1-12 SHEET 1)

MATCHLINE W (SEE FIGURE BP1-16 SHEET 1)

MATCHLINE X (SEE THIS SHEET)

MATCHLINE X (SEE THIS SHEET)

MD 355 (Rockville Pike)

Grosvenor Ln P1300

R - 125
T - 1,625

R - 135
T - 145
L - 225

R - 410

L - 155
R - 175

T - 1,770

T - 95
R - 810

R - 905
T - 1,770

Grosvenor Ln

INTERSTATE 270

3,680
HOV 800
P1041

P1032
745 HOV
3,155

P1042

1,180

P1033

P1043

3,300

1,065

L - 1,180
T - 1,610

T - 1,150
L - 875

1,020

2,880

P1044

INTERSTATE 495

4,235
P1238

P1331

P1332

P1333

7,220

P1334

8,285
P1432

875

315

P1325

P1326

P1327

P1328

P1330

P1425

4,210

3,865

6,745

7,915

INTERSTATE 495

L - 315
T - 2,790

295

7,620

T - 2,170

345

B

P1307

R - 345

T - 3,105
R - 295

R - 305
T - 2,210

Pooks Hill Rd P1309

B

L - 240
R - 70

L - 65
T - 3,160

Alta Vista Rd

R - 130
T - 1,915
L - 5
U - 230

C

P1310

R - 5
T - 5
L - 10

L - 90
T - 5
R - 15

U - 5
L - 10
T - 2,900
R - 5

Bellevue Dr

MD 355 (Rockville Pike)

N
W E
S

Not To Scale

LEGEND

Control Devices

- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes

000 in vph

Lane Use

- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs

- P000 Intersection [from HCM]
- P000 Basic [from VISSIM]
- P000 Merge/Diverge/ Weave [from VISSIM]

Level of Service

A-C D E F

INTERSTATE 495 INTERSTATE 270 P3 PROGRAM

2027

PEAK HOUR TRAFFIC VOLUMES

PREFERRED ALTERNATIVE

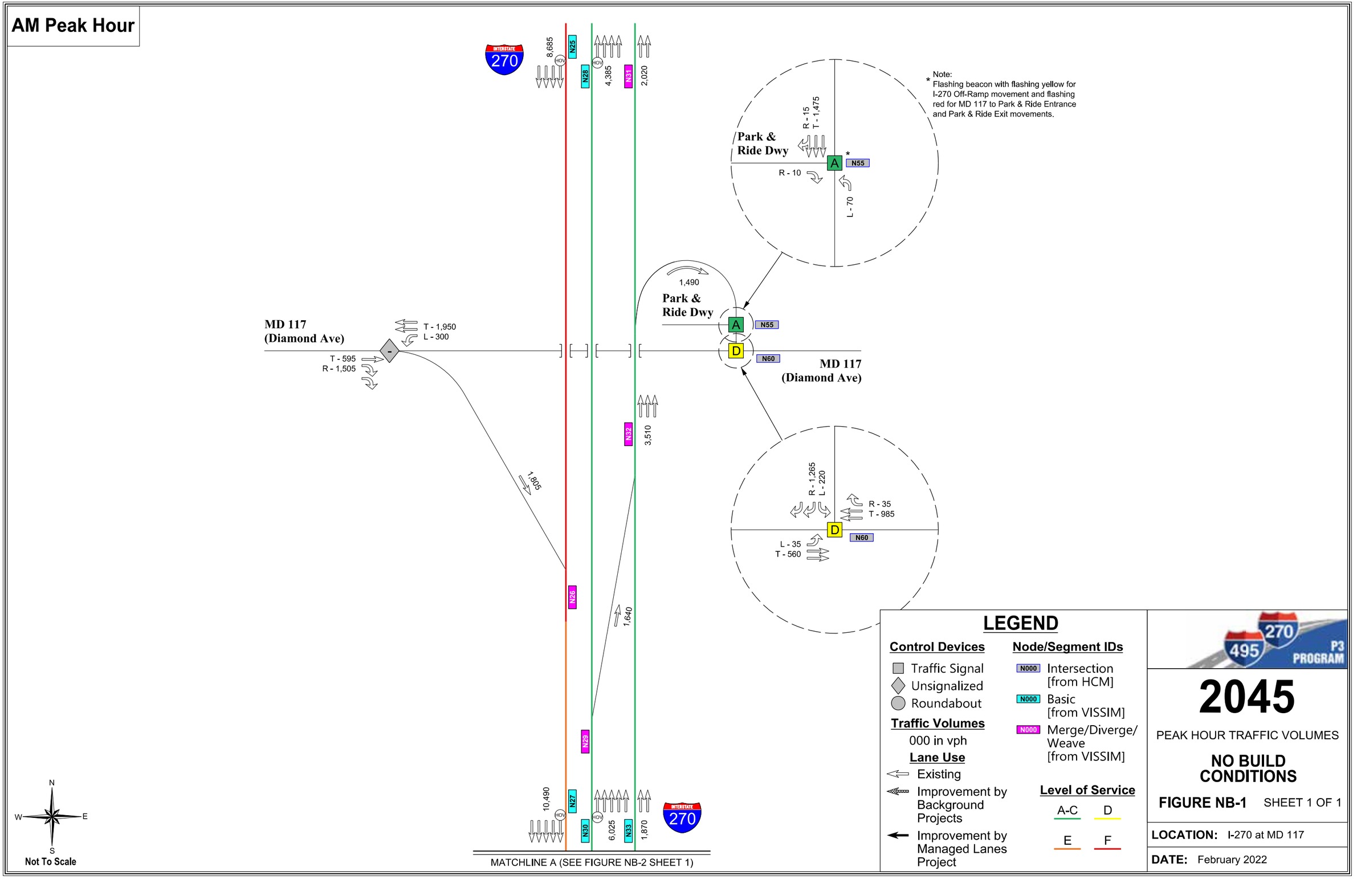
FIGURE BP1-17 SHEET 1 OF 1

LOCATION: I-495 at I-270 East Spur and MD 335

DATE: February 2022

2045 NO BUILD CONDITIONS GRAPHICS

AM Peak Hour



LEGEND

Control Devices
- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes
000 in vph

Lane Use
- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs
- N000 Intersection [from HCM]
- N000 Basic [from VISSIM]
- N000 Merge/Diverge/ Weave [from VISSIM]

Level of Service
A-C D E F

I-270 495 P3 PROGRAM

2045

PEAK HOUR TRAFFIC VOLUMES

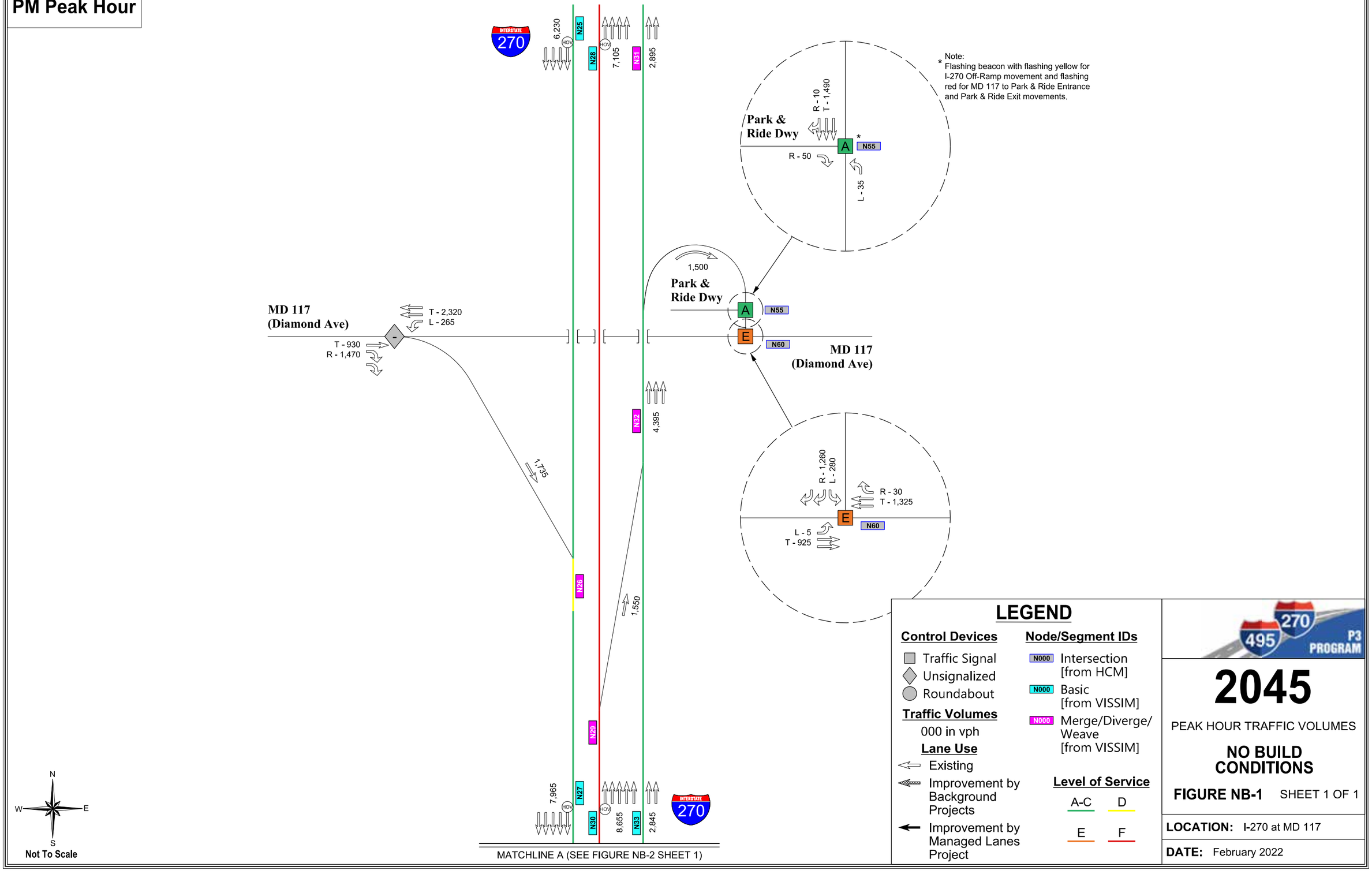
NO BUILD CONDITIONS

FIGURE NB-1 SHEET 1 OF 1

LOCATION: I-270 at MD 117

DATE: February 2022

PM Peak Hour



LEGEND

Control Devices
- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes
000 in vph

Lane Use
- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs
- N000 Intersection [from HCM]
- N000 Basic [from VISSIM]
- N000 Merge/Diverge/ Weave [from VISSIM]

Level of Service
A-C D E F

I-270 495 P3 PROGRAM

2045

PEAK HOUR TRAFFIC VOLUMES

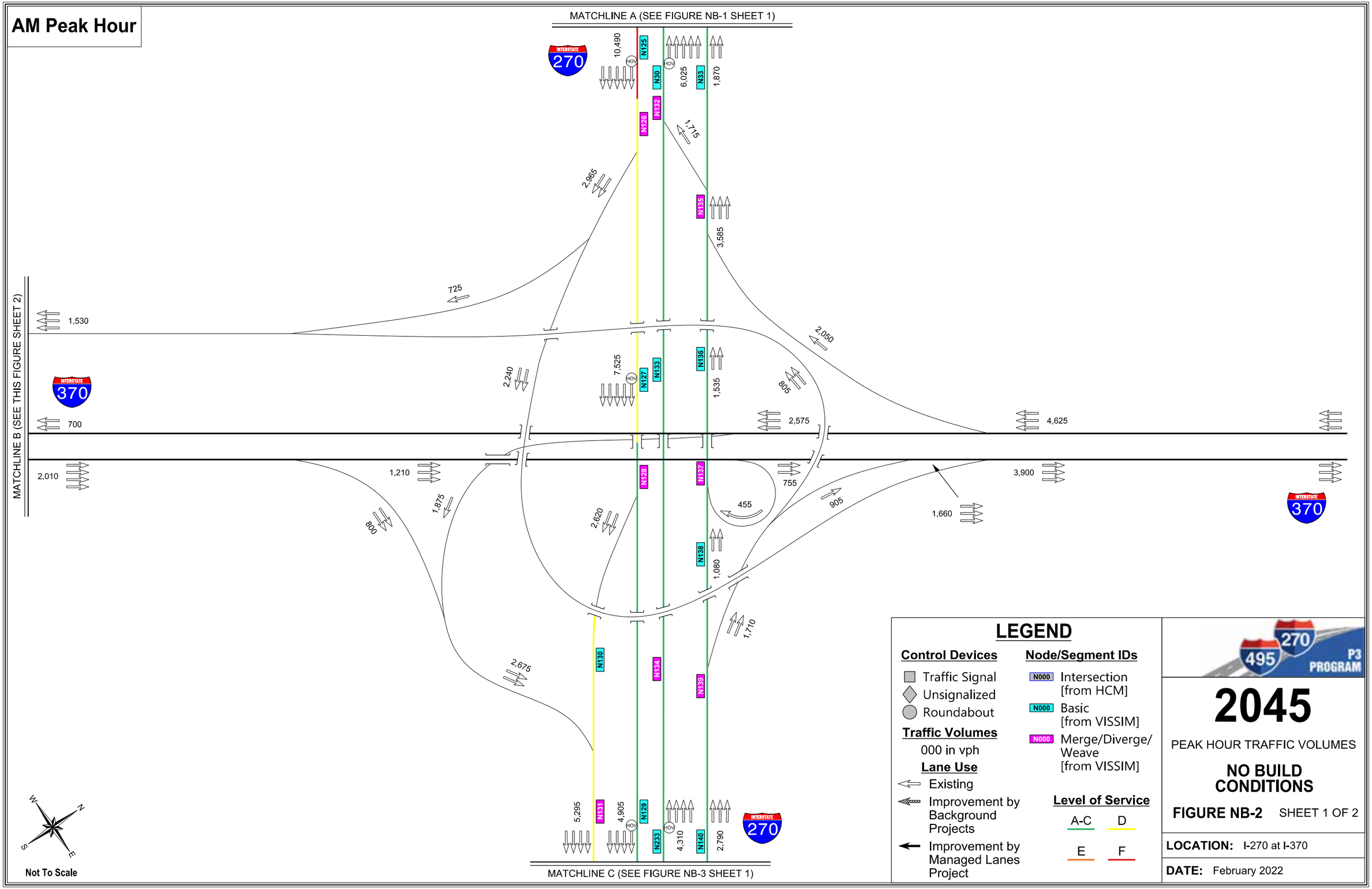
NO BUILD CONDITIONS

FIGURE NB-1 SHEET 1 OF 1

LOCATION: I-270 at MD 117

DATE: February 2022

AM Peak Hour



Not To Scale

LEGEND

Control Devices
- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes
000 in vph

Lane Use
- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs
- N000 Intersection [from HCM]
- N000 Basic [from VISSIM]
- N000 Merge/Diverge/ Weave [from VISSIM]

Level of Service

A-C	D
E	F

I-270 / I-495 P3 PROGRAM

2045

PEAK HOUR TRAFFIC VOLUMES

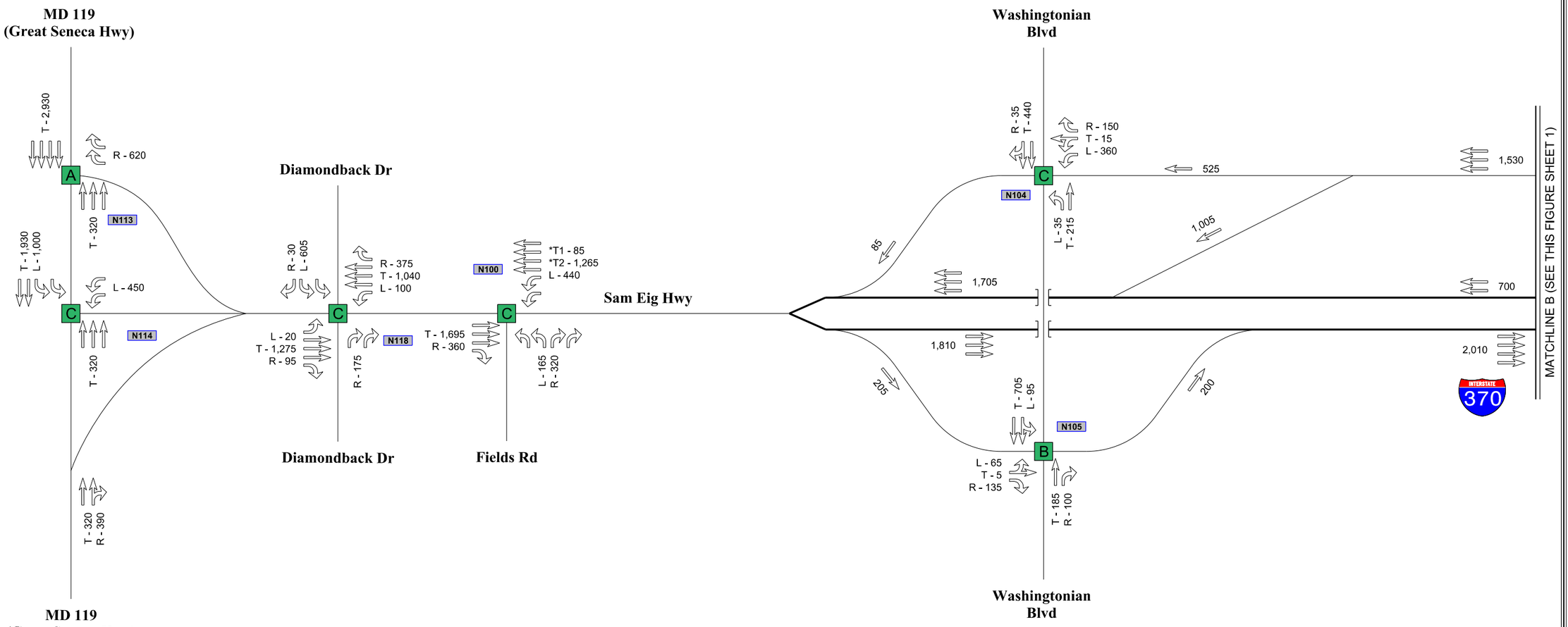
NO BUILD CONDITIONS

FIGURE NB-2 SHEET 1 OF 2

LOCATION: I-270 at I-370

DATE: February 2022

AM Peak Hour



LEGEND

Control Devices
- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes
000 in vph

Lane Use
- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs
- N000 Intersection [from HCM]
- N000 Basic [from VISSIM]
- N000 Merge/Diverge/ Weave [from VISSIM]

Level of Service

A-C	D
E	F

Not To Scale

*T1 represents vehicles arriving from I-370 (Sam Eig Hwy)
*T2 represents vehicles arriving from Washingtonian Blvd Ramp

I-270 / I-495 P3 PROGRAM

2045

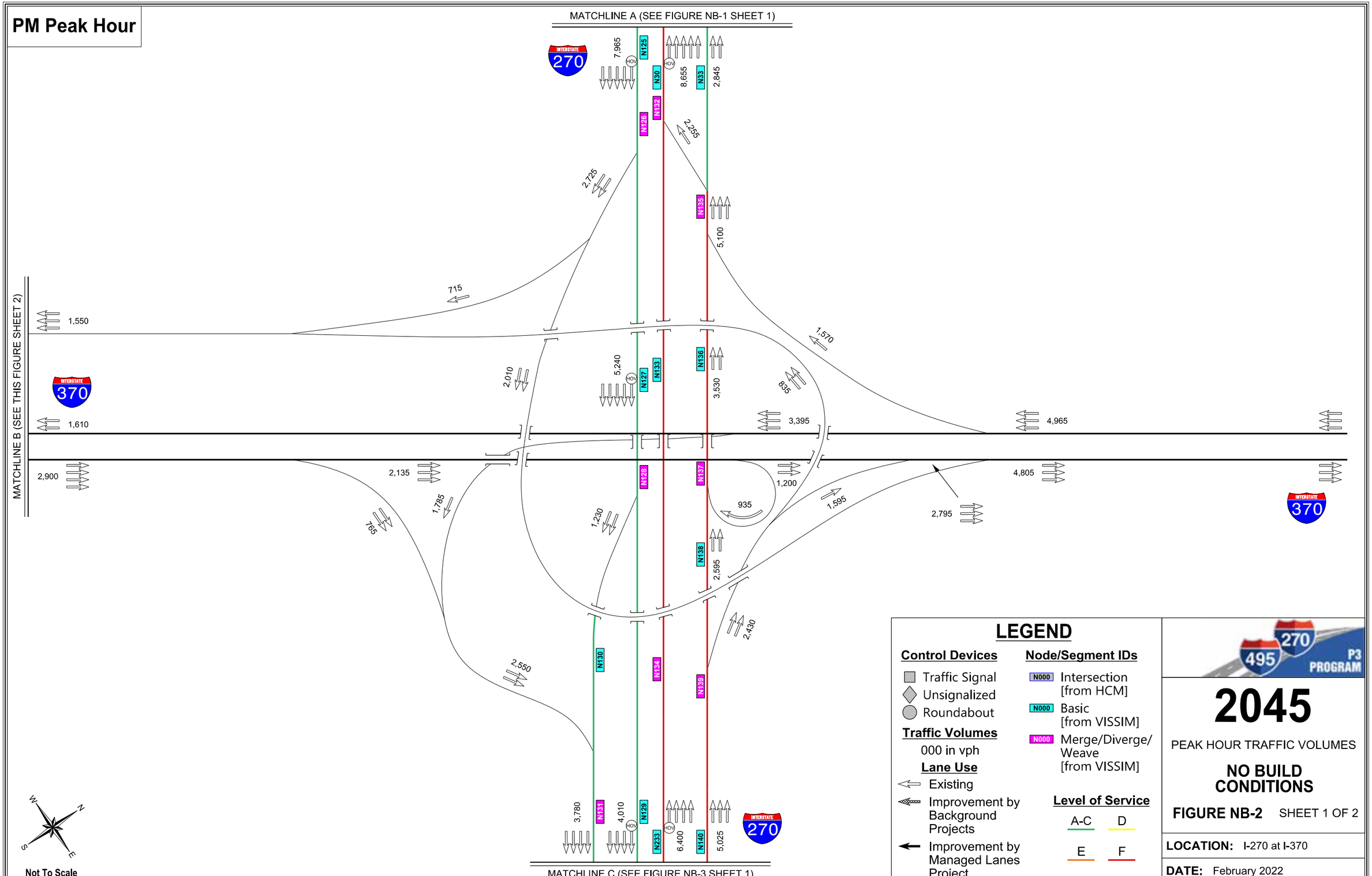
PEAK HOUR TRAFFIC VOLUMES

NO BUILD CONDITIONS

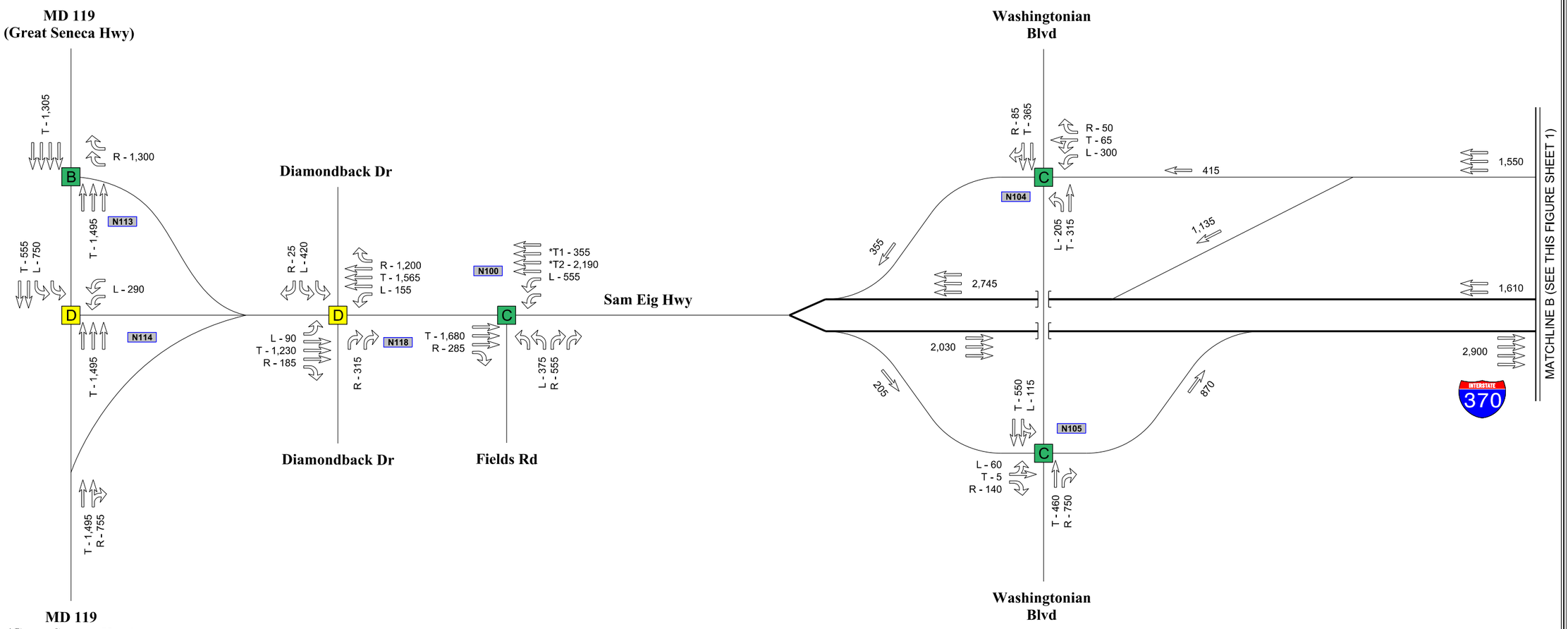
FIGURE NB-2 SHEET 2 OF 2

LOCATION: I-270 at I-370

DATE: February 2022


PM Peak Hour
MATCHLINE A (SEE FIGURE NB-1 SHEET 1)
MATCHLINE B (SEE THIS FIGURE SHEET 2)
MATCHLINE C (SEE FIGURE NB-3 SHEET 1)
INTERSTATE 270
INTERSTATE 370
HOV
N125
N30
N33
N132
N126
N135
N136
N127
N133
N128
N137
N138
N130
N134
N139
N131
N129
N233
N140
7,965
8,655
2,845
2,255
2,725
5,100
715
1,550
1,570
2,010
5,240
3,530
835
1,610
3,395
4,965
2,900
2,135
1,200
4,805
1,785
935
1,595
2,795
765
1,230
2,595
2,430
2,550
3,780
4,010
6,400
5,025
W
N
S
E
Not To Scale
LEGEND
Control Devices
Traffic Signal
Unsignalized
Roundabout
Traffic Volumes
000 in vph
Lane Use
Existing
Improvement by Background Projects
Improvement by Managed Lanes Project
Node/Segment IDs
N000 Intersection [from HCM]
N000 Basic [from VISSIM]
N000 Merge/Diverge/ Weave [from VISSIM]
Level of Service
A-C
D
E
F
495
270
P3 PROGRAM
2045
PEAK HOUR TRAFFIC VOLUMES
NO BUILD CONDITIONS
FIGURE NB-2
SHEET 1 OF 2
LOCATION: I-270 at I-370
DATE: February 2022

PM Peak Hour



*T1 represents vehicles arriving from I-370 (Sam Eig Hwy)
*T2 represents vehicles arriving from Washingtonian Blvd Ramp

Not To Scale

LEGEND

Control Devices
- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes
000 in vph

Lane Use
- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs
- N000 Intersection [from HCM]
- N000 Basic [from VISSIM]
- N000 Merge/Diverge/ Weave [from VISSIM]

Level of Service
A-C D E F

I-270 / I-495 P3 PROGRAM

2045

PEAK HOUR TRAFFIC VOLUMES

NO BUILD CONDITIONS

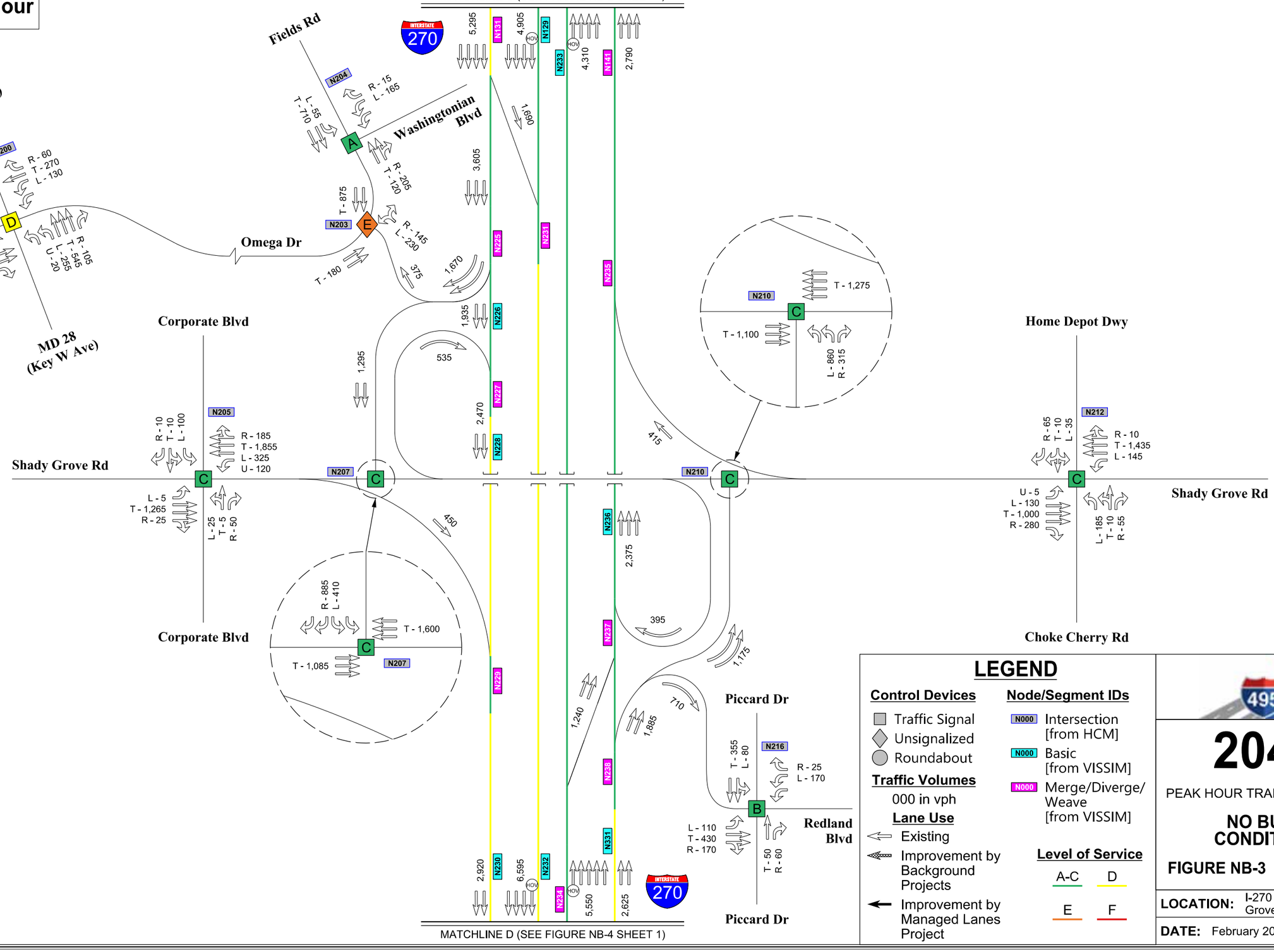
FIGURE NB-2 SHEET 2 OF 2

LOCATION: I-270 at I-370

DATE: February 2022

AM Peak Hour

MATCHLINE C (SEE FIGURE NB-2 SHEET 1)



MATCHLINE D (SEE FIGURE NB-4 SHEET 1)

Not To Scale

LEGEND

Control Devices
- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes
000 in vph

Lane Use
- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs
- N000 Intersection [from HCM]
- N000 Basic [from VISSIM]
- N000 Merge/Diverge/ Weave [from VISSIM]

Level of Service
A-C D E F

I-270 495 P3 PROGRAM

2045

PEAK HOUR TRAFFIC VOLUMES

NO BUILD CONDITIONS

FIGURE NB-3 SHEET 1 OF 1

LOCATION: I-270 at Shady Grove Road

DATE: February 2022

PM Peak Hour

MATCHLINE C (SEE FIGURE NB-2 SHEET 1)

MATCHLINE D (SEE FIGURE NB-4 SHEET 1)

Fields Rd
MD 28 (Key W Ave)
Medical Center Dr
Omega Dr
Washingtonian Blvd
Corporate Blvd
Shady Grove Rd
Home Depot Dwy
Choke Cherry Rd
Piccard Dr
Redland Blvd
INTERSTATE 270

Not To Scale

LEGEND

Control Devices
- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes
000 in vph

Lane Use
- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs
- N000 Intersection [from HCM]
- N000 Basic [from VISSIM]
- N000 Merge/Diverge/ Weave [from VISSIM]

Level of Service
A-C D E F

I-270 & US 15 P3 PROGRAM

2045

PEAK HOUR TRAFFIC VOLUMES

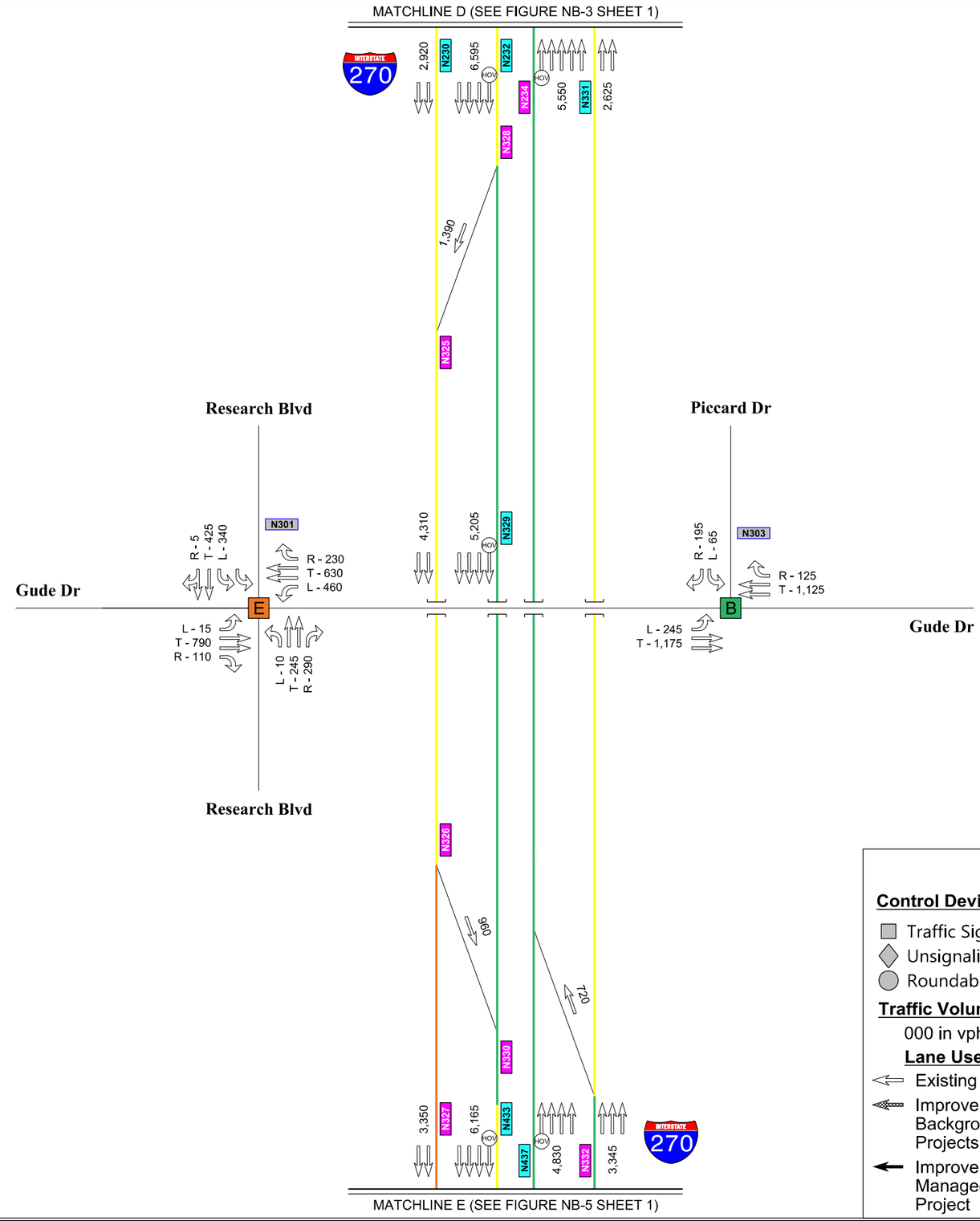
NO BUILD CONDITIONS

FIGURE NB-3 SHEET 1 OF 1

LOCATION: I-270 at Shady Grove Road

DATE: February 2022

AM Peak Hour



Not To Scale

LEGEND

Control Devices
- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes
000 in vph

Lane Use
- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs
- N000 Intersection [from HCM]
- N000 Basic [from VISSIM]
- N000 Merge/Diverge/ Weave [from VISSIM]

Level of Service
A-C D E F

I-270 / I-495 P3 PROGRAM

2045

PEAK HOUR TRAFFIC VOLUMES

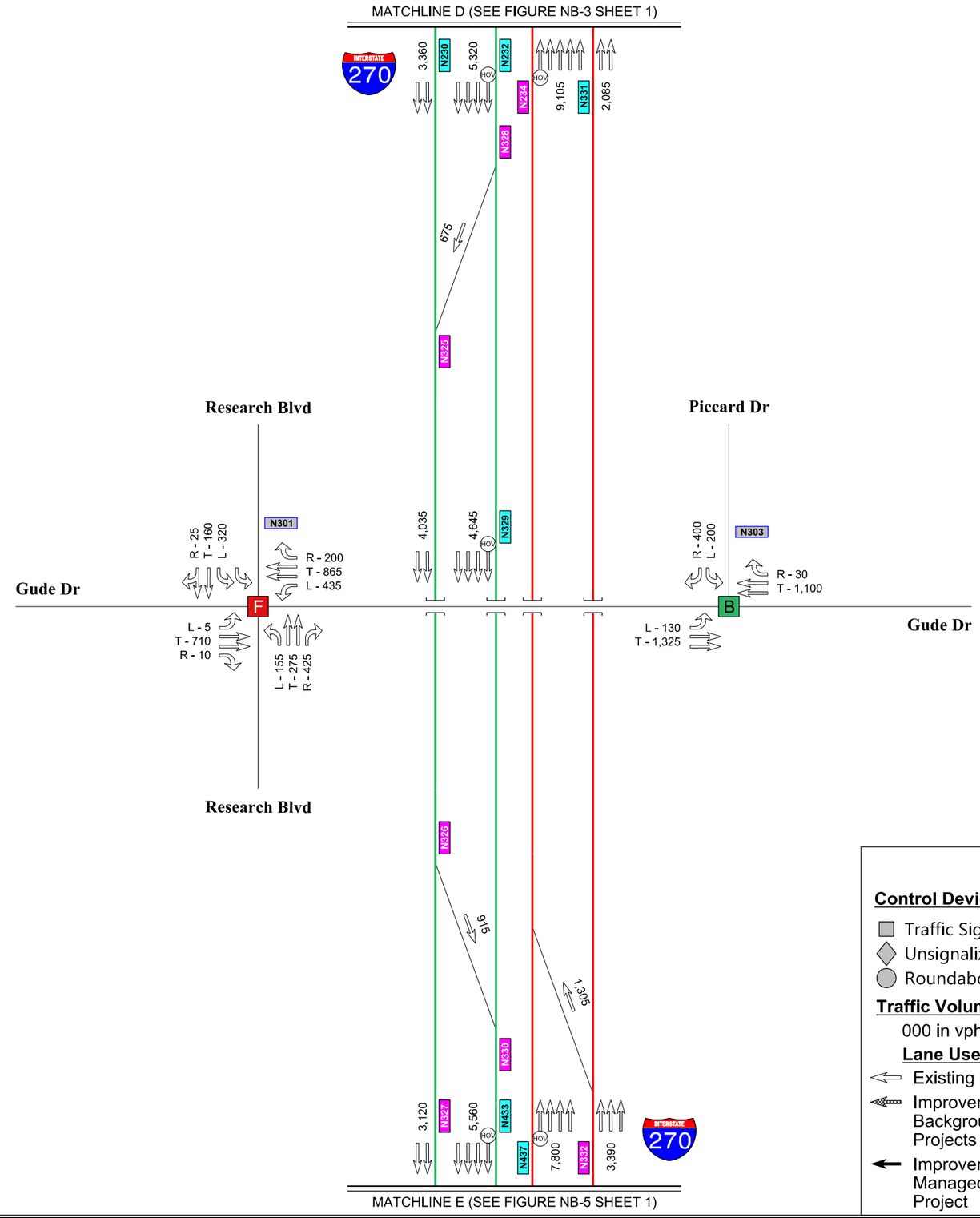
NO BUILD CONDITIONS

FIGURE NB-4 SHEET 1 OF 1

LOCATION: I-270 at Gude Drive

DATE: February 2022

PM Peak Hour



Not To Scale

LEGEND

Control Devices

- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes

000 in vph

Lane Use

- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs

- N000 Intersection [from HCM]
- N000 Basic [from VISSIM]
- N000 Merge/Diverge/ Weave [from VISSIM]

Level of Service

A-C D E F

I-270 P3 PROGRAM

2045

PEAK HOUR TRAFFIC VOLUMES

NO BUILD CONDITIONS

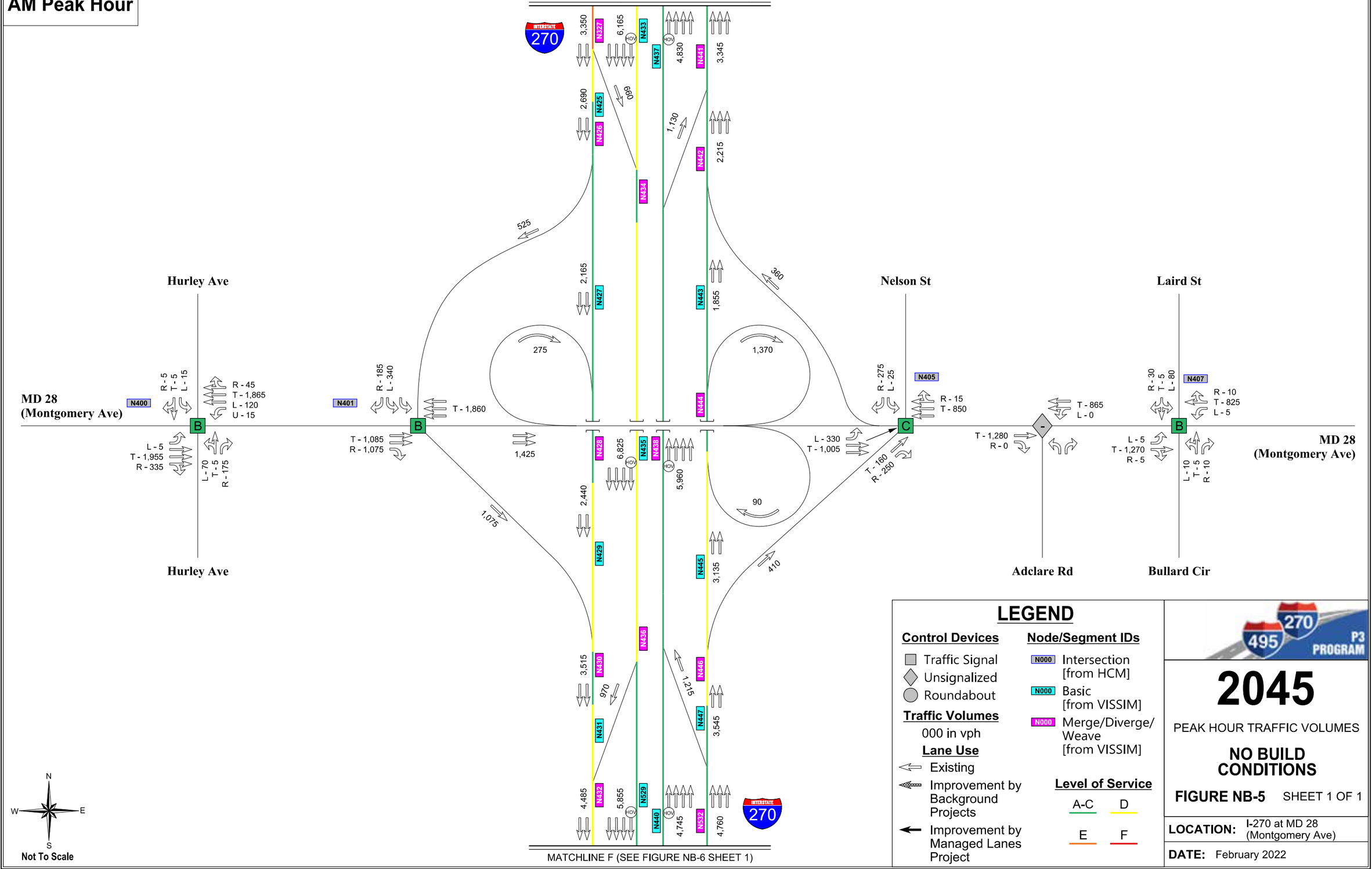
FIGURE NB-4 SHEET 1 OF 1

LOCATION: I-270 at Gude Drive

DATE: February 2022

AM Peak Hour

MATCHLINE E (SEE FIGURE NB-4 SHEET 1)



N
W
E
S
Not To Scale

LEGEND

Control Devices

- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes

000 in vph

Lane Use

- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs

- N000 Intersection [from HCM]
- N000 Basic [from VISSIM]
- N000 Merge/Diverge/ Weave [from VISSIM]

Level of Service

A-C D E F

I-270 / I-495 P3 PROGRAM

2045

PEAK HOUR TRAFFIC VOLUMES

NO BUILD CONDITIONS

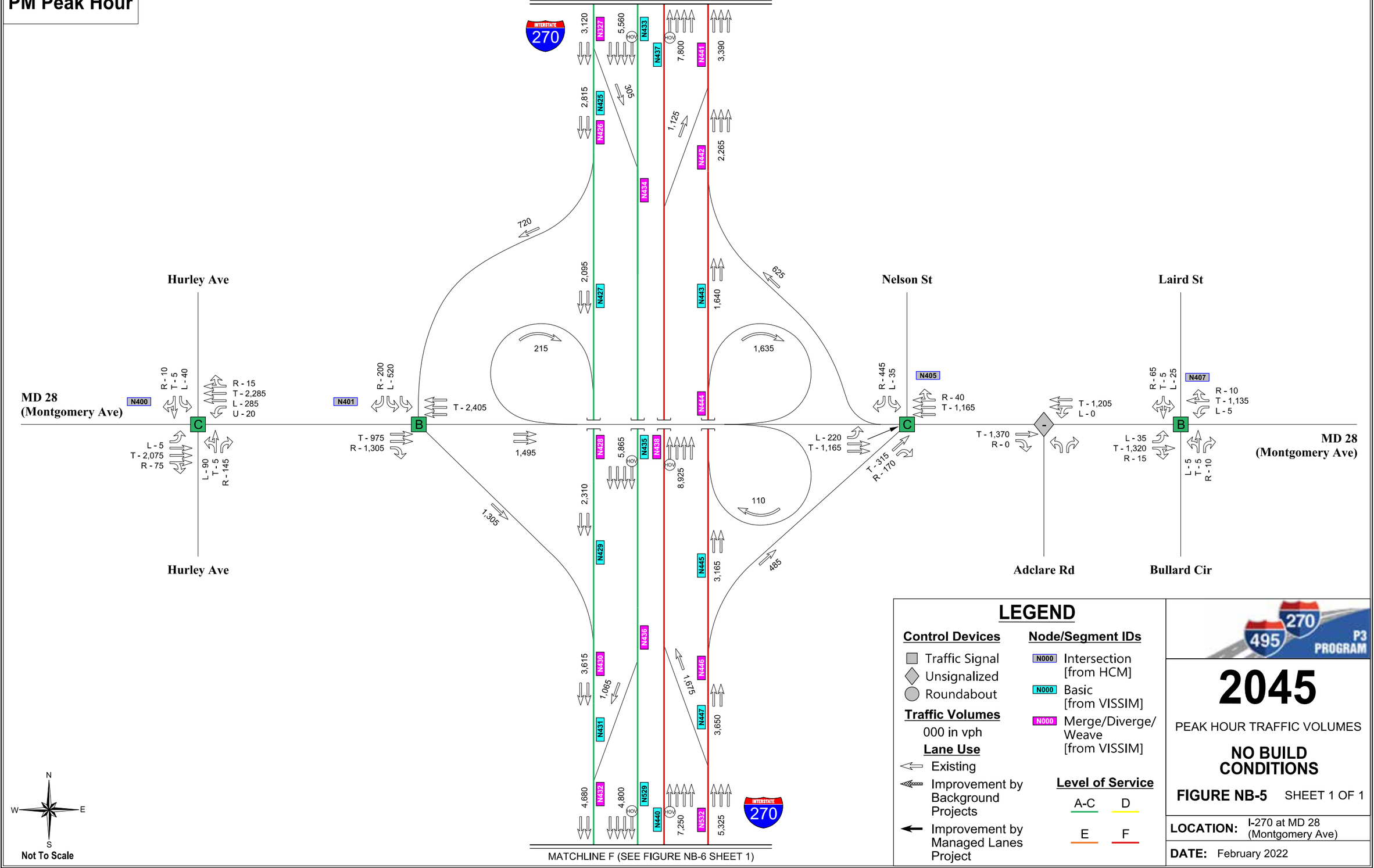
FIGURE NB-5 SHEET 1 OF 1

LOCATION: I-270 at MD 28 (Montgomery Ave)

DATE: February 2022

PM Peak Hour

MATCHLINE E (SEE FIGURE NB-4 SHEET 1)



MATCHLINE F (SEE FIGURE NB-6 SHEET 1)

N
W
E
S
Not To Scale

LEGEND

Control Devices
- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes
000 in vph

Lane Use
- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs
- N000 Intersection [from HCM]
- N000 Basic [from VISSIM]
- N000 Merge/Diverge/ Weave [from VISSIM]

Level of Service
A-C D E F

I-270 / I-495 P3 PROGRAM

2045

PEAK HOUR TRAFFIC VOLUMES

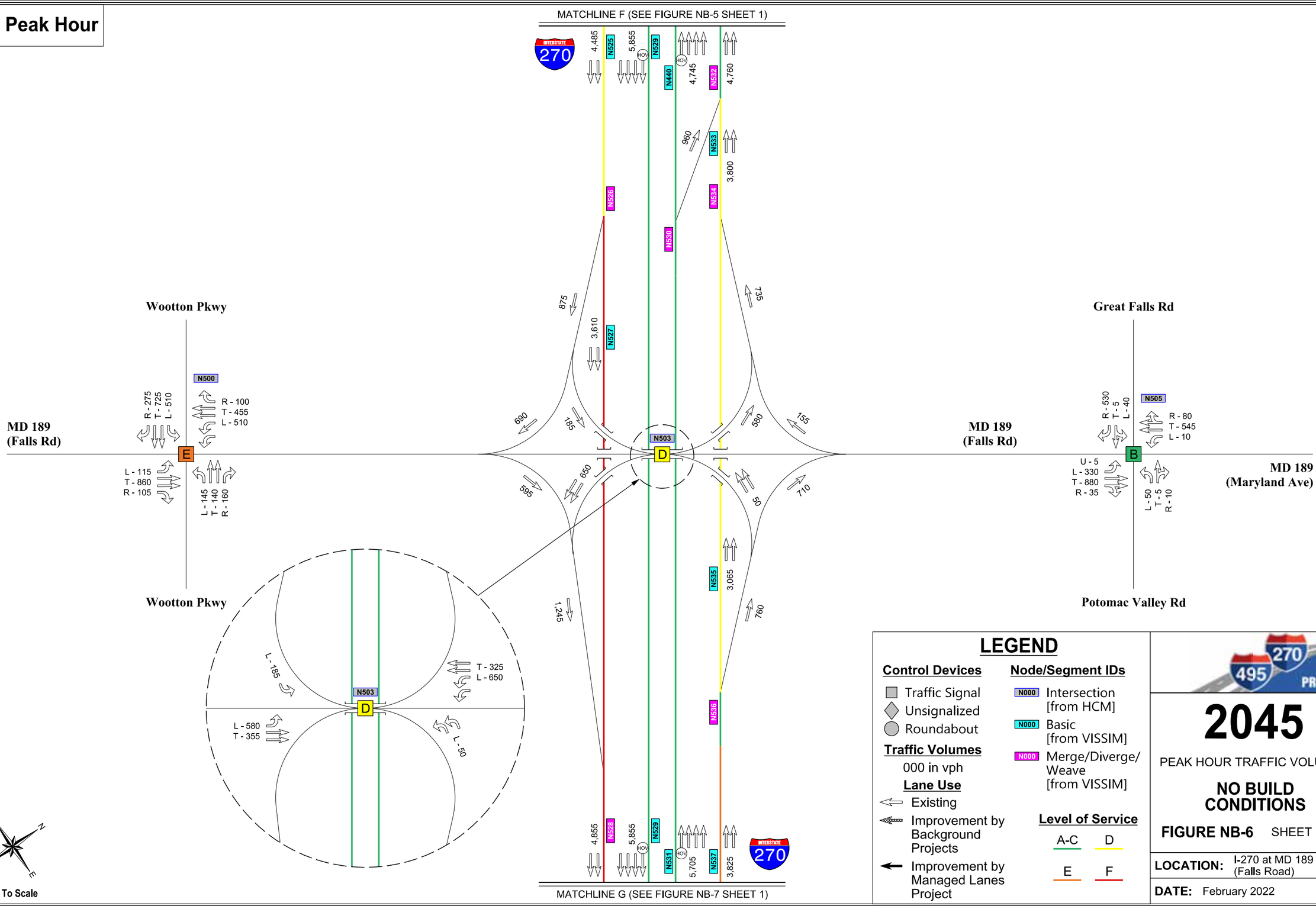
NO BUILD CONDITIONS

FIGURE NB-5 SHEET 1 OF 1

LOCATION: I-270 at MD 28 (Montgomery Ave)

DATE: February 2022

AM Peak Hour



LEGEND

Control Devices

- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes

000 in vph

Lane Use

- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs

- N000 Intersection [from HCM]
- N000 Basic [from VISSIM]
- N000 Merge/Diverge/ Weave [from VISSIM]

Level of Service

A-C D E F

I-270 / 495 P3 PROGRAM

2045

PEAK HOUR TRAFFIC VOLUMES

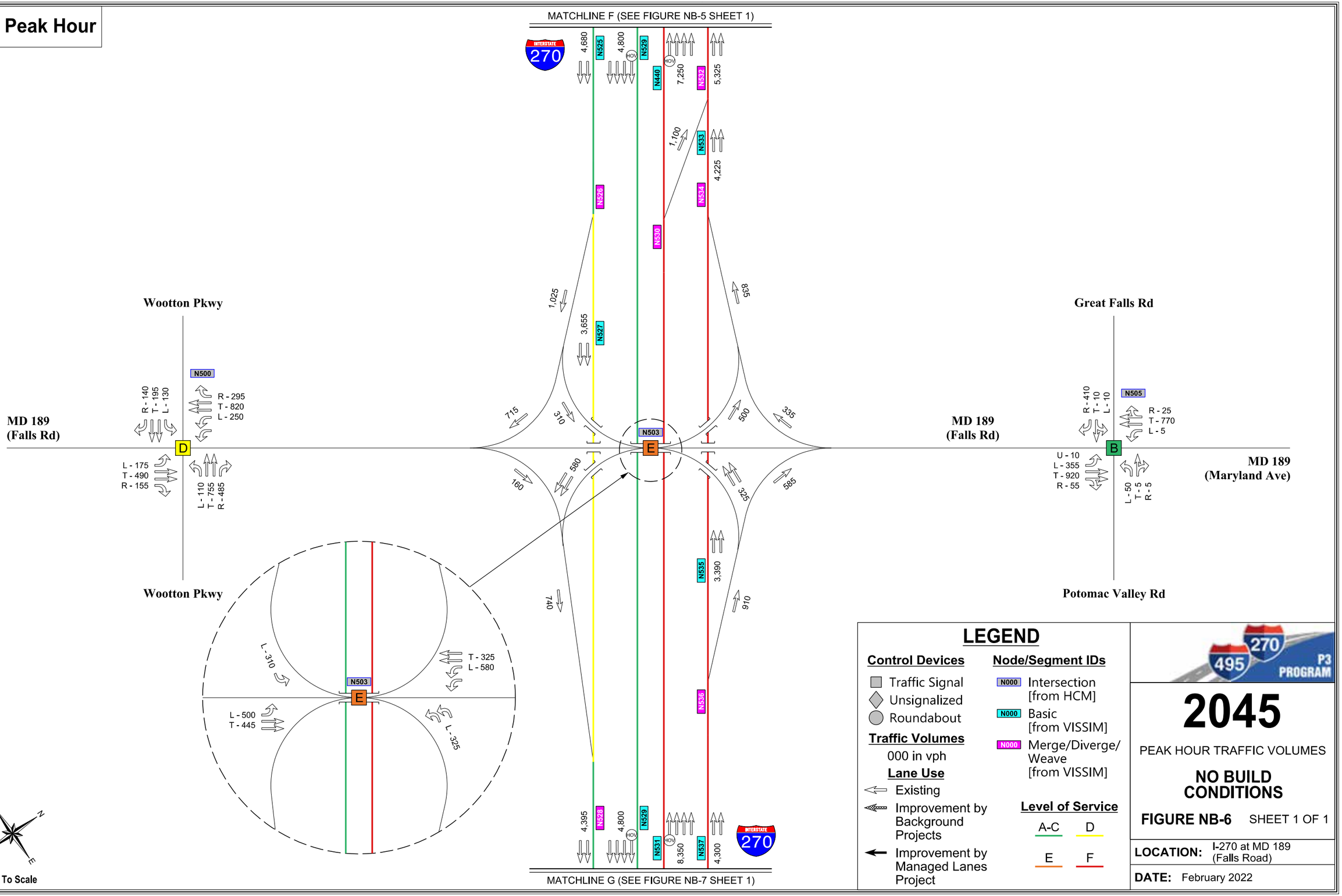
NO BUILD CONDITIONS

FIGURE NB-6 SHEET 1 OF 1

LOCATION: I-270 at MD 189 (Falls Road)

DATE: February 2022

PM Peak Hour



LEGEND

Control Devices

- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes

000 in vph

Lane Use

- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs

- N000 Intersection [from HCM]
- N000 Basic [from VISSIM]
- N000 Merge/Diverge/ Weave [from VISSIM]

Level of Service

A-C D E F

I-270 / MD 495 P3 PROGRAM

2045

PEAK HOUR TRAFFIC VOLUMES

NO BUILD CONDITIONS

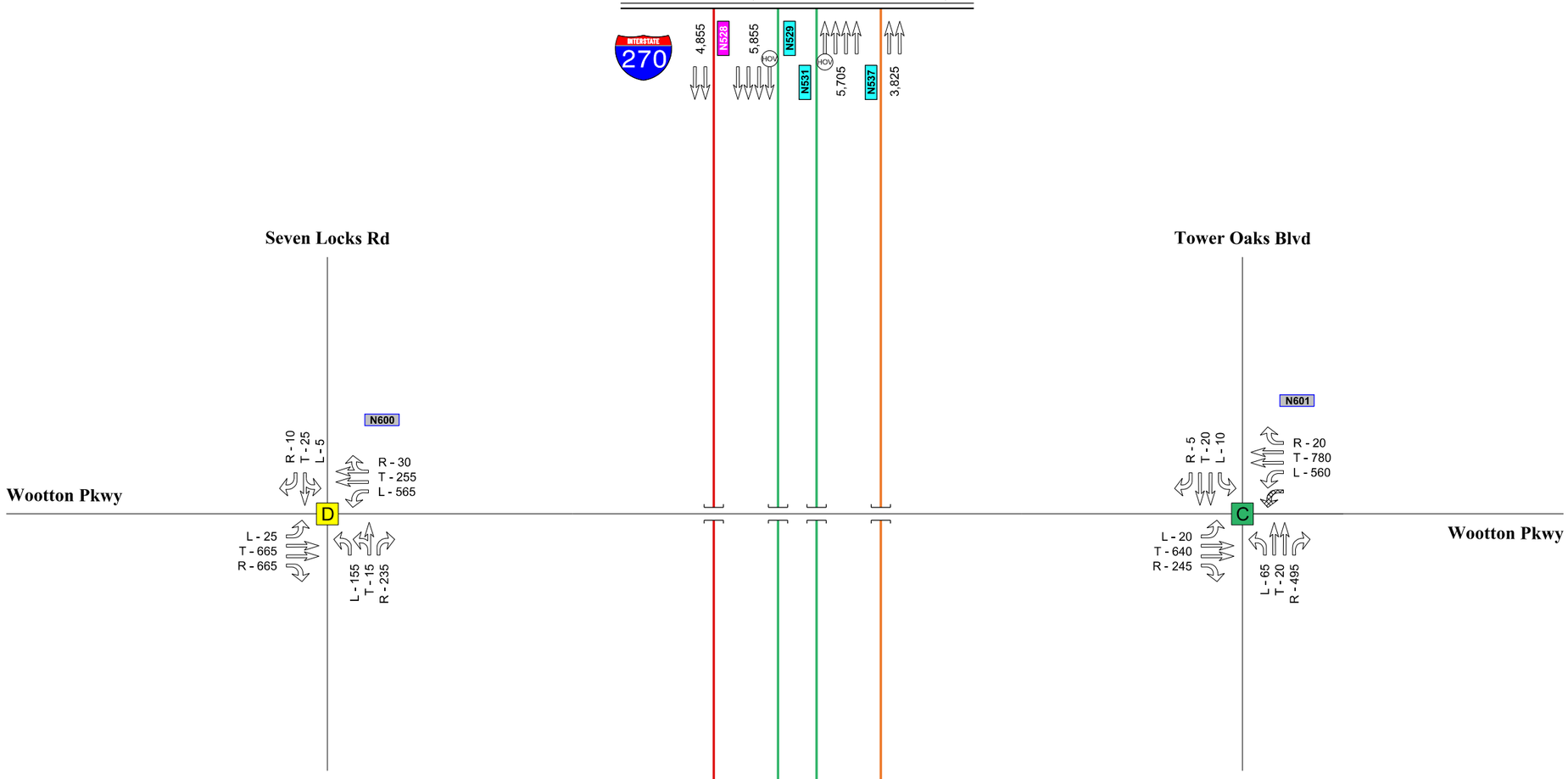
FIGURE NB-6 SHEET 1 OF 1

LOCATION: I-270 at MD 189 (Falls Road)

DATE: February 2022

AM Peak Hour

MATCHLINE G (SEE FIGURE NB-6 SHEET 1)



MATCHLINE H (SEE FIGURE NB-8 SHEET 1)

N

W E

S

Not To Scale

LEGEND

Control Devices

- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes

000 in vph

Lane Use

- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs

- N000 Intersection [from HCM]
- N000 Basic [from VISSIM]
- N000 Merge/Diverge/ Weave [from VISSIM]

Level of Service

A-C D E F

I-270 / I-495 P3 PROGRAM

2045

PEAK HOUR TRAFFIC VOLUMES

NO BUILD CONDITIONS

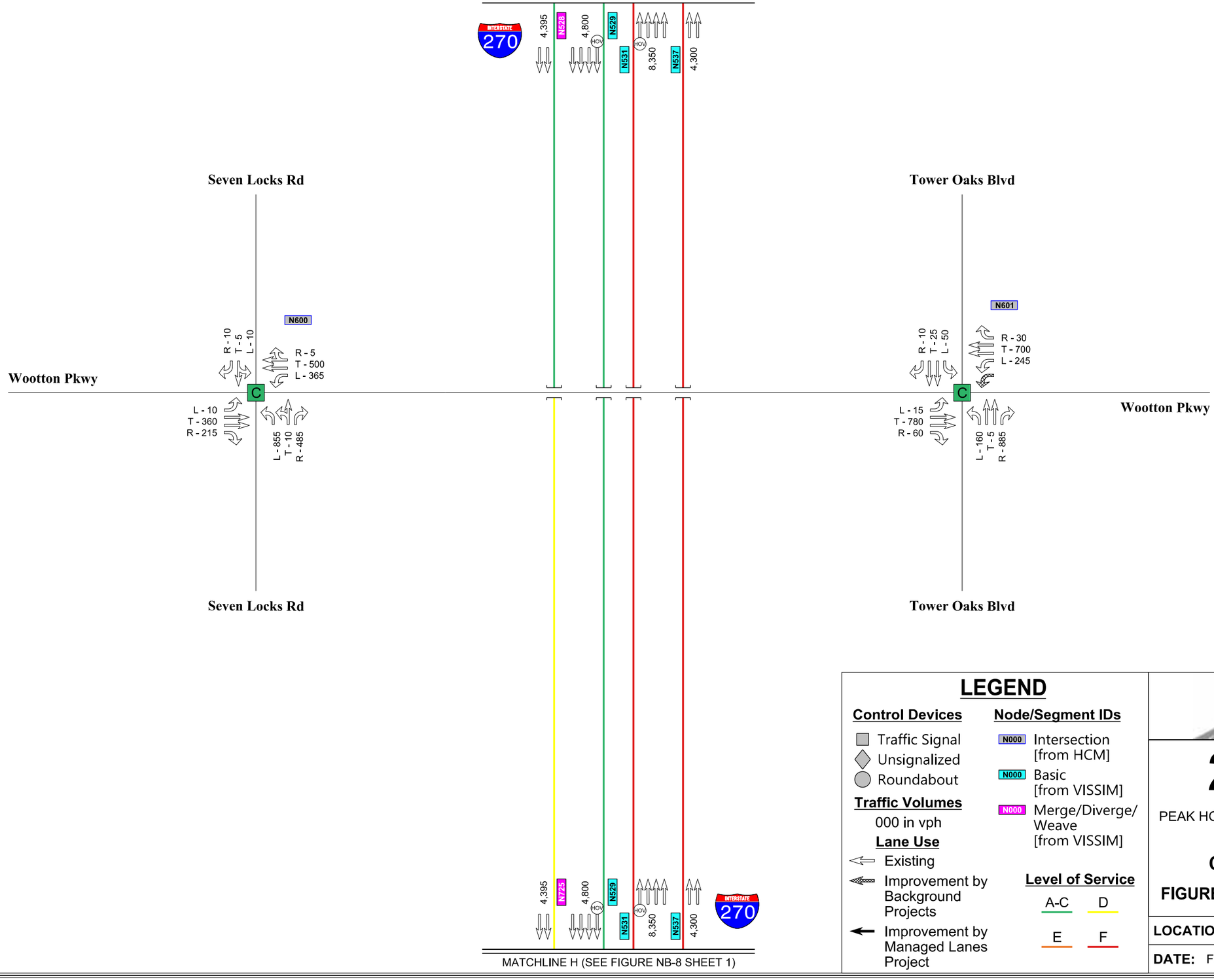
FIGURE NB-7 SHEET 1 OF 1

LOCATION: I-270 at Wootton Parkway

DATE: February 2022

PM Peak Hour

MATCHLINE G (SEE FIGURE NB-6 SHEET 1)



MATCHLINE H (SEE FIGURE NB-8 SHEET 1)

N
W
E
S
Not To Scale

LEGEND

Control Devices
- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes
000 in vph

Lane Use
- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs
- N000 Intersection [from HCM]
- N000 Basic [from VISSIM]
- N000 Merge/Diverge/ Weave [from VISSIM]

Level of Service
A-C D E F

I-270 / 495 P3 PROGRAM

2045

PEAK HOUR TRAFFIC VOLUMES

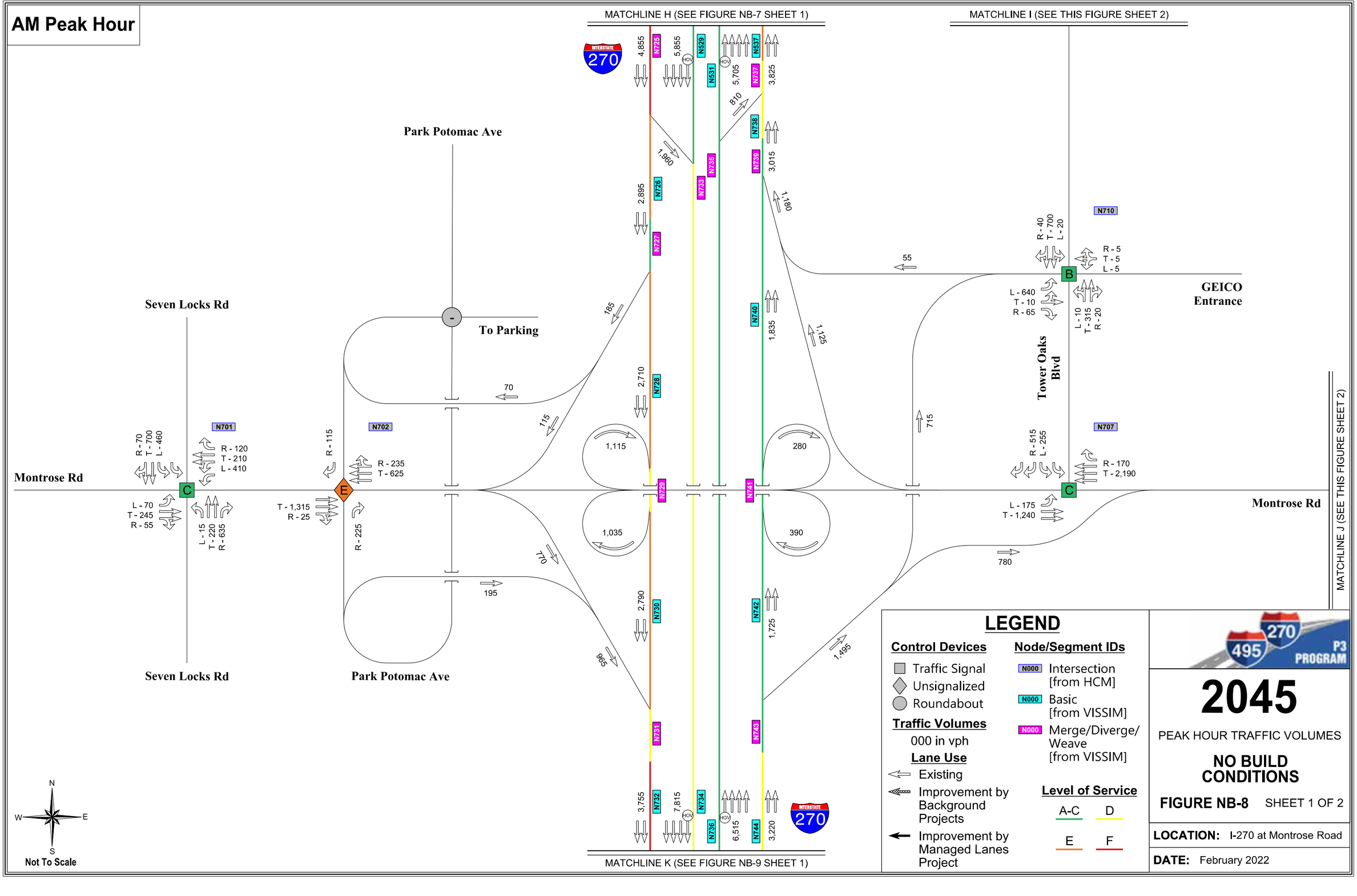
NO BUILD CONDITIONS

FIGURE NB-7 SHEET 1 OF 1

LOCATION: I-270 at Wootton Parkway

DATE: February 2022

AM Peak Hour



LEGEND

Control Devices
- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes
000 in vph

Lane Use
- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs
- N000 Intersection [from HCM]
- N000 Basic [from VISSIM]
- N000 Merge/Diverge/ Weave [from VISSIM]

Level of Service

A-C	D
E	F

2045

PEAK HOUR TRAFFIC VOLUMES

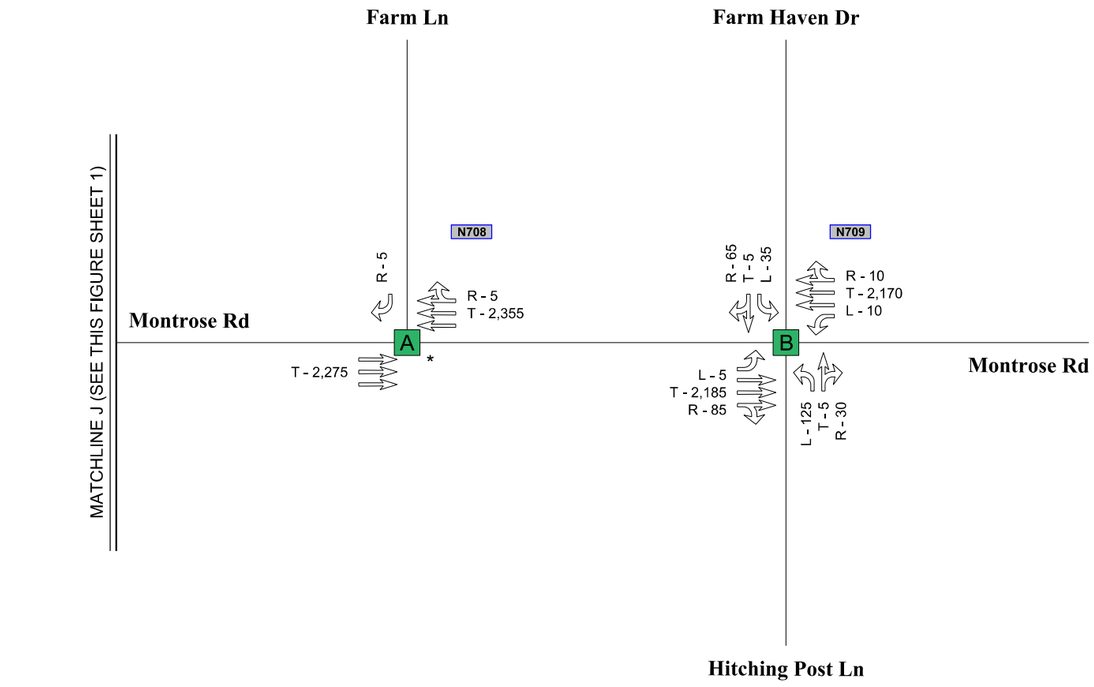
NO BUILD CONDITIONS

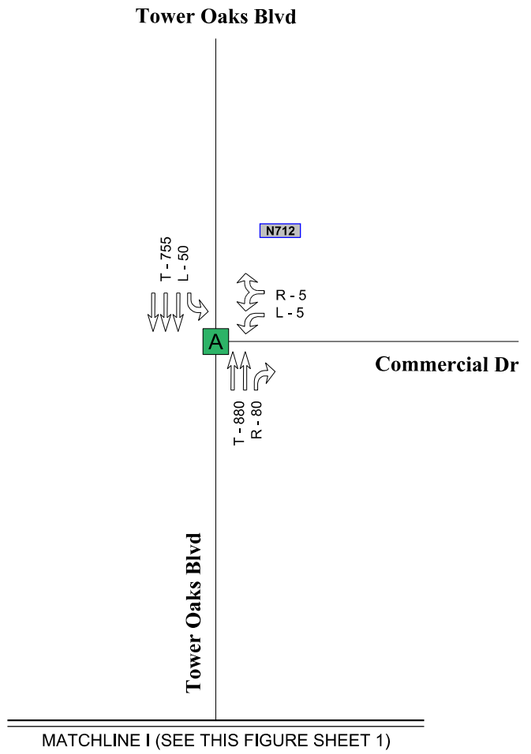
FIGURE NB-8 SHEET 1 OF 2

LOCATION: I-270 at Montrose Road

DATE: February 2022

AM Peak Hour





N
W
E
S
Not To Scale

*Note: Montrose Road at Farm Lane is a Pedestrian Signal with Farm Lane being yield controlled

LEGEND

Control Devices
- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes
000 in vph

Lane Use
- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs
- N000 Intersection [from HCM]
- N000 Basic [from VISSIM]
- N000 Merge/Diverge/ Weave [from VISSIM]

Level of Service

A-C	D
E	F

I-495 & I-270 P3 PROGRAM

2045

PEAK HOUR TRAFFIC VOLUMES

NO BUILD CONDITIONS

FIGURE NB-8 SHEET 2 OF 2

LOCATION: I-270 at Montrose Road

DATE: February 2022

PM Peak Hour

MATCHLINE H (SEE FIGURE NB-7 SHEET 1)

MATCHLINE I (SEE THIS FIGURE SHEET 2)

MATCHLINE J (SEE THIS FIGURE SHEET 2)

MATCHLINE K (SEE FIGURE NB-9 SHEET 1)

INTERSTATE 270

Park Potomac Ave

Seven Locks Rd

Montrose Rd

Tower Oaks Blvd

GEICO Entrance

To Parking

Seven Locks Rd

Park Potomac Ave

Montrose Rd

Tower Oaks Blvd

GEICO Entrance

Not To Scale

LEGEND

Control Devices
- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes
000 in vph

Lane Use
- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs
- N000 Intersection [from HCM]
- N000 Basic [from VISSIM]
- N000 Merge/Diverge/ Weave [from VISSIM]

Level of Service
A-C D E F

I-270 / I-495 P3 PROGRAM

2045

PEAK HOUR TRAFFIC VOLUMES

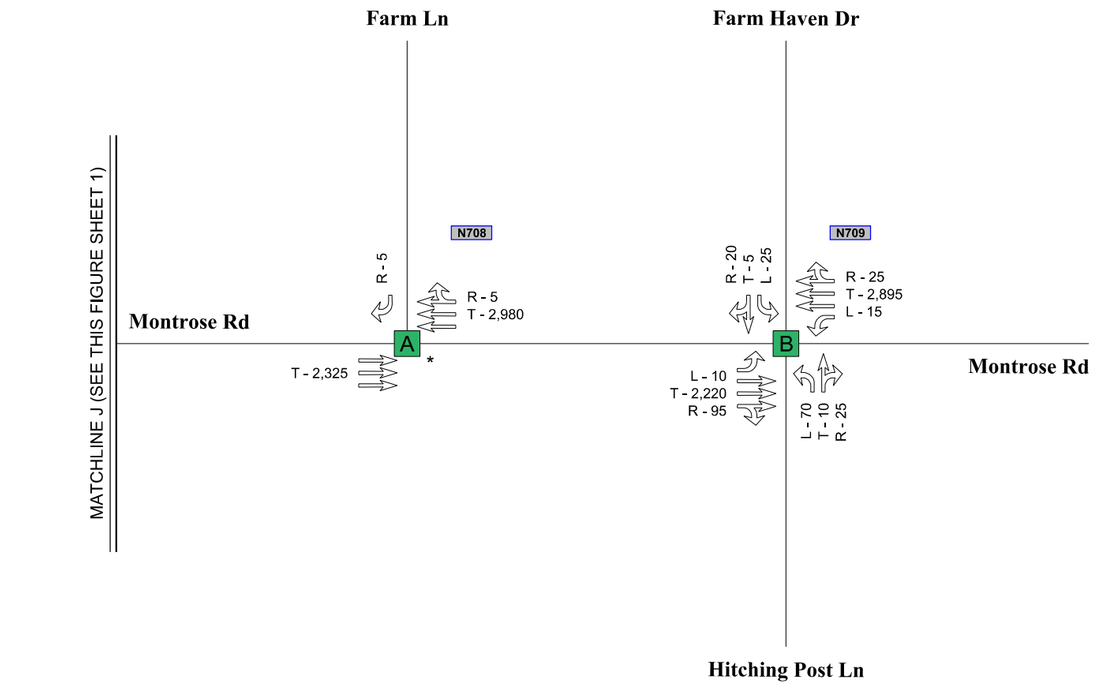
NO BUILD CONDITIONS

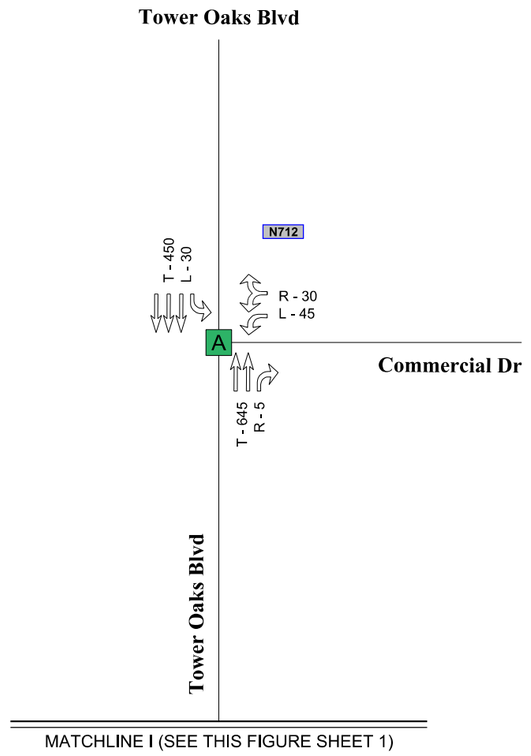
FIGURE NB-8 SHEET 1 OF 2

LOCATION: I-270 at Montrose Road

DATE: February 2022

PM Peak Hour





N
W E
S
Not To Scale

*Note: Montrose Road at Farm Lane is a Pedestrian Signal with Farm Lane being yield controlled

LEGEND

Control Devices
- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes
000 in vph

Lane Use
- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs
- N000 Intersection [from HCM]
- N000 Basic [from VISSIM]
- N000 Merge/Diverge/ Weave [from VISSIM]

Level of Service

A-C	D
E	F

270 495 P3 PROGRAM

2045

PEAK HOUR TRAFFIC VOLUMES

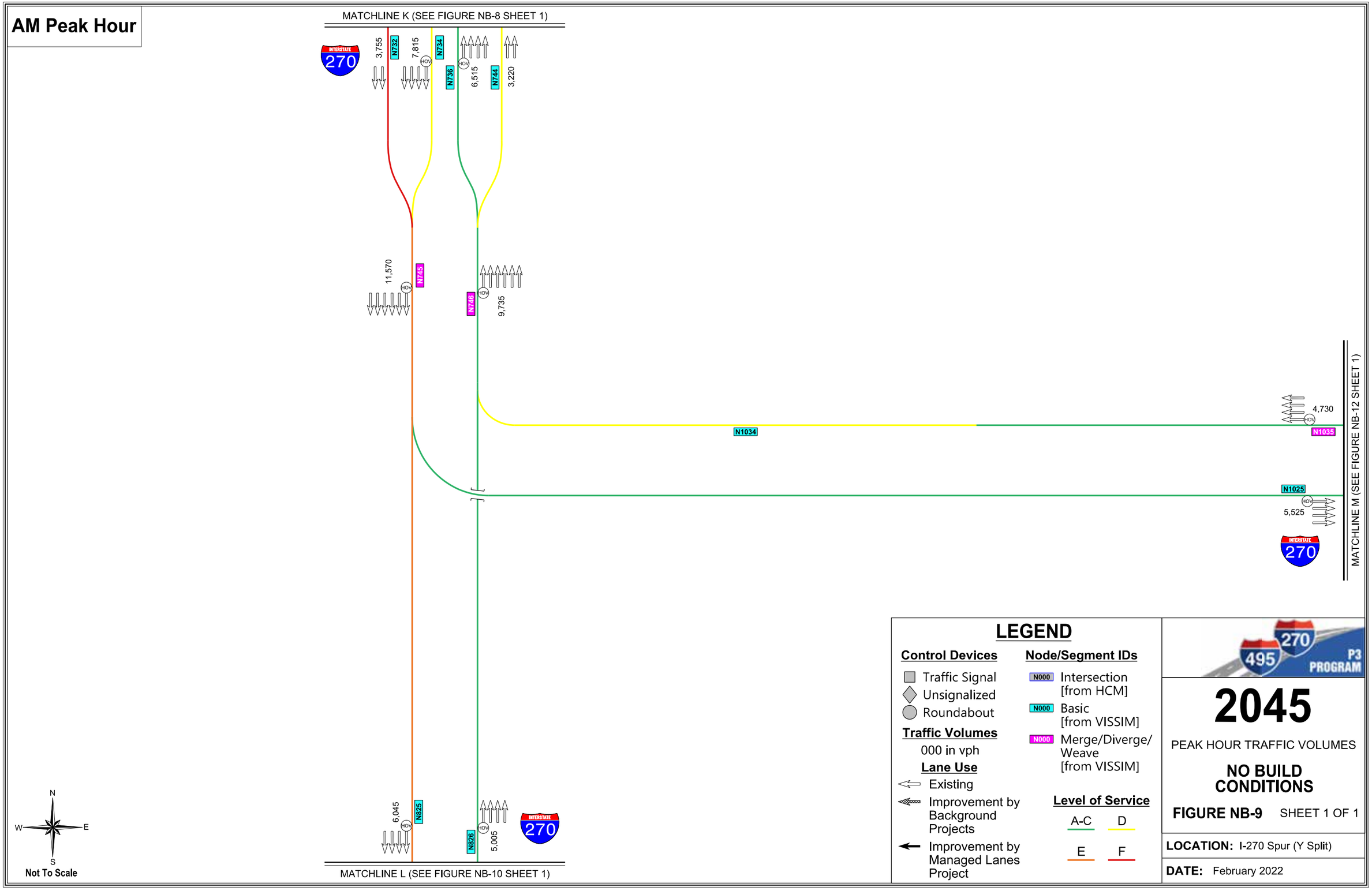
NO BUILD CONDITIONS

FIGURE NB-8 SHEET 2 OF 2

LOCATION: I-270 at Montrose Road

DATE: February 2022

AM Peak Hour



LEGEND

Control Devices

- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes

000 in vph

Lane Use

- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs

- N000 Intersection [from HCM]
- N000 Basic [from VISSIM]
- N000 Merge/Diverge/ Weave [from VISSIM]

Level of Service

A-C | D | E | F

495 270 P3 PROGRAM

2045

PEAK HOUR TRAFFIC VOLUMES

NO BUILD CONDITIONS

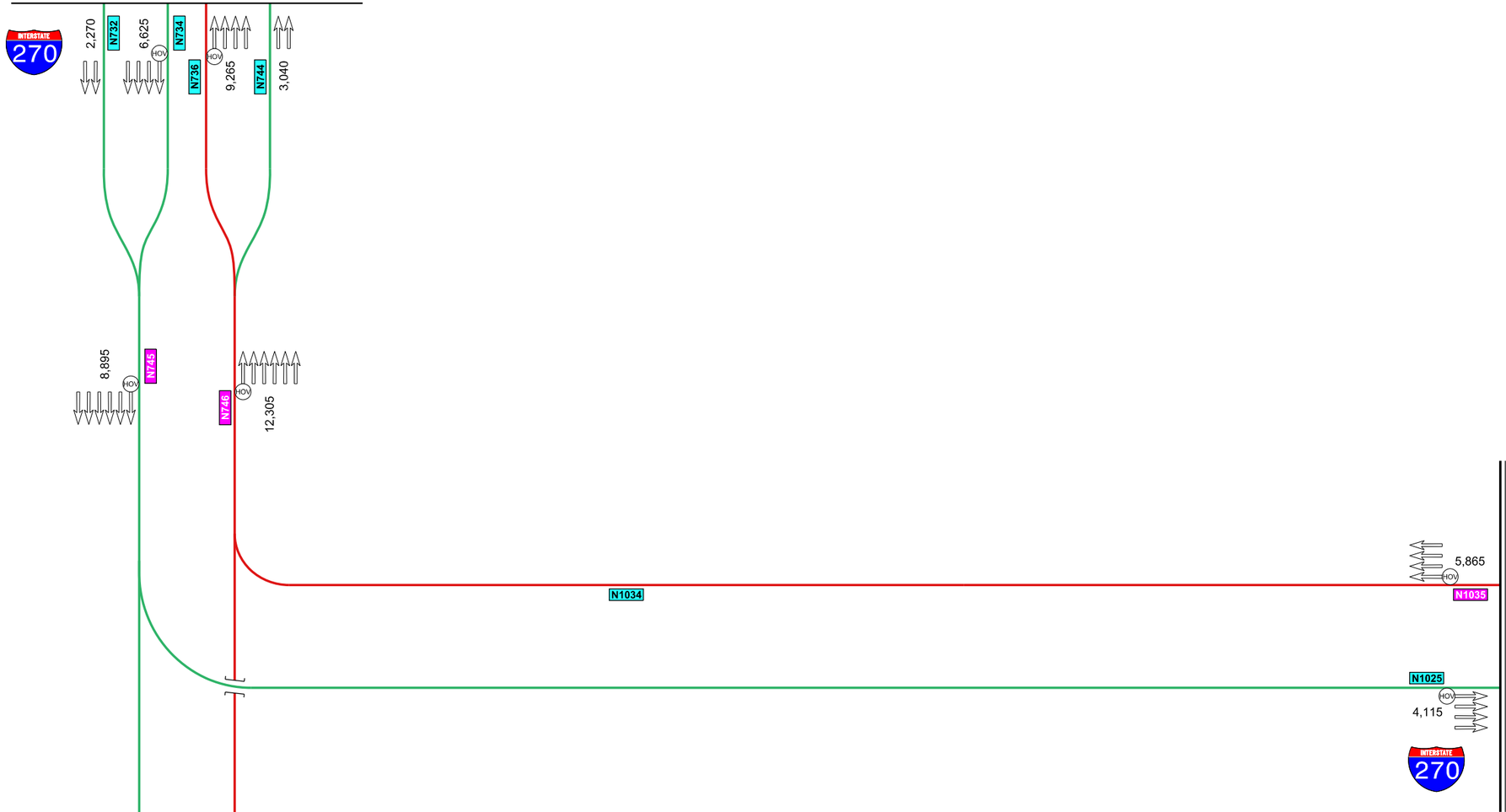
FIGURE NB-9 SHEET 1 OF 1

LOCATION: I-270 Spur (Y Split)

DATE: February 2022

PM Peak Hour

MATCHLINE K (SEE FIGURE NB-8 SHEET 1)



MATCHLINE L (SEE FIGURE NB-10 SHEET 1)

MATCHLINE M (SEE FIGURE NB-12 SHEET 1)

N
W E
S
Not To Scale

LEGEND

Control Devices
- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes
000 in vph

Lane Use
- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs
- N000 Intersection [from HCM]
- N000 Basic [from VISSIM]
- N000 Merge/Diverge/ Weave [from VISSIM]

Level of Service
A-C D E F

I-270 / I-495 P3 PROGRAM

2045

PEAK HOUR TRAFFIC VOLUMES

NO BUILD CONDITIONS

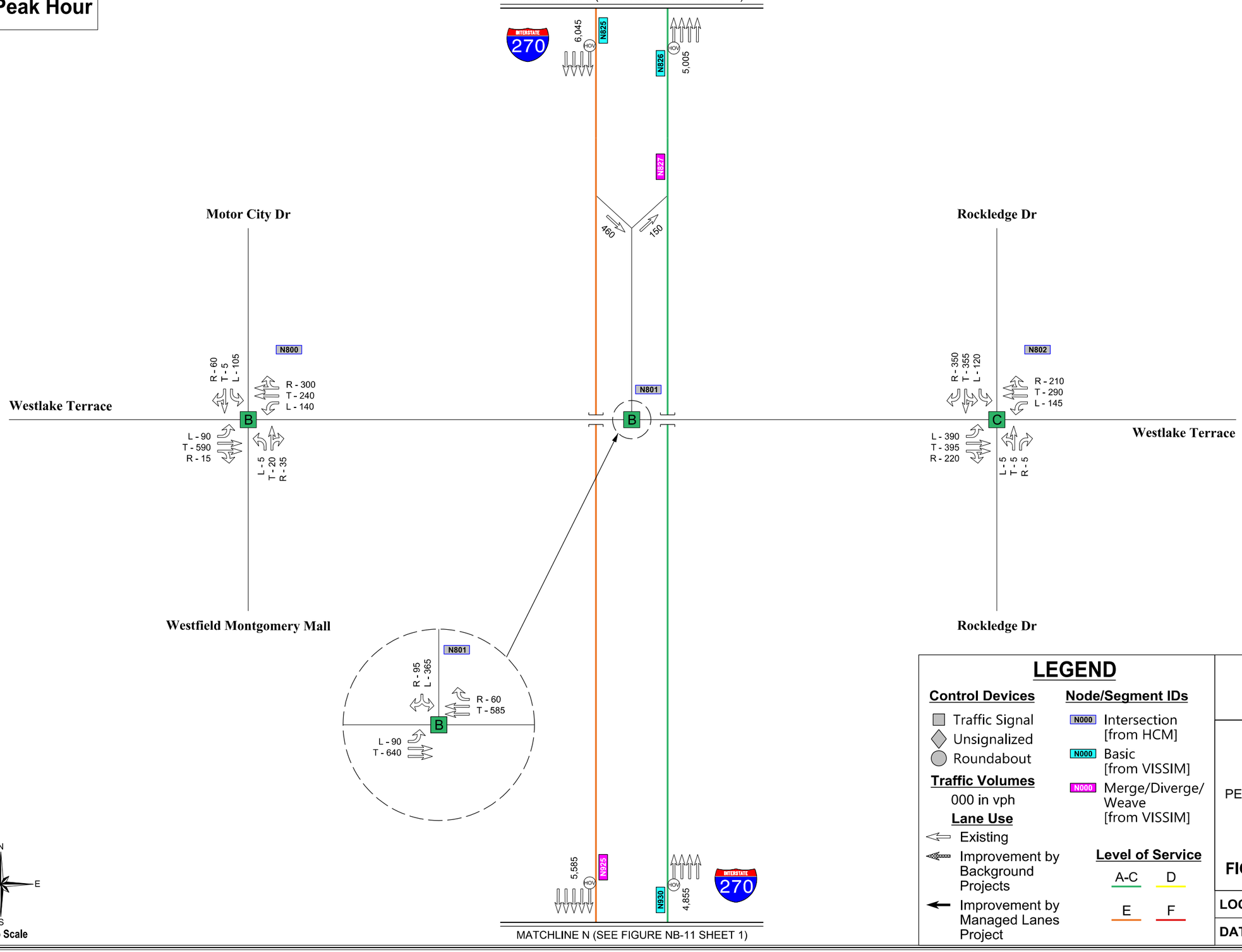
FIGURE NB-9 SHEET 1 OF 1

LOCATION: I-270 Spur (Y Split)

DATE: February 2022

AM Peak Hour

MATCHLINE L (SEE FIGURE NB-9 SHEET 1)



MATCHLINE N (SEE FIGURE NB-11 SHEET 1)

N
W
E
S
Not To Scale

LEGEND

Control Devices
- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes
000 in vph

Lane Use
- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs
- N000 Intersection [from HCM]
- N000 Basic [from VISSIM]
- N000 Merge/Diverge/ Weave [from VISSIM]

Level of Service
A-C D E F

I-270 / 495 P3 PROGRAM

2045

PEAK HOUR TRAFFIC VOLUMES

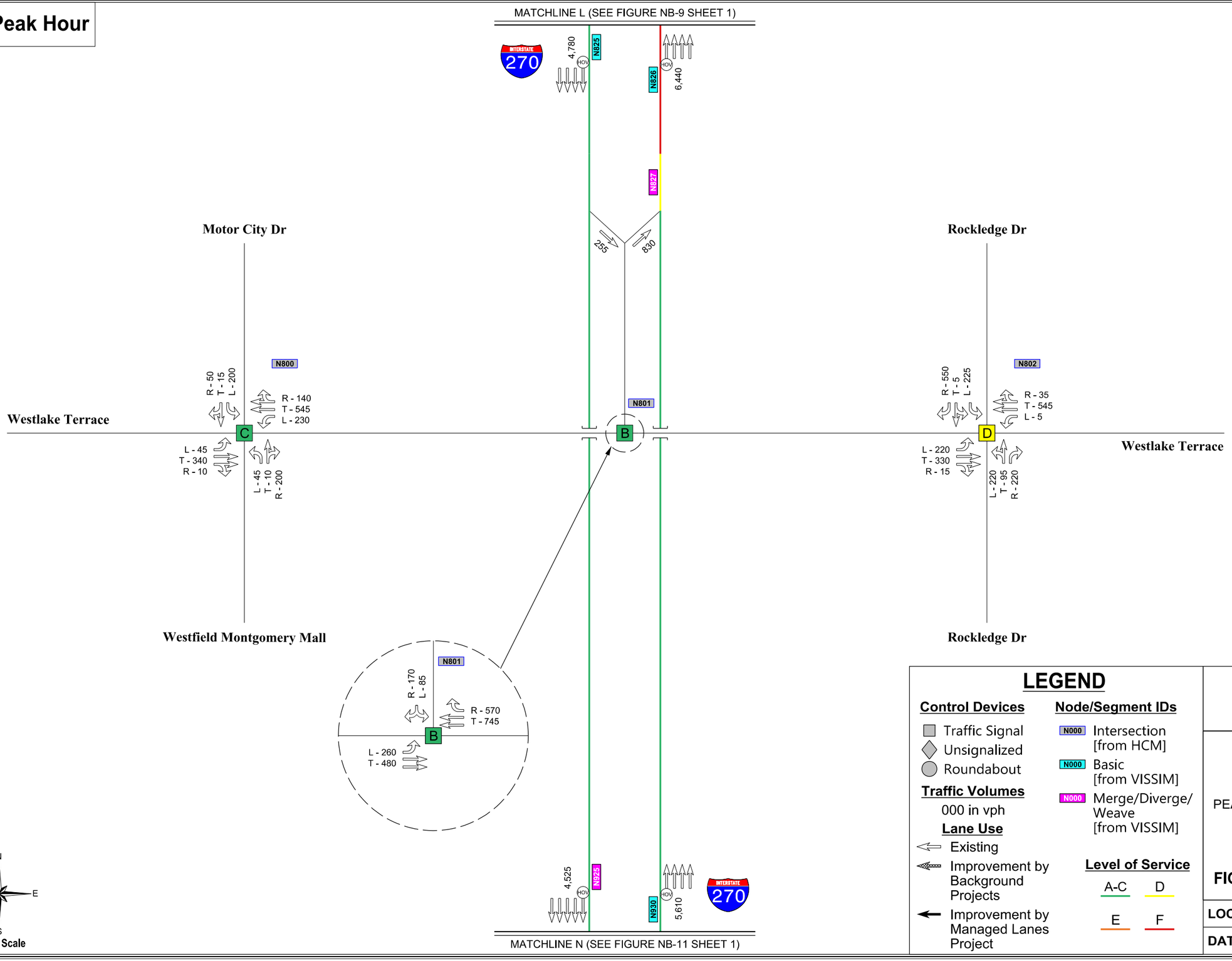
NO BUILD CONDITIONS

FIGURE NB-10 SHEET 1 OF 1

LOCATION: I-270 at Westlake Terrace

DATE: February 2022

PM Peak Hour



LEGEND

Control Devices

- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes

000 in vph

Lane Use

- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs

- N000 Intersection [from HCM]
- N000 Basic [from VISSIM]
- N000 Merge/Diverge/ Weave [from VISSIM]

Level of Service

A-C D E F

I-270 495 P3 PROGRAM

2045

PEAK HOUR TRAFFIC VOLUMES

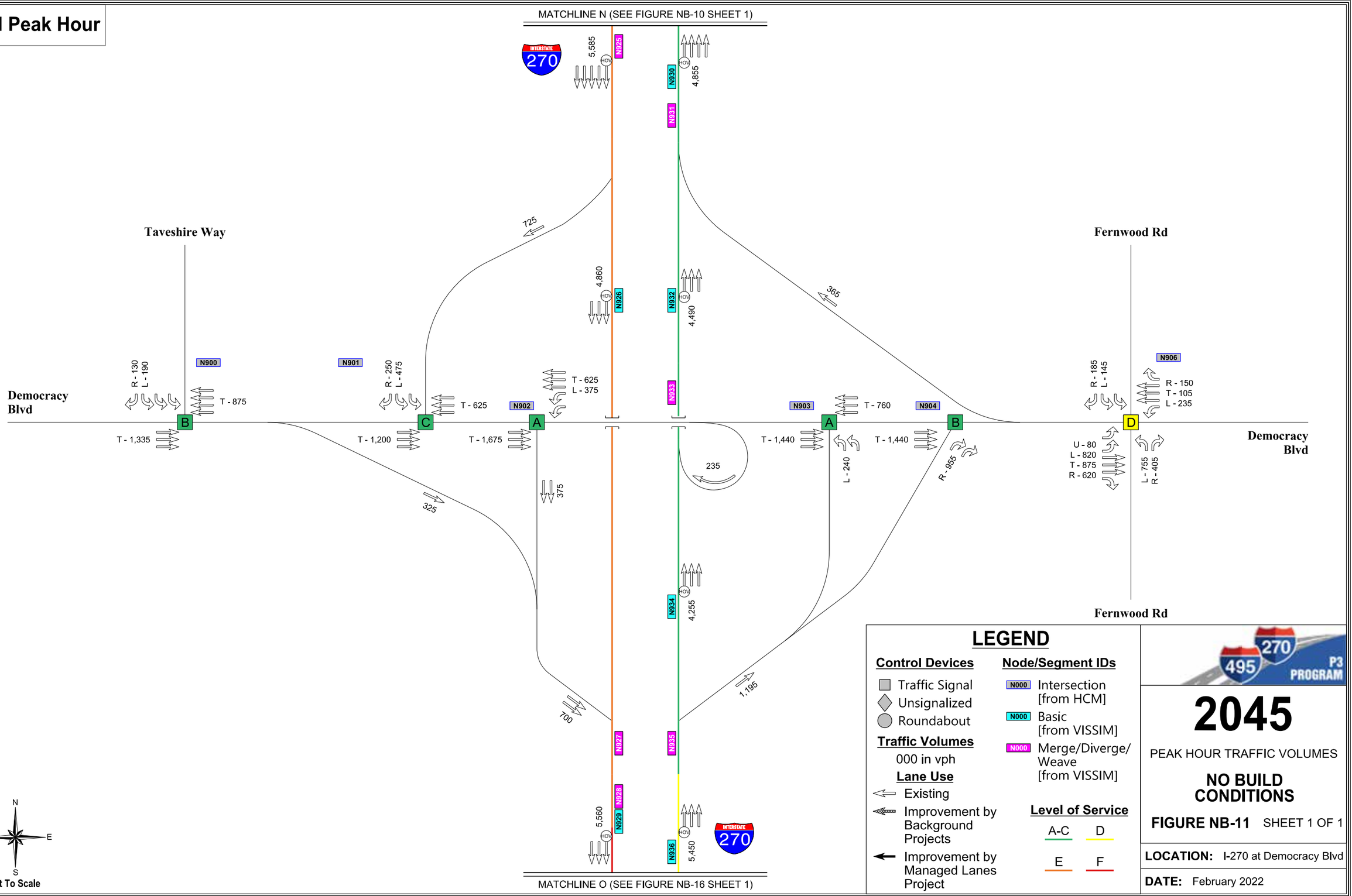
NO BUILD CONDITIONS

FIGURE NB-10 SHEET 1 OF 1

LOCATION: I-270 at Westlake Terrace

DATE: February 2022

AM Peak Hour



LEGEND

Control Devices

- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes

000 in vph

Lane Use

- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs

- N000 Intersection [from HCM]
- N000 Basic [from VISSIM]
- N000 Merge/Diverge/ Weave [from VISSIM]

Level of Service

A-C D E F

I-270 495 P3 PROGRAM

2045

PEAK HOUR TRAFFIC VOLUMES

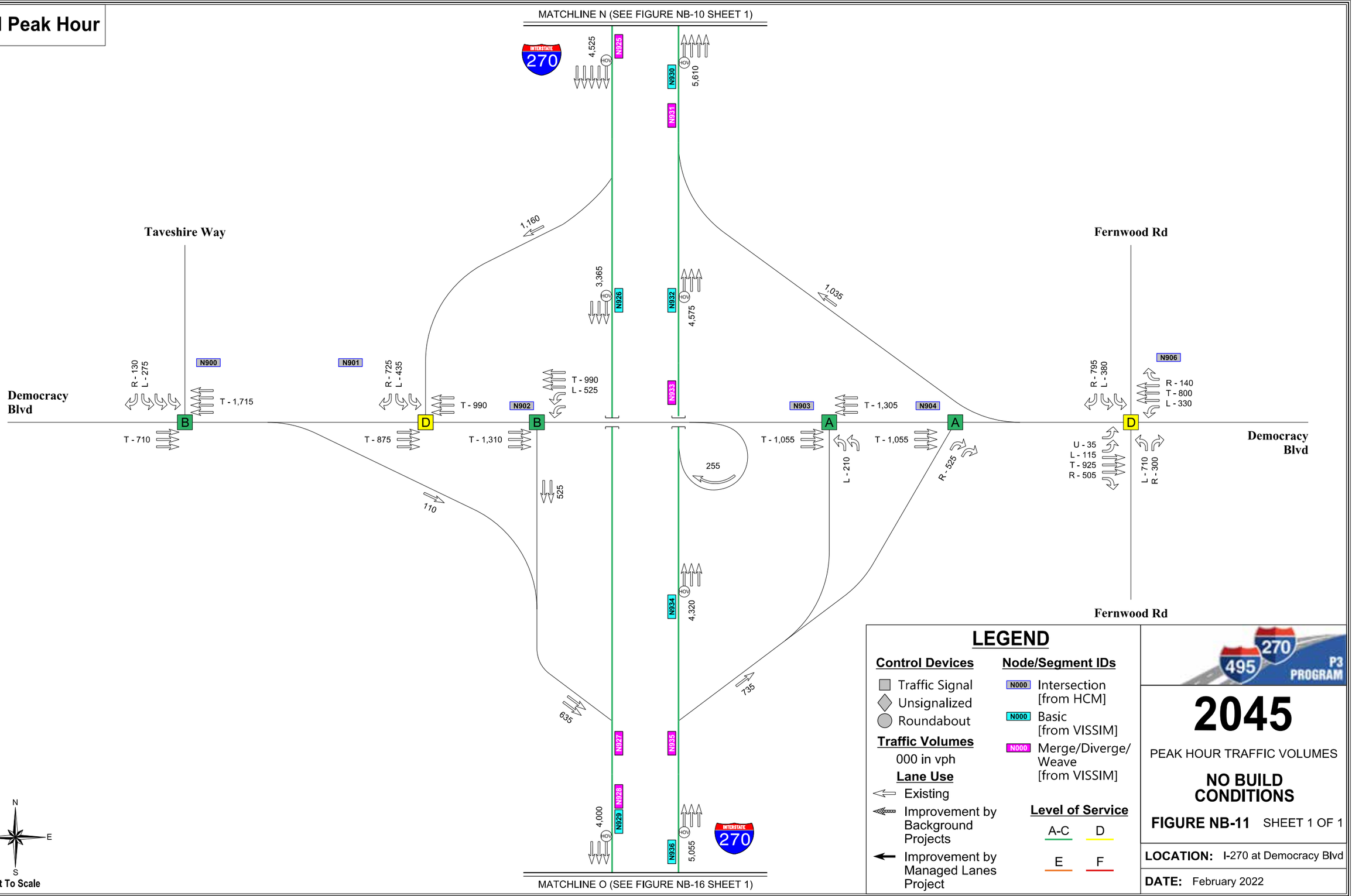
NO BUILD CONDITIONS

FIGURE NB-11 SHEET 1 OF 1

LOCATION: I-270 at Democracy Blvd

DATE: February 2022

PM Peak Hour



LEGEND

Control Devices
- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes
000 in vph

Lane Use
- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs
- N000 Intersection [from HCM]
- N000 Basic [from VISSIM]
- N000 Merge/Diverge/ Weave [from VISSIM]

Level of Service
A-C D E F

I-270 / I-495 P3 PROGRAM

2045

PEAK HOUR TRAFFIC VOLUMES

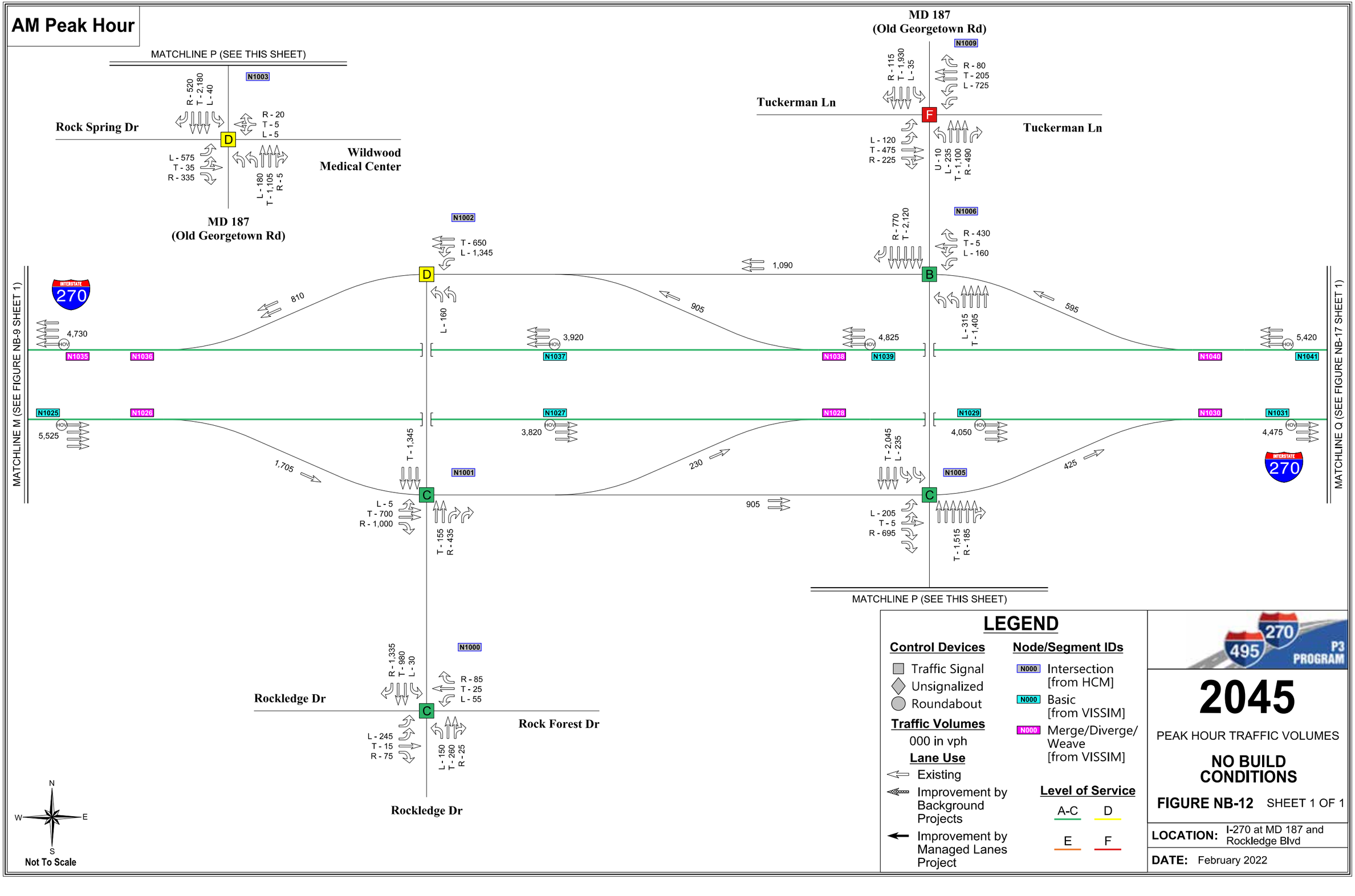
NO BUILD CONDITIONS

FIGURE NB-11 SHEET 1 OF 1

LOCATION: I-270 at Democracy Blvd

DATE: February 2022

AM Peak Hour



LEGEND

Control Devices

- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes

000 in vph

Lane Use

- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs

- N000 Intersection [from HCM]
- N000 Basic [from VISSIM]
- N000 Merge/Diverge/ Weave [from VISSIM]

Level of Service

A-C D E F

I-270 / I-495 P3 PROGRAM

2045

PEAK HOUR TRAFFIC VOLUMES

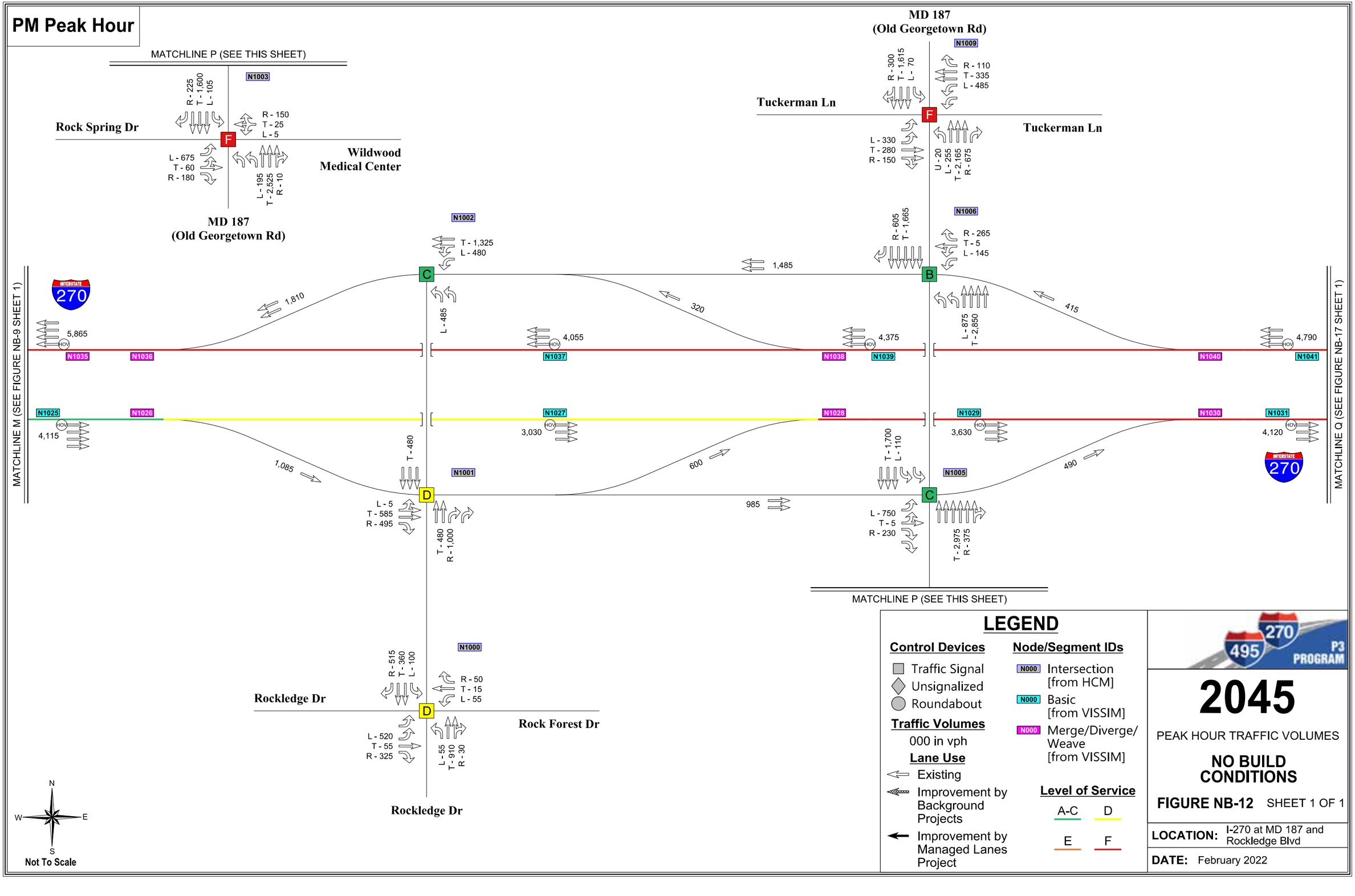
NO BUILD CONDITIONS

FIGURE NB-12 SHEET 1 OF 1

LOCATION: I-270 at MD 187 and Rockledge Blvd

DATE: February 2022

PM Peak Hour



LEGEND

Control Devices

- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes

000 in vph

Lane Use

- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs

- N000 Intersection [from HCM]
- N000 Basic [from VISSIM]
- N000 Merge/Diverge/ Weave [from VISSIM]

Level of Service

A-C D E F

2045

PEAK HOUR TRAFFIC VOLUMES

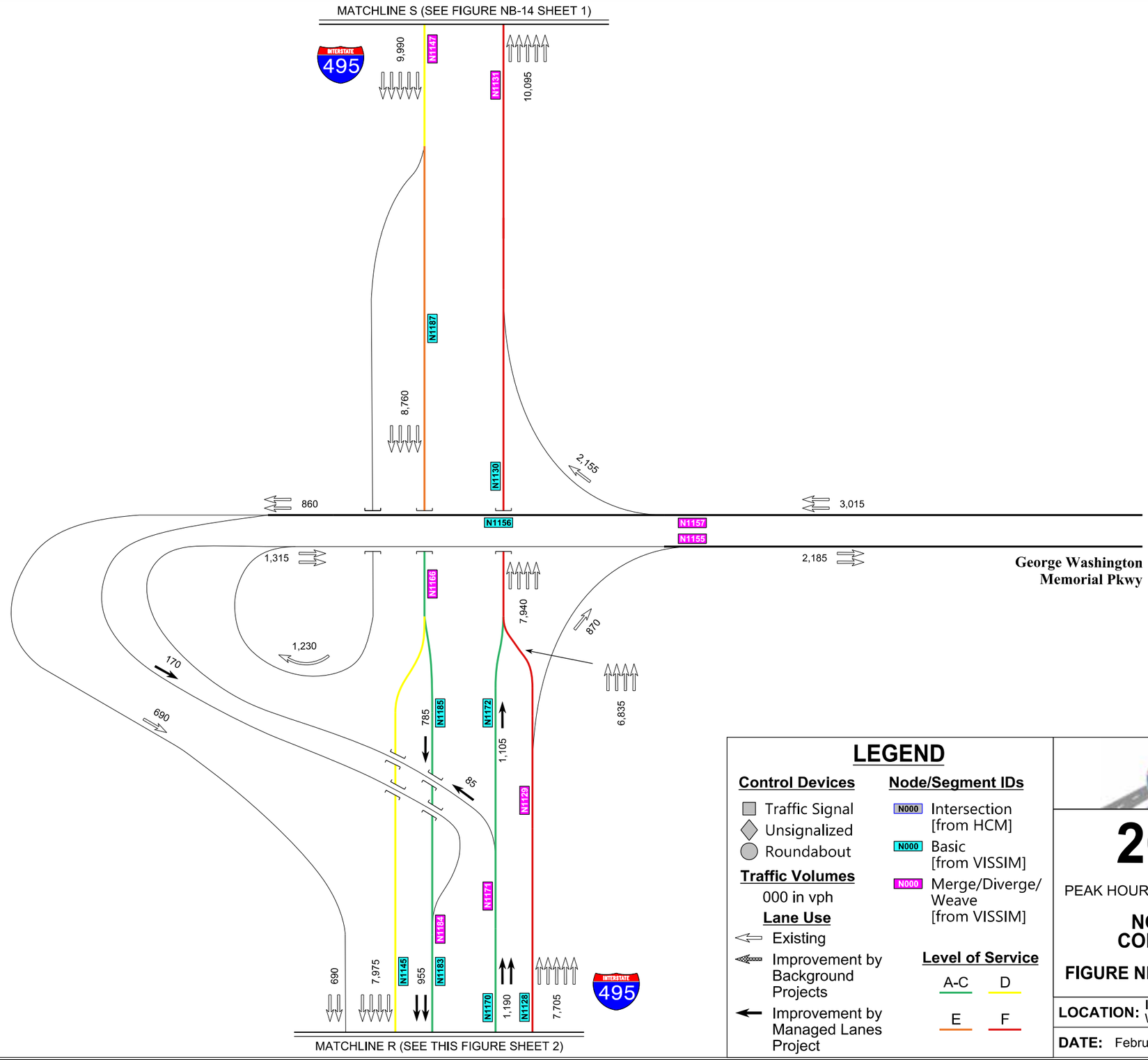
NO BUILD CONDITIONS

FIGURE NB-12 SHEET 1 OF 1

LOCATION: I-270 at MD 187 and Rockledge Blvd

DATE: February 2022

AM Peak Hour



Not To Scale

LEGEND

Control Devices
- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes
000 in vph

Lane Use
- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs
- N000 Intersection [from HCM]
- N000 Basic [from VISSIM]
- N000 Merge/Diverge/ Weave [from VISSIM]

Level of Service
A-C D E F

I-495 & I-270 P3 PROGRAM

2045

PEAK HOUR TRAFFIC VOLUMES

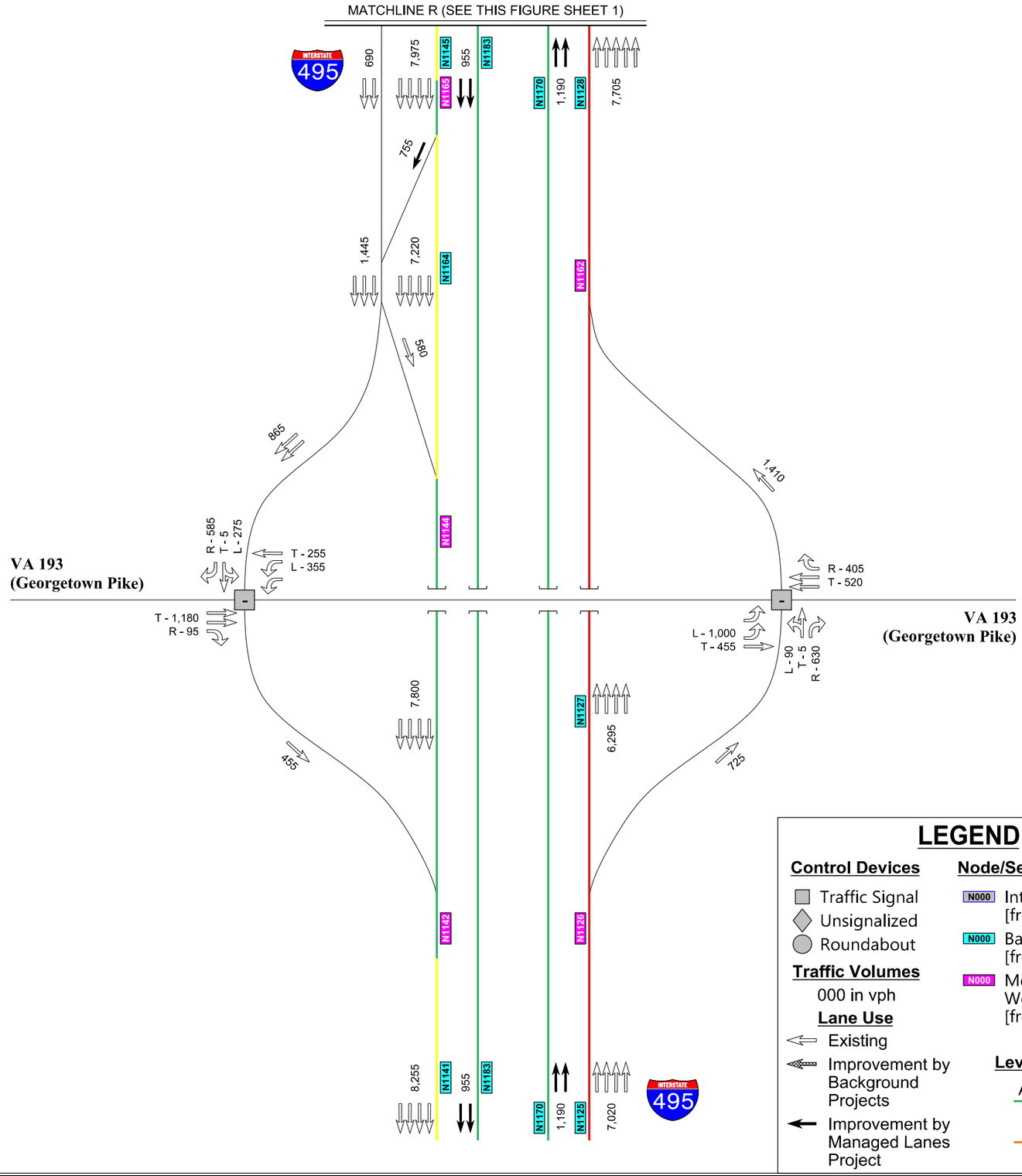
NO BUILD CONDITIONS

FIGURE NB-13 SHEET 1 OF 2

LOCATION: I-495 at VA 193/George Washington Mem.Pkwy.

DATE: February 2022

AM Peak Hour



LEGEND

Control Devices

- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes

000 in vph

Lane Use

- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs

- N000 Intersection [from HCM]
- N000 Basic [from VISSIM]
- N000 Merge/Diverge/ Weave [from VISSIM]

Level of Service

A-C D E F

Not To Scale

I-495 & I-270 P3 PROGRAM

2045

PEAK HOUR TRAFFIC VOLUMES

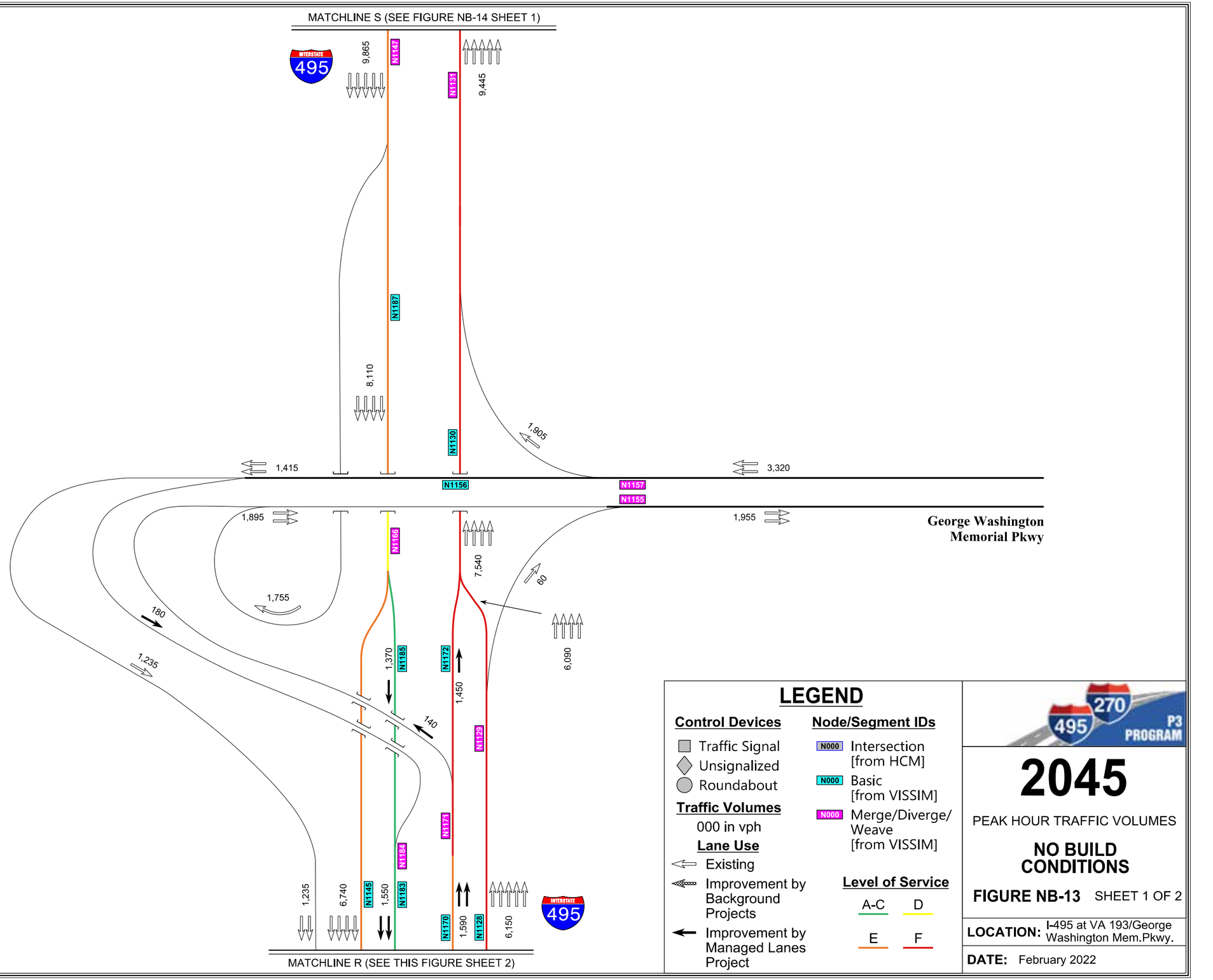
NO BUILD CONDITIONS

FIGURE NB-13 SHEET 2 OF 2

LOCATION: I-495 at VA 193/George Washington Mem.Pkwy.

DATE: February 2022

PM Peak Hour



Not To Scale

LEGEND

Control Devices
- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes
000 in vph

Lane Use
- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs
- N000 Intersection [from HCM]
- N000 Basic [from VISSIM]
- N000 Merge/Diverge/ Weave [from VISSIM]

Level of Service
A-C D E F

495 270 P3 PROGRAM

2045

PEAK HOUR TRAFFIC VOLUMES

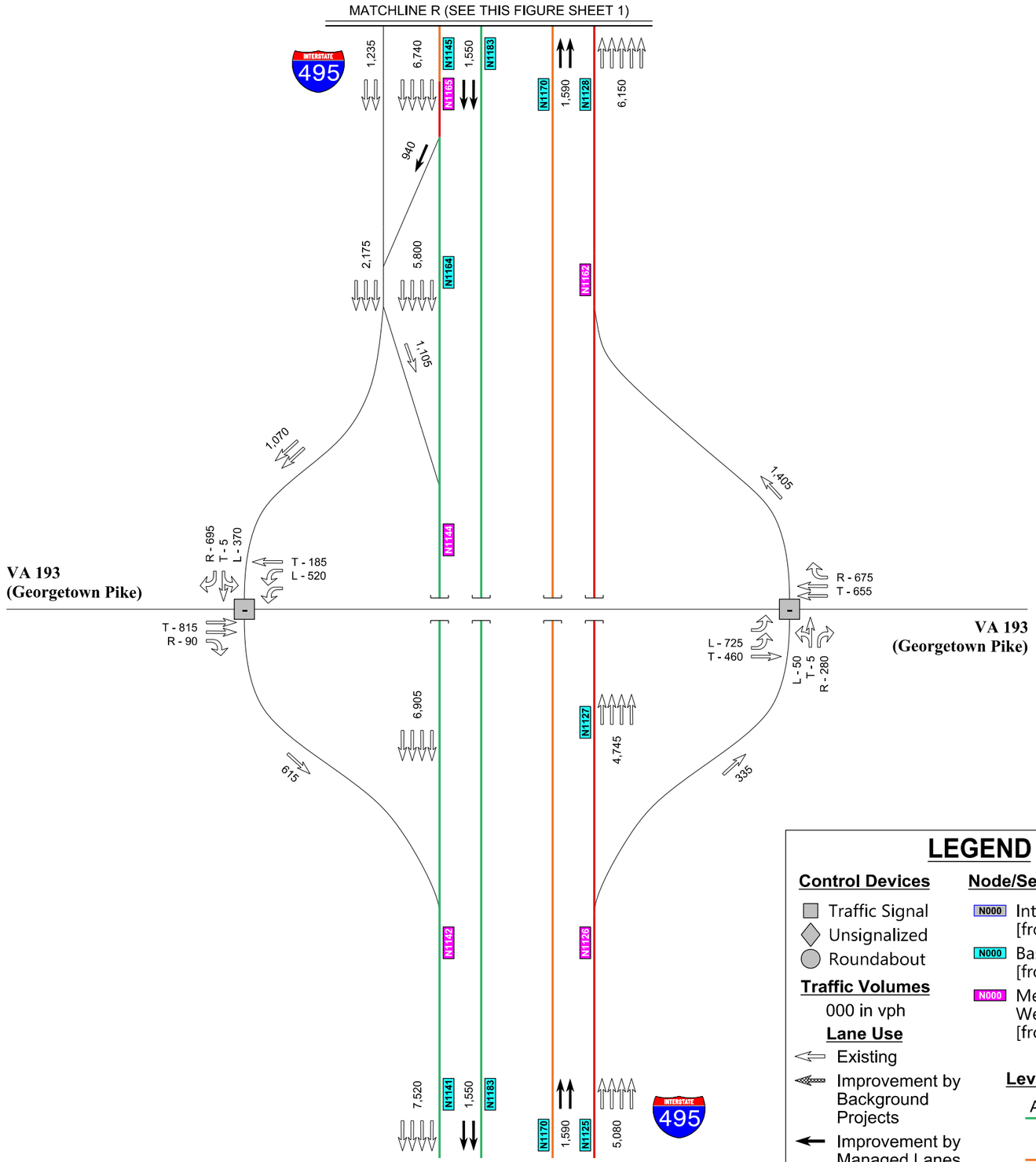
NO BUILD CONDITIONS

FIGURE NB-13 SHEET 1 OF 2

LOCATION: I-495 at VA 193/George Washington Mem.Pkwy.

DATE: February 2022

PM Peak Hour



LEGEND

Control Devices

- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes

000 in vph

Lane Use

- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs

- N000 Intersection [from HCM]
- N000 Basic [from VISSIM]
- N000 Merge/Diverge/ Weave [from VISSIM]

Level of Service

A-C D E F

Not To Scale

2045

PEAK HOUR TRAFFIC VOLUMES

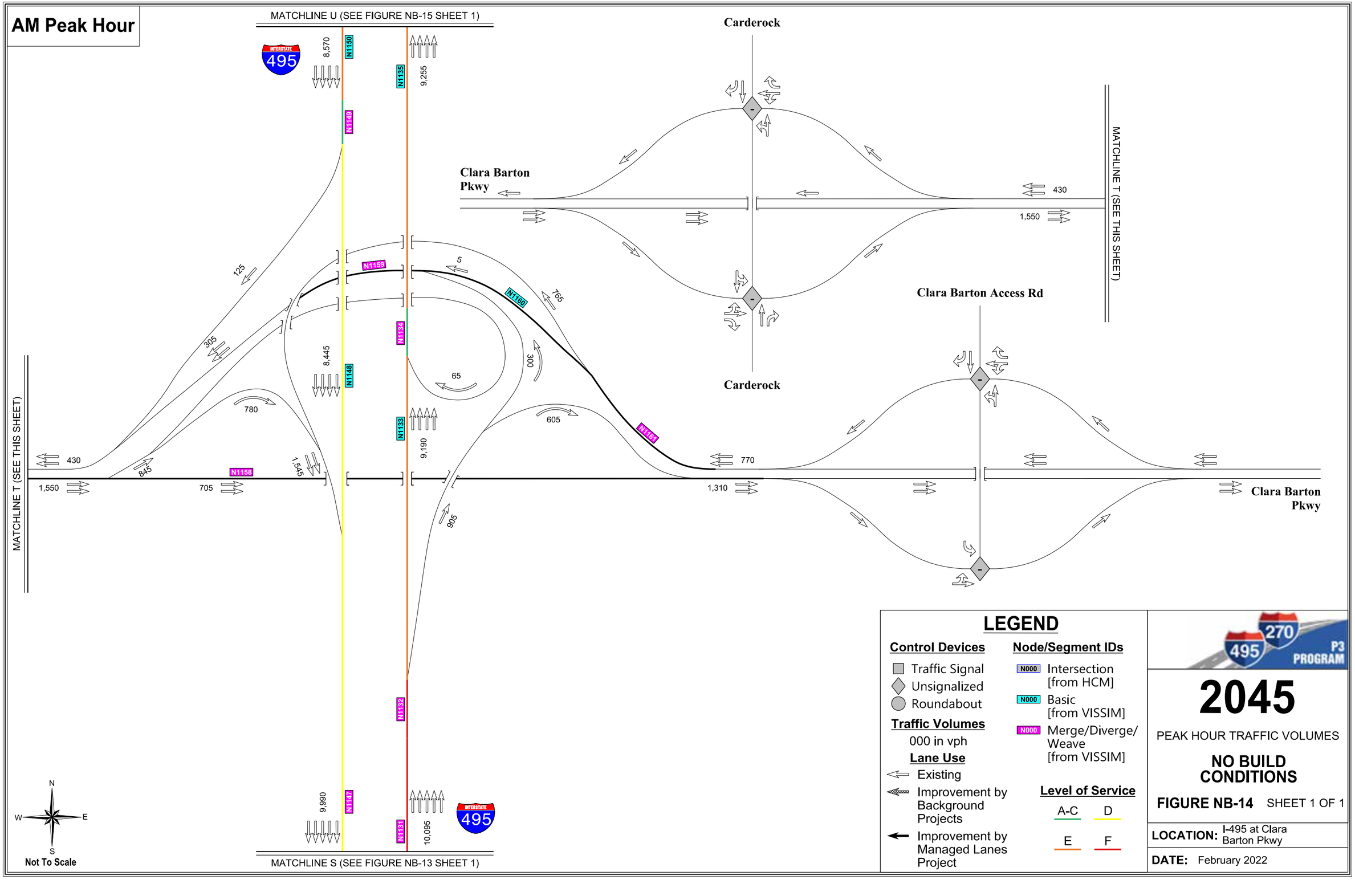
NO BUILD CONDITIONS

FIGURE NB-13 SHEET 2 OF 2

LOCATION: I-495 at VA 193/George Washington Mem.Pkwy.

DATE: February 2022

AM Peak Hour



LEGEND

Control Devices

- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes

000 in vph

Lane Use

- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs

- N000 Intersection [from HCM]
- N000 Basic [from VISSIM]
- N000 Merge/Diverge/ Weave [from VISSIM]

Level of Service

A-C D E F

I-495 & I-270 P3 PROGRAM

2045

PEAK HOUR TRAFFIC VOLUMES

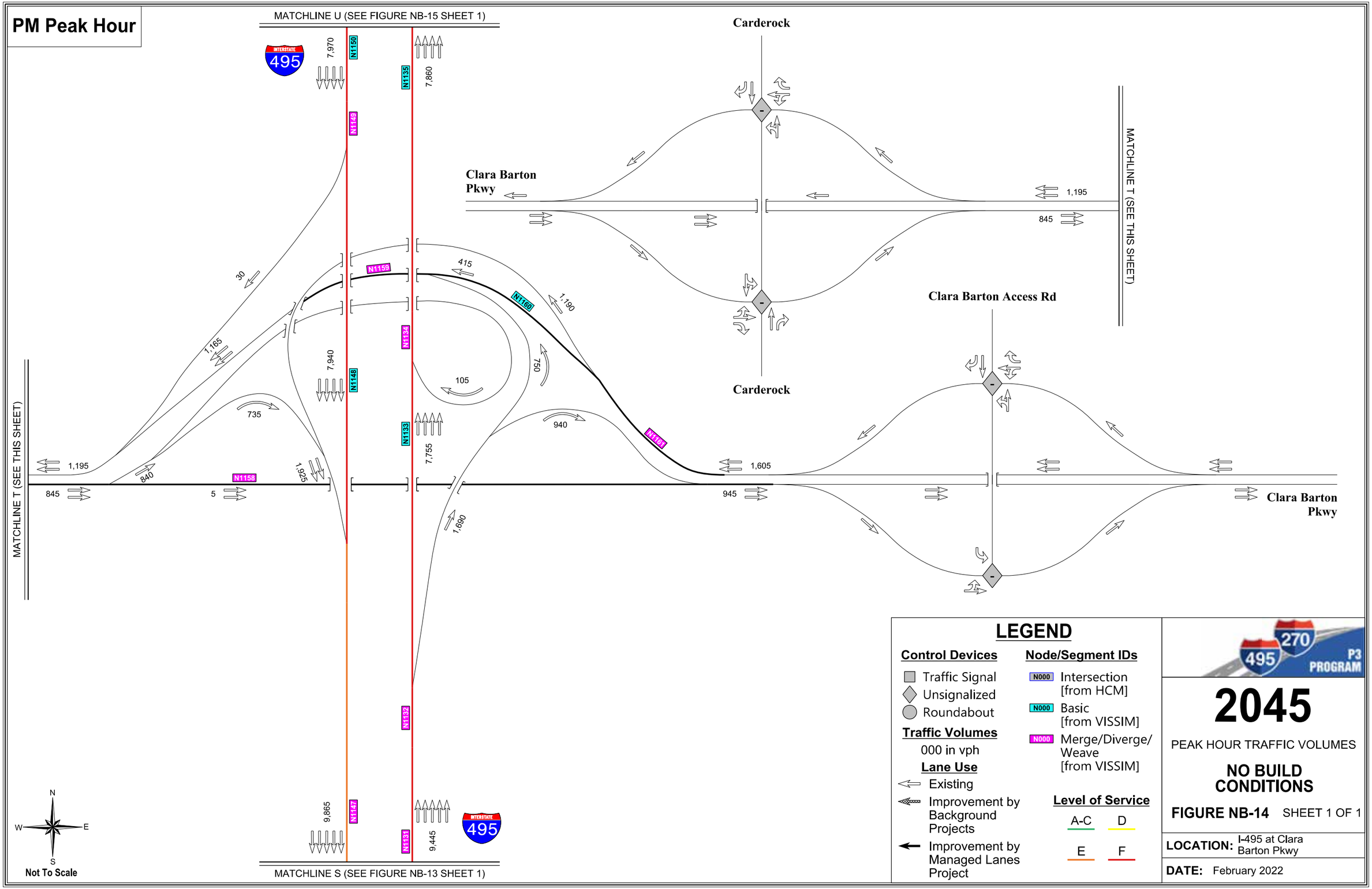
NO BUILD CONDITIONS

FIGURE NB-14 SHEET 1 OF 1

LOCATION: I-495 at Clara Barton Pkwy

DATE: February 2022

PM Peak Hour



LEGEND

Control Devices

- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes

000 in vph

Lane Use

- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs

- N000 Intersection [from HCM]
- N000 Basic [from VISSIM]
- N000 Merge/Diverge/ Weave [from VISSIM]

Level of Service

A-C D E F

I-495 & I-270 P3 PROGRAM

2045

PEAK HOUR TRAFFIC VOLUMES

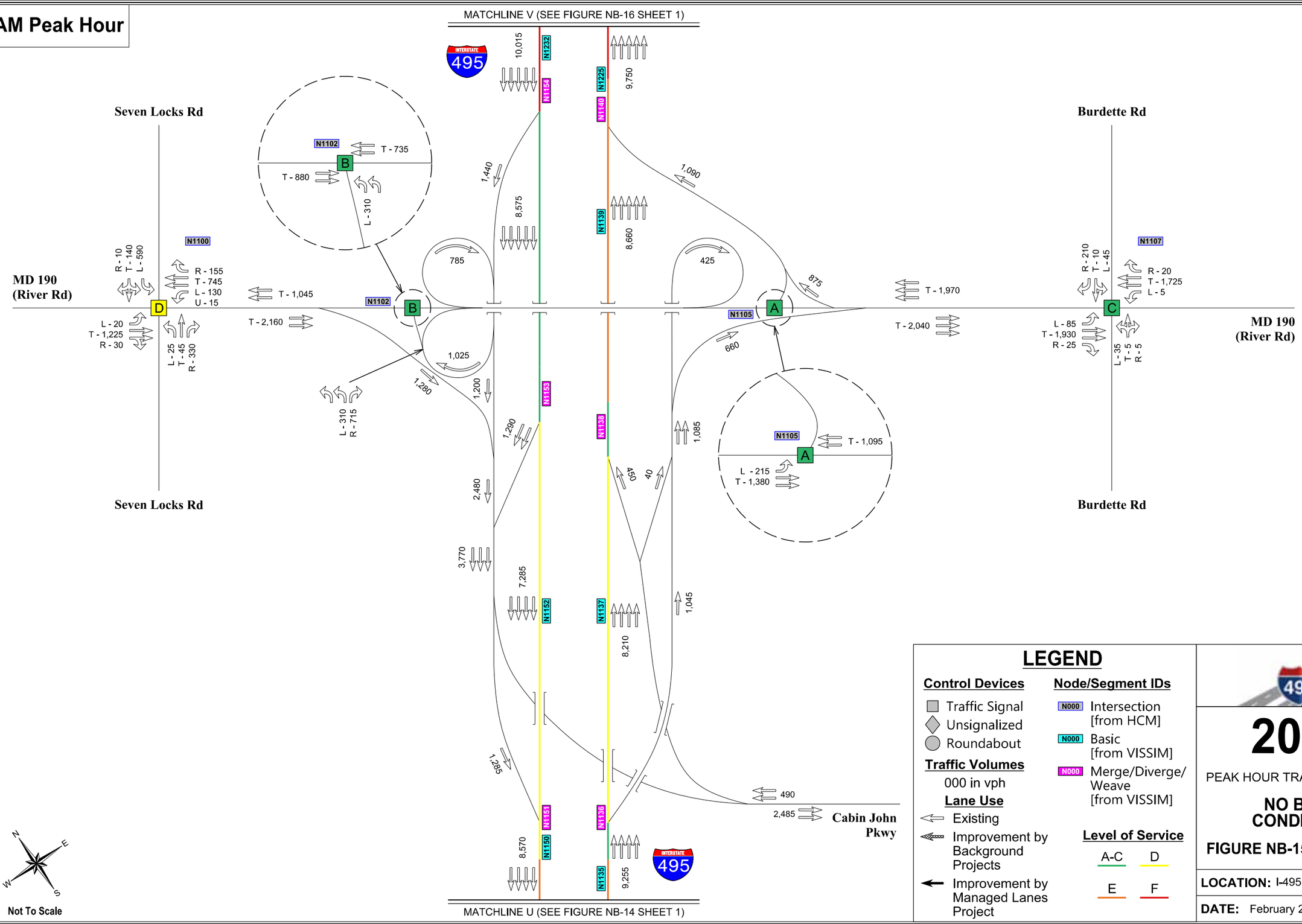
NO BUILD CONDITIONS

FIGURE NB-14 SHEET 1 OF 1

LOCATION: I-495 at Clara Barton Pkwy

DATE: February 2022

AM Peak Hour



Not To Scale

LEGEND

Control Devices
- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes
000 in vph

Lane Use
- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs
- N000 Intersection [from HCM]
- N000 Basic [from VISSIM]
- N000 Merge/Diverge/ Weave [from VISSIM]

Level of Service
A-C D E F

I-495 & I-270 P3 PROGRAM

2045

PEAK HOUR TRAFFIC VOLUMES

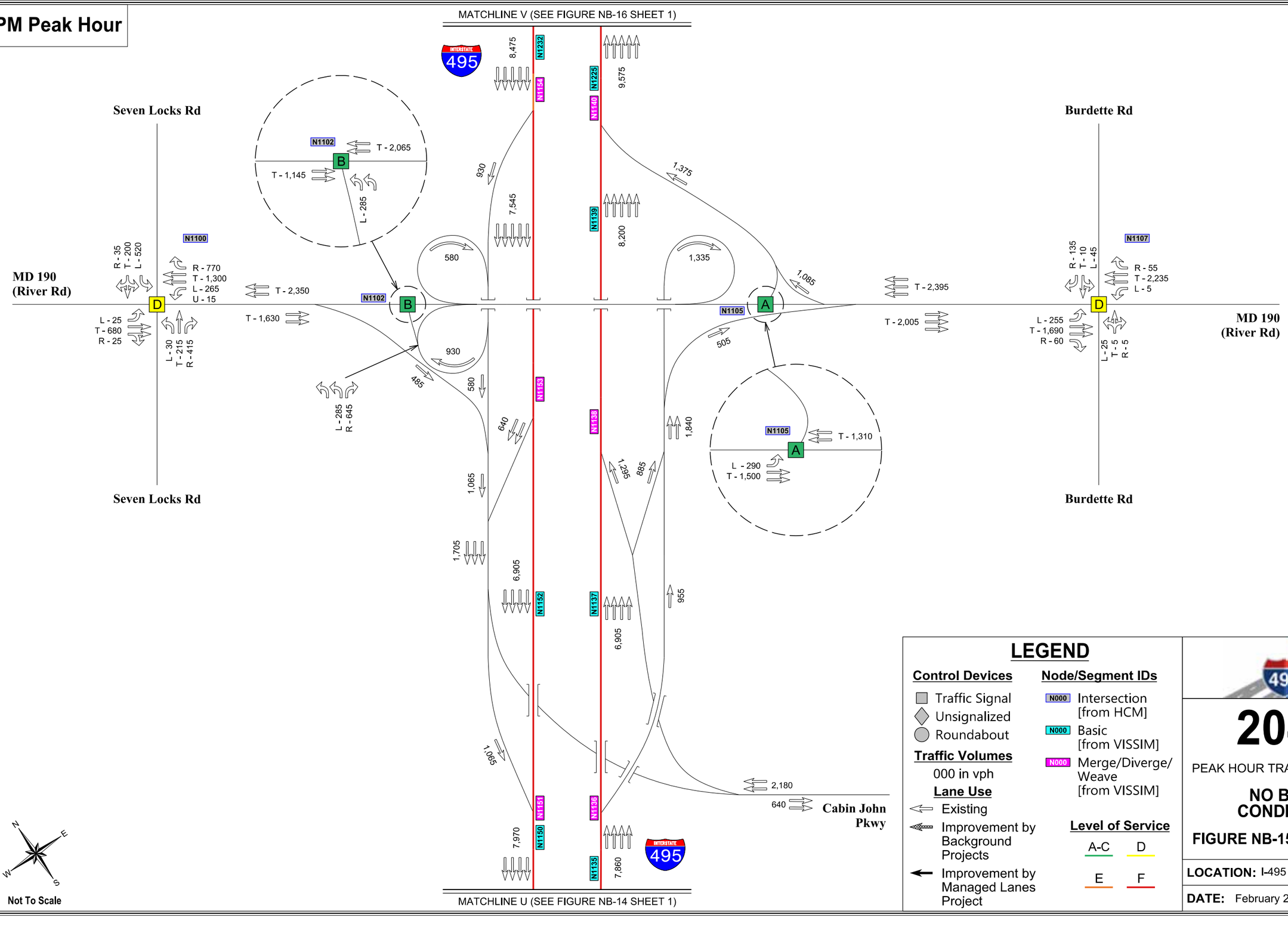
NO BUILD CONDITIONS

FIGURE NB-15 SHEET 1 OF 1

LOCATION: I-495 at MD 190

DATE: February 2022

PM Peak Hour



Not To Scale

LEGEND

Control Devices
- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes
000 in vph

Lane Use
- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs
- N000 Intersection [from HCM]
- N000 Basic [from VISSIM]
- N000 Merge/Diverge/ Weave [from VISSIM]

Level of Service
A-C D E F

I-495 & I-270 P3 PROGRAM

2045

PEAK HOUR TRAFFIC VOLUMES

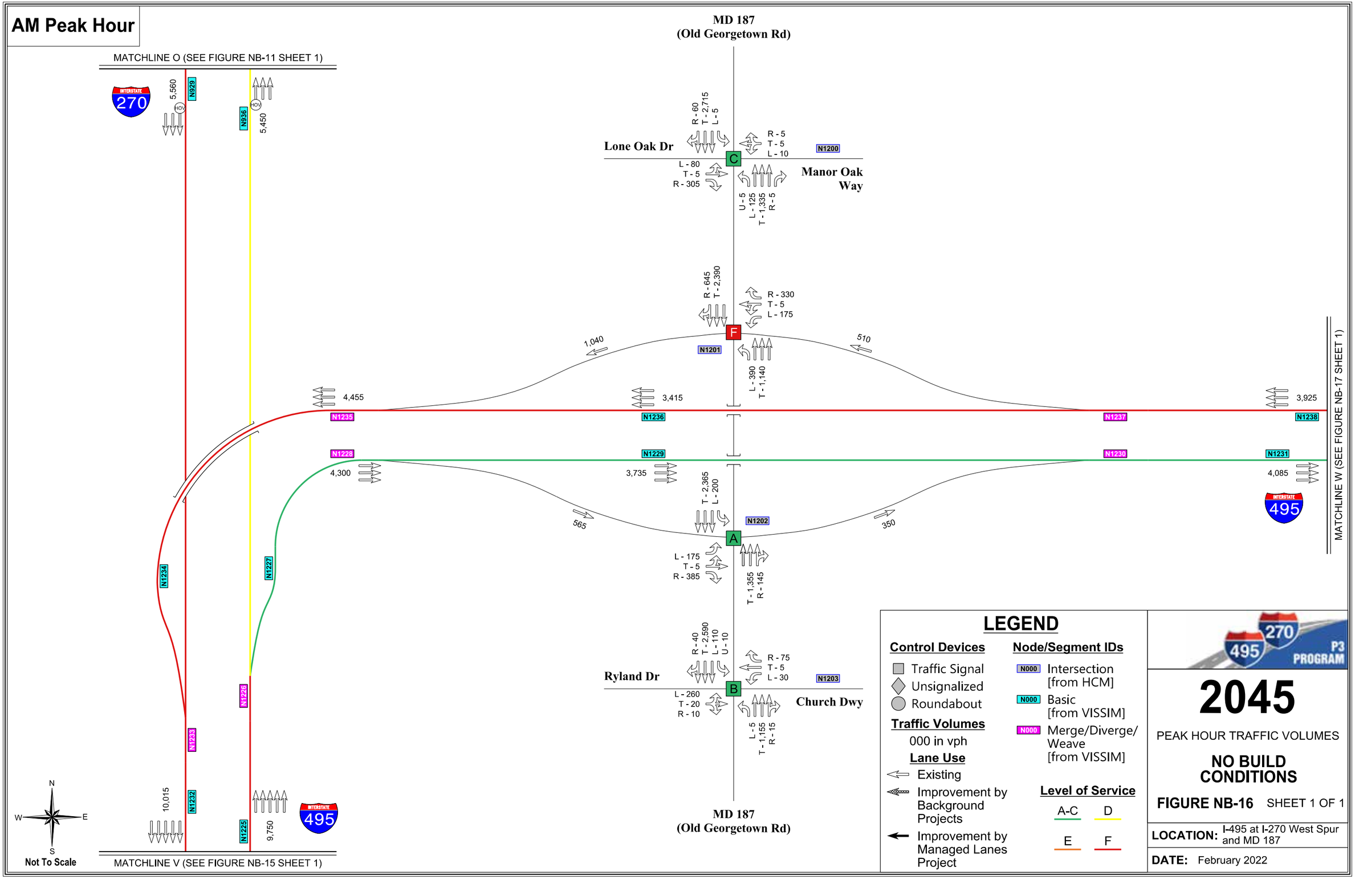
NO BUILD CONDITIONS

FIGURE NB-15 SHEET 1 OF 1

LOCATION: I-495 at MD 190

DATE: February 2022

AM Peak Hour



LEGEND

Control Devices

- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes

000 in vph

Lane Use

- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs

- N000 Intersection [from HCM]
- N000 Basic [from VISSIM]
- N000 Merge/Diverge/ Weave [from VISSIM]

Level of Service

A-C D E F

I-495 & I-270 P3 PROGRAM

2045

PEAK HOUR TRAFFIC VOLUMES

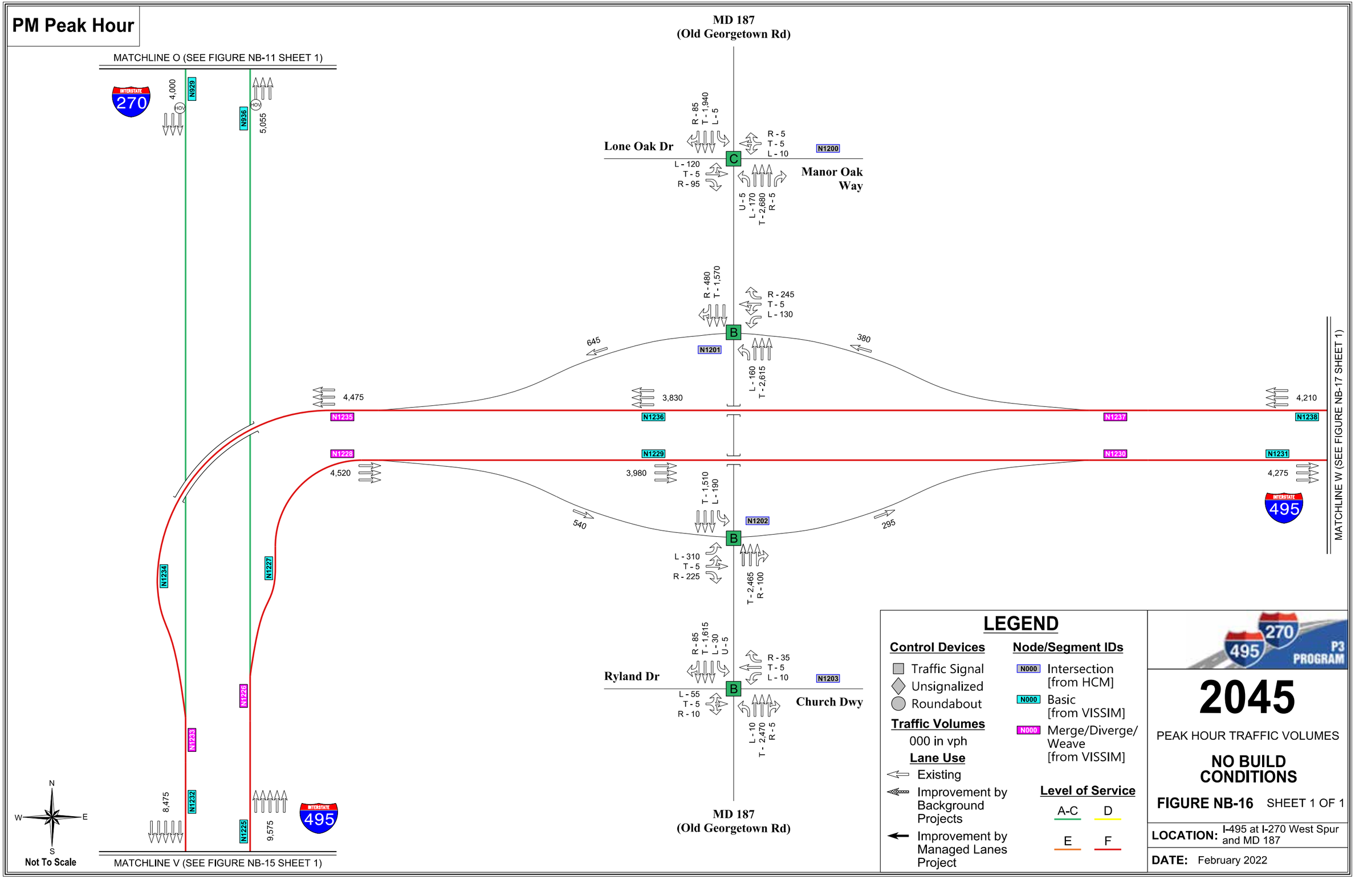
NO BUILD CONDITIONS

FIGURE NB-16 SHEET 1 OF 1

LOCATION: I-495 at I-270 West Spur and MD 187

DATE: February 2022

PM Peak Hour



LEGEND

Control Devices

- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes

000 in vph

Lane Use

- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs

- N000 Intersection [from HCM]
- N000 Basic [from VISSIM]
- N000 Merge/Diverge/ Weave [from VISSIM]

Level of Service

A-C D E F

I-495 & I-270 P3 PROGRAM

2045

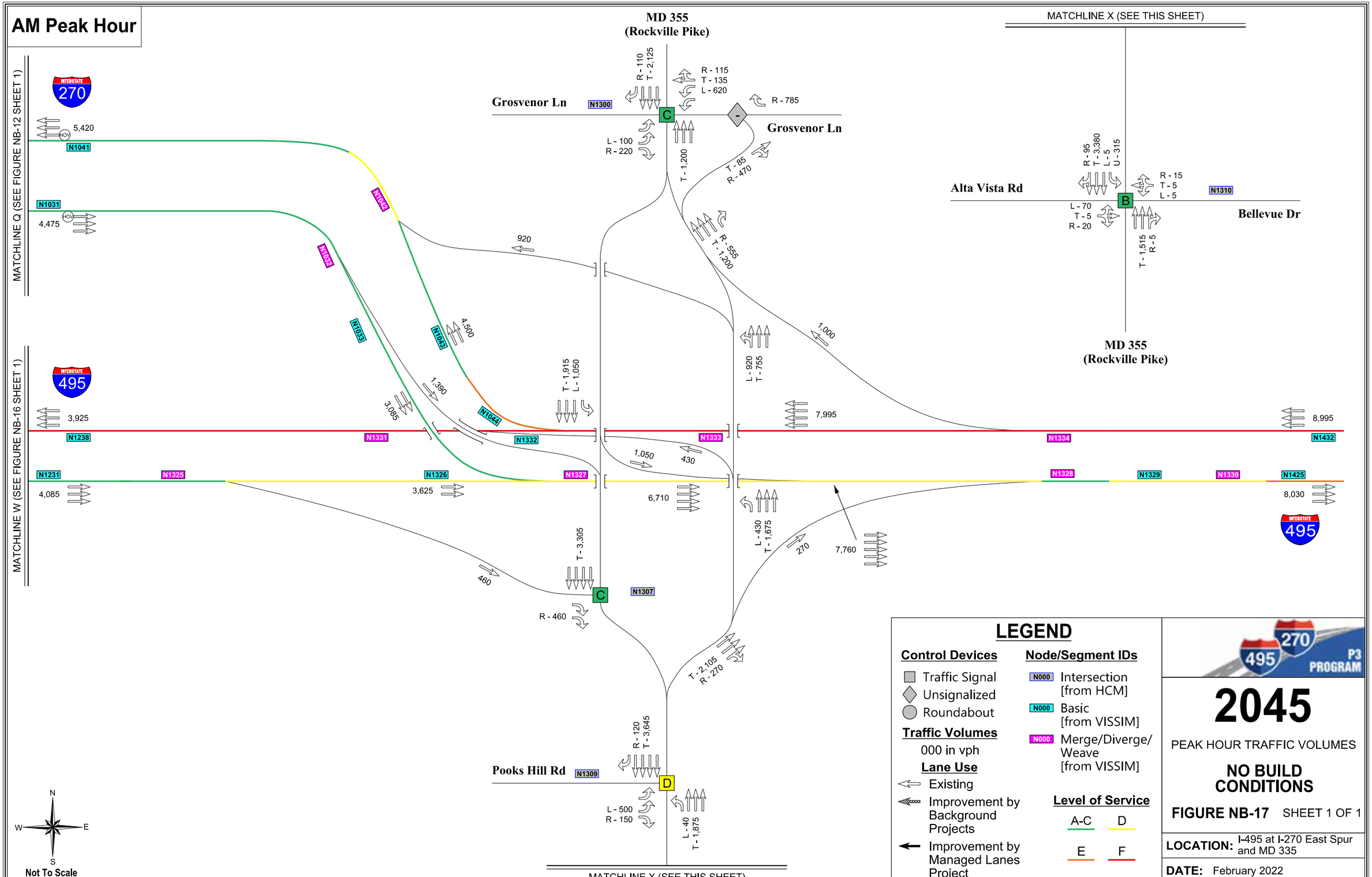
PEAK HOUR TRAFFIC VOLUMES

NO BUILD CONDITIONS

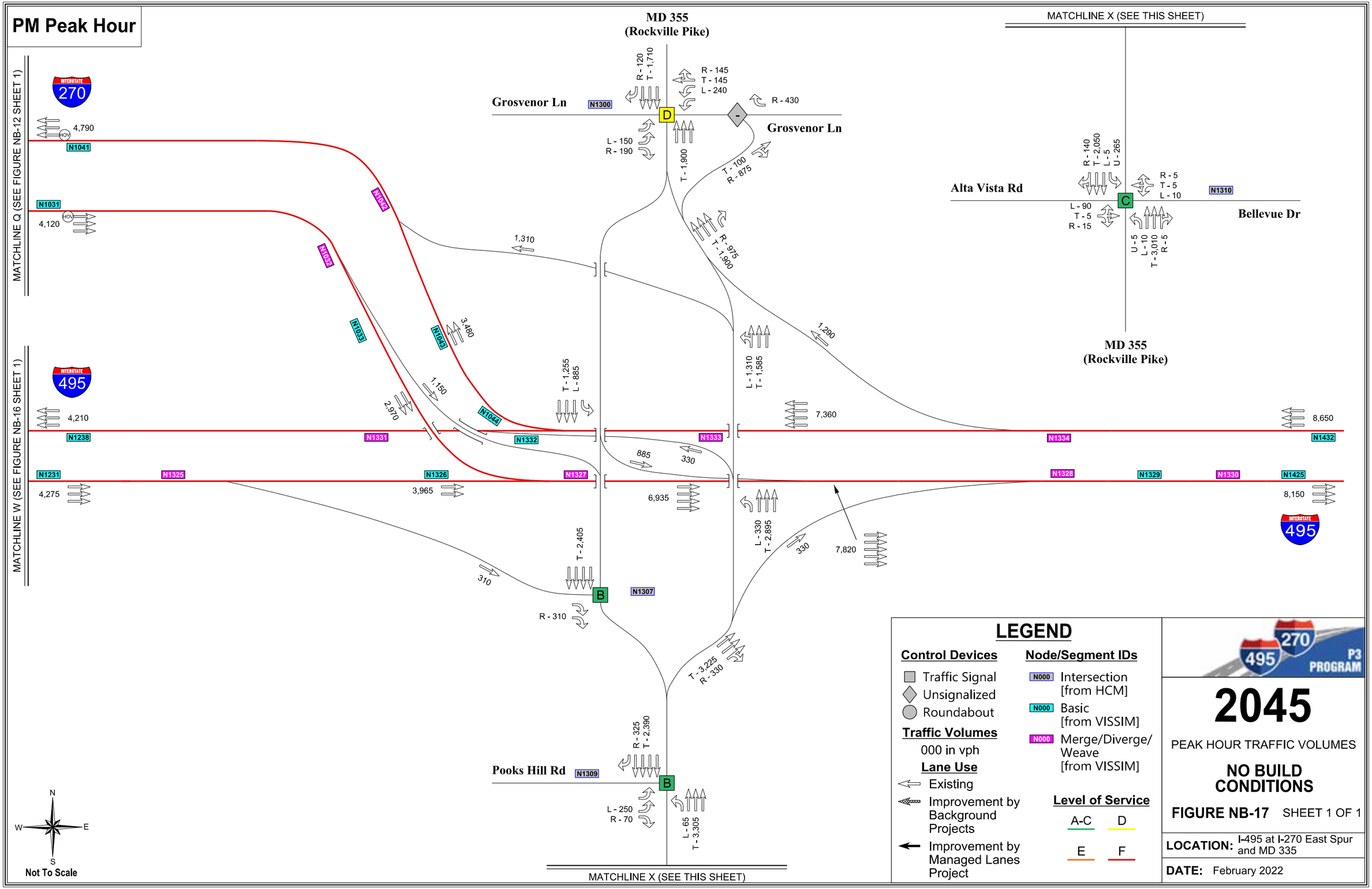
FIGURE NB-16 SHEET 1 OF 1

LOCATION: I-495 at I-270 West Spur and MD 187

DATE: February 2022


AM Peak Hour
MD 355
(Rockville Pike)
MATCHLINE X (SEE THIS SHEET)
MATCHLINE Q (SEE FIGURE NB-12 SHEET 1)
MATCHLINE W (SEE FIGURE NB-16 SHEET 1)
270
495
Grosvenor Ln
N1300
R - 110
T - 2,125
R - 115
T - 135
L - 620
R - 785
L - 100
R - 220
T - 1,200
T - 85
R - 470
R - 555
T - 1,200
Alta Vista Rd
N1310
R - 95
T - 3,380
L - 5
U - 315
R - 15
T - 5
L - 5
L - 70
T - 5
R - 20
T - 1,515
R - 5
Bellevue Dr
MD 355
(Rockville Pike)
5,420
N1041
N1031
4,475
N1042
N1032
N1033
N1043
N1044
920
4,500
1,390
3,085
T - 1,915
L - 1,050
1,000
L - 920
T - 755
7,995
8,995
3,925
N1238
N1331
N1332
N1333
N1334
N1432
1,050
430
N1231
N1325
N1326
N1327
N1328
N1329
N1330
N1425
4,085
3,625
6,710
8,030
L - 430
T - 1,675
270
7,760
T - 3,305
460
N1307
R - 460
T - 2,105
R - 270
R - 120
T - 3,645
Pooks Hill Rd
N1309
L - 500
R - 150
L - 40
T - 1,875
MATCHLINE X (SEE THIS SHEET)
N
W
E
S
Not To Scale
LEGEND
Control Devices
Traffic Signal
Unsignalized
Roundabout
Traffic Volumes
000 in vph
Lane Use
Existing
Improvement by Background Projects
Improvement by Managed Lanes Project
Node/Segment IDs
N000 Intersection [from HCM]
N000 Basic [from VISSIM]
N000 Merge/Diverge/ Weave [from VISSIM]
Level of Service
A-C
D
E
F
495
270
P3 PROGRAM
2045
PEAK HOUR TRAFFIC VOLUMES
NO BUILD CONDITIONS
FIGURE NB-17
SHEET 1 OF 1
LOCATION: I-495 at I-270 East Spur and MD 335
DATE: February 2022

PM Peak Hour



LEGEND

Control Devices

- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes

000 in vph

Lane Use

- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs

- N000 Intersection [from HCM]
- N000 Basic [from VISSIM]
- N000 Merge/Diverge/ Weave [from VISSIM]

Level of Service

A-C D E F

I-270 / I-495 P3 PROGRAM

2045

PEAK HOUR TRAFFIC VOLUMES

NO BUILD CONDITIONS

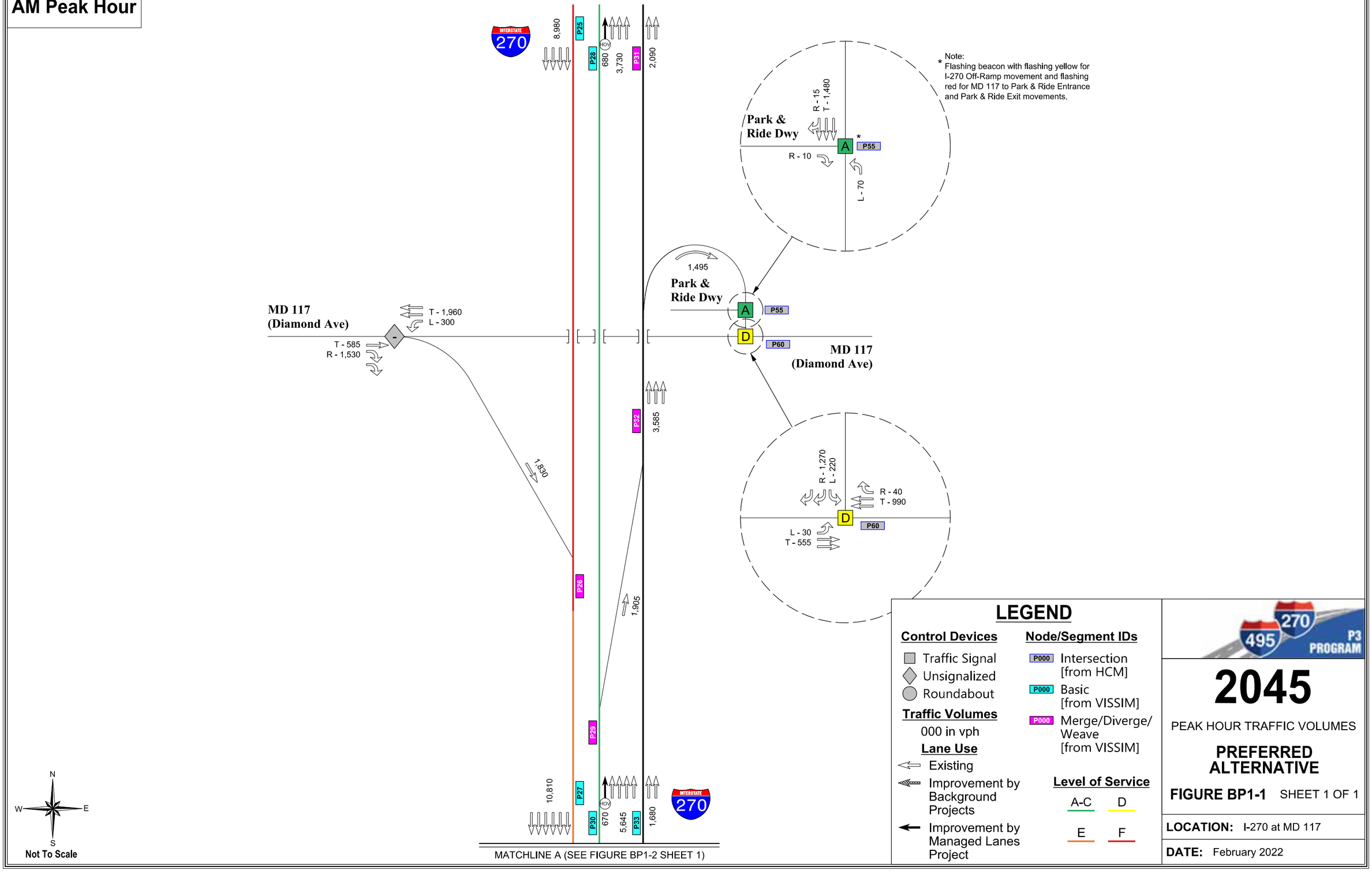
FIGURE NB-17 SHEET 1 OF 1

LOCATION: I-495 at I-270 East Spur and MD 335

DATE: February 2022

2045 PREFERRED ALTERNATIVE GRAPHICS

AM Peak Hour



LEGEND

Control Devices
- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes
000 in vph

Lane Use
- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs
- P000 Intersection [from HCM]
- P000 Basic [from VISSIM]
- P000 Merge/Diverge/ Weave [from VISSIM]

Level of Service
A-C D E F

I-270 / 495 P3 PROGRAM

2045

PEAK HOUR TRAFFIC VOLUMES

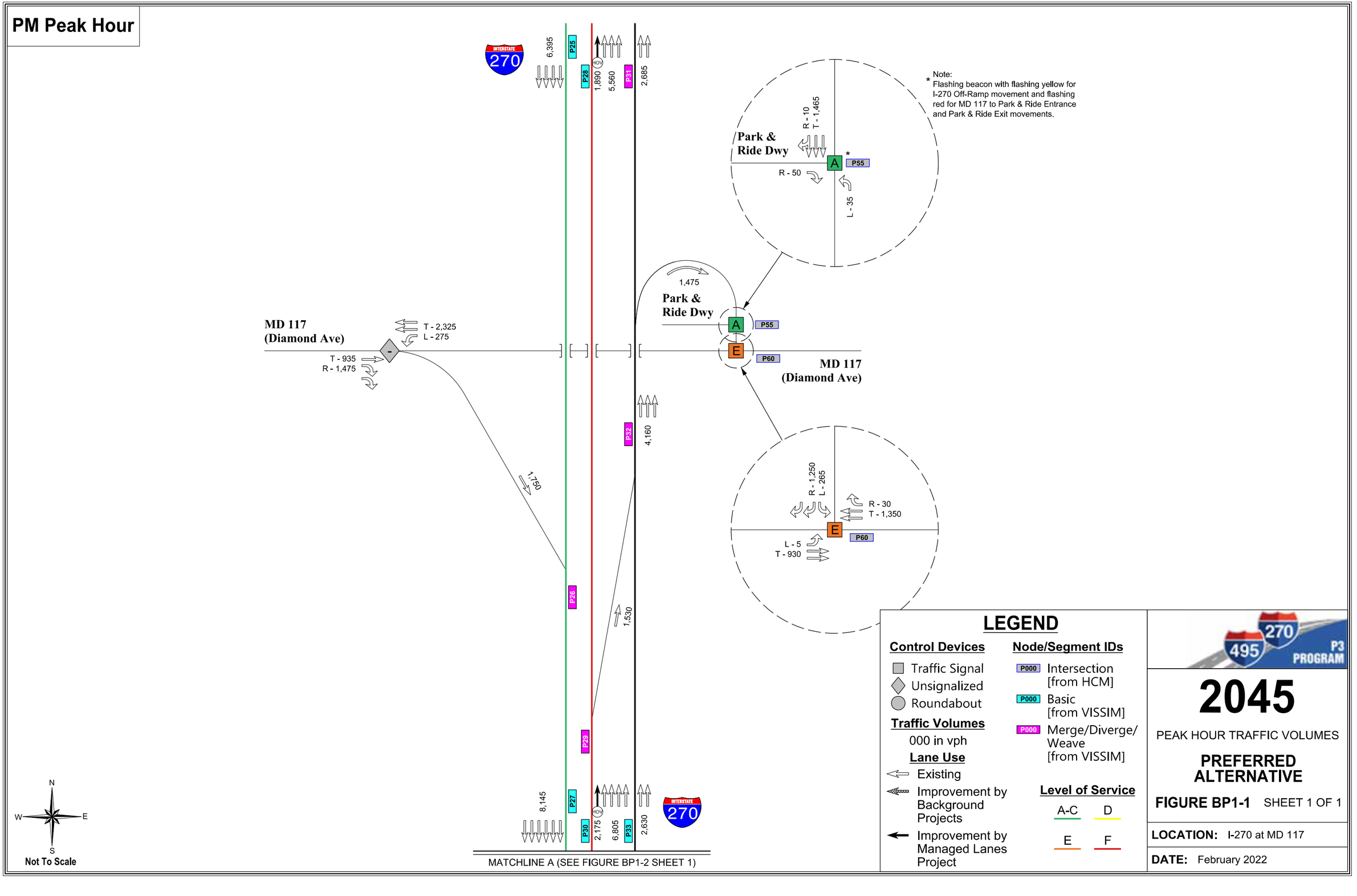
PREFERRED ALTERNATIVE

FIGURE BP1-1 SHEET 1 OF 1

LOCATION: I-270 at MD 117

DATE: February 2022

PM Peak Hour



LEGEND

Control Devices

- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes

000 in vph

Lane Use

- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs

- P000 Intersection [from HCM]
- P000 Basic [from VISSIM]
- P000 Merge/Diverge/ Weave [from VISSIM]

Level of Service

A-C D E F

I-270 495 P3 PROGRAM

2045

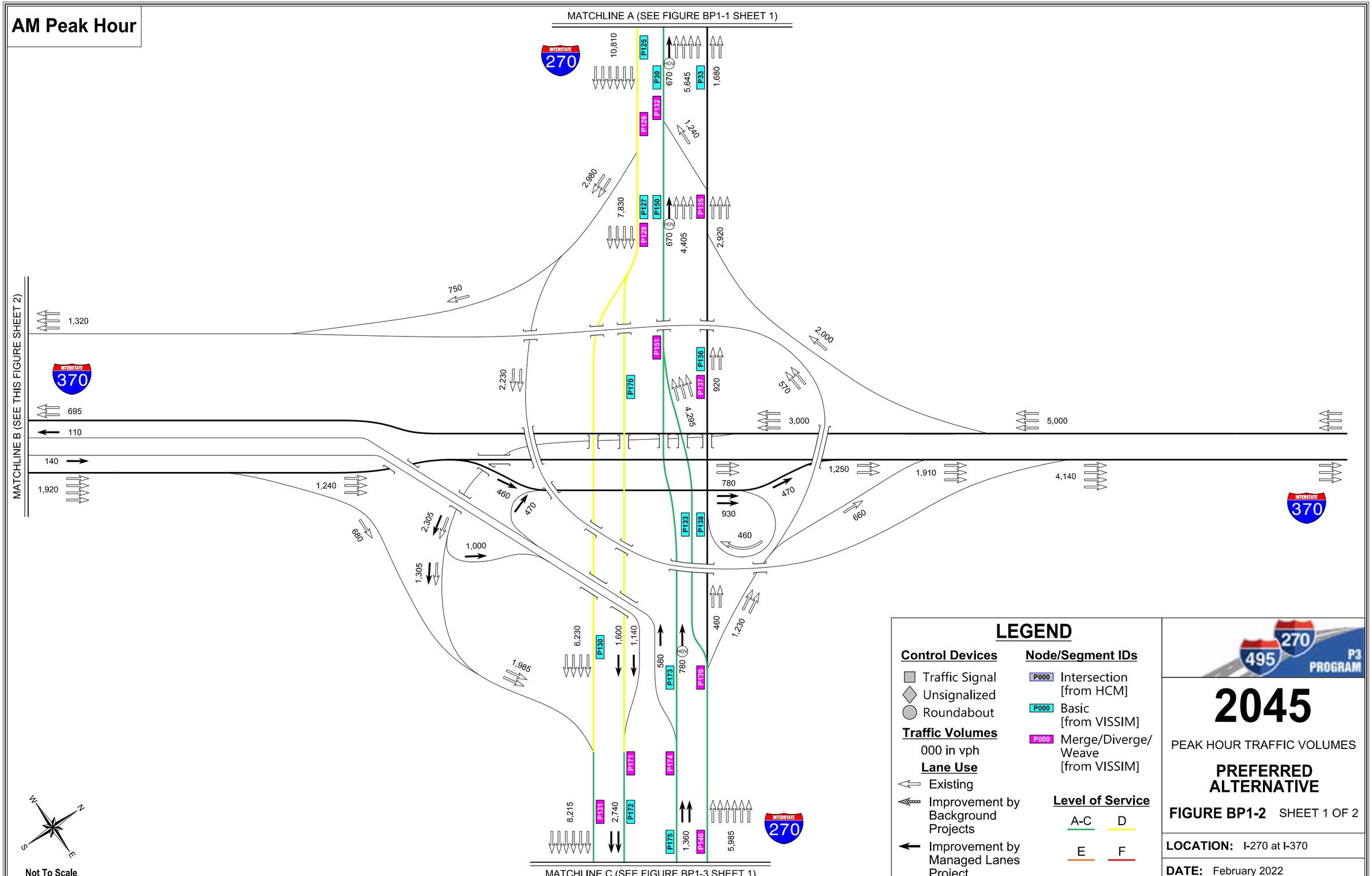
PEAK HOUR TRAFFIC VOLUMES

PREFERRED ALTERNATIVE

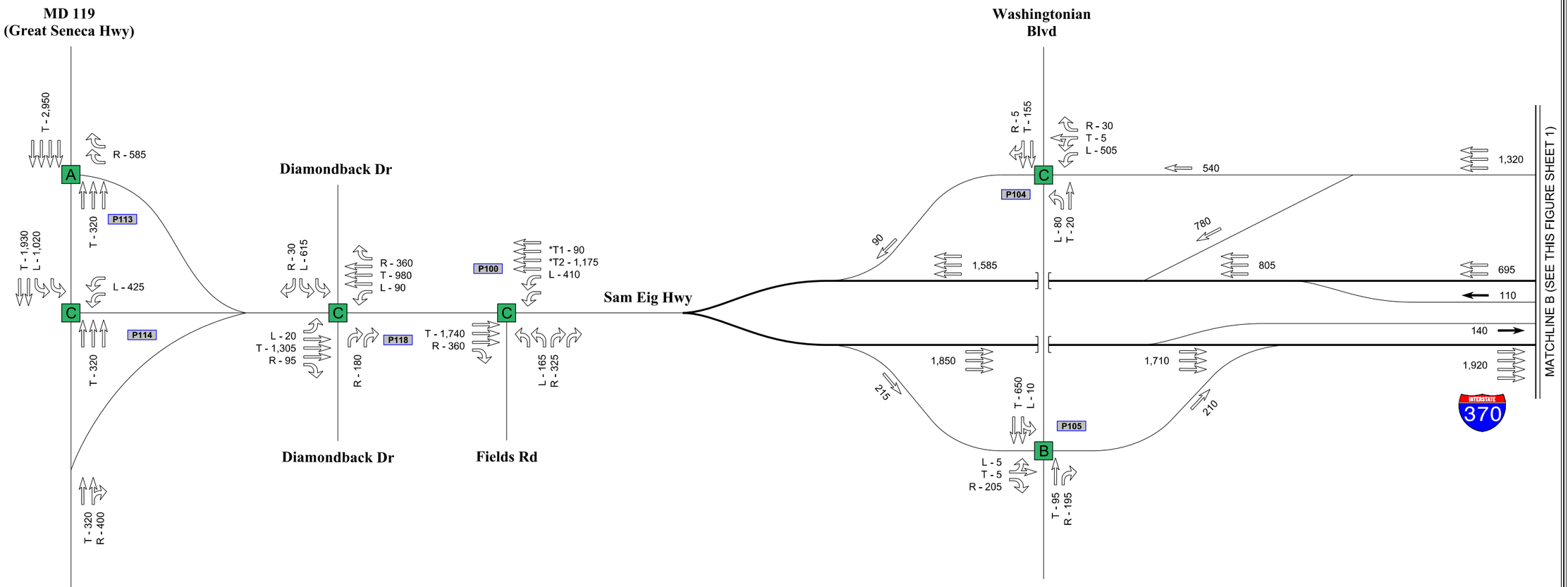
FIGURE BP1-1 SHEET 1 OF 1

LOCATION: I-270 at MD 117

DATE: February 2022


AM Peak Hour
MATCHLINE A (SEE FIGURE BP1-1 SHEET 1)
MATCHLINE B (SEE THIS FIGURE SHEET 2)
MATCHLINE C (SEE FIGURE BP1-3 SHEET 1)
INTERSTATE 270
INTERSTATE 370
P125
P30
P33
P132
P126
P127
P150
P135
P128
P151
P136
P170
P137
P133
P138
P130
P173
P139
P171
P174
P131
P172
P175
P140
HOV
10,810
670
5,645
1,680
1,240
2,980
7,830
4,405
2,920
750
1,320
2,000
2,230
920
570
4,295
695
110
140
1,920
1,240
3,000
5,000
1,250
1,910
4,140
780
470
930
460
660
2,305
1,000
1,305
680
6,230
1,600
1,140
580
780
1,230
1,985
8,215
2,740
1,360
5,985
Not To Scale
LEGEND
Control Devices
Traffic Signal
Unsignalized
Roundabout
Traffic Volumes
000 in vph
Lane Use
Existing
Improvement by Background Projects
Improvement by Managed Lanes Project
Node/Segment IDs
P000 Intersection [from HCM]
P000 Basic [from VISSIM]
P000 Merge/Diverge/ Weave [from VISSIM]
Level of Service
A-C
D
E
F
495
270
P3 PROGRAM
2045
PEAK HOUR TRAFFIC VOLUMES
PREFERRED ALTERNATIVE
FIGURE BP1-2
SHEET 1 OF 2
LOCATION: I-270 at I-370
DATE: February 2022

AM Peak Hour



N
W
E
S

Not To Scale

*T1 represents vehicles arriving from I-370 (Sam Eig Hwy)
*T2 represents vehicles arriving from Washingtonian Blvd Ramp

LEGEND

Control Devices
- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes
000 in vph

Lane Use
- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs
- P000 Intersection [from HCM]
- P000 Basic [from VISSIM]
- P000 Merge/Diverge/ Weave [from VISSIM]

Level of Service
A-C D E F

I-270 / I-495 P3 PROGRAM

2045

PEAK HOUR TRAFFIC VOLUMES

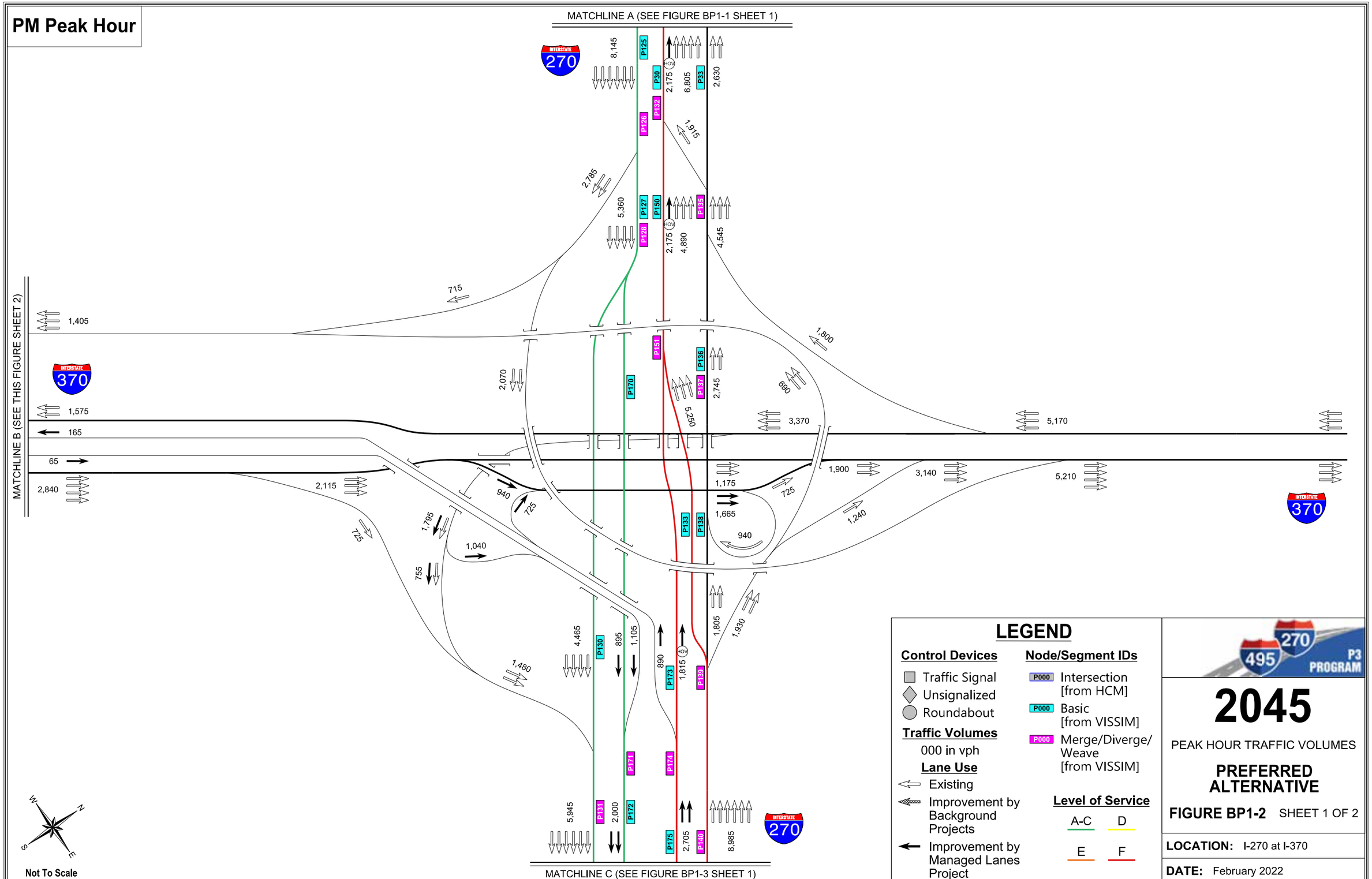
PREFERRED ALTERNATIVE

FIGURE BP1-2 SHEET 2 OF 2

LOCATION: I-270 at I-370

DATE: February 2022

PM Peak Hour



LEGEND

Control Devices

- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes

000 in vph

Lane Use

- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs

- P000 Intersection [from HCM]
- P000 Basic [from VISSIM]
- P000 Merge/Diverge/ Weave [from VISSIM]

Level of Service

A-C D E F

I-270 / I-495 P3 PROGRAM

2045

PEAK HOUR TRAFFIC VOLUMES

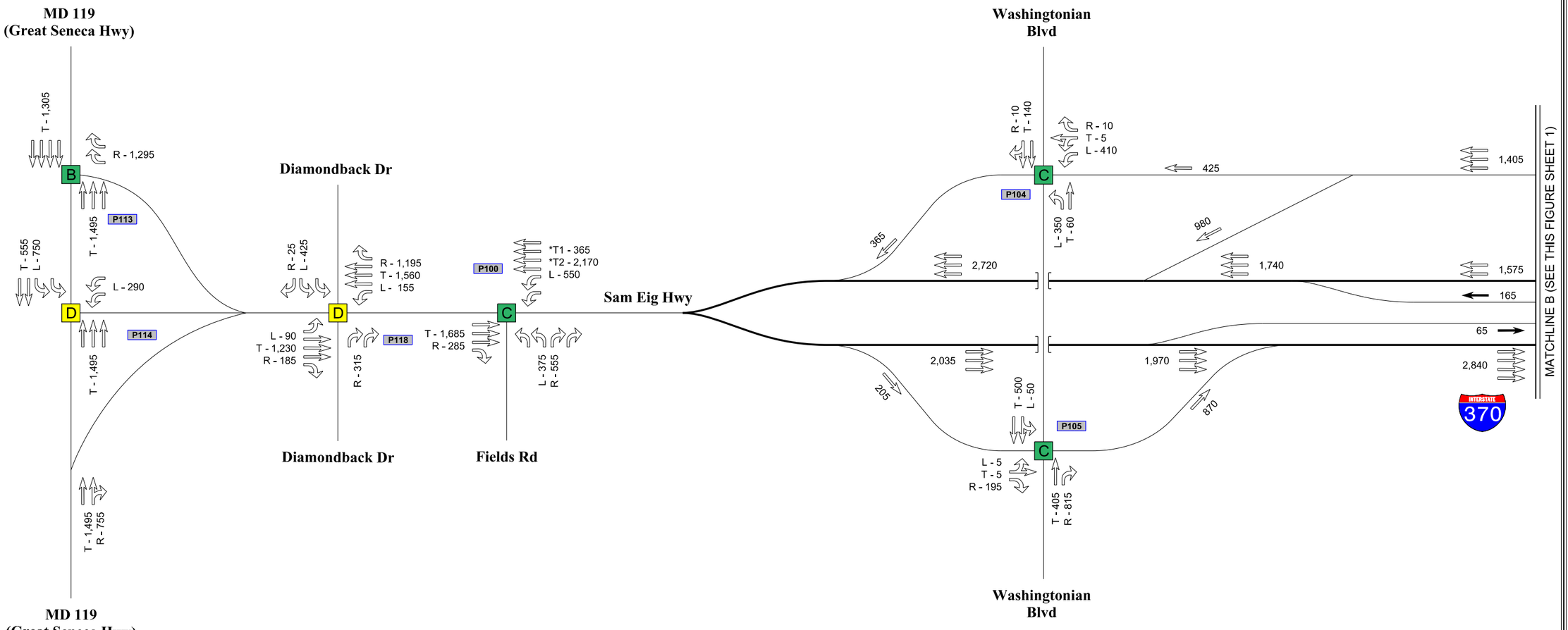
PREFERRED ALTERNATIVE

FIGURE BP1-2 SHEET 1 OF 2

LOCATION: I-270 at I-370

DATE: February 2022

PM Peak Hour



LEGEND

Control Devices
- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes
000 in vph

Lane Use
- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs
- P000 Intersection [from HCM]
- P000 Basic [from VISSIM]
- P000 Merge/Diverge/ Weave [from VISSIM]

Level of Service
A-C D E F

Not To Scale

*T1 represents vehicles arriving from I-370 (Sam Eig Hwy)
*T2 represents vehicles arriving from Washingtonian Blvd Ramp

I-270 / I-495 P3 PROGRAM

2045

PEAK HOUR TRAFFIC VOLUMES

PREFERRED ALTERNATIVE

FIGURE BP1-2 SHEET 2 OF 2

LOCATION: I-270 at I-370

DATE: February 2022

AM Peak Hour

MATCHLINE C (SEE FIGURE BP1-2 SHEET 1)

MATCHLINE D (SEE FIGURE BP1-4 SHEET 1)

Fields Rd

MD 28 (Key W Ave)

MD 28 (Key W Ave)

Medical Center Dr

Omega Dr

Washingtonian Blvd

Corporate Blvd

Corporate Blvd

Shady Grove Rd

Shady Grove Rd

Home Depot Dwy

Choke Cherry Rd

Piccard Dr

Piccard Dr

Redland Blvd

INTERSTATE 270

INTERSTATE 270

P200 L - 85 T - 2,055 R - 200 R - 60 T - 260 L - 130

P204 R - 15 L - 165 L - 55 T - 710 R - 205 T - 120

P203 T - 875 R - 140 L - 215 T - 185 355 1,670

P225 8,215

P172 2,740

P175 1,360

P140 5,985

P226 6,545

P227 1,315 600

P228 7,145

P205 R - 10 T - 10 L - 95 R - 170 T - 1,750 L - 305 U - 110

P207 L - 5 T - 1,180 R - 25 L - 25 T - 5 R - 45

P229 R - 870 L - 445 T - 1,465 T - 1,025

P210 T - 1,305 T - 1,130 L - 760 R - 265

395

405

P236 5,590

P250 340

P251 1,025 190 1,215

P238

P216 T - 355 L - 80 R - 25 L - 170

L - 30 T - 115 R - 45 T - 50 R - 60

P230 7,550

P172 2,740

P175 1,360

P331 6,465

P212 R - 65 T - 10 L - 35 R - 10 T - 1,445 L - 145

U - 5 L - 130 T - 985 R - 275 L - 185 T - 10 R - 55

Not To Scale

LEGEND

Control Devices

- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes

000 in vph

Lane Use

- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs

- P000 Intersection [from HCM]
- P000 Basic [from VISSIM]
- P000 Merge/Diverge/ Weave [from VISSIM]

Level of Service

A-C D E F

I-270 495 P3 PROGRAM

2045

PEAK HOUR TRAFFIC VOLUMES

PREFERRED ALTERNATIVE

FIGURE BP1-3 SHEET 1 OF 1

LOCATION: I-270 at Shady Grove Road

DATE: February 2022

PM Peak Hour

MATCHLINE C (SEE FIGURE BP1-2 SHEET 1)

MATCHLINE D (SEE FIGURE BP1-4 SHEET 1)

Fields Rd

MD 28 (Key W Ave)

MD 28 (Key W Ave)

Medical Center Dr

Omega Dr

Washingtonian Blvd

Corporate Blvd

Corporate Blvd

Shady Grove Rd

Shady Grove Rd

Home Depot Dwy

Choke Cherry Rd

Piccard Dr

Piccard Dr

Redland Blvd

INTERSTATE 270

INTERSTATE 270

P200 L - 85 T - 795 R - 30 R - 205 T - 110 L - 110

P204 L - 20 T - 195 R - 85 L - 245

P203 T - 440 R - 510 T - 1,170 R - 125 L - 25 T - 1,555 150 775

P225 5,945

P172 2,000

P175 2,705

P140 8,985

P226 5,170 840 625

P227 6,010

P228

P205 R - 25 T - 5 L - 160 R - 95 T - 730 L - 85 U - 20

P207 L - 15 T - 1,655 R - 35 L - 65 T - 5 R - 305 825 R - 310 L - 315 T - 620 T - 1,315

P229

P210 T - 1,215 T - 980 L - 245 R - 615 935

P236 8,050

P250 650

P251 860 245 1,105

P238

P216 T - 110 L - 45 R - 85 L - 75 L - 25 T - 210 R - 10 T - 260 R - 285

P212 R - 195 T - 30 L - 110 R - 10 T - 1,455 L - 85 U - 5 L - 165 T - 1,195 R - 230 L - 495 T - 20 R - 130

P230 6,835

P331 8,505

Not To Scale

LEGEND

Control Devices

- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes

000 in vph

Lane Use

- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs

- P000 Intersection [from HCM]
- P000 Basic [from VISSIM]
- P000 Merge/Diverge/ Weave [from VISSIM]

Level of Service

A-C D E F

I-270 495 P3 PROGRAM

2045

PEAK HOUR TRAFFIC VOLUMES

PREFERRED ALTERNATIVE

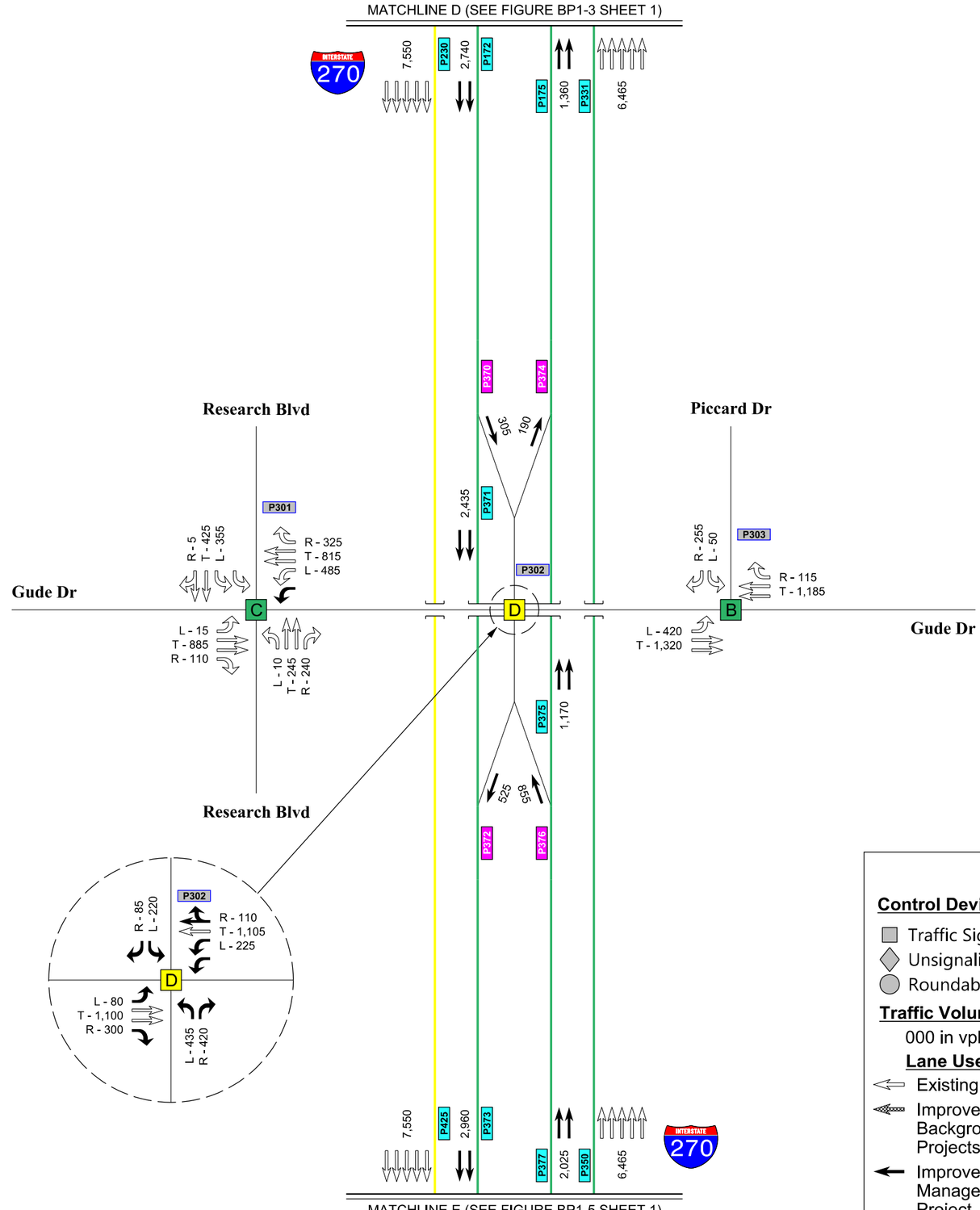
FIGURE BP1-3 SHEET 1 OF 1

LOCATION: I-270 at Shady Grove Road

DATE: February 2022

AM Peak Hour

MATCHLINE D (SEE FIGURE BP1-3 SHEET 1)



MATCHLINE E (SEE FIGURE BP1-5 SHEET 1)

Not To Scale

LEGEND

Control Devices
- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes
000 in vph

Lane Use
- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs
- P000 Intersection [from HCM]
- P000 Basic [from VISSIM]
- P000 Merge/Diverge/ Weave [from VISSIM]

Level of Service
A-C D E F

I-270 / 495 P3 PROGRAM

2045

PEAK HOUR TRAFFIC VOLUMES

PREFERRED ALTERNATIVE

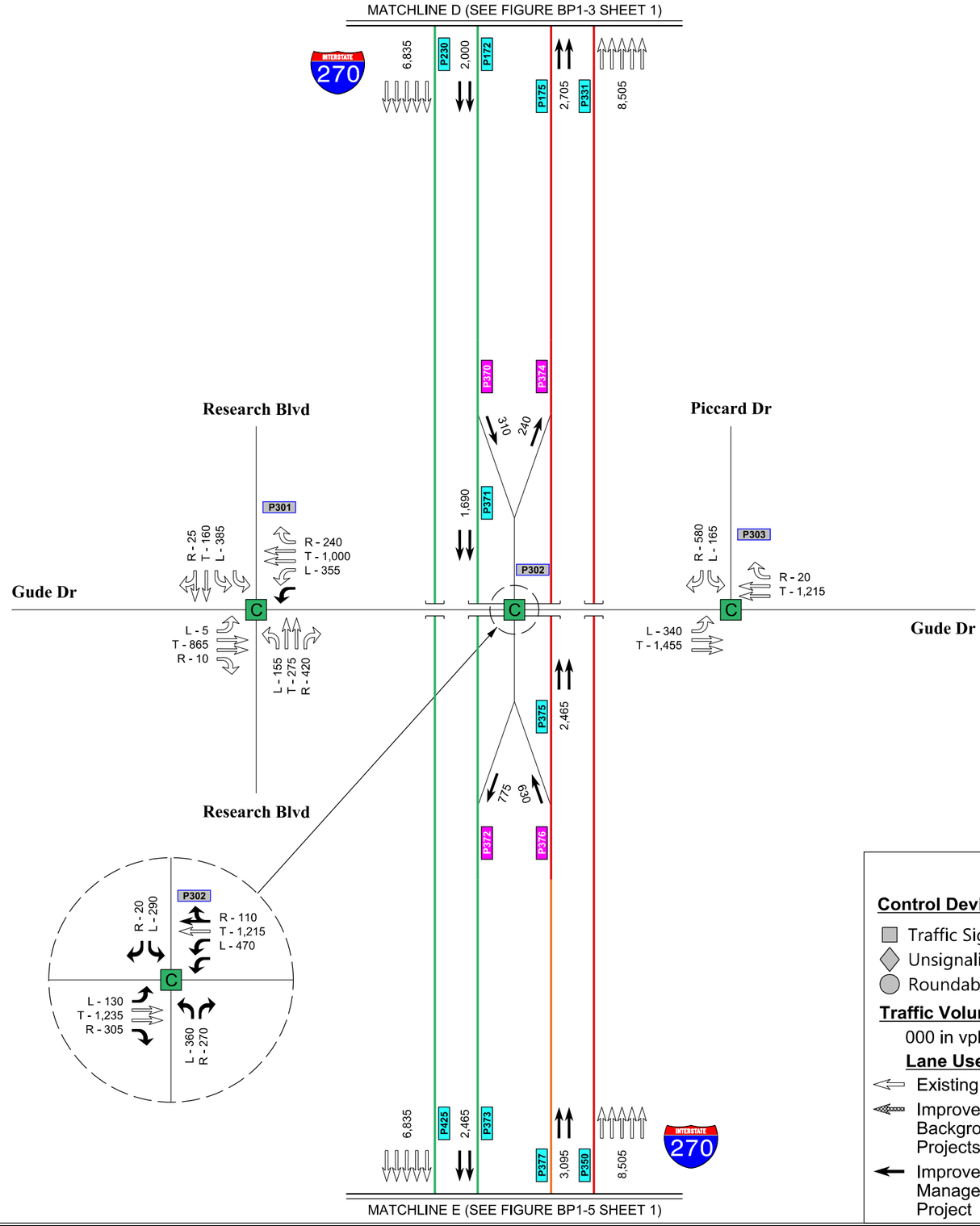
FIGURE BP1-4 SHEET 1 OF 1

LOCATION: I-270 at Gude Drive

DATE: February 2022

PM Peak Hour

MATCHLINE D (SEE FIGURE BP1-3 SHEET 1)



MATCHLINE E (SEE FIGURE BP1-5 SHEET 1)

Not To Scale

LEGEND

Control Devices
- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes
000 in vph

Lane Use
- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs
- P000 Intersection [from HCM]
- P000 Basic [from VISSIM]
- P000 Merge/Diverge/ Weave [from VISSIM]

Level of Service
A-C D E F

I-270 495 P3 PROGRAM

2045

PEAK HOUR TRAFFIC VOLUMES

PREFERRED ALTERNATIVE

FIGURE BP1-4 SHEET 1 OF 1

LOCATION: I-270 at Gude Drive

DATE: February 2022

AM Peak Hour

MATCHLINE E (SEE FIGURE BP1-4 SHEET 1)

INTERSTATE 270

P425 7,550 | P373 2,960 | P377 2,025 | P350 6,465

P426 | P442

465

P427 7,085

345

P443 6,120

270

1,690

P444

Hurley Ave

Nelson St

Laird St

MD 28 (Montgomery Ave)

P400 — R - 5, T - 5, L - 15 | R - 50, T - 2,170, L - 140, U - 20

P401 — R - 185, L - 280 | T - 2,195

P405 — R - 270, L - 30 | R - 15, T - 850

P407 — R - 30, T - 5, L - 80 | R - 10, T - 825, L - 5

T - 865, L - 0

T - 1,235, R - 0

L - 5, T - 1,225, R - 5

L - 10, T - 5, R - 10

MD 28 (Montgomery Ave)

A — T - 1,135, R - 1,055

B — L - 5, T - 1,975, R - 335 | L - 70, T - 5, R - 180

C — L - 335, T - 985 | T - 120, R - 220

1,415

1,055

95

340

P428 | P429 | P430 | P445

7,355

7,715

P525 8,410 | P373 2,960 | P377 2,025 | P447 8,055

INTERSTATE 270

MATCHLINE F (SEE FIGURE BP1-6 SHEET 1)

Hurley Ave

Adclare Rd

Bullard Cir

N / W / E / S

Not To Scale

LEGEND

Control Devices

- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes

000 in vph

Lane Use

- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs

- P000 Intersection [from HCM]
- P000 Basic [from VISSIM]
- P000 Merge/Diverge/ Weave [from VISSIM]

Level of Service

A-C | D | E | F

I-270 / I-495 P3 PROGRAM

2045

PEAK HOUR TRAFFIC VOLUMES

PREFERRED ALTERNATIVE

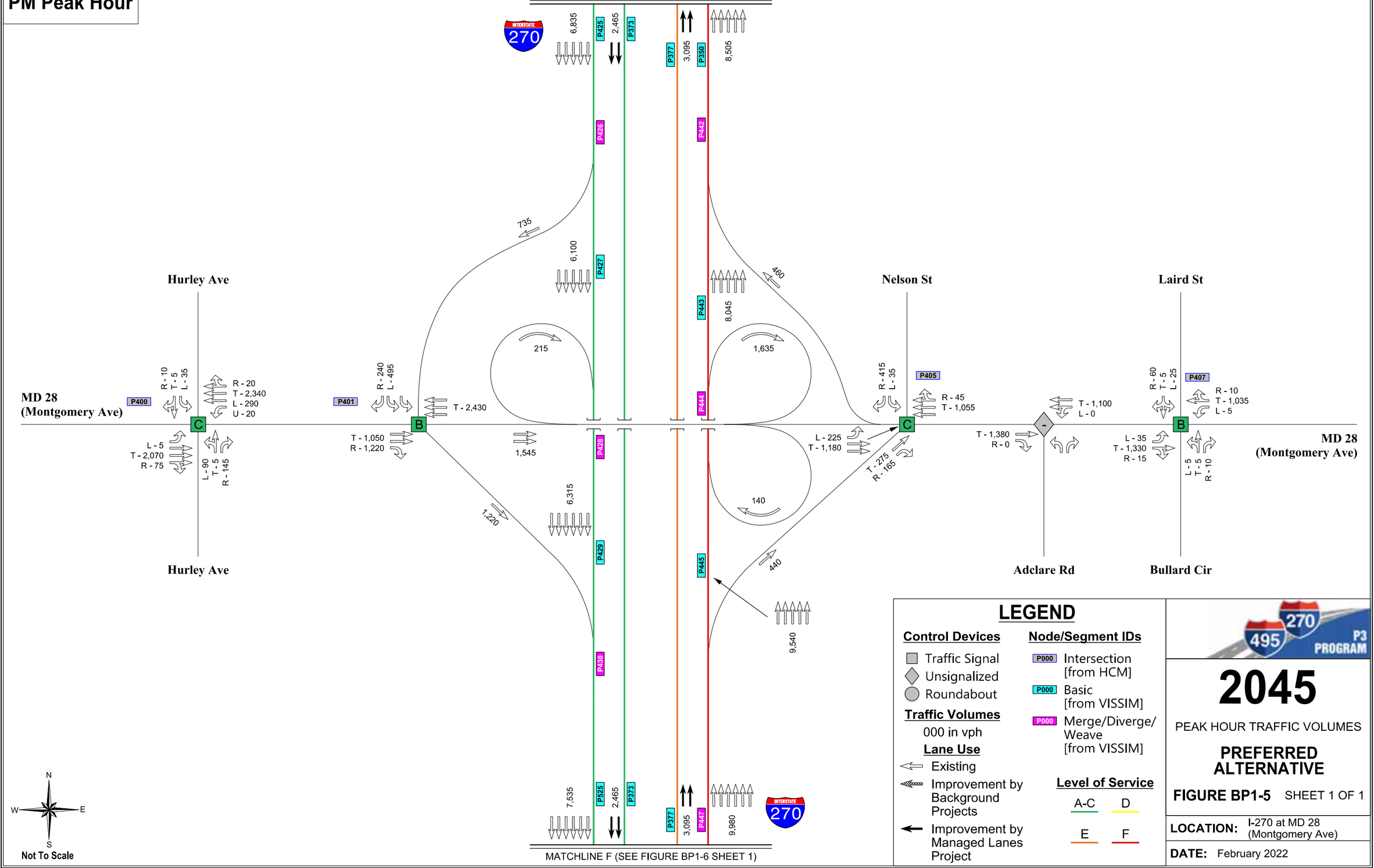
FIGURE BP1-5 SHEET 1 OF 1

LOCATION: I-270 at MD 28 (Montgomery Ave)

DATE: February 2022

PM Peak Hour

MATCHLINE E (SEE FIGURE BP1-4 SHEET 1)



MATCHLINE F (SEE FIGURE BP1-6 SHEET 1)

N
W
E
S
Not To Scale

LEGEND

Control Devices
- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes
000 in vph

Lane Use
- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs
- P000 Intersection [from HCM]
- P000 Basic [from VISSIM]
- P000 Merge/Diverge/ Weave [from VISSIM]

Level of Service
A-C D E F

I-270 / 495 P3 PROGRAM

2045

PEAK HOUR TRAFFIC VOLUMES

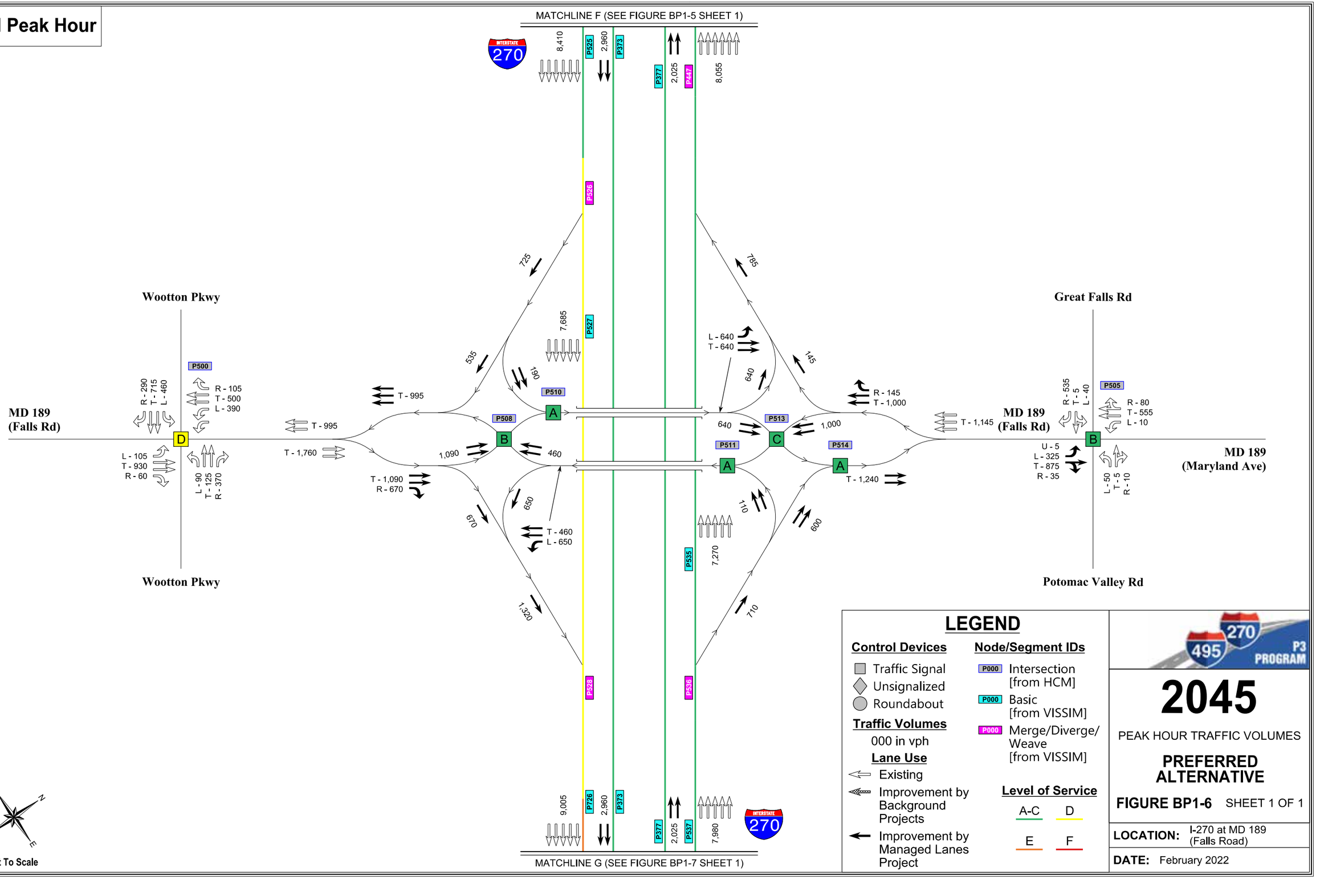
PREFERRED ALTERNATIVE

FIGURE BP1-5 SHEET 1 OF 1

LOCATION: I-270 at MD 28 (Montgomery Ave)

DATE: February 2022

AM Peak Hour



LEGEND

Control Devices

- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes

000 in vph

Lane Use

- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs

- P000 Intersection [from HCM]
- P000 Basic [from VISSIM]
- P000 Merge/Diverge/ Weave [from VISSIM]

Level of Service

A-C D E F

Not To Scale

I-270 / I-495 P3 PROGRAM

2045

PEAK HOUR TRAFFIC VOLUMES

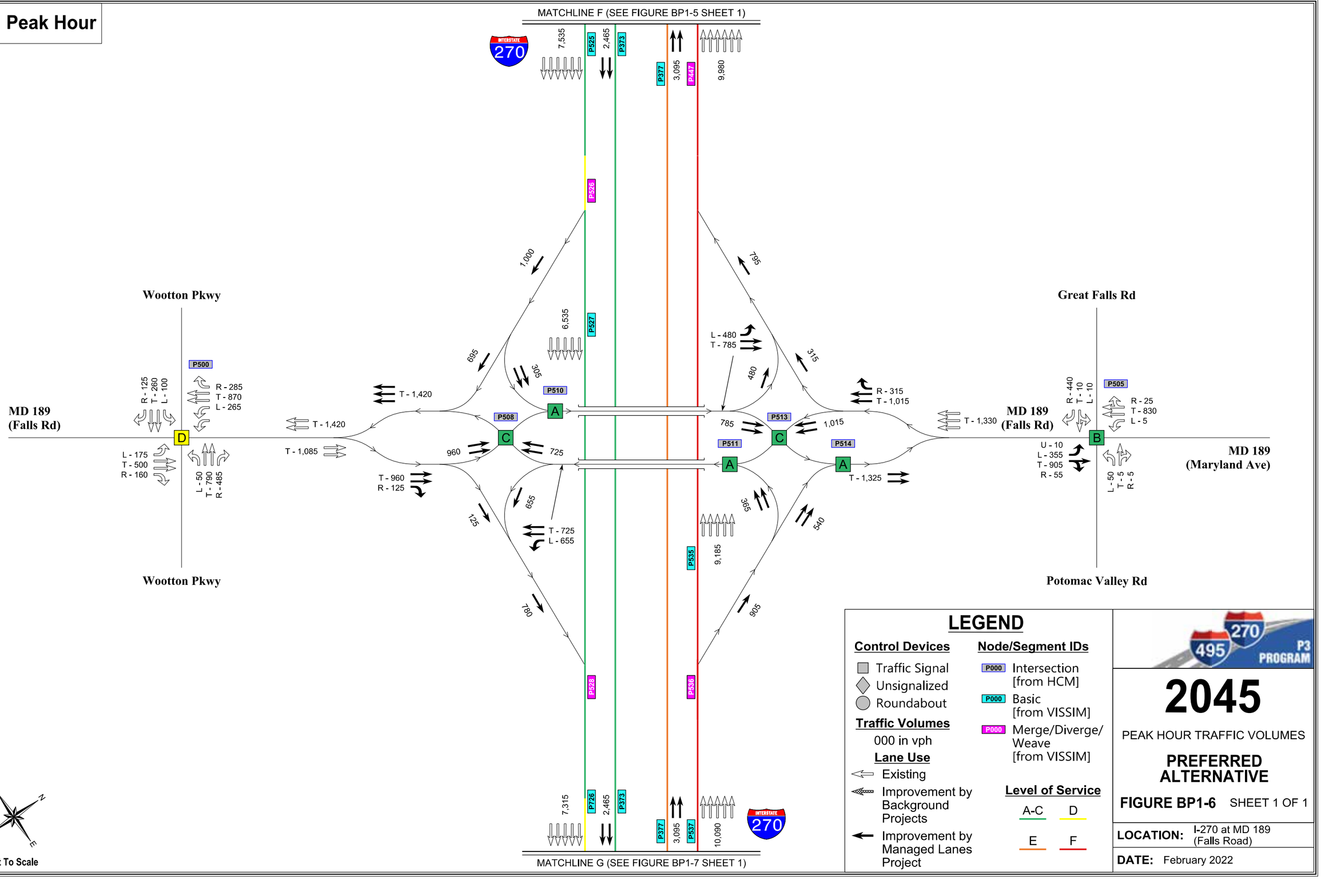
PREFERRED ALTERNATIVE

FIGURE BP1-6 SHEET 1 OF 1

LOCATION: I-270 at MD 189 (Falls Road)

DATE: February 2022

PM Peak Hour



LEGEND

Control Devices

- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes

000 in vph

Lane Use

- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs

- P000 Intersection [from HCM]
- P000 Basic [from VISSIM]
- P000 Merge/Diverge/ Weave [from VISSIM]

Level of Service

A-C D E F

I-270 / 495 P3 PROGRAM

2045

PEAK HOUR TRAFFIC VOLUMES

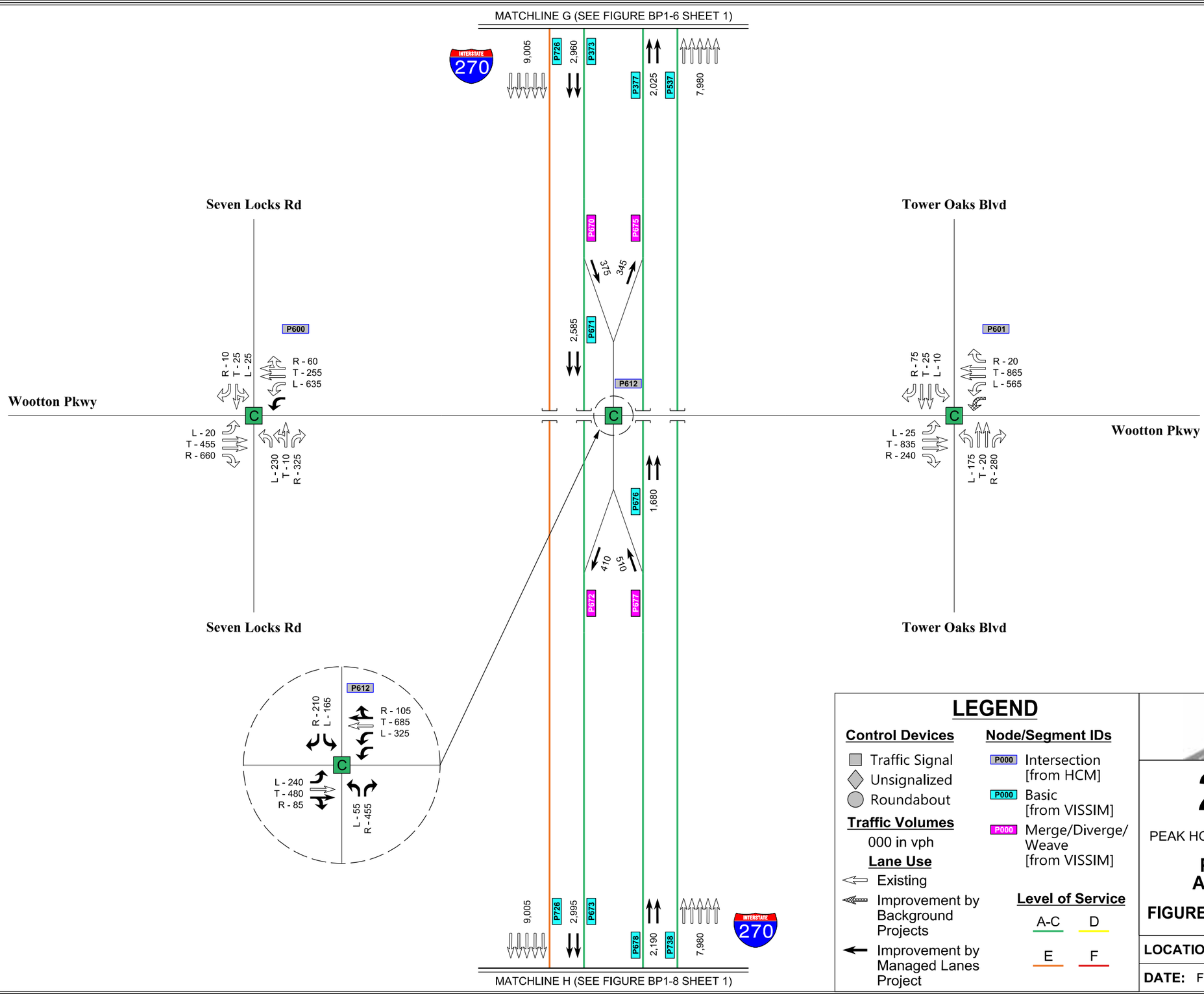
PREFERRED ALTERNATIVE

FIGURE BP1-6 SHEET 1 OF 1

LOCATION: I-270 at MD 189 (Falls Road)

DATE: February 2022

AM Peak Hour



LEGEND

Control Devices

- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes

000 in vph

Lane Use

- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs

- P000 Intersection [from HCM]
- P000 Basic [from VISSIM]
- P000 Merge/Diverge/ Weave [from VISSIM]

Level of Service

A-C D E F

I-270 495 P3 PROGRAM

2045

PEAK HOUR TRAFFIC VOLUMES

PREFERRED ALTERNATIVE

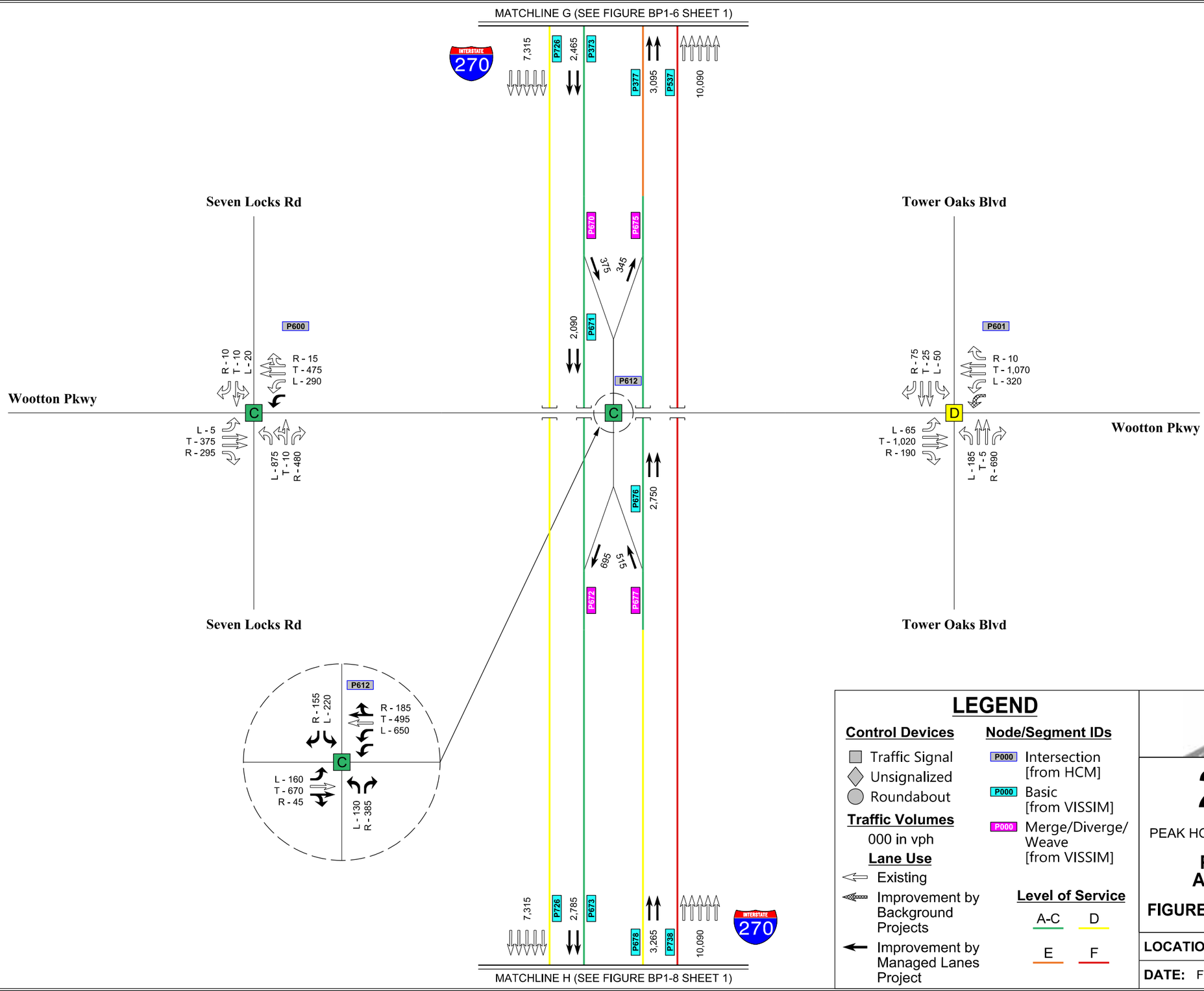
FIGURE BP1-7 SHEET 1 OF 1

LOCATION: I-270 at Wootton Parkway

DATE: February 2022

PM Peak Hour

MATCHLINE G (SEE FIGURE BP1-6 SHEET 1)



MATCHLINE H (SEE FIGURE BP1-8 SHEET 1)

N
W
E
S
Not To Scale

LEGEND

Control Devices
- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes
000 in vph

Lane Use
- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs
- P000 Intersection [from HCM]
- P000 Basic [from VISSIM]
- P000 Merge/Diverge/ Weave [from VISSIM]

Level of Service
A-C D E F

I-270 495 P3 PROGRAM

2045

PEAK HOUR TRAFFIC VOLUMES

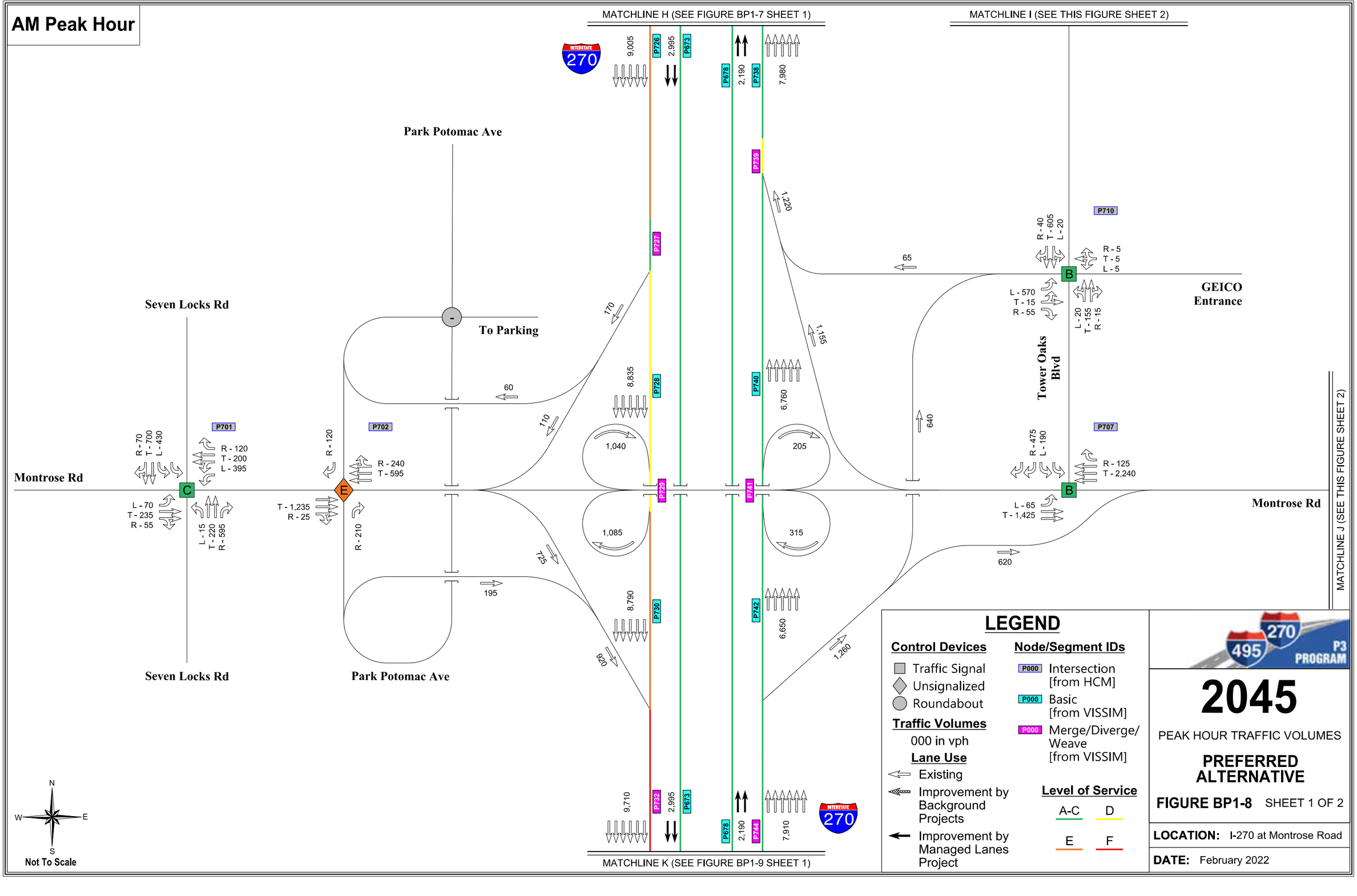
PREFERRED ALTERNATIVE

FIGURE BP1-7 SHEET 1 OF 1

LOCATION: I-270 at Wootton Parkway

DATE: February 2022

AM Peak Hour



LEGEND

Control Devices

- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes

000 in vph

Lane Use

- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs

- P000 Intersection [from HCM]
- P000 Basic [from VISSIM]
- P000 Merge/Diverge/ Weave [from VISSIM]

Level of Service

A-C | D | E | F

I-270 / I-495 P3 PROGRAM

2045

PEAK HOUR TRAFFIC VOLUMES

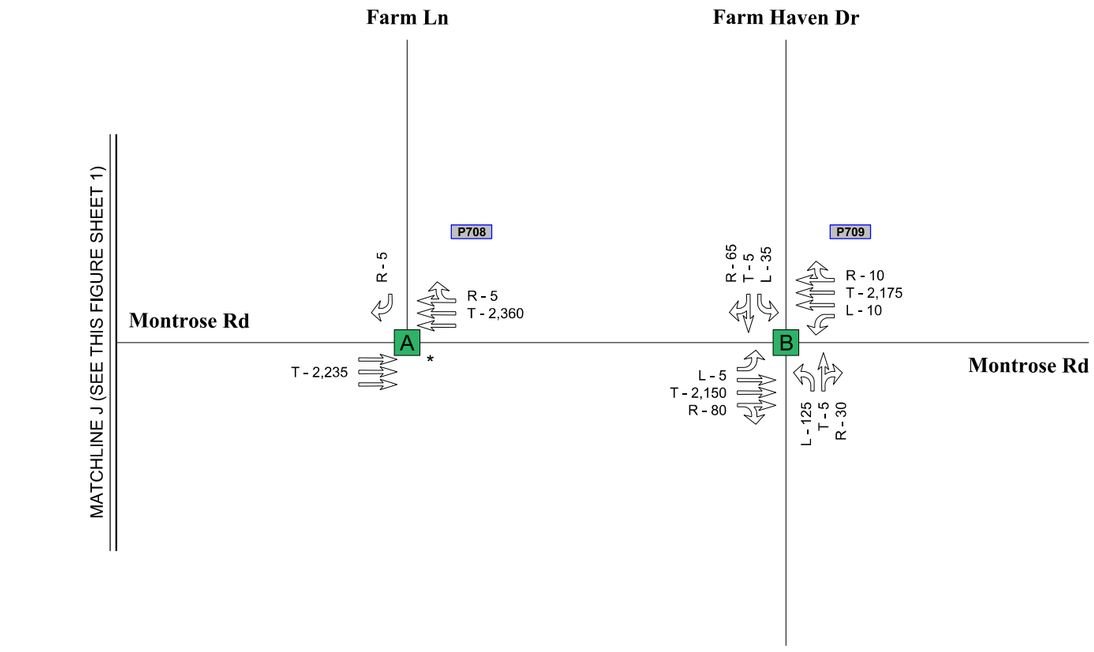
PREFERRED ALTERNATIVE

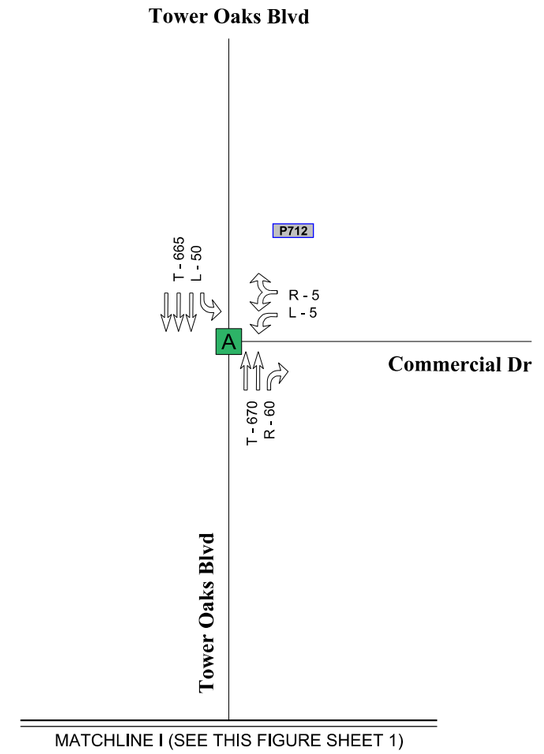
FIGURE BP1-8 SHEET 1 OF 2

LOCATION: I-270 at Montrose Road

DATE: February 2022

AM Peak Hour





N
W E
S
Not To Scale

*Note: Montrose Road at Farm Lane is a Pedestrian Signal with Farm Lane being yield controlled

LEGEND

Control Devices
- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes
000 in vph

Lane Use
- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs
- P000 Intersection [from HCM]
- P000 Basic [from VISSIM]
- P000 Merge/Diverge/ Weave [from VISSIM]

Level of Service
A-C D E F

I-270 / 495 P3 PROGRAM

2045

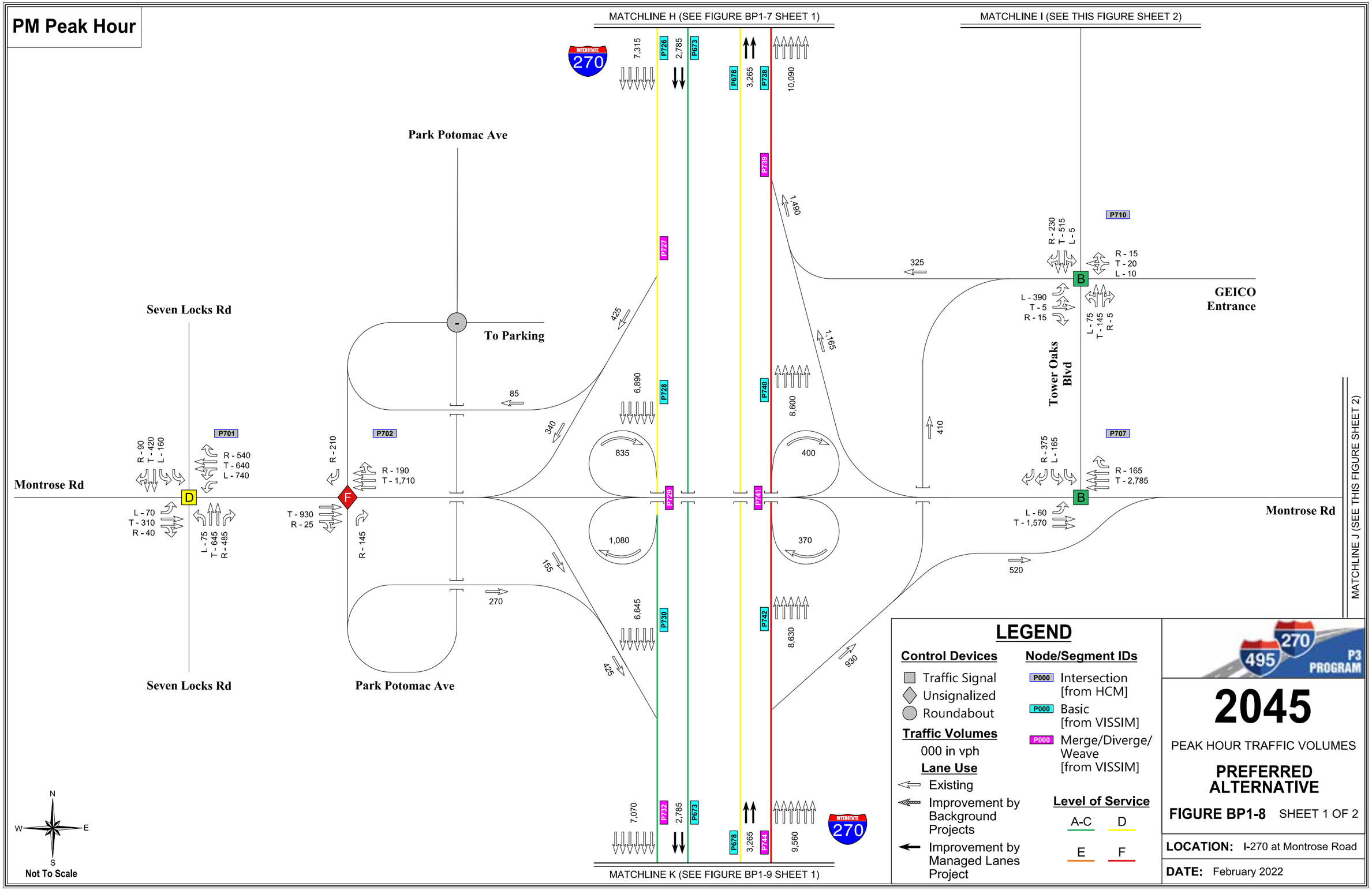
PEAK HOUR TRAFFIC VOLUMES

PREFERRED ALTERNATIVE

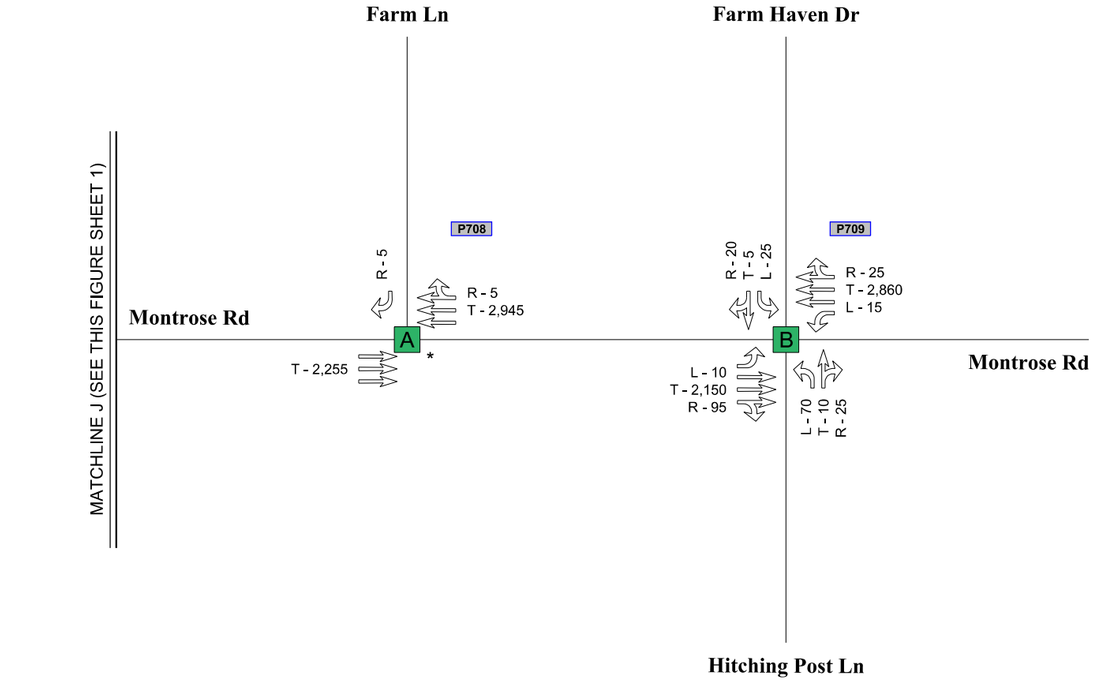
FIGURE BP1-8 SHEET 2 OF 2

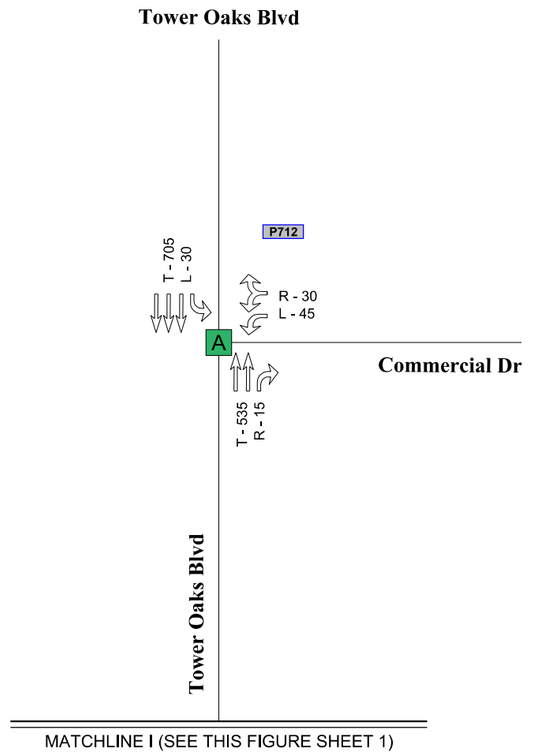
LOCATION: I-270 at Montrose Road

DATE: February 2022


PM Peak Hour
MATCHLINE H (SEE FIGURE BP1-7 SHEET 1)
MATCHLINE I (SEE THIS FIGURE SHEET 2)
MATCHLINE J (SEE THIS FIGURE SHEET 2)
MATCHLINE K (SEE FIGURE BP1-9 SHEET 1)
Park Potomac Ave
Seven Locks Rd
To Parking
Montrose Rd
GEICO Entrance
Tower Oaks Blvd
270
495
P3 PROGRAM
LEGEND
Control Devices
Traffic Signal
Unsignalized
Roundabout
Traffic Volumes
000 in vph
Lane Use
Existing
Improvement by Background Projects
Improvement by Managed Lanes Project
Node/Segment IDs
P000 Intersection [from HCM]
P000 Basic [from VISSIM]
P000 Merge/Diverge/ Weave [from VISSIM]
Level of Service
A-C
D
E
F
2045
PEAK HOUR TRAFFIC VOLUMES
PREFERRED ALTERNATIVE
FIGURE BP1-8 SHEET 1 OF 2
LOCATION: I-270 at Montrose Road
DATE: February 2022
Not To Scale

PM Peak Hour





N
W E
S
Not To Scale

*Note: Montrose Road at Farm Lane is a Pedestrian Signal with Farm Lane being yield controlled

LEGEND

Control Devices
- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes
000 in vph

Lane Use
- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs
- P000 Intersection [from HCM]
- P000 Basic [from VISSIM]
- P000 Merge/Diverge/ Weave [from VISSIM]

Level of Service

A-C	D
E	F

270 495 P3 PROGRAM

2045

PEAK HOUR TRAFFIC VOLUMES

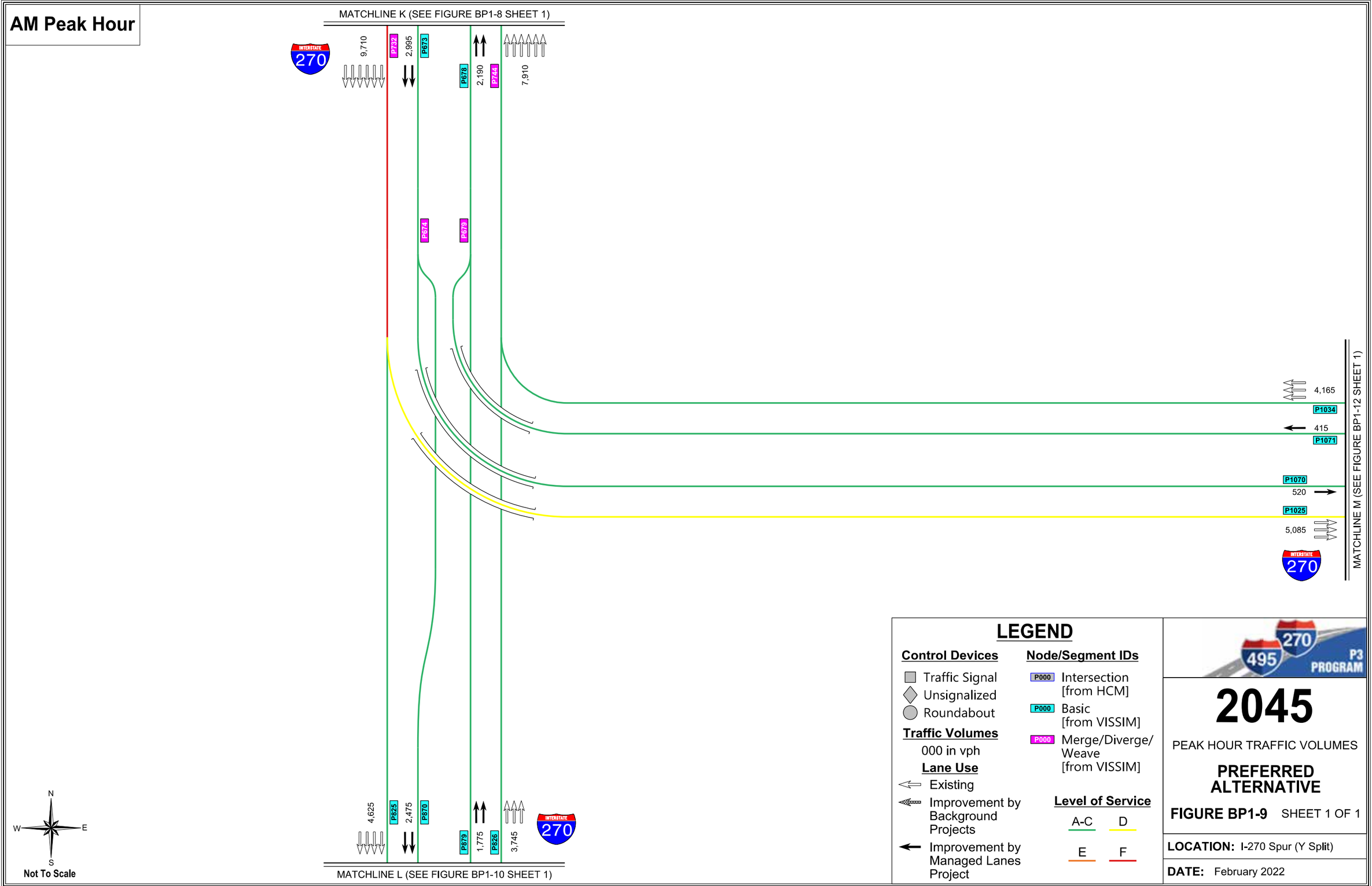
PREFERRED ALTERNATIVE

FIGURE BP1-8 SHEET 2 OF 2

LOCATION: I-270 at Montrose Road

DATE: February 2022

AM Peak Hour



LEGEND

Control Devices

- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes

000 in vph

Lane Use

- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs

- P000 Intersection [from HCM]
- P000 Basic [from VISSIM]
- P000 Merge/Diverge/ Weave [from VISSIM]

Level of Service

A-C D E F

495 270 P3 PROGRAM

2045

PEAK HOUR TRAFFIC VOLUMES

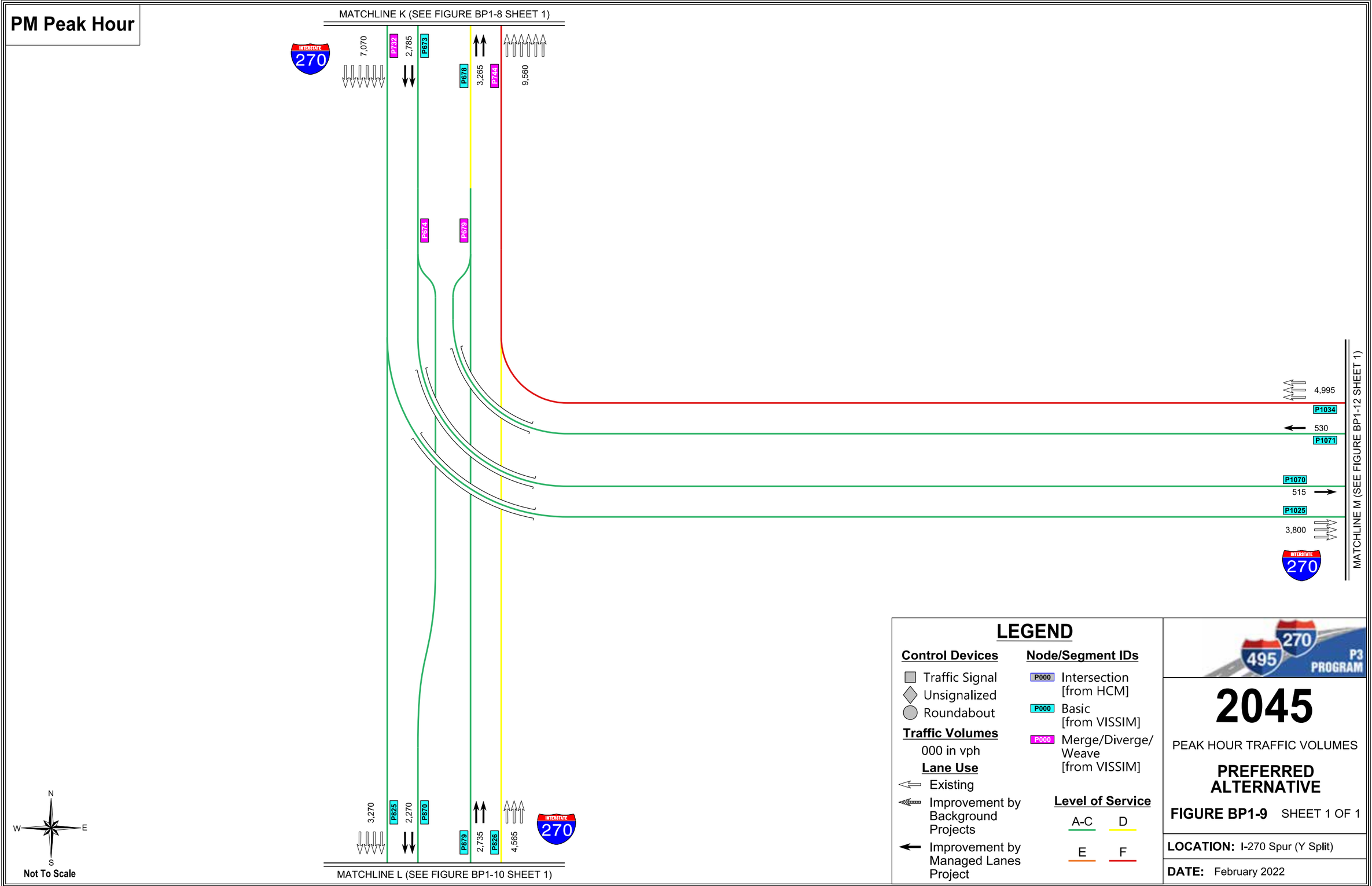
PREFERRED ALTERNATIVE

FIGURE BP1-9 SHEET 1 OF 1

LOCATION: I-270 Spur (Y Split)

DATE: February 2022

PM Peak Hour



LEGEND

Control Devices

- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes

000 in vph

Lane Use

- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs

- P000 Intersection [from HCM]
- P000 Basic [from VISSIM]
- P000 Merge/Diverge/ Weave [from VISSIM]

Level of Service

A-C D E F

I-270 / I-495 P3 PROGRAM

2045

PEAK HOUR TRAFFIC VOLUMES

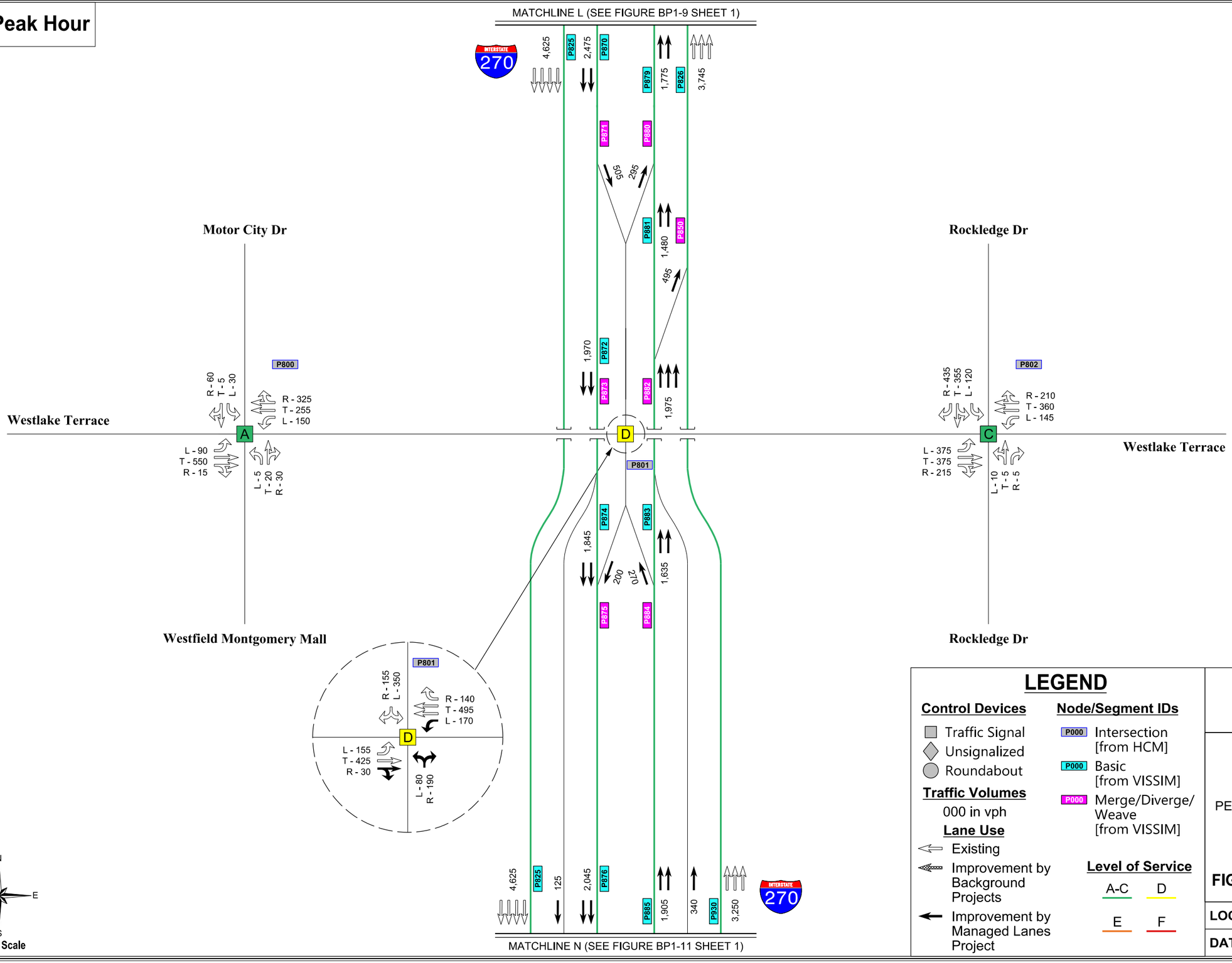
PREFERRED ALTERNATIVE

FIGURE BP1-9 SHEET 1 OF 1

LOCATION: I-270 Spur (Y Split)

DATE: February 2022

AM Peak Hour



LEGEND

Control Devices

- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes

000 in vph

Lane Use

- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs

- P000 Intersection [from HCM]
- P000 Basic [from VISSIM]
- P000 Merge/Diverge/ Weave [from VISSIM]

Level of Service

A-C D E F

I-270 / 495 P3 PROGRAM

2045

PEAK HOUR TRAFFIC VOLUMES

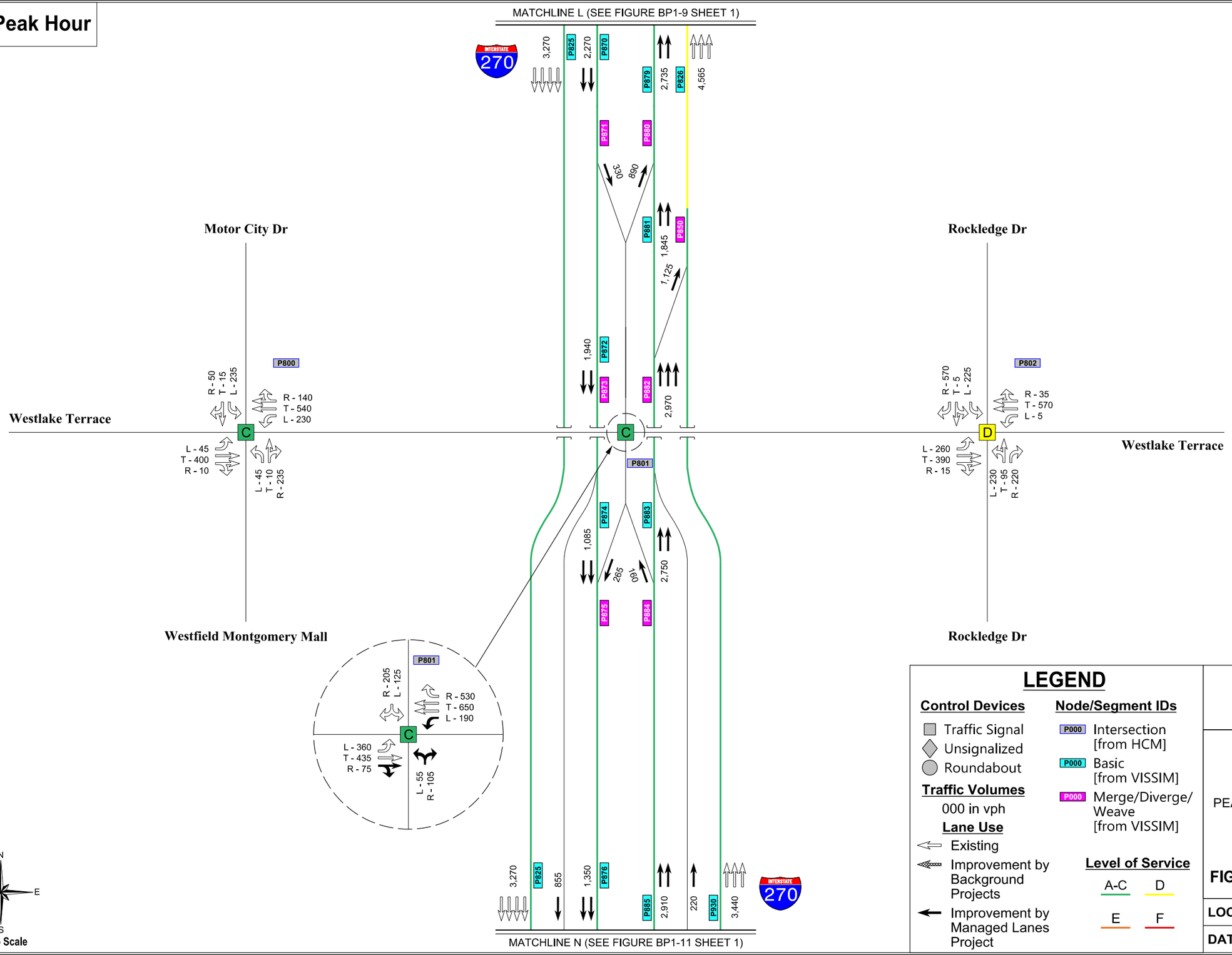
PREFERRED ALTERNATIVE

FIGURE BP1-10 SHEET 1 OF 1

LOCATION: I-270 at Westlake Terrace

DATE: February 2022

PM Peak Hour



LEGEND

Control Devices

- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes

000 in vph

Lane Use

- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs

- P000 Intersection [from HCM]
- P000 Basic [from VISSIM]
- P000 Merge/Diverge/ Weave [from VISSIM]

Level of Service

A-C D E F

I-270 495 P3 PROGRAM

2045

PEAK HOUR TRAFFIC VOLUMES

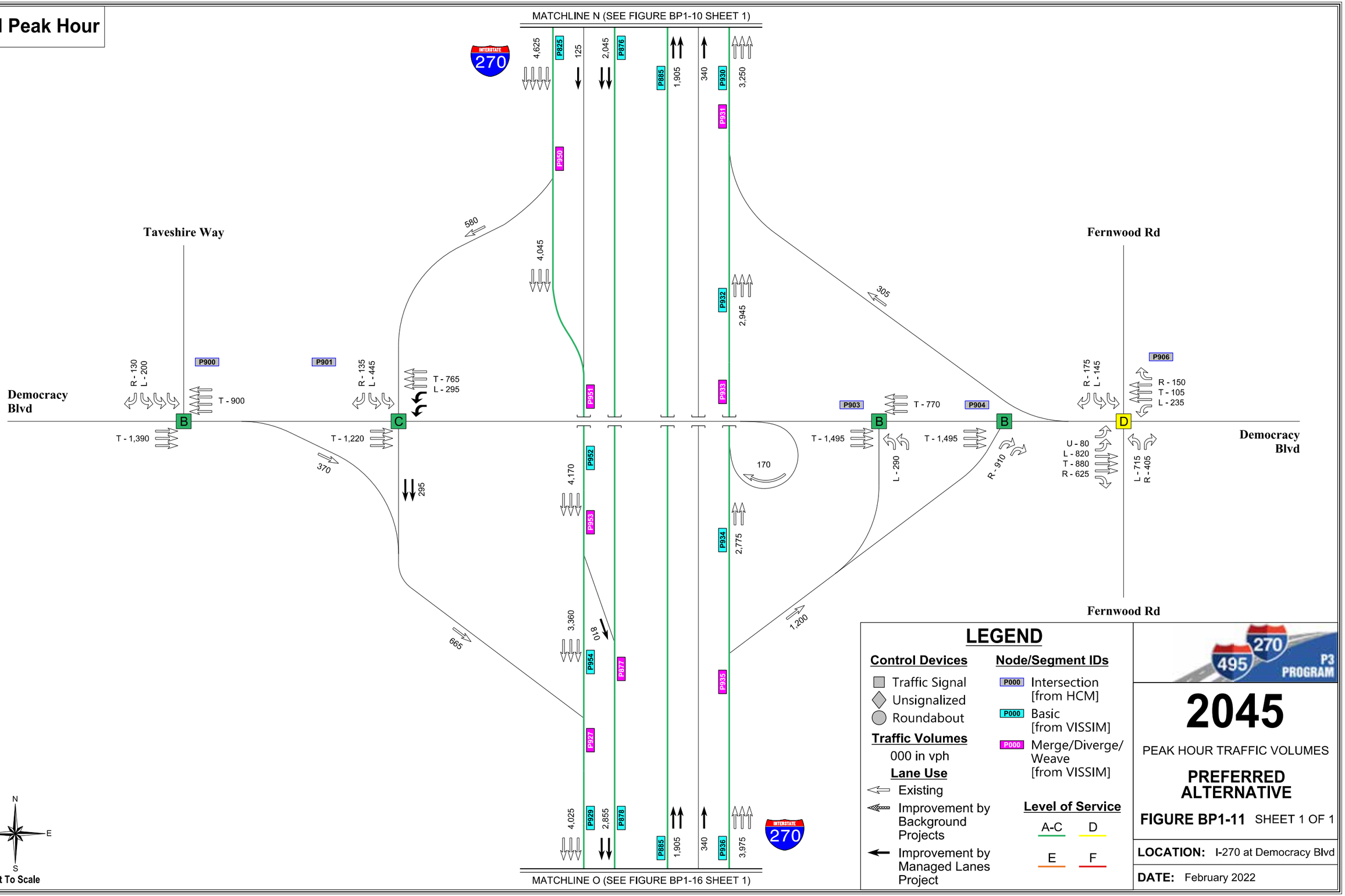
PREFERRED ALTERNATIVE

FIGURE BP1-10 SHEET 1 OF 1

LOCATION: I-270 at Westlake Terrace

DATE: February 2022

AM Peak Hour



LEGEND

Control Devices
- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes
000 in vph

Lane Use
- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs
- P000 Intersection [from HCM]
- P000 Basic [from VISSIM]
- P000 Merge/Diverge/ Weave [from VISSIM]

Level of Service
A-C D E F

I-270 / 495 P3 PROGRAM

2045

PEAK HOUR TRAFFIC VOLUMES

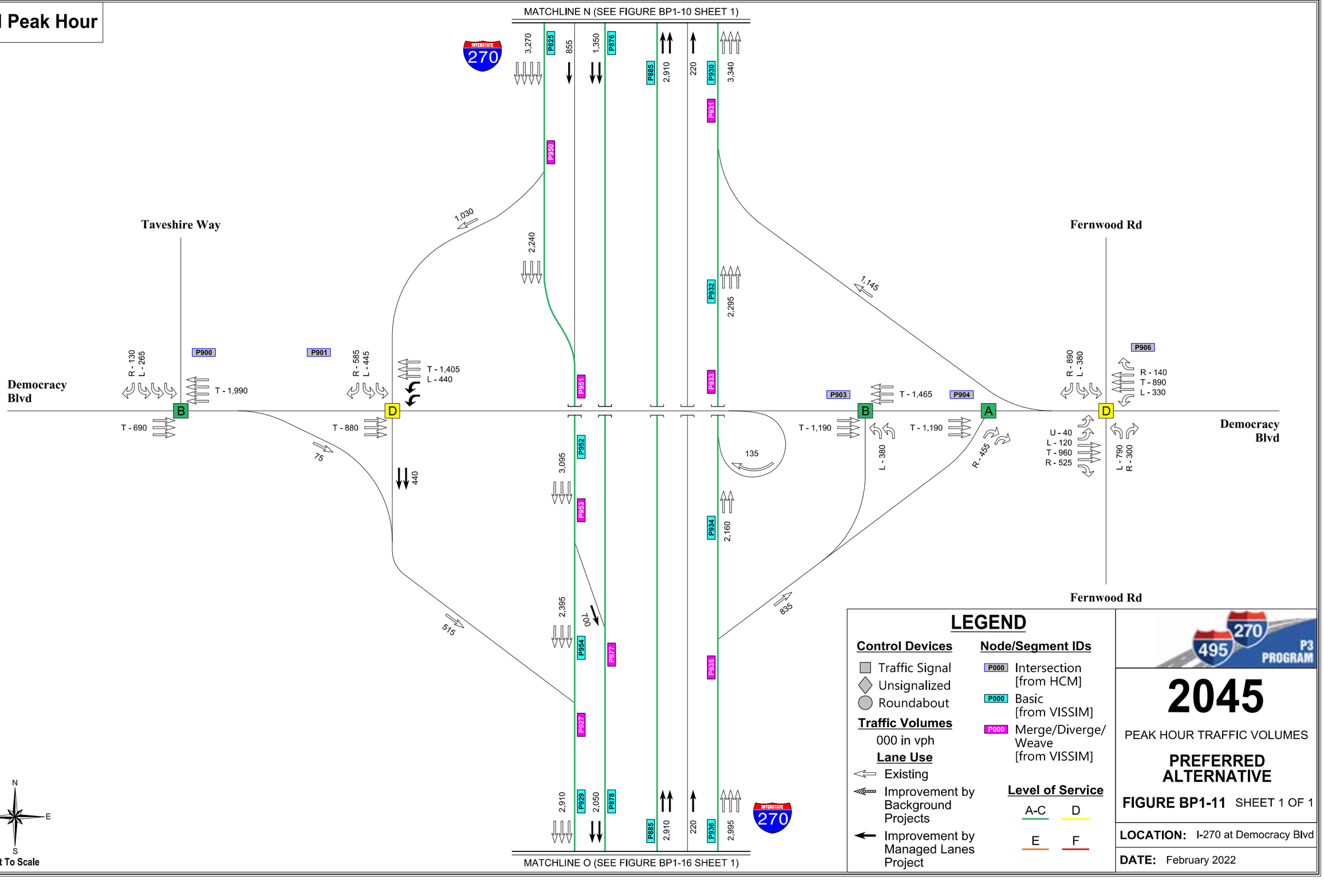
PREFERRED ALTERNATIVE

FIGURE BP1-11 SHEET 1 OF 1

LOCATION: I-270 at Democracy Blvd

DATE: February 2022

PM Peak Hour



LEGEND

Control Devices

- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes

000 in vph

Lane Use

- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs

- P000 Intersection [from HCM]
- P000 Basic [from VISSIM]
- P000 Merge/Diverge/ Weave [from VISSIM]

Level of Service

A-C D E F

I-270 495 P3 PROGRAM

2045

PEAK HOUR TRAFFIC VOLUMES

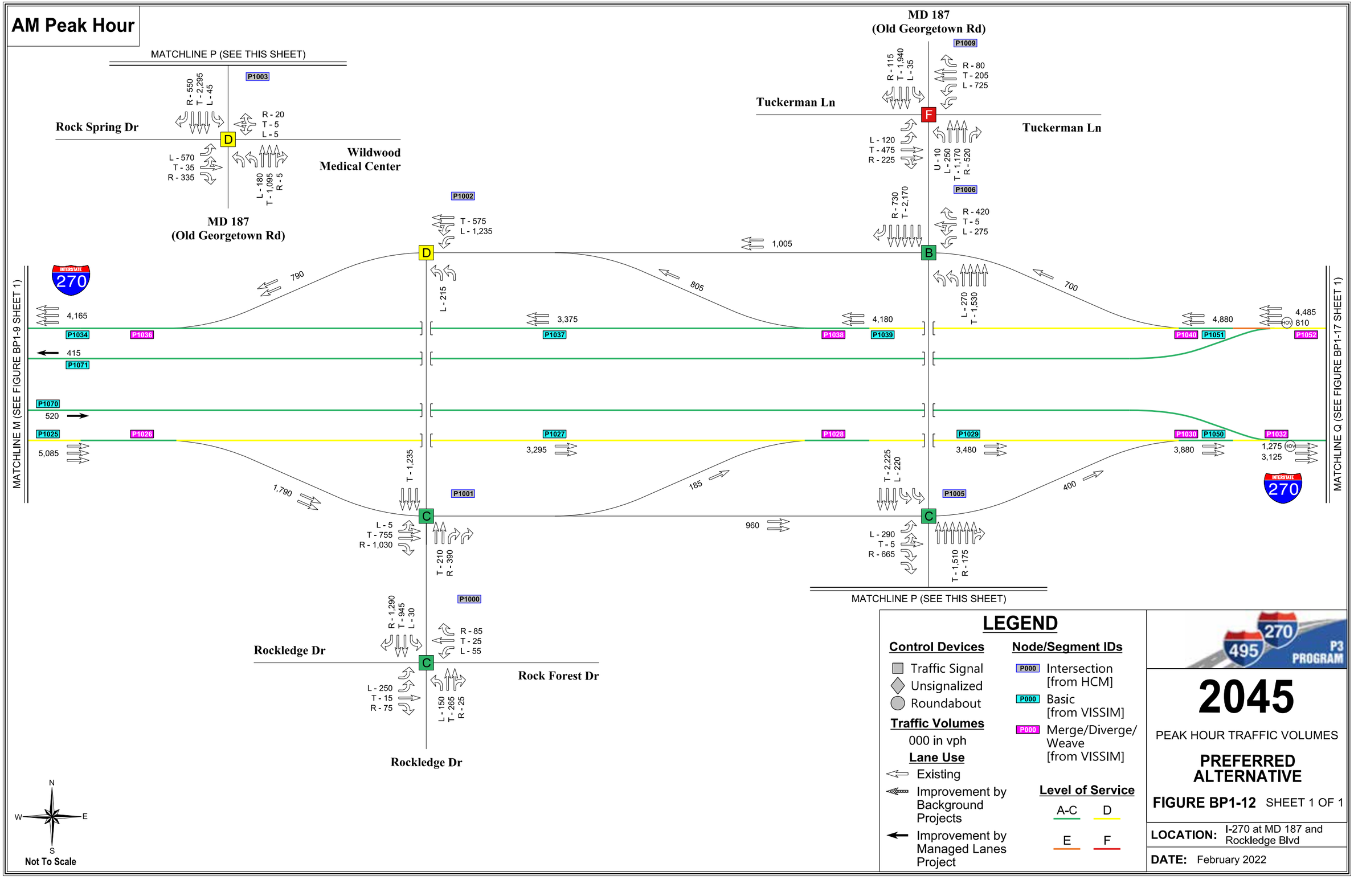
PREFERRED ALTERNATIVE

FIGURE BP1-11 SHEET 1 OF 1

LOCATION: I-270 at Democracy Blvd

DATE: February 2022

AM Peak Hour



LEGEND

Control Devices

- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes

000 in vph

Lane Use

- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs

- P000 Intersection [from HCM]
- P000 Basic [from VISSIM]
- P000 Merge/Diverge/ Weave [from VISSIM]

Level of Service

A-C D E F

I-270 / 495 P3 PROGRAM

2045

PEAK HOUR TRAFFIC VOLUMES

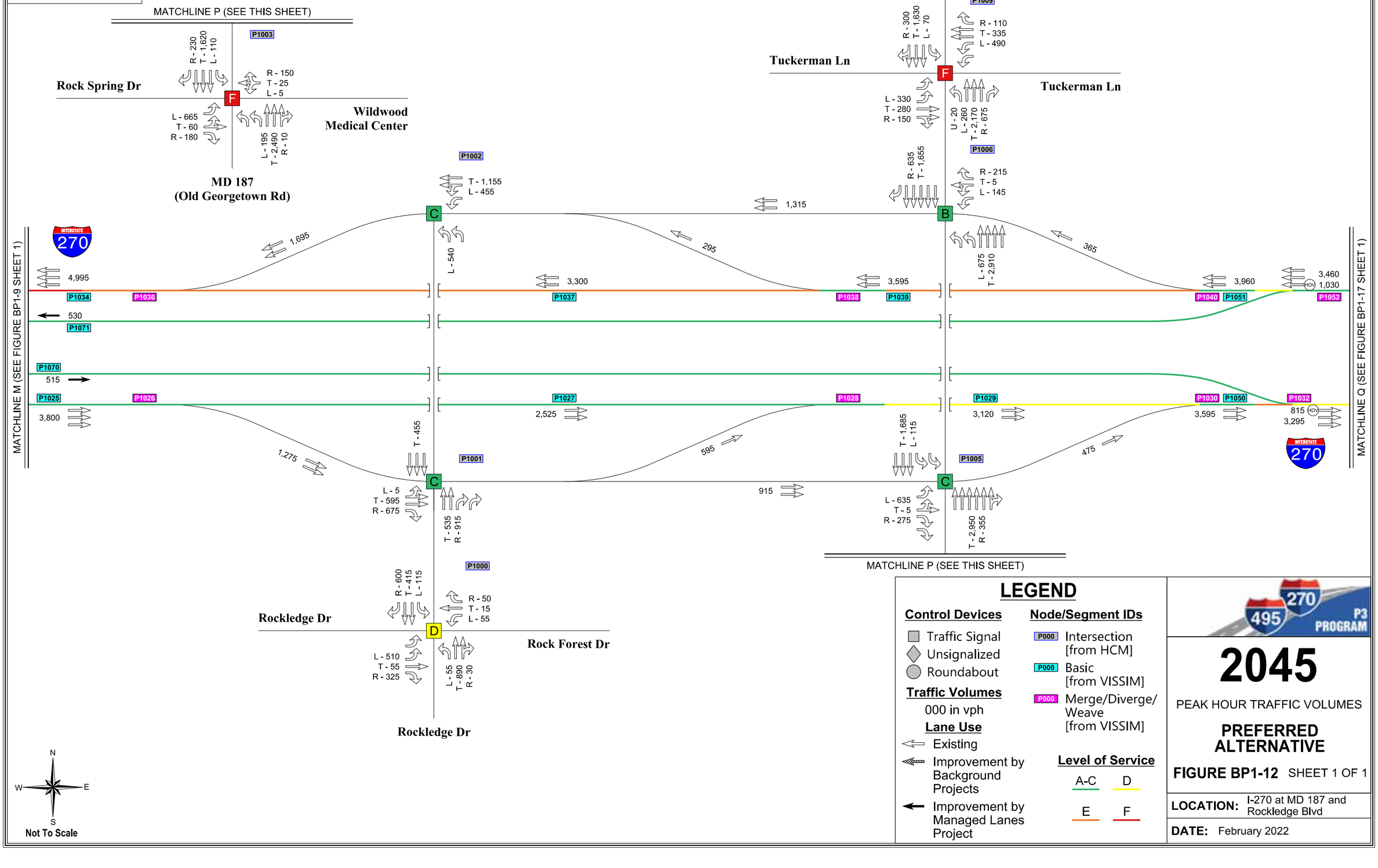
PREFERRED ALTERNATIVE

FIGURE BP1-12 SHEET 1 OF 1

LOCATION: I-270 at MD 187 and Rockledge Blvd

DATE: February 2022

PM Peak Hour



LEGEND

Control Devices

- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes

000 in vph

Lane Use

- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs

- P000 Intersection [from HCM]
- P000 Basic [from VISSIM]
- P000 Merge/Diverge/ Weave [from VISSIM]

Level of Service

A-C D E F

I-270 / MD 495 P3 PROGRAM

2045

PEAK HOUR TRAFFIC VOLUMES

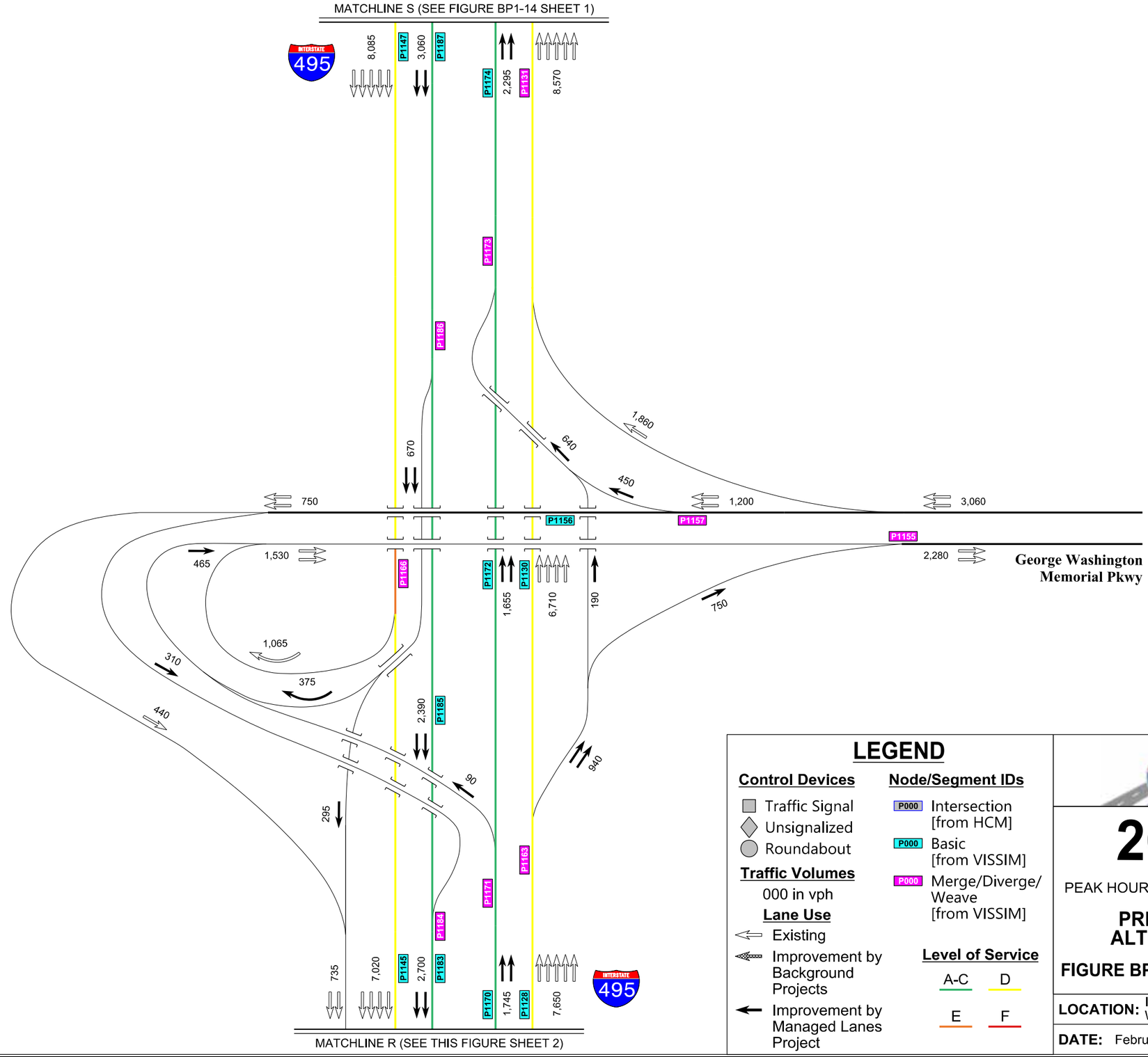
PREFERRED ALTERNATIVE

FIGURE BP1-12 SHEET 1 OF 1

LOCATION: I-270 at MD 187 and Rockledge Blvd

DATE: February 2022

AM Peak Hour



Not To Scale

LEGEND

Control Devices
- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes
000 in vph

Lane Use
- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs
- P000 Intersection [from HCM]
- P000 Basic [from VISSIM]
- P000 Merge/Diverge/ Weave [from VISSIM]

Level of Service
A-C D E F

I-495 & I-270 P3 PROGRAM

2045

PEAK HOUR TRAFFIC VOLUMES

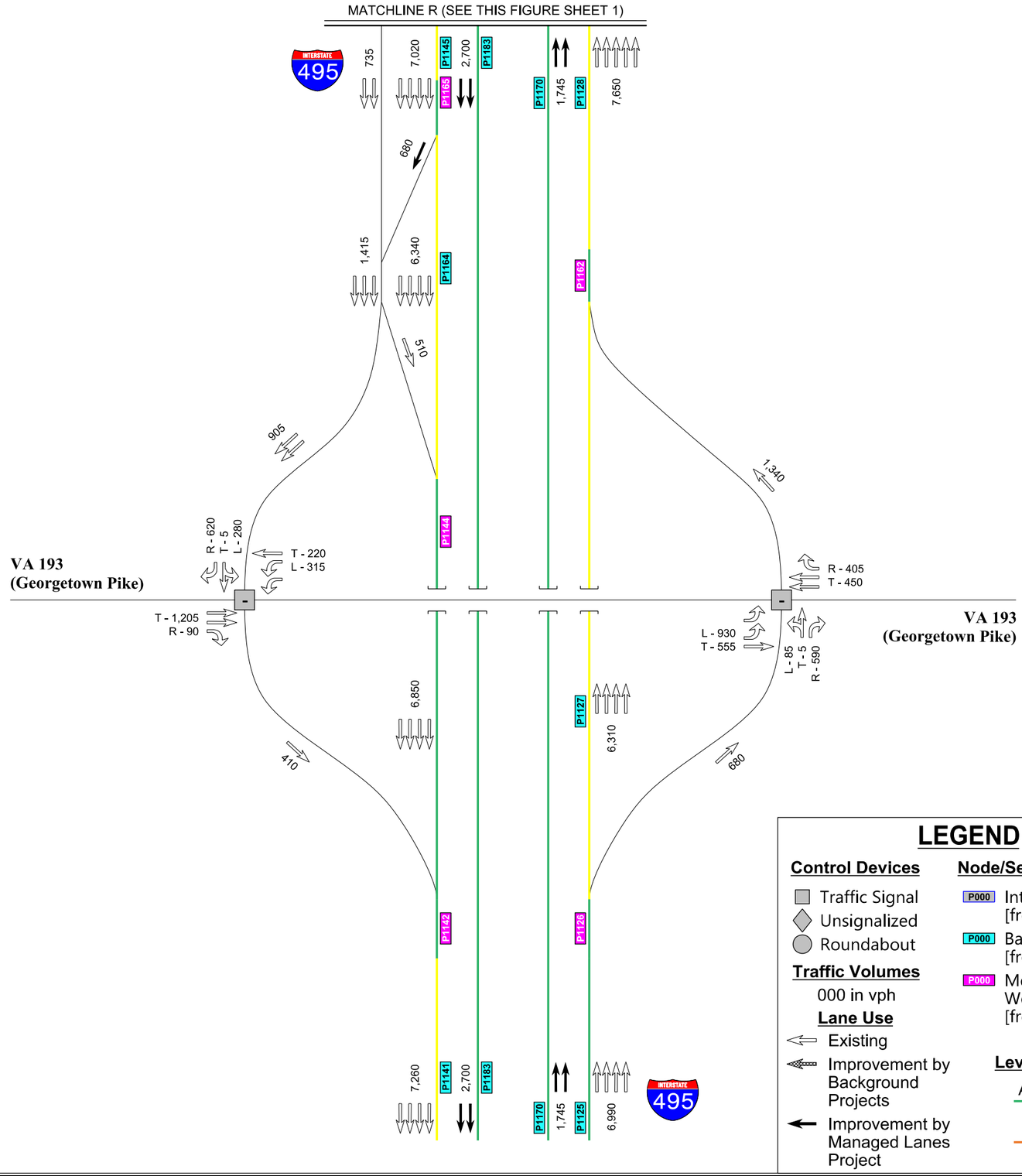
PREFERRED ALTERNATIVE

FIGURE BP1-13 SHEET 1 OF 2

LOCATION: I-495 at VA 193/George Washington Mem.Pkwy.

DATE: February 2022

AM Peak Hour



LEGEND

Control Devices

- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes

000 in vph

Lane Use

- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs

- P000 Intersection [from HCM]
- P000 Basic [from VISSIM]
- P000 Merge/Diverge/ Weave [from VISSIM]

Level of Service

A-C D E F

Not To Scale

I-495 & I-270 P3 PROGRAM

2045

PEAK HOUR TRAFFIC VOLUMES

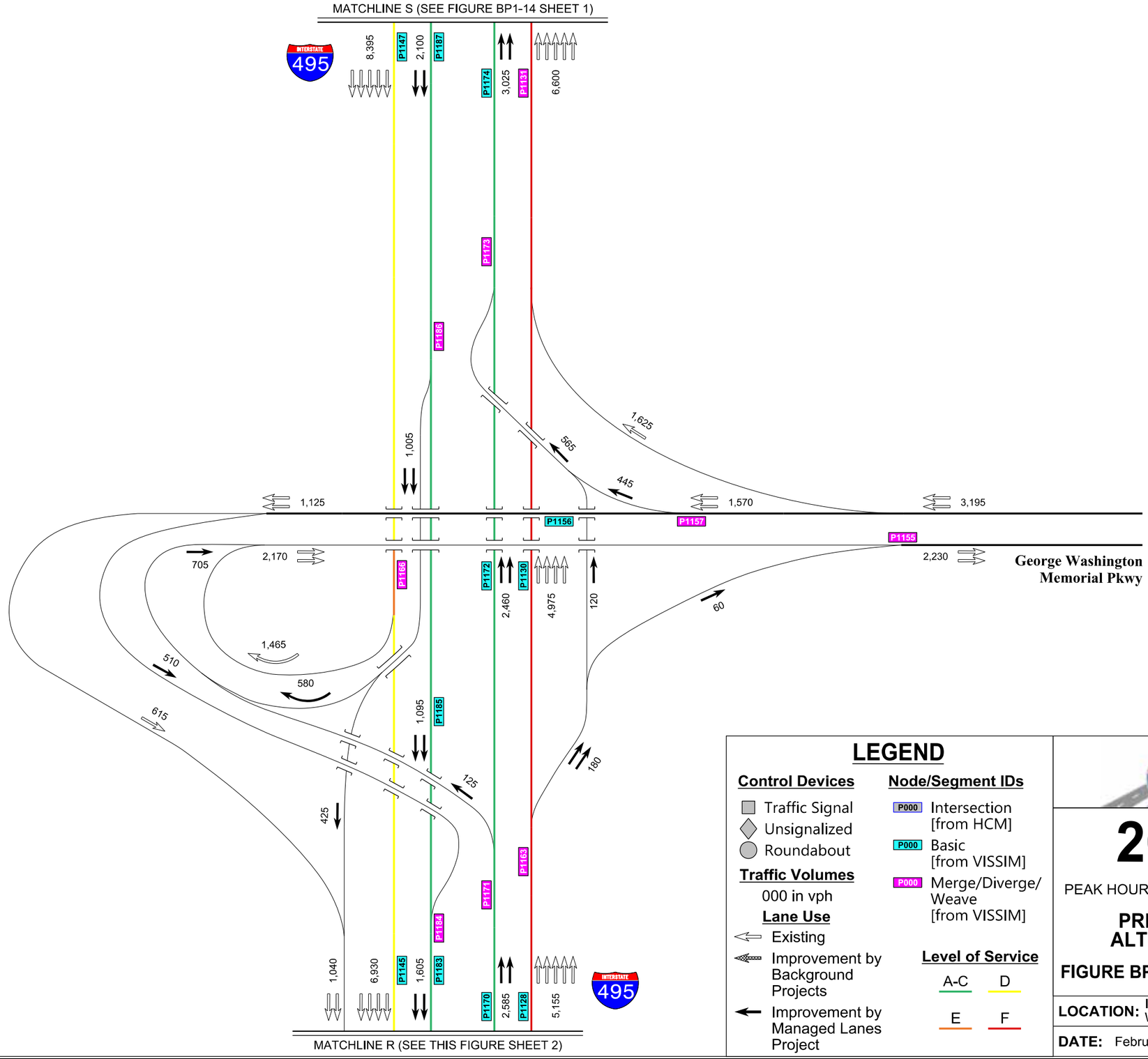
PREFERRED ALTERNATIVE

FIGURE BP1-13 SHEET 2 OF 2

LOCATION: I-495 at VA 193/George Washington Mem.Pkwy.

DATE: February 2022

PM Peak Hour



Not To Scale

LEGEND

Control Devices
- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes
000 in vph

Lane Use
- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs
- P000 Intersection [from HCM]
- P000 Basic [from VISSIM]
- P000 Merge/Diverge/ Weave [from VISSIM]

Level of Service
A-C D E F

I-495 & I-270 P3 PROGRAM

2045

PEAK HOUR TRAFFIC VOLUMES

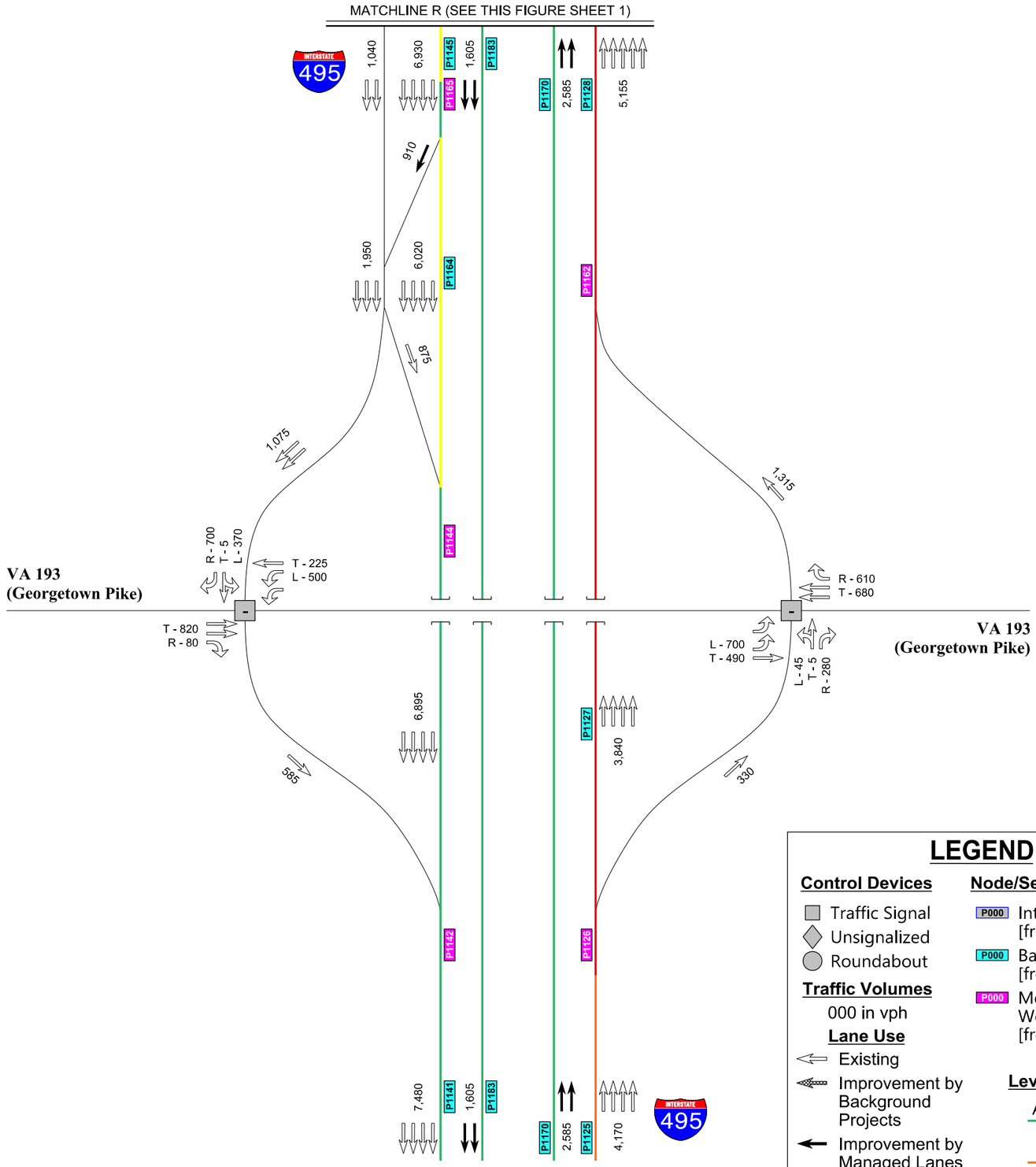
PREFERRED ALTERNATIVE

FIGURE BP1-13 SHEET 1 OF 2

LOCATION: I-495 at VA 193/George Washington Mem.Pkwy.

DATE: February 2022

PM Peak Hour



LEGEND

Control Devices

- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes

000 in vph

Lane Use

- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs

- P000 Intersection [from HCM]
- P000 Basic [from VISSIM]
- P000 Merge/Diverge/ Weave [from VISSIM]

Level of Service

A-C D E F

Not To Scale

I-495 270 P3 PROGRAM

2045

PEAK HOUR TRAFFIC VOLUMES

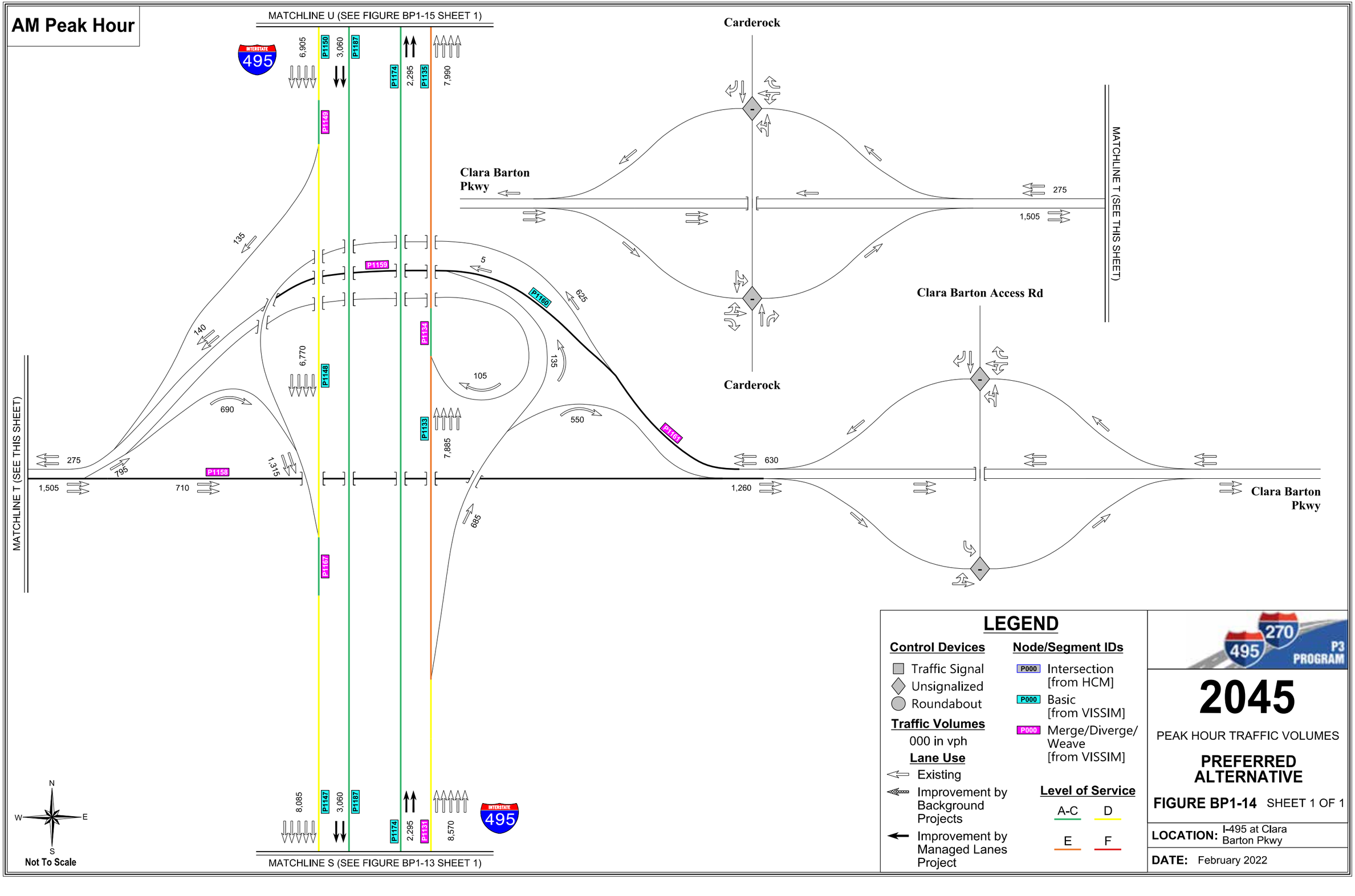
PREFERRED ALTERNATIVE

FIGURE BP1-13 SHEET 2 OF 2

LOCATION: I-495 at VA 193/George Washington Mem.Pkwy.

DATE: February 2022

AM Peak Hour



LEGEND

Control Devices

- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes

000 in vph

Lane Use

- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs

- P000 Intersection [from HCM]
- P000 Basic [from VISSIM]
- P000 Merge/Diverge/ Weave [from VISSIM]

Level of Service

A-C D E F

I-495 & I-270 P3 PROGRAM

2045

PEAK HOUR TRAFFIC VOLUMES

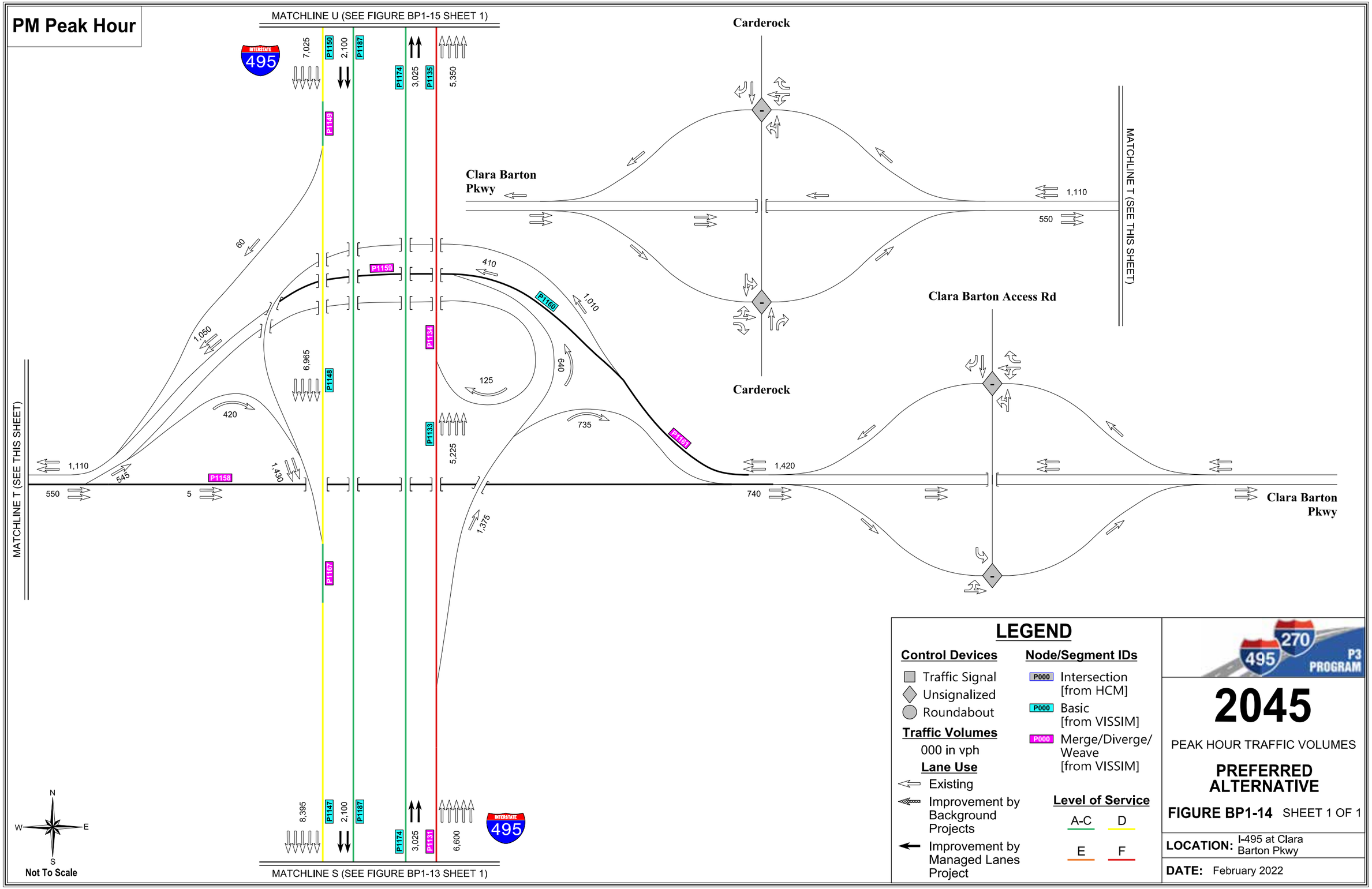
PREFERRED ALTERNATIVE

FIGURE BP1-14 SHEET 1 OF 1

LOCATION: I-495 at Clara Barton Pkwy

DATE: February 2022

PM Peak Hour



LEGEND

Control Devices

- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes

000 in vph

Lane Use

- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs

- P000 Intersection [from HCM]
- P000 Basic [from VISSIM]
- P000 Merge/Diverge/ Weave [from VISSIM]

Level of Service

A-C D E F

I-495 & I-270 P3 PROGRAM

2045

PEAK HOUR TRAFFIC VOLUMES

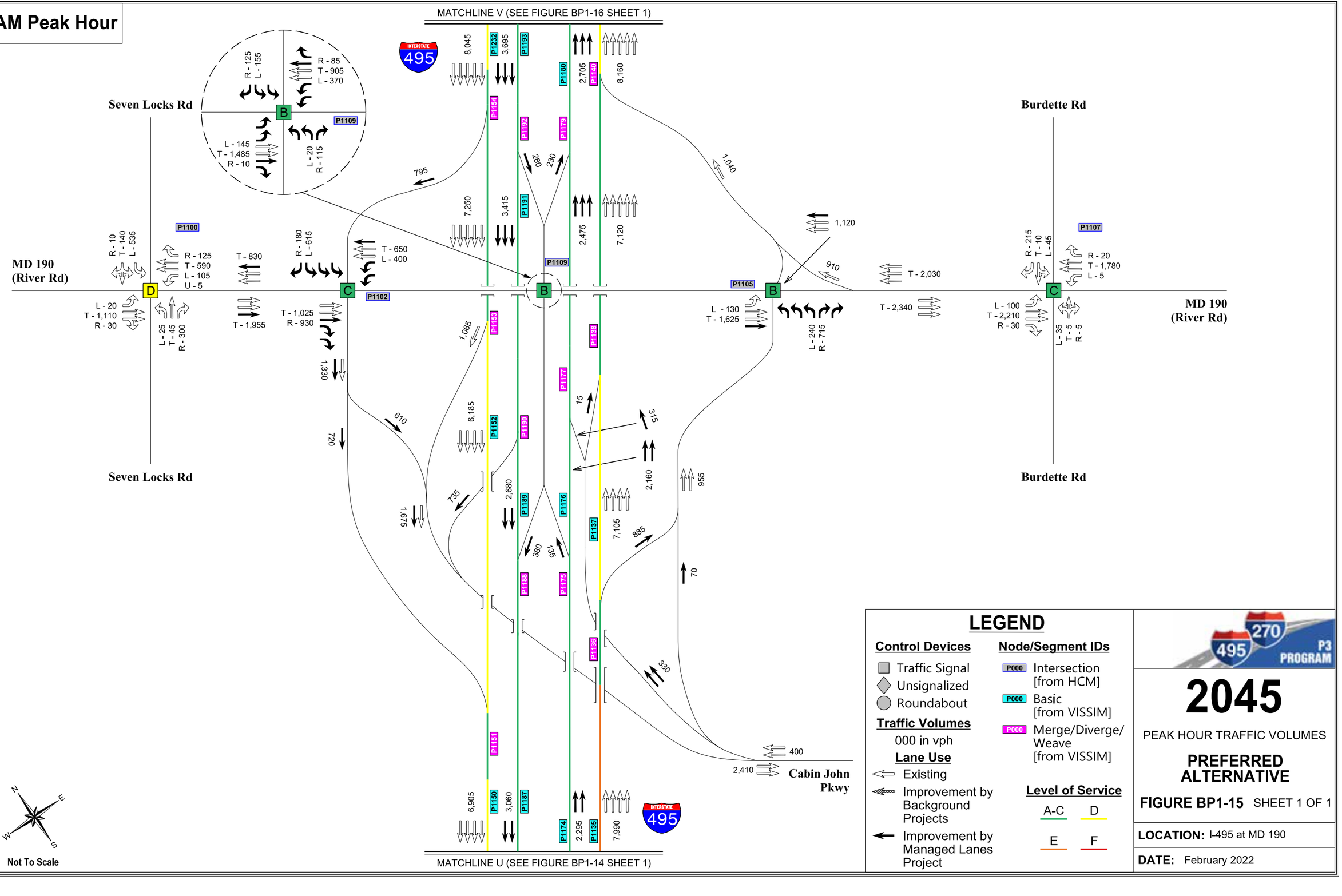
PREFERRED ALTERNATIVE

FIGURE BP1-14 SHEET 1 OF 1

LOCATION: I-495 at Clara Barton Pkwy

DATE: February 2022

AM Peak Hour



LEGEND

Control Devices
- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes
000 in vph

Lane Use
- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs
- P000 Intersection [from HCM]
- P000 Basic [from VISSIM]
- P000 Merge/Diverge/ Weave [from VISSIM]

Level of Service
A-C D E F

I-495 & I-270 P3 PROGRAM

2045

PEAK HOUR TRAFFIC VOLUMES

PREFERRED ALTERNATIVE

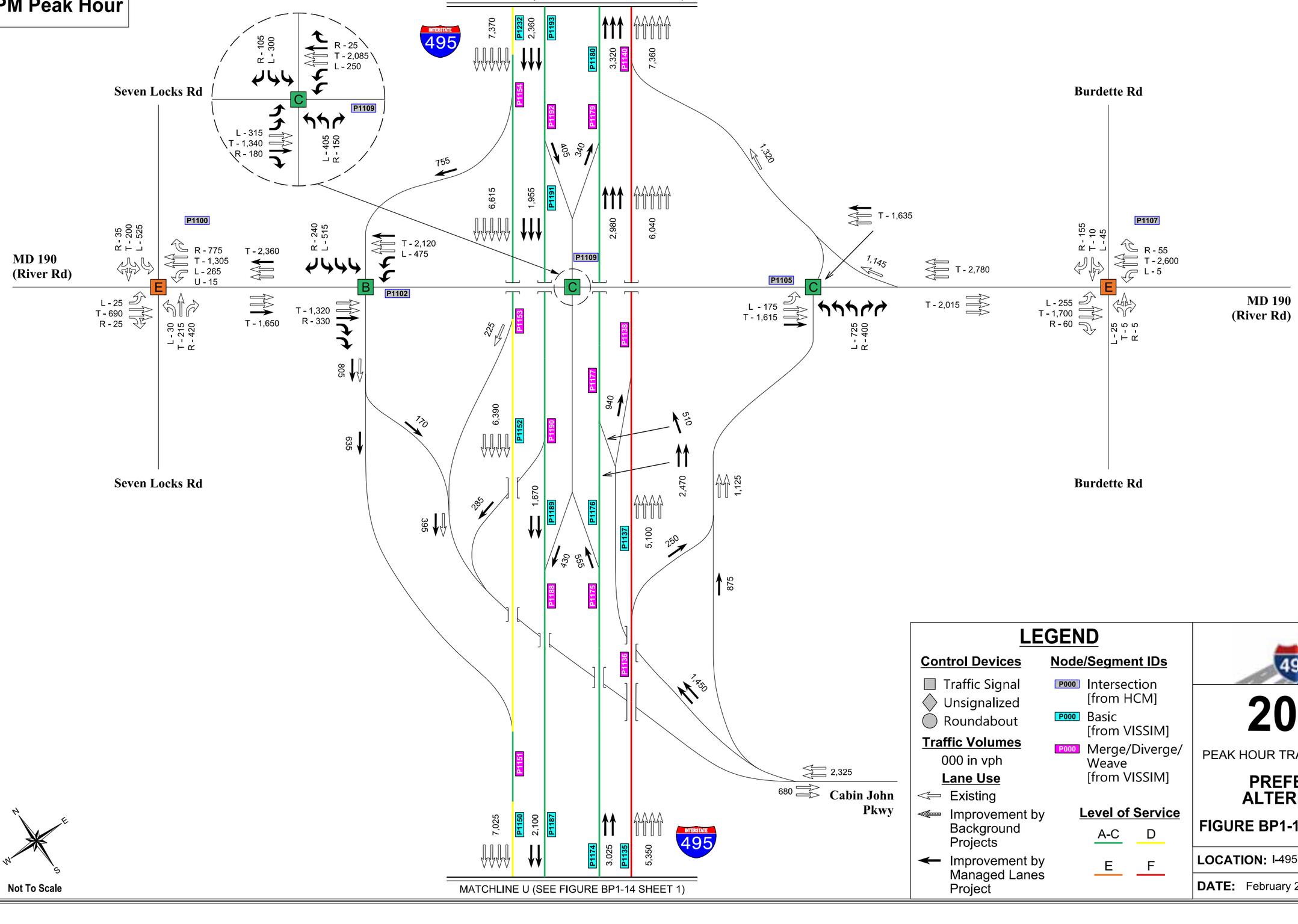
FIGURE BP1-15 SHEET 1 OF 1

LOCATION: I-495 at MD 190

DATE: February 2022

PM Peak Hour

MATCHLINE V (SEE FIGURE BP1-16 SHEET 1)



MATCHLINE U (SEE FIGURE BP1-14 SHEET 1)

Not To Scale

LEGEND

Control Devices

- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes

000 in vph

Lane Use

- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs

- P000 Intersection [from HCM]
- P000 Basic [from VISSIM]
- P000 Merge/Diverge/ Weave [from VISSIM]

Level of Service

A-C D E F

I-495 & I-270 P3 PROGRAM

2045

PEAK HOUR TRAFFIC VOLUMES

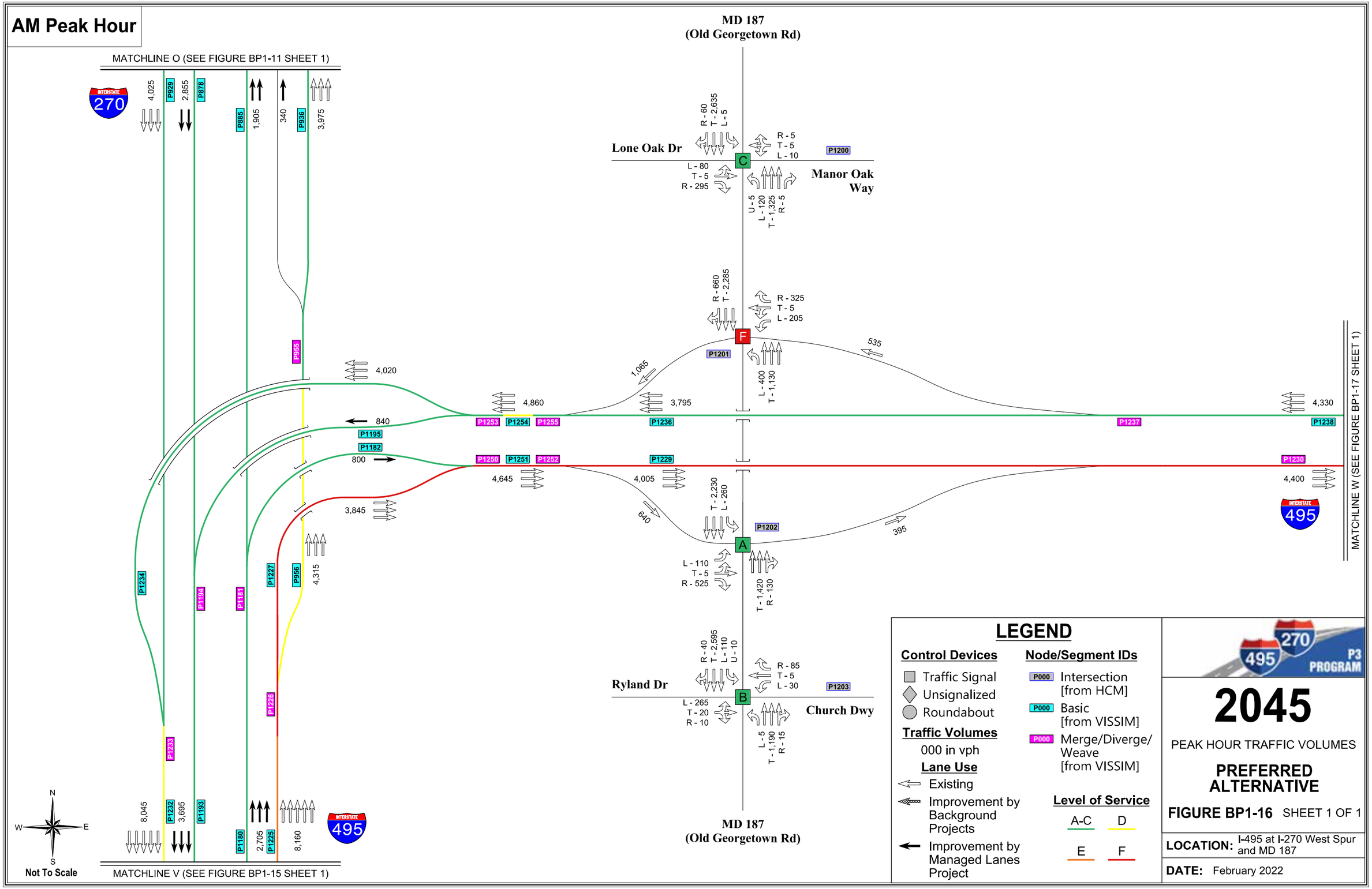
PREFERRED ALTERNATIVE

FIGURE BP1-15 SHEET 1 OF 1

LOCATION: I-495 at MD 190

DATE: February 2022

AM Peak Hour



LEGEND

Control Devices

- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes

000 in vph

Lane Use

- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs

- P000 Intersection [from HCM]
- P000 Basic [from VISSIM]
- P000 Merge/Diverge/ Weave [from VISSIM]

Level of Service

A-C D E F

INTERSTATE 270 INTERSTATE 495 P3 PROGRAM

2045

PEAK HOUR TRAFFIC VOLUMES

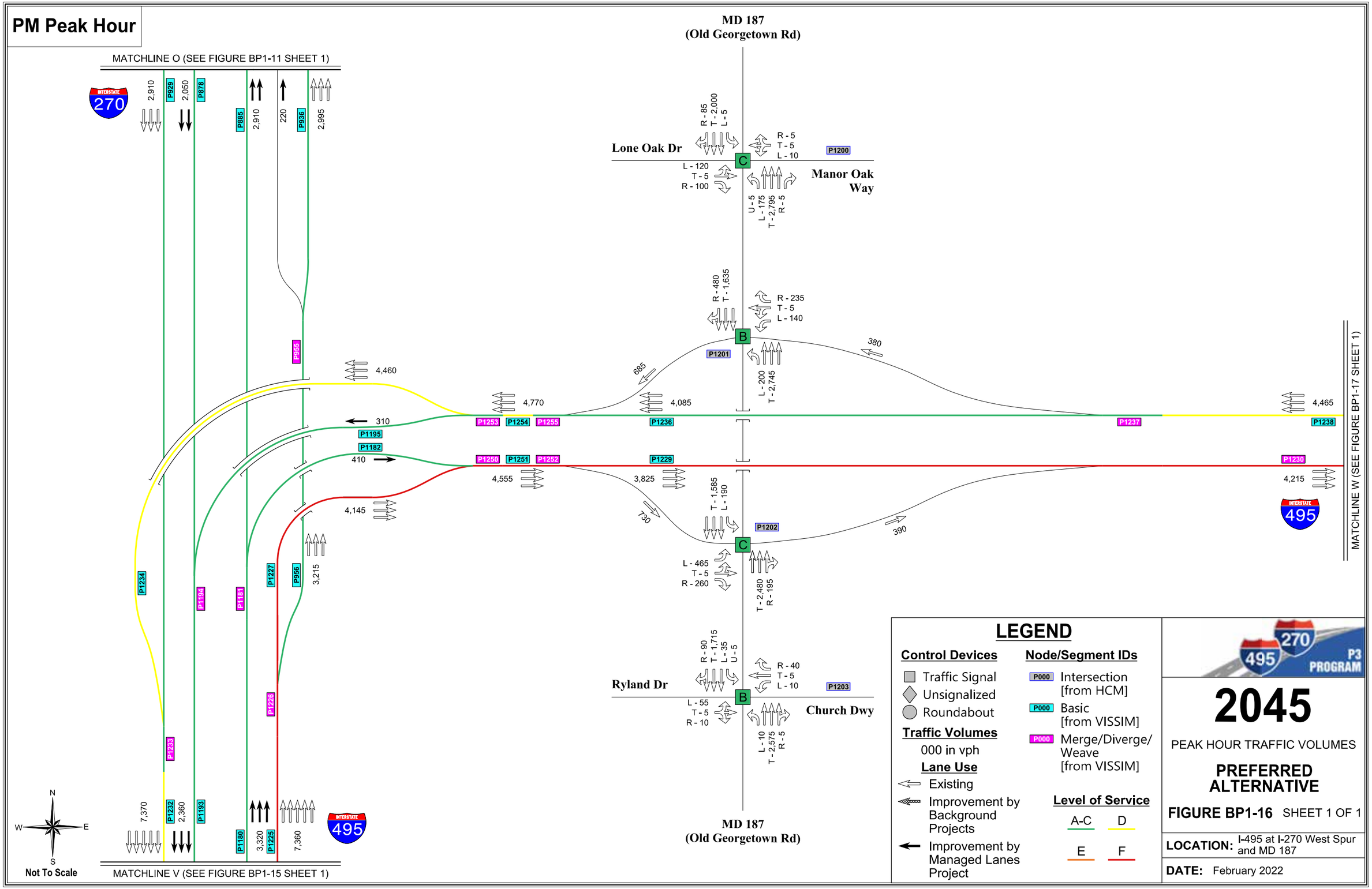
PREFERRED ALTERNATIVE

FIGURE BP1-16 SHEET 1 OF 1

LOCATION: I-495 at I-270 West Spur and MD 187

DATE: February 2022

PM Peak Hour



LEGEND

Control Devices

- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes

000 in vph

Lane Use

- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs

- P000 Intersection [from HCM]
- P000 Basic [from VISSIM]
- P000 Merge/Diverge/ Weave [from VISSIM]

Level of Service

A-C D E F

2045

PEAK HOUR TRAFFIC VOLUMES

PREFERRED ALTERNATIVE

FIGURE BP1-16 SHEET 1 OF 1

LOCATION: I-495 at I-270 West Spur and MD 187

DATE: February 2022

AM Peak Hour

MATCHLINE Q (SEE FIGURE BP1-12 SHEET 1)

MATCHLINE W (SEE FIGURE BP1-16 SHEET 1)

MATCHLINE X (SEE THIS SHEET)

MATCHLINE X (SEE THIS SHEET)

MD 355 (Rockville Pike)

Grosvenor Ln P1300

R - 125
T - 2,145

R - 115
T - 135
L - 625

R - 785

L - 115
R - 225

T - 1,215

T - 90
R - 470

Grosvenor Ln

R - 560
T - 1,215

Alta Vista Rd

R - 95
T - 3,410
L - 5
U - 320

R - 15
T - 5
L - 5

P1310

L - 75
T - 5
R - 25

T - 1,575
R - 5

Bellevue Dr

MD 355 (Rockville Pike)

INTERSTATE 270

4,485
HOV 810

P1041

P1032

1,275 HOV
3,125

P1042

955

P1033

P1043

4,340

1,000

L - 955
T - 775

INTERSTATE 495

4,330

P1238

3,025

1,375

P1044

T - 1,950
L - 1,045

8,225

9,225

P1331

P1332

P1333

P1334

P1432

1,045

445

P1325

P1326

P1327

P1328

P1330

P1425

4,400

3,970

6,995

8,305

INTERSTATE 495

T - 3,325

L - 445
T - 1,730

265

8,040

430

C

P1307

R - 430

T - 2,175
R - 260

R - 120
T - 3,635

Pooks Hill Rd P1309

D

L - 510
R - 195

L - 55
T - 1,930

N
W E
S

Not To Scale

LEGEND

Control Devices

- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes

000 in vph

Lane Use

- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs

- P000 Intersection [from HCM]
- P000 Basic [from VISSIM]
- P000 Merge/Diverge/ Weave [from VISSIM]

Level of Service

A-C D E F

INTERSTATE 270 INTERSTATE 495 P3 PROGRAM

2045

PEAK HOUR TRAFFIC VOLUMES

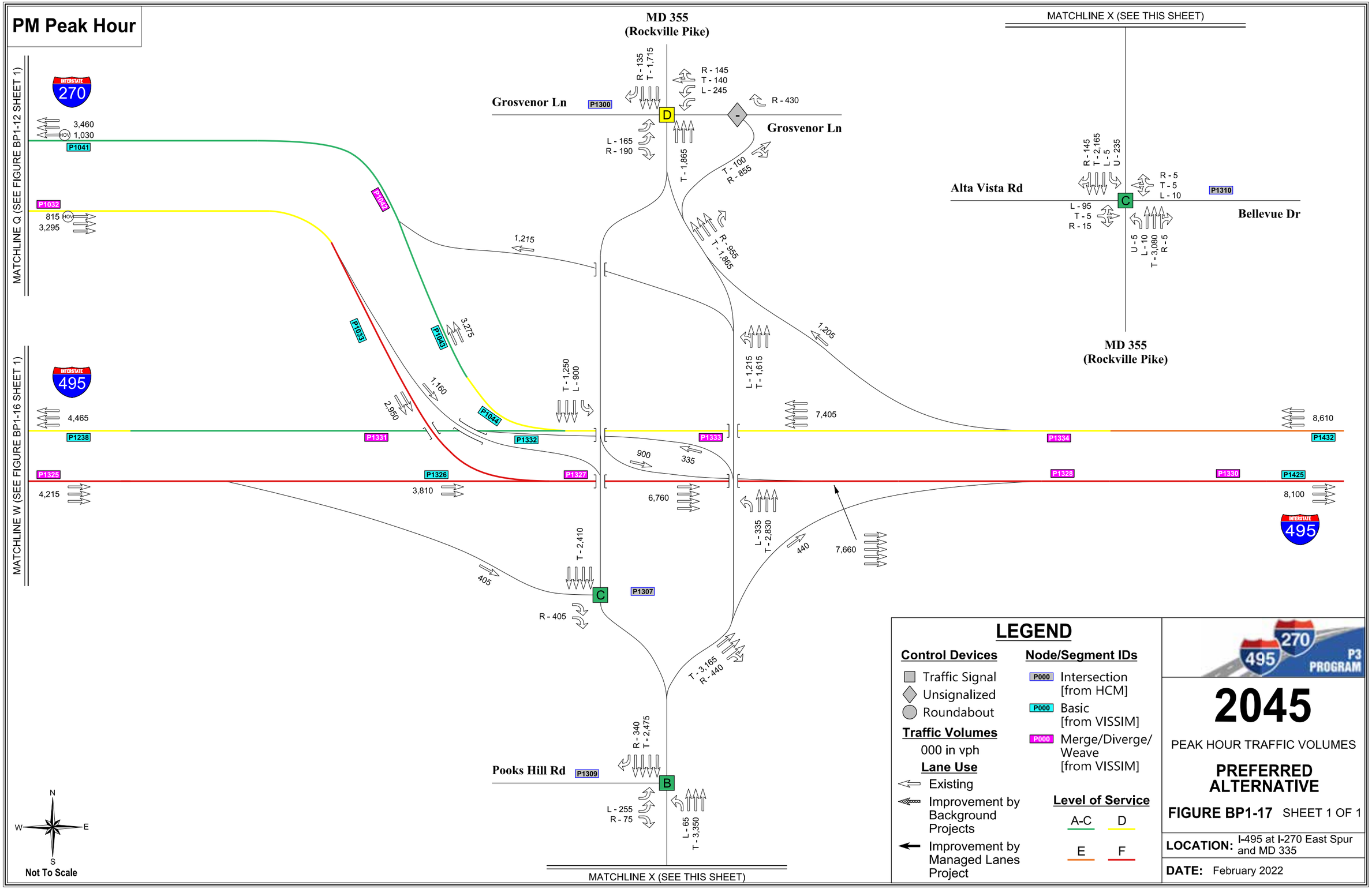
PREFERRED ALTERNATIVE

FIGURE BP1-17 SHEET 1 OF 1

LOCATION: I-495 at I-270 East Spur and MD 335

DATE: February 2022

PM Peak Hour



LEGEND

Control Devices

- Traffic Signal
- Unsignalized
- Roundabout

Traffic Volumes

000 in vph

Lane Use

- Existing
- Improvement by Background Projects
- Improvement by Managed Lanes Project

Node/Segment IDs

- P000 Intersection [from HCM]
- P000 Basic [from VISSIM]
- P000 Merge/Diverge/ Weave [from VISSIM]

Level of Service

A-C D E F

P3 PROGRAM

2045

PEAK HOUR TRAFFIC VOLUMES

PREFERRED ALTERNATIVE

FIGURE BP1-17 SHEET 1 OF 1

LOCATION: I-495 at I-270 East Spur and MD 335

DATE: February 2022

2017 EXISTING CONDITIONS

SYNCHRO ANALYSIS OUTPUT TABLES

Table EX-2B - I-370 (Sam Eig Highway) Corridor - (AM Peak)

Node	Location	Delay (s/veh)	LOS	Approach	Delay (s/veh)	LOS	Movement	Delay (s/veh)	LOS	50th %ile Queue (ft)	95th %ile Queue (ft)
E 100‡	I-370 (Sam Eig Hwy) at Fields Rd	24.6	C	Fields Rd WB	54.7	D	L	73.4	E	90	127
							R	45.5	D	162	192
				I-370 (Sam Eig Hwy) NB	19.8	B	T	20.5	C	537	655
							R	16.0	B	192	273
				I-370 (Sam Eig Hwy) SB	23.0	C	L	75.2	E	250	299
							T	4.8	A	123	157
				Washingtonian Blvd Ramp SEB	3.8	A	R	3.8	A	20	38
E 104‡	Washingtonian Blvd at I-370 (Sam Eig Hwy) WB Ramps	17.9	B	Washingtonian Blvd Ramp WB	21.9	C	L	22.2	C	86	184
							L/T	22.1	C	85	182
							R	17.8	B	0	0
				Washingtonian Blvd NB	1.8	A	L	0.7	A	0	1
							T	2.0	A	2	3
				Washingtonian Blvd SB	25.6	C	T	25.6	C	42	77
							T/R	-	-	-	-
E 105‡	Washingtonian Blvd at I-370 (Sam Eig Hwy) EB Ramps	12.3	B	Washingtonian Blvd Ramp EB	24.9	C	L/T	25.4	C	16	45
							R	24.7	C	0	0
				Washingtonian Blvd NB	19.5	B	T	20.2	C	65	127
							R	18.2	B	0	0
				Washingtonian Blvd SB	5.9	A	L/T	-	-	-	-
							T	5.9	A	20	93
E 113‡	I-370 (Sam Eig Hwy) SBR at MD 119 (Great Seneca Hwy)	3.1	A	MD 119 (Great Seneca Hwy) EB	0.1	A	T	0.1	A	0	0
				MD 119 (Great Seneca Hwy) WB	4.7	A	T	4.7	A	3	4
				I-370 (Sam Eig Hwy) SB	16.1	B	R	16.1	B	56	252
E 114‡	I-370 (Sam Eig Hwy) at MD 119 (Great Seneca Hwy)	28.6	C	MD 119 (Great Seneca Hwy) EB	19.4	B	L	29.9	C	397	462
							T	13.6	B	544	610
				MD 119 (Great Seneca Hwy) WB	64.2	E	T	64.2	E	113	147
				I-370 (Sam Eig Hwy) SB	63.0	E	L	63.0	E	279	344
E 118‡	I-370 (Sam Eig Hwy) at Diamondback Dr	31.3	C	Diamondback Dr EB	79.7	E	L	80.7	F	356	415
							R	57.7	E	0	0
				Diamondback Dr WB	66.3	E	R	66.3	E	100	135
				I-370 (Sam Eig Hwy) NB	16.4	B	L	123.3	F	20	m35
							T	16.2	B	396	509
							R	0.1	A	0	0
				I-370 (Sam Eig Hwy) SB	20.5	C	L	91.4	F	113	148
							T	21.1	C	280	354
							R	0.3	A	0	0

Note: 95th percentile queuing reported using Synchro software.
- Hyphen denotes that no value was recorded for this metric.
~ Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.
m Volume for the 95th percentile queue is metered by upstream signal.

Reporting Source:
‡ HCM 2000 Signalized Intersection Capacity Analysis used for Delay and LOS.

DRAFT

Table EX-2B - I-370 (Sam Eig Highway) Corridor - (PM Peak)											
Node	**Location**	**Delay (s/veh)**	**LOS**	**Approach**	**Delay (s/veh)**	**LOS**	**Movement**	**Delay (s/veh)**	**LOS**	**50th %ile Queue (ft)**	**95th %ile Queue (ft)**
E 100‡	I-370 (Sam Eig Hwy) at Fields Rd	30.2	C	Fields Rd WB	49.4	D	L	67.1	E	197	243
							R	38.5	D	257	282
				I-370 (Sam Eig Hwy) NB	34.9	C	T	36.4	D	751	818
							R	25.3	C	137	185
				I-370 (Sam Eig Hwy) SB	23.5	C	L	68.1	E	328	389
							T	12.1	B	431	535
				Washingtonian Blvd Ramp SEB	8.9	A	R	8.9	A	137	213
E 104‡	Washingtonian Blvd at I-370 (Sam Eig Hwy) WB Ramps	19.1	B	Washingtonian Blvd Ramp WB	29.5	C	L	30.5	C	78	178
							L/T	30.4	C	78	178
							R	26.3	C	0	0
				Washingtonian Blvd NB	0.4	A	L	0.3	A	1	m1
							T	0.5	A	1	m1
				Washingtonian Blvd SB	31.5	C	T	31.5	C	95	160
							T/R	-	-	-	-
E 105‡	Washingtonian Blvd at I-370 (Sam Eig Hwy) EB Ramps	21.7	C	Washingtonian Blvd Ramp EB	29.3	C	L/T	29.1	C	14	40
							R	29.3	C	0	3
				Washingtonian Blvd NB	24.3	C	T	27.0	C	224	399
							R	22.7	C	25	173
				Washingtonian Blvd SB	13.3	B	L/T	-	-	-	-
							T	13.3	B	36	61
E 113‡	I-370 (Sam Eig Hwy) SBR at MD 119 (Great Seneca Hwy)	21.1	C	MD 119 (Great Seneca Hwy) EB	0.0	A	T	0.0	A	0	0
				MD 119 (Great Seneca Hwy) WB	3.5	A	T	3.5	A	17	18
				I-370 (Sam Eig Hwy) SB	59.6	E	R	59.6	E	938	#1,084
E 114‡	I-370 (Sam Eig Hwy) at MD 119 (Great Seneca Hwy)	38.7	D	MD 119 (Great Seneca Hwy) EB	34.0	C	L	54.9	D	396	471
							T	3.8	A	61	75
				MD 119 (Great Seneca Hwy) WB	38.4	D	T	38.4	D	455	505
				I-370 (Sam Eig Hwy) SB	60.2	E	L	60.2	E	165	211
E 118‡	I-370 (Sam Eig Hwy) at Diamondback Dr	36.6	D	Diamondback Dr EB	83.4	F	L	84.3	F	256	313
							R	64.9	E	0	0
				Diamondback Dr WB	59.1	E	R	59.1	E	177	218
				I-370 (Sam Eig Hwy) NB	46.9	D	L	65.4	E	102	m163
							T	51.9	D	493	568
							R	0.1	A	0	0
				I-370 (Sam Eig Hwy) SB	22.0	C	L	91.6	F	170	254
							T	29.5	C	542	671
							R	3.3	A	843	1,231

Note: 95th percentile queuing reported using Synchro software.
- Hyphen denotes that no value was recorded for this metric.
~ Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.
m Volume for the 95th percentile queue is metered by upstream signal.

Reporting Source:
‡ HCM 2000 Signalized Intersection Capacity Analysis used for Delay and LOS.

DRAFT

Table EX-3B - Shady Grove Road Corridor - (AM Peak)

Node	Location	Delay (s/veh)	LOS	Approach	Delay (s/veh)	LOS	Movement	Delay (s/veh)	LOS	50th %ile Queue (ft)	95th %ile Queue (ft)
E 200‡	Omega Dr at MD 28 (Key W Ave)	33.6	C	MD 28 (Key W Ave) EB	26.7	C	L	71.3	E	79	134
							T	25.8	C	416	684
							R	16.5	B	0	47
				MD 28 (Key W Ave) WB	31.0	C	U/L	-	-	-	-
							L	69.3	E	125	169
							T	15.0	B	69	134
							R	14.0	B	0	15
				Medical Center Dr NB	60.0	E	L	77.6	E	11	33
							T	58.7	E	30	47
							R	57.9	E	0	9
				Omega Dr SB	66.6	E	L	68.9	E	59	92
							T	69.2	E	232	311
							R	51.6	D	0	0
E 203††	Omega Dr at I-270 SB Off-Ramp	-	-	I-270 Off-Ramp WB	-	-	L/R	21.7	C	-	4.4*
E 204†	Omega Dr / Fields Rd at Washingtonian Blvd	7.5	A	Fields Rd EB	5.6	A	L	18.7	B	6	31
							T	4.6	A	37	67
				Omega Dr WB	8.7	A	T	8.3	A	5	35
							T/R	8.9	A	-	-
				Washingtonian Blvd SB	13.3	B	L	13.5	B	9	35
							R	11.1	B	0	5
E 205‡	Shady Grove Rd at Corporate Blvd	31.2	C	Corporate Blvd EB	82.5	F	L	84.0	F	55	#122
							L/T	84.1	F	56	#125
							R	67.2	E	0	0
				Corporate Blvd WB	70.6	E	L/T	73.2	E	26	61
							R	69.1	E	0	0
				Shady Grove Rd NB	12.6	B	L	10.5	B	2	8
							T	12.6	B	188	216
							T/R	-	-	-	-
				Shady Grove Rd SB	36.5	D	U/L	174.6	F	~326	#624
							T	6.3	A	129	163
							T/R	-	-	-	-

DRAFT

Table EX-3B - Shady Grove Road Corridor - (AM Peak)

Node	Location	Delay (s/veh)	LOS	Approach	Delay (s/veh)	LOS	Movement	Delay (s/veh)	LOS	50th %ile Queue (ft)	95th %ile Queue (ft)
E 207†	Shady Grove Rd at I-270 SB Off-Ramp	20.4	C	I-270 SB Off-Ramp EB	47.6	D	L	35.4	D	156	184
							R	53.7	D	445	497
				Shady Grove Rd NB	17.9	B	T	17.9	B	166	m184
				Shady Grove Rd SB	0.7	A	T	0.7	A	630	m645
							R	0.0	A	198	210
E 210†	Shady Grove Rd at I-270 NB Off-Ramp	28.5	C	I-270 NB Off-Ramp WB	88.1	F	L	88.1	F	~505	#639
							R	0.0	A	0	0
				Shady Grove Rd NB	0.2	A	T	0.2	A	96	121
							R	0.0	A	15	34
				Shady Grove Rd SB	11.0	B	T	11.0	B	141	217
E 212‡	Shady Grove Rd at Choke Cherry Rd	21.1	C	Choke Cherry Rd EB	66.1	E	L/T/R	72.4	E	28	70
							R	59.3	E	0	3
				Choke Cherry Rd WB	71.3	E	L	73.9	E	65	121
							L/T	72.1	E	65	120
							R	64.6	E	0	0
				Shady Grove Rd NB	22.6	C	U/L	12.6	B	58	80
							T	14.0	B	184	256
							R	58.9	E	82	126
				Shady Grove Rd SB	13.1	B	L	7.5	A	33	56
							T	13.6	B	270	352
							T/R	-	-	-	-
E 216†	Redland Blvd at Piccard Dr	12.4	B	I-270 NB Off-Ramp EB	5.2	A	L	4.3	A	26	54
							T	5.3	A	70	107
							T/R	5.4	A	-	-
				Redland Blvd WB	-	-	L	-	-	32	59
							R	-	-	0	0
				Piccard Dr NB	19.3	B	T	19.1	B	19	48
							R	19.5	B	0	16
				Piccard Dr SB	23.8	C	L/T	22.7	C	-	-
							T	25.1	C	92	#178

Note: 95th percentile queuing reported using Synchro software.
- Hyphen denotes that no value was recorded for this metric.
m Volume for the 95th percentile queue is metered by upstream signal.
Volume for the 95th percentile exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.
~ Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.
* Unsignalized intersection 95th percentile queue reported in number of vehicles.

Reporting Source:
† HCM 6th Signalized Intersection Summary used for Delay and LOS.
‡ HCM 2000 Signalized Intersection Capacity Analysis used for Delay and LOS.
†† HCM 6th Two Way Stop Control used for Delay and LOS.

DRAFT

Table EX-3B - Shady Grove Road Corridor - (PM Peak)

Node	Location	Delay (s/veh)	LOS	Approach	Delay (s/veh)	LOS	Movement	Delay (s/veh)	LOS	50th %ile Queue (ft)	95th %ile Queue (ft)
E 200‡	Omega Dr at MD 28 (Key W Ave)	36.4	D	MD 28 (Key W Ave) EB	21.5	C	L	71.3	E	79	134
							T	16.2	B	128	184
							R	13.9	B	0	0
				MD 28 (Key W Ave) WB	26.9	C	U/L	-	-	-	-
							L	69.1	E	43	72
							T	26.0	C	501	679
							R	16.5	B	3	50
				Medical Center Dr NB	66.0	E	L	94.8	F	148	#267
							T	61.9	E	164	208
							R	56.4	E	8	97
				Omega Dr SB	63.2	E	L	68.9	E	51	82
							T	64.1	E	96	150
							R	59.7	E	0	71
E 203††	Omega Dr at I-270 SB Off-Ramp	-	-	I-270 Off-Ramp WB	-	-	L/R	37.1	E	-	3*
E 204†	Omega Dr / Fields Rd at Washingtonian Blvd	11.7	B	Fields Rd EB	5.7	A	L	36.2	D	7	30
							T	3.0	A	11	22
				Omega Dr WB	9.9	A	T	9.7	A	252	378
							T/R	10.2	B	-	-
				Washingtonian Blvd SB	24.6	C	L	25.0	C	47	101
							R	23.4	C	0	35
E 205‡	Shady Grove Rd at Corporate Blvd	39.2	D	Corporate Blvd EB	78.1	E	L	80.0	E	86	151
							L/T	80.0	F	87	152
							R	63.4	E	0	0
				Corporate Blvd WB	134.2	F	L/T	58.0	E	58	109
							R	149.4	F	~266	#474
				Shady Grove Rd NB	23.4	C	L	14.8	B	7	20
							T	23.5	C	432	490
							T/R	-	-	-	-
				Shady Grove Rd SB	24.3	C	U/L	45.6	D	81	141
							T	21.6	C	206	231
							T/R	-	-	-	-

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Table EX-3B - Shady Grove Road Corridor - (PM Peak)

Node	Location	Delay (s/veh)	LOS	Approach	Delay (s/veh)	LOS	Movement	Delay (s/veh)	LOS	50th %ile Queue (ft)	95th %ile Queue (ft)
E 207†	Shady Grove Rd at I-270 SB Off-Ramp	16.8	B	I-270 SB Off-Ramp EB	63.7	E	L	59.9	E	124	161
							R	66.7	E	182	231
				Shady Grove Rd NB	5.2	A	T	5.2	A	185	m275
				Shady Grove Rd SB	0.1	A	T	0.1	A	122	197
							R	0.0	A	196	266
E 210†	Shady Grove Rd at I-270 NB Off-Ramp	13.0	B	I-270 NB Off-Ramp WB	67.8	E	L	67.8	E	200	249
							R	0.0	A	0	0
				Shady Grove Rd NB	0.1	A	T	0.1	A	137	152
							R	0.0	A	165	259
				Shady Grove Rd SB	4.3	A	T	4.3	A	14	24
E 212‡	Shady Grove Rd at Choke Cherry Rd	31.0	C	Choke Cherry Rd EB	77.9	E	L/T/R	100.9	F	109	#283
							R	52.7	D	30	91
				Choke Cherry Rd WB	74.1	E	L	79.4	E	181	266
							L/T	76.7	E	184	270
							R	55.3	E	0	22
				Shady Grove Rd NB	16.2	B	U/L	59.9	E	104	187
							T	12.4	B	158	178
							R	2.9	A	4	9
				Shady Grove Rd SB	27.7	C	L	15.8	B	28	50
							T	28.3	C	446	515
							T/R	-	-	-	-
E 216†	Redland Blvd at Piccard Dr	14.7	B	I-270 NB Off-Ramp EB	5.5	A	L	4.8	A	7	21
							T	5.5	A	40	65
							T/R	5.5	A	-	-
				Redland Blvd WB	-	-	L	-	-	11	26
							R	-	-	0	19
				Piccard Dr NB	21.7	C	T	17.5	B	84	#184
							R	25.3	C	0	55
				Piccard Dr SB	14.6	B	L/T	14.6	B	-	-
							T	14.5	B	24	47

Note: 95th percentile queuing reported using Synchro software.

- \- Hyphen denotes that no value was recorded for this metric.
- m Volume for the 95th percentile queue is metered by upstream signal.
- # Volume for the 95th percentile exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.
- ~ Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.
- * Unsignalized intersection 95th percentile queue reported in number of vehicles.

Reporting Source:

- † HCM 6th Signalized Intersection Summary used for Delay and LOS.
- ‡ HCM 2000 Signalized Intersection Capacity Analysis used for Delay and LOS.
- †† HCM 6th Two Way Stop Control used for Delay and LOS.

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Table EX-4B - Gude Drive Corridor - (AM Peak)

Node	Location	Delay (s/veh)	LOS	Approach	Delay (s/veh)	LOS	Movement	Delay (s/veh)	LOS	50th %ile Queue (ft)	95th %ile Queue (ft)
E 301†	Gude Dr at Research Blvd	61.1	E	Gude Dr EB	26.2	C	L	19.2	B	7	26
							T	27.1	C	293	#463
							R	20.6	C	0	0
				Gude Dr WB	15.5	B	L	28.9	C	186	#348
							T	9.5	A	127	96
							R	9.7	A	33	13
				Research Blvd NB	242.4	F	L	38.8	D	5	17
							T	47.5	D	84	125
							R	416.8	F	0	79
				Research Blvd SB	43.3	D	L	45.8	D	83	120
							T	42.0	D	125	191
							T/R	41.9	D	-	-
E 303†	Gude Dr at Piccard Dr	8.9	A	Gude Dr EB	4.6	A	L	6.6	A	24	m61
							T	4.3	A	14	30
				Gude Dr WB	8.4	A	T	8.7	A	161	274
							R	6.2	A	1	25
				Piccard Dr SB	40.2	D	L	41.2	D	37	75
							R	39.8	D	79	122

Note: 95th percentile queuing reported using Synchro software.

- Hyphen denotes that no value was recorded for this metric.

m Volume for the 95th percentile queue is metered by upstream signal.

Volume for the 95th percentile exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

Reporting Source:

† HCM 6th Signalized Intersection Summary used for Delay and LOS.

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Table EX-4B - Gude Drive Corridor - (PM Peak)

Node	Location	Delay (s/veh)	LOS	Approach	Delay (s/veh)	LOS	Movement	Delay (s/veh)	LOS	50th %ile Queue (ft)	95th %ile Queue (ft)
E 301†	Gude Dr at Research Blvd	93.0	F	Gude Dr EB	30.2	C	L	23.6	C	3	13
							T	30.4	C	211	#306
							R	23.4	C	0	0
				Gude Dr WB	16.7	B	L	26.6	C	121	#445
							T	13.1	B	96	108
							R	10.5	B	1	m4
				Research Blvd NB	297.5	F	L	33.2	C	76	117
							T	44.5	D	93	134
							R	570.3	F	3	96
				Research Blvd SB	42.9	D	L	44.9	D	102	141
							T	39.8	D	55	86
							T/R	39.9	D	-	-
E 303†	Gude Dr at Piccard Dr	18.3	B	Gude Dr EB	9.7	A	L	11.0	B	5	m7
							T	9.6	A	33	36
				Gude Dr WB	15.3	B	T	15.5	B	242	382
							R	10.0	A	0	19
				Piccard Dr SB	46.3	D	L	33.7	C	109	169
							R	52.2	D	196	257

Note: 95th percentile queuing reported using Synchro software.

- Hyphen denotes that no value was recorded for this metric.

m Volume for the 95th percentile queue is metered by upstream signal.

Volume for the 95th percentile exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

Reporting Source:

† HCM 6th Signalized Intersection Summary used for Delay and LOS.

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Table EX-5B - MD 28 (Montgomery Avenue) Corridor - (AM Peak)

Node	Location	Delay (s/veh)	LOS	Approach	Delay (s/veh)	LOS	Movement	Delay (s/veh)	LOS	50th %ile Queue (ft)	95th %ile Queue (ft)
E 400‡	MD 28 (Montgomery Ave) at Hurley Ave	42.3	D	MD 28 (Montgomery Ave) EB	34.0	C	L	17.5	B	2	10
							T	34.1	C	550	623
							T/R	-	-	-	-
				MD 28 (Montgomery Ave) WB	51.9	D	U/L	759.6	F	~176	#316
							T	1.8	A	60	69
							T/R	-	-	-	-
				Hurley Ave NB	36.8	D	L/T	60.6	E	52	97
							R	27.6	C	77	134
				Hurley Ave SB	50.4	D	L/T	50.7	D	15	39
							R	49.2	D	0	0
E 401†	MD 28 (Montgomery Ave) at I-270 SB Ramps	12.4	B	MD 28 (Montgomery Ave) EB	0.2	A	T	0.2	A	65	m123
							R	0.0	A	405	m402
				MD 28 (Montgomery Ave) WB	7.1	A	T	7.1	A	186	227
				I-270 Off-Ramp SB	57.8	E	L	57.8	E	191	245
							R	0.0	A	51	104
E 405‡	MD 28 (Montgomery Ave) at I-270 NB Off-Ramp / Nelson St	24.4	C	MD 28 (Montgomery Ave) EB	11.5	B	L	23.6	C	98	#225
							T	7.5	A	194	233
				MD 28 (Montgomery Ave) WB	35.5	D	T	35.5	D	217	265
							T/R	-	-	-	-
				I-270 Off-Ramp NB	44.4	D	T	47.4	D	112	180
							R	42.0	D	0	65
				Nelson St SB	27.7	C	L	51.8	D	16	42
							R	26.0	C	107	171
E 407‡	MD 28 (Montgomery Ave) at Laird St / Bullard Cir	14.5	B	MD 28 (Montgomery Ave) EB	16.1	B	L	1.6	A	0	m1
							T/R	16.1	B	718	#853
				MD 28 (Montgomery Ave) WB	5.1	A	L	2.3	A	1	4
							T/R	5.1	A	167	319
				Bullard Cir NB	47.3	D	L/T	47.6	D	11	32
							R	47.0	D	0	17
				Laird St SB	58.8	E	L/T/R	58.8	E	72	128

Note: 95th percentile queuing reported using Synchro software.
- Hyphen denotes that no value was recorded for this metric.
m Volume for the 95th percentile queue is metered by upstream signal.
Volume for the 95th percentile exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.
~ Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.

Reporting Source:
† HCM 6th Signalized Intersection Summary used for Delay and LOS.
‡ HCM 2000 Signalized Intersection Capacity Analysis used for Delay and LOS.

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Table EX-5B - MD 28 (Montgomery Avenue) Corridor - (PM Peak)

Node	Location	Delay (s/veh)	LOS	Approach	Delay (s/veh)	LOS	Movement	Delay (s/veh)	LOS	50th %ile Queue (ft)	95th %ile Queue (ft)
E 400‡	MD 28 (Montgomery Ave) at Hurley Ave	135.0	F	MD 28 (Montgomery Ave) EB	32.1	C	L	18.6	B	2	11
							T	32.2	C	547	619
							T/R	-	-	-	-
				MD 28 (Montgomery Ave) WB	236.6	F	U/L	2,033.1	F	~427	#617
							T	2.6	A	82	79
							T/R	-	-	-	-
				Hurley Ave NB	38.2	D	L/T	56.4	E	68	118
							R	27.2	C	61	111
				Hurley Ave SB	48.0	D	L/T	48.6	D	31	64
							R	45.8	D	0	0
E 401†	MD 28 (Montgomery Ave) at I-270 SB Ramps	14.0	B	MD 28 (Montgomery Ave) EB	0.2	A	T	0.2	A	63	m118
							R	0.0	A	600	599
				MD 28 (Montgomery Ave) WB	9.6	A	T	9.6	A	267	304
				I-270 Off-Ramp SB	59.1	E	L	59.1	E	210	272
							R	0.0	A	58	115
E 405‡	MD 28 (Montgomery Ave) at I-270 NB Off-Ramp / Nelson St	31.9	C	MD 28 (Montgomery Ave) EB	23.1	C	L	74.4	E	146	m#313
							T	11.0	B	287	291
				MD 28 (Montgomery Ave) WB	36.3	D	T	36.3	D	324	417
							T/R	-	-	-	-
				I-270 Off-Ramp NB	46.6	D	T	51.1	D	195	291
							R	40.5	D	34	104
				Nelson St SB	32.7	C	L	53.6	D	24	58
							R	31.1	C	203	300
E 407‡	MD 28 (Montgomery Ave) at Laird St / Bullard Cir	16.6	B	MD 28 (Montgomery Ave) EB	21.1	C	L	1.1	A	1	m8
							T/R	21.6	C	795	#1,020
				MD 28 (Montgomery Ave) WB	7.6	A	L	1.8	A	0	4
							T/R	7.6	A	237	820
				Bullard Cir NB	51.0	D	L/T	51.3	D	8	23
							R	50.7	D	0	17
				Laird St SB	53.1	D	L/T/R	53.1	D	20	68

Note: 95th percentile queuing reported using Synchro software.
- Hyphen denotes that no value was recorded for this metric.
m Volume for the 95th percentile queue is metered by upstream signal.
Volume for the 95th percentile exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.
~ Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.

Reporting Source:
† HCM 6th Signalized Intersection Summary used for Delay and LOS.
‡ HCM 2000 Signalized Intersection Capacity Analysis used for Delay and LOS.

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Table EX-6B - MD 189 (Falls Road) Corridor - (AM Peak)

Node	Location	Delay (s/veh)	LOS	Approach	Delay (s/veh)	LOS	Movement	Delay (s/veh)	LOS	50th %ile Queue (ft)	95th %ile Queue (ft)
E 500‡	MD 189 (Falls Rd) at Wootton Pkwy	59.6	E	MD 189 (Falls Rd) EB	102.4	F	L	74.0	E	125	191
							T	117.3	F	~508	#680
							R	34.8	C	17	63
				MD 189 (Falls Rd) WB	44.1	D	L	56.3	E	252	#395
							T	37.2	D	176	273
							R	14.3	B	0	32
				Wootton Pkwy NB	44.7	D	L	55.0	E	108	147
							T	56.8	E	64	90
							R	23.1	C	0	43
				Wootton Pkwy SB	42.7	D	L	40.7	D	347	399
							T	57.1	E	395	441
							R	0.2	A	0	0
E 503‡	MD 189 (Falls Rd) at I-270 Ramps (SPUI)	64.9	E	MD 189 (Falls Rd) EB	103.0	F	L	149.3	F	~507	#724
							T	37.0	D	126	173
				MD 189 (Falls Rd) WB	31.3	C	L	33.1	C	189	244
							T	27.8	C	86	122
				I-270 Off-Ramp SEB	51.1	D	L	51.1	D	139	219
				I-270 Off-Ramp NWB	40.6	D	L	40.6	D	28	52
E 505‡	MD 189 (Falls Rd / Maryland Ave) at Great Falls Rd / Potomac Valley Rd	24.7	C	MD 189 (Falls Rd) EB	3.7	A	U/L	4.6	A	47	90
							T	3.3	A	74	119
							T/R	-	-	-	-
				MD 189 (Maryland Ave) WB	11.9	B	L	9.9	A	3	12
							T	12.0	B	95	144
							T/R	-	-	-	-
				Potomac Valley Rd NB	38.6	D	L	39.6	D	28	63
							T/R	35.4	D	2	21
				Great Falls Rd SB	85.0	F	L/T	38.3	D	22	53
							R	88.7	F	183	#362

Note: 95th percentile queuing reported using Synchro software.
- Hyphen denotes that no value was recorded for this metric.
Volume for the 95th percentile exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.
~ Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.

Reporting Source:
‡ HCM 2000 Signalized Intersection Capacity Analysis used for Delay and LOS.

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Table EX-6B - MD 189 (Falls Road) Corridor - (PM Peak)											
Node	**Location**	**Delay (s/veh)**	**LOS**	**Approach**	**Delay (s/veh)**	**LOS**	**Movement**	**Delay (s/veh)**	**LOS**	**50th %ile Queue (ft)**	**95th %ile Queue (ft)**
E 500‡	MD 189 (Falls Rd) at Wootton Pkwy	47.1	D	MD 189 (Falls Rd) EB	42.3	D	L	73.9	E	156	227
							T	38.6	D	193	261
							R	26.1	C	0	48
				MD 189 (Falls Rd) WB	46.5	D	L	67.0	E	140	185
							T	44.9	D	359	466
							R	27.8	C	44	112
				Wootton Pkwy NB	54.8	D	L	34.1	C	109	167
							T	73.5	E	492	#634
							R	24.6	C	0	56
				Wootton Pkwy SB	30.3	C	L	46.3	D	83	150
							T	41.2	D	73	107
							R	0.1	A	0	0
E 503‡	MD 189 (Falls Rd) at I-270 Ramps (SPUI)	63.8	E	MD 189 (Falls Rd) EB	76.0	E	L	99.5	F	~602	#857
							T	47.5	D	204	258
				MD 189 (Falls Rd) WB	59.4	E	L	62.7	E	291	359
							T	54.1	D	165	216
				I-270 Off-Ramp SEB	57.3	E	L	57.3	E	361	485
				I-270 Off-Ramp NWB	44.7	D	L	44.7	D	127	170
E 505‡	MD 189 (Falls Rd / Maryland Ave) at Great Falls Rd / Potomac Valley Rd	14.7	B	MD 189 (Falls Rd) EB	3.5	A	U/L	5.6	A	49	97
							T	2.7	A	73	120
							T/R	-	-	-	-
				MD 189 (Maryland Ave) WB	13.4	B	L	10.1	B	1	9
							T	13.4	B	136	240
							T/R	-	-	-	-
				Potomac Valley Rd NB	45.8	D	L	47.4	D	26	65
							T/R	38.1	D	3	19
				Great Falls Rd SB	48.2	D	L/T	39.6	D	11	36
							R	48.7	D	155	250

Note: 95th percentile queuing reported using Synchro software.
- Hyphen denotes that no value was recorded for this metric.
Volume for the 95th percentile exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.
~ Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.

Reporting Source:
‡ HCM 2000 Signalized Intersection Capacity Analysis used for Delay and LOS.

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Table EX-7B - Wootton Parkway Corridor - (AM Peak)

Node	Location	Delay (s/veh)	LOS	Approach	Delay (s/veh)	LOS	Movement	Delay (s/veh)	LOS	50th %ile Queue (ft)	95th %ile Queue (ft)
E 600‡	Wootton Pkwy at Seven Locks Rd	49.6	D	Wootton Pkwy EB	72.8	E	L	31.2	C	10	31
							T	105.0	F	225	#348
							R	40.3	D	198	328
				Wootton Pkwy WB	25.3	C	L	34.1	C	~267	#495
							T	11.7	B	52	114
							T/R	-	-	-	-
				Seven Locks Rd NB	12.5	B	L	30.2	C	38	76
							L/T	30.2	C	40	75
							R	0.2	A	0	0
				Seven Locks Rd SB	42.5	D	L/T	42.9	D	18	46
							R	41.1	D	0	0
E 601‡	Wootton Pkwy at Tower Oaks Rd	21.3	C	Wootton Pkwy EB	32.2	C	L	33.5	C	9	m14
							T	43.1	D	154	m#179
							R	0.1	A	0	m0
				Wootton Pkwy WB	19.2	B	L	30.1	C	222	#498
							T	10.5	B	46	183
							R	8.1	A	0	0
				Tower Oaks Blvd NB	4.9	A	L	31.7	C	29	54
							T	36.3	D	4	14
							R	0.4	A	0	0
				Tower Oaks Blvd SB	35.4	D	L	39.9	D	6	18
							T	41.2	D	6	17
							R	0.0	A	0	0

Note: 95th percentile queuing reported using Synchro software.

- Hyphen denotes that no value was recorded for this metric.

m Volume for the 95th percentile queue is metered by upstream signal.

Volume for the 95th percentile exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

~ Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.

Reporting Source:

‡ HCM 2000 Signalized Intersection Capacity Analysis used for Delay and LOS.

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Table EX-7B - Wootton Parkway Corridor - (PM Peak)

Node	Location	Delay (s/veh)	LOS	Approach	Delay (s/veh)	LOS	Movement	Delay (s/veh)	LOS	50th %ile Queue (ft)	95th %ile Queue (ft)
E 600‡	Wootton Pkwy at Seven Locks Rd	31.3	C	Wootton Pkwy EB	23.5	C	L	26.1	C	2	12
							T	31.2	C	98	162
							R	10.4	B	0	30
				Wootton Pkwy WB	18.7	B	L	26.2	C	77	m#204
							T	14.7	B	72	m157
							T/R	-	-	-	-
				Seven Locks Rd NB	44.1	D	L	65.2	E	287	#497
							L/T	60.3	E	281	#485
							R	0.4	A	0	0
				Seven Locks Rd SB	44.3	D	L/T	44.7	D	12	36
							R	42.4	D	0	0
E 601‡	Wootton Pkwy at Tower Oaks Rd	15.2	B	Wootton Pkwy EB	20.7	C	L	10.6	B	2	m6
							T	22.0	C	186	290
							R	0.0	A	0	0
				Wootton Pkwy WB	10.5	B	L	9.4	A	32	100
							T	10.9	B	48	195
							R	8.2	A	0	0
				Tower Oaks Blvd NB	14.4	B	L	70.9	E	~146	163
							T	42.2	D	4	14
							R	1.6	A	0	0
				Tower Oaks Blvd SB	30.4	C	L	34.0	C	30	54
							T	41.4	D	7	20
							R	0.0	A	0	0

Note: 95th percentile queuing reported using Synchro software.

- Hyphen denotes that no value was recorded for this metric.

m Volume for the 95th percentile queue is metered by upstream signal.

Volume for the 95th percentile exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

~ Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.

Reporting Source:

‡ HCM 2000 Signalized Intersection Capacity Analysis used for Delay and LOS.

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Table EX-8B - Montrose Road Corridor - (AM Peak)

Node	Location	Delay (s/veh)	LOS	Approach	Delay (s/veh)	LOS	Movement	Delay (s/veh)	LOS	50th %ile Queue (ft)	95th %ile Queue (ft)
E 701‡	Montrose Rd at Seven Locks Rd	32.7	C	Montrose Rd EB	43.9	D	L	41.4	D	42	84
							T	44.5	D	103	148
							T/R	-	-	-	-
				Montrose Rd WB	39.2	D	L	45.3	D	151	m236
							L/T	-	-	-	-
							T	41.6	D	152	m202
							R	21.4	C	2	m30
				Seven Locks Rd NB	10.3	B	L	37.9	D	10	31
							T	38.5	D	69	105
							R	0.7	A	0	0
				Seven Locks Rd SB	41.6	D	L	65.6	E	182	#268
							T	26.0	C	207	264
							T/R	-	-	-	-
E 702††	Montrose Rd at Potomac Ave	-	-	Potomac Rd NB	-	-	R	37.7	E	-	5.0*
				Potomac Rd SB	-	-	R	14.6	B	-	1.3*
E 707‡	Montrose Rd at Tower Oaks Blvd	42.0	D	Montrose Rd EB	6.2	A	L	13.2	B	31	m85
							T	5.0	A	149	180
				Montrose Rd WB	10.6	B	T	10.7	B	193	224
							R	7.4	A	0	14
				Tower Oaks Blvd SB	185.0	**F**	L	55.8	E	77	117
							R	222.3	**F**	~229	#364
				I-270 NB Off-Ramp NEB	1.8	A	R	1.8	A	0	0
E 708‡§	Montrose Rd at Farm Ln	1.6	A	Montrose Rd EB	1.8	A	T	1.8	A	0	328
				Montrose Rd WB	1.4	A	T	1.4	A	0	204
							T/R	-	-	-	-
				Farm Ln SB	0.0	A	R	0.0	A	0	0

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Table EX-8B - Montrose Road Corridor - (AM Peak)

Node	Location	Delay (s/veh)	LOS	Approach	Delay (s/veh)	LOS	Movement	Delay (s/veh)	LOS	50th %ile Queue (ft)	95th %ile Queue (ft)
E 709†	Montrose Rd at Hitching Post Ln / Farm Haven Dr	8.2	A	Montrose Rd EB	7.2	A	L	3.9	A	1	2
							T	6.9	A	123	272
							T/R	7.7	A	-	-
				Montrose Rd WB	5.2	A	L	5.3	A	1	4
							T	5.1	A	66	148
							T/R	5.4	A	-	-
				Hitching Post Ln NB	44.2	D	L	46.1	D	46	#124
							T/R	39.4	D	3	30
				Farm Haven Dr SB	40.7	D	L	40.8	D	18	48
							T/R	40.6	D	3	36
E 710‡	Tower Oaks Blvd at I-270 NB Ramps / GEICO Ent	19.8	B	Tower Oaks Blvd EB	18.1	B	L/T	-	-	-	-
							T/R	18.1	B	110	223
				Tower Oaks Blvd WB	12.7	B	L/T	-	-	-	-
							T/R	12.7	B	24	60
				I-270 NB Ramps NB	24.0	C	L	25.1	C	96	#322
							L/T	24.7	C	95	#316
							R	15.0	B	0	10
				GEICO Ent SB	34.3	C	L/T/R	34.3	C	3	22
E 712‡	Tower Oaks Blvd at Commercial Dr	3.4	A	Commercial Dr WB	33.2	C	L	33.2	C	1	6
							L/R	-	-	-	-
				Tower Oaks Blvd NB	4.8	A	T	4.9	A	0	135
							R	3.6	A	0	16
				Tower Oaks Blvd SB	1.7	A	L	1.7	A	0	10
							T	1.7	A	0	41

Note: 95th percentile queuing reported using Synchro software.

- Hyphen denotes that no value was recorded for this metric.

* Unsignalized intersection 95th percentile queue reported in number of vehicles.

~ Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.

m Volume for the 95th percentile queue is metered by upstream signal.

Volume for the 95th percentile exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

§ Red light on Montrose Road by Farm Lane is triggered by pedestrian signal call. Farm Lane is yield-controlled.

Reporting Source:

† HCM 6th Signalized Intersection Summary used for Delay and LOS.

‡ HCM 2000 Signalized Intersection Capacity Analysis used for Delay and LOS.

†† HCM 6th Two Way Stop Control used for Delay and LOS.

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Table EX-8B - Montrose Road Corridor - (PM Peak)											
Node	**Location**	**Delay (s/veh)**	**LOS**	**Approach**	**Delay (s/veh)**	**LOS**	**Movement**	**Delay (s/veh)**	**LOS**	**50th %ile Queue (ft)**	**95th %ile Queue (ft)**
E 701‡	Montrose Rd at Seven Locks Rd	38.0	D	Montrose Rd EB	49.3	D	L	43.3	D	43	86
							T	50.2	D	145	200
							T/R	-	-	-	-
				Montrose Rd WB	46.0	D	L	70.7	E	346	m#562
							L/T	-	-	-	-
							T	53.3	D	353	#512
							R	13.2	B	42	m126
				Seven Locks Rd NB	23.5	C	L	37.1	D	46	93
							T	42.7	D	228	295
							R	0.5	A	0	0
				Seven Locks Rd SB	34.5	C	L	55.1	E	67	105
							T	26.9	C	131	177
							T/R	-	-	-	-
E 702††	Montrose Rd at Potomac Ave	-	-	Potomac Rd NB	-	-	R	17.6	C	-	1.3*
				Potomac Rd SB	-	-	R	77.7	F	-	7.2*
E 707‡	Montrose Rd at Tower Oaks Blvd	12.4	B	Montrose Rd EB	7.9	A	L	18.1	B	12	m44
							T	7.4	A	260	308
				Montrose Rd WB	11.7	B	T	12.0	B	535	42
							R	0.5	A	0	m0
				Tower Oaks Blvd SB	52.1	D	L	49.8	D	26	49
							R	52.6	D	32	84
				I-270 NB Off-Ramp NEB	1.4	A	R	1.4	A	0	0
E 708‡§	Montrose Rd at Farm Ln	3.5	A	Montrose Rd EB	2.2	A	T	2.2	A	0	169
				Montrose Rd WB	4.5	A	T	4.5	A	0	549
							T/R	-	-	-	-
				Farm Ln SB	0.0	A	R	0.0	A	0	0

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Table EX-8B - Montrose Road Corridor - (PM Peak)											
Node	**Location**	**Delay (s/veh)**	**LOS**	**Approach**	**Delay (s/veh)**	**LOS**	**Movement**	**Delay (s/veh)**	**LOS**	**50th %ile Queue (ft)**	**95th %ile Queue (ft)**
E 709†	Montrose Rd at Hitching Post Ln / Farm Haven Dr	9.1	A	Montrose Rd EB	7.3	A	L	7.2	A	1	6
							T	7.0	A	147	364
							T/R	7.8	A	-	-
				Montrose Rd WB	8.8	A	L	5.4	A	2	8
							T	8.4	A	229	554
							T/R	9.6	A	-	-
				Hitching Post Ln NB	41.4	D	L	42.3	D	35	72
							T/R	39.7	D	6	31
				Farm Haven Dr SB	39.9	D	L	40.6	D	12	33
							T/R	39.1	D	3	23
E 710‡	Tower Oaks Blvd at I-270 NB Ramps / GEICO Ent	17.7	B	Tower Oaks Blvd EB	17.3	B	L/T	-	-	-	-
							T/R	17.3	B	53	98
				Tower Oaks Blvd WB	15.2	B	L/T	-	-	-	-
							T/R	15.2	B	18	38
				I-270 NB Ramps NB	18.1	B	L	18.2	B	80	174
							L/T	18.3	B	82	177
							R	12.7	B	0	0
				GEICO Ent SB	26.4	C	L/T/R	26.4	C	11	39
E 712‡	Tower Oaks Blvd at Commercial Dr	4.9	A	Commercial Dr WB	31.3	C	L	31.3	C	7	21
							L/R	-	-	-	-
				Tower Oaks Blvd NB	4.8	A	T	4.9	A	32	97
							R	3.8	A	0	6
				Tower Oaks Blvd SB	2.0	A	L	1.8	A	2	6
							T	2.0	A	17	25

Note: 95th percentile queuing reported using Synchro software.
- Hyphen denotes that no value was recorded for this metric.
* Unsignalized intersection 95th percentile queue reported in number of vehicles.
m Volume for the 95th percentile queue is metered by upstream signal.
Volume for the 95th percentile exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.
§ Red light on Montrose Road by Farm Lane is triggered by pedestrian signal call. Farm Lane is yield-controlled.

Reporting Source:
† HCM 6th Signalized Intersection Summary used for Delay and LOS.
‡ HCM 2000 Signalized Intersection Capacity Analysis used for Delay and LOS.
†† HCM 6th Two Way Stop Control used for Delay and LOS.

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Table EX-9B - Westlake Terrace Corridor - (AM Peak)											
Node	**Location**	**Delay (s/veh)**	**LOS**	**Approach**	**Delay (s/veh)**	**LOS**	**Movement**	**Delay (s/veh)**	**LOS**	**50th %ile Queue (ft)**	**95th %ile Queue (ft)**
E 800†	Westlake Terr at Westfield Montgomery Mall Ent / Motor City Dr	13.5	B	Westlake Terr EB	6.9	A	L	6.5	A	22	52
							T	7.0	A	76	121
							T/R	7.0	A	-	-
				Westlake Terr WB	3.8	A	L	4.7	A	16	35
							T	3.4	A	14	31
							T/R	3.7	A	-	-
				Westfield Montgomery Mall Ent NB	50.0	D	L	51.1	D	4	15
							T/R	49.9	D	15	52
				Motor City Dr SB	54.8	D	L	57.7	E	64	113
							T/R	51.0	D	4	43
E 801†	Westlake Terr at I-270 Spur Ramps	8.8	A	Westlake Terr EB	8.2	A	L	9.4	A	13	44
							T	8.0	A	40	84
				Westlake Terr WB	7.5	A	T	7.6	A	27	60
							R	7.0	A	0	16
				I-270 Spur Ramps SB	11.6	B	L/R	11.6	B	33	82
E 802‡	Westlake Terr at Rockledge Dr	25.2	C	Westlake Terr EB	20.0	B	L	16.3	B	80	186
							T	22.3	C	67	148
							T/R	-	-	-	-
				Westlake Terr WB	21.1	C	L	16.6	B	35	92
							T	22.8	C	38	93
							T/R	-	-	-	-
				Rockledge Dr NB	48.4	D	L/T	49.3	D	6	22
							R	46.6	D	0	0
				Rockledge Dr SB	33.6	C	L	28.4	C	49	89
							L/T	38.9	D	204	298
							R	27.7	C	0	52

Note: 95th percentile queuing reported using Synchro software.
- Hyphen denotes that no value was recorded for this metric.

Reporting Source:
† HCM 6th Signalized Intersection Summary used for Delay and LOS.
‡ HCM 2000 Signalized Intersection Capacity Analysis used for Delay and LOS.

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Table EX-9B - Westlake Terrace Corridor - (PM Peak)

Node	Location	Delay (s/veh)	LOS	Approach	Delay (s/veh)	LOS	Movement	Delay (s/veh)	LOS	50th %ile Queue (ft)	95th %ile Queue (ft)
E 800†	Westlake Terr at Westfield Montgomery Mall Ent / Motor City Dr	21.5	C	Westlake Terr EB	18.2	B	L	17.0	B	16	48
							T	18.3	B	86	156
							T/R	18.3	B	-	-
				Westlake Terr WB	11.5	B	L	12.6	B	58	120
							T	11.1	B	89	156
							T/R	11.1	B	-	-
				Westfield Montgomery Mall Ent NB	38.6	D	L	36.0	D	27	53
							T/R	39.1	D	7	64
				Motor City Dr SB	49.1	D	L	55.8	E	115	180
							T/R	33.5	C	10	42
E 801†	Westlake Terr at I-270 Spur Ramps	12.6	B	Westlake Terr EB	12.3	B	L	26.3	C	47	157
							T	5.0	A	34	76
				Westlake Terr WB	6.0	A	T	5.4	A	51	110
							R	6.9	A	0	34
				I-270 Spur Ramps SB	47.5	D	L/R	47.5	D	19	110
E 802‡	Westlake Terr at Rockledge Dr	42.2	D	Westlake Terr EB	24.7	C	L	25.3	C	116	181
							T	24.3	C	93	153
							T/R	-	-	-	-
				Westlake Terr WB	35.8	D	L	27.8	C	2	11
							T	35.9	D	206	268
							T/R	-	-	-	-
				Rockledge Dr NB	52.7	D	L/T	61.7	E	220	#353
							R	39.7	D	0	63
				Rockledge Dr SB	53.5	D	L	41.3	D	70	124
							L/T	41.4	D	71	125
							R	58.5	E	142	#305

Note: 95th percentile queuing reported using Synchro software.
- Hyphen denotes that no value was recorded for this metric.
Volume for the 95th percentile exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

Reporting Source:
† HCM 6th Signalized Intersection Summary used for Delay and LOS.
‡ HCM 2000 Signalized Intersection Capacity Analysis used for Delay and LOS.

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Table EX-10B - Democracy Boulevard Corridor - (AM Peak)											
Node	**Location**	**Delay (s/veh)**	**LOS**	**Approach**	**Delay (s/veh)**	**LOS**	**Movement**	**Delay (s/veh)**	**LOS**	**50th %ile Queue (ft)**	**95th %ile Queue (ft)**
E 900†	Democracy Blvd at Taveshire Way	10.3	B	Democracy Blvd EB	4.3	A	T	4.3	A	85	117
				Democracy Blvd WB	3.6	A	T	3.6	A	40	56
				Taveshire Way SB	55.2	E	L	49.3	D	47	70
							R	63.8	E	0	56
E 901‡	Democracy Blvd at I-270 SB On-Ramp / I-270 Spur SB Off-Ramp	28.6	C	Democracy Blvd EB	27.8	C	T	27.8	C	353	468
							T/R	-	-	-	-
				Democracy Blvd WB	2.5	A	T	2.5	A	21	27
				I-270 Spur Off Ramp SB	55.9	E	L	58.6	E	194	254
							R	51.3	D	0	78
E 902‡	Democracy Blvd at I-270 SB On-Ramp	9.0	A	Democracy Blvd EB	0.5	A	T	0.5	A	9	10
				Democracy Blvd WB	22.8	C	L	75.0	E	127	173
							T	0.7	A	0	0
E 903‡	Democracy Blvd at I-270 Spur NB Ramps	10.6	B	Democracy Blvd EB	0.2	A	T	0.2	A	0	0
							T/R	-	-	-	-
				Democracy Blvd WB	10.6	B	T	10.6	B	145	173
				I-270 Spur Off Ramp NB	71.0	E	L	71.0	E	125	173
E 904‡	Democracy Blvd at I-270 Spur NB Off-Ramp	33.1	C	Democracy Blvd EB	41.8	D	T	41.8	D	417	540
				Democracy Blvd WB	0.1	A	T	0.1	A	0	m0
				I-270 Spur Off Ramp NB	43.2	D	R	43.2	D	477	571
E 906‡	Democracy Blvd at Fernwood Rd	63.1	E	Democracy Blvd EB	24.2	C	U/L	-	-	-	-
							L	39.9	D	279	346
							T	24.8	C	171	164
							R	0.5	A	0	0
				Democracy Blvd WB	35.6	D	L	57.8	E	201	295
							T	35.8	D	32	54
							R	0.1	A	0	0
				Fernwood Rd NB	186.5	F	L	262.3	F	~882	#1,126
							R	0.2	A	0	0
				Fernwood Rd SB	16.1	B	L	42.0	D	37	62
							R	0.1	A	0	0

Note: 95th percentile queuing reported using Synchro software.

- Hyphen denotes that no value was recorded for this metric.

~ Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.

m Volume for the 95th percentile queue is metered by upstream signal.

Volume for the 95th percentile exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

Reporting Source:

† HCM 6th Signalized Intersection Summary used for Delay and LOS.

‡ HCM 2000 Signalized Intersection Capacity Analysis used for Delay and LOS.

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Table EX-10B - Democracy Boulevard Corridor - (PM Peak)

Node	Location	Delay (s/veh)	LOS	Approach	Delay (s/veh)	LOS	Movement	Delay (s/veh)	LOS	50th %ile Queue (ft)	95th %ile Queue (ft)
E 900†	Democracy Blvd at Taveshire Way	12.1	B	Democracy Blvd EB	4.2	A	T	4.2	A	63	99
				Democracy Blvd WB	4.6	A	T	4.6	A	98	144
				Taveshire Way SB	52.4	D	L	50.4	D	86	110
							R	58.0	E	67	122
E 901‡	Democracy Blvd at I-270 SB On-Ramp / I-270 Spur SB Off-Ramp	105.5	F	Democracy Blvd EB	33.5	C	T	33.5	C	316	364
							T/R	-	-	-	-
				Democracy Blvd WB	4.9	A	T	4.9	A	67	77
				I-270 Spur Off Ramp SB	263.6	F	L	58.9	E	197	257
							R	388.5	F	~716	#965
E 902‡	Democracy Blvd at I-270 SB On-Ramp	9.3	A	Democracy Blvd EB	1.7	A	T	1.7	A	15	16
				Democracy Blvd WB	17.4	B	L	46.1	D	223	284
							T	0.7	A	0	0
E 903‡	Democracy Blvd at I-270 Spur NB Ramps	9.9	A	Democracy Blvd EB	7.2	A	T	7.2	A	159	191
							T/R	-	-	-	-
				Democracy Blvd WB	3.5	A	T	3.5	A	84	113
				I-270 Spur Off Ramp NB	68.8	E	L	68.8	E	96	136
E 904‡	Democracy Blvd at I-270 Spur NB Off-Ramp	10.2	B	Democracy Blvd EB	7.0	A	T	7.0	A	234	446
				Democracy Blvd WB	0.2	A	T	0.2	A	0	0
				I-270 Spur Off Ramp NB	53.0	D	R	53.0	D	182	221
E 906‡	Democracy Blvd at Fernwood Rd	30.9	C	Democracy Blvd EB	27.3	C	U/L	-	-	-	-
							L	61.1	E	64	98
							T	36.4	D	236	283
							R	0.5	A	0	0
				Democracy Blvd WB	34.3	C	L	76.8	E	262	#414
							T	24.4	C	184	231
							R	0.1	A	0	0
				Fernwood Rd NB	56.3	E	L	76.8	E	473	#706
							R	0.2	A	0	0
				Fernwood Rd SB	10.4	B	L	34.0	C	84	120
							R	0.7	A	0	0

Note: 95th percentile queuing reported using Synchro software.

- Hyphen denotes that no value was recorded for this metric.

~ Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.

Volume for the 95th percentile exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

Reporting Source:

† HCM 6th Signalized Intersection Summary used for Delay and LOS.

‡ HCM 2000 Signalized Intersection Capacity Analysis used for Delay and LOS.

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Table EX-11B - Rockledge Road / MD 187 (Old Georgetown Road) Corridor - (AM Peak)											
Node	**Location**	**Delay (s/veh)**	**LOS**	**Approach**	**Delay (s/veh)**	**LOS**	**Movement**	**Delay (s/veh)**	**LOS**	**50th %ile Queue (ft)**	**95th %ile Queue (ft)**
E 1000[†]	Rockledge Dr at Rock Forest Dr	23.1	C	Rockledge Dr EB	57.8	E	L	60.4	E	79	119
							T	47.8	D	8	27
							R	50.1	D	0	0
				Rock Forest Dr WB	66.0	E	L	74.0	E	29	64
							T	53.7	D	12	35
							R	64.5	E	0	0
				Rockledge Dr NB	8.9	A	L	9.2	A	25	48
							T	8.8	A	38	62
							T/R	8.8	A	-	-
				Rockledge Dr SB	12.4	B	L	7.8	A	6	16
							T	12.6	B	204	282
							R	0.0	A	0	0
E 1001[‡]	Rockledge Dr at I-270 SB Off Ramp / I-270 SB Ramp Connector	24.8	C	I-270 SB Off Ramp EB	46.2	D	L/T	-	-	-	-
							T	107.3	F	~355	#483
							R	1.4	A	0	0
				Rockledge Dr NB	29.3	C	T	66.0	E	65	101
							R	16.9	B	101	134
				Rockledge Dr SB	0.0	A	T	0.0	A	0	0
E 1002[‡]	Rockledge Dr at I-270 NB On Ramp / I-270 NB Ramp Connector	25.9	C	I-270 NB Ramp Connector WB	27.6	C	L	30.1	C	532	717
							L/T	-	-	-	-
							T	26.2	C	487	571
				Rockledge Dr NB	0.1	A	L	0.1	A	0	0
E 1003[‡]	MD 187 (Old Georgetown Road) at Rock Spring Dr	64.2	E	Rock Spring Dr EB	63.9	E	L	83.6	F	262	#471
							L/T	81.9	F	260	#467
							R	29.5	C	74	136
				Rock Spring Dr WB	72.9	E	L/T/R	72.9	E	10	43
				MD 187 (Old Georgetown Road) NB	22.9	C	L	46.8	D	70	104
							T	19.1	B	209	256
							T/R	-	-	-	-
				MD 187 (Old Georgetown Road) SB	84.5	F	L	77.7	E	38	m60
							T	93.1	F	~772	#870
							R	49.0	D	180	m268

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Table EX-11B - Rockledge Road / MD 187 (Old Georgetown Road) Corridor - (AM Peak)

Node	Location	Delay (s/veh)	LOS	Approach	Delay (s/veh)	LOS	Movement	Delay (s/veh)	LOS	50th %ile Queue (ft)	95th %ile Queue (ft)
E 1005‡	MD 187 (Old Georgetown Road) at I-270 SB Ramp Connector / I-270 SB On-Ramp	41.7	D	I-270 SB Ramp Connector EB	60.0	E	L	39.9	D	54	98
							L/T/R	39.8	D	54	97
							R	64.7	E	357	448
				MD 187 (Old Georgetown Road) NB	43.3	D	T	43.3	D	300	334
							T/R	-	-	-	-
				MD 187 (Old Georgetown Road) SB	34.1	C	L	64.2	E	85	118
							T	30.2	C	501	585
E 1006‡	MD 187 (Old Georgetown Road) at I-270 NB Ramp Connector / I-270 NB Off-Ramp	11.9	B	I-270 NB Off Ramp WB	19.2	B	L	70.8	E	78	137
							L/T	69.7	E	78	136
							R	0.3	A	0	0
				MD 187 (Old Georgetown Road) NB	18.9	B	L	29.4	C	124	175
							T	16.9	B	285	342
				MD 187 (Old Georgetown Road) SB	6.6	A	T	9.5	A	147	m129
							R	0.1	A	12	m0
E 1009‡	MD 187 (Old Georgetown Road) at Tuckerman Ln	133.8	F	Tuckerman Ln EB	107.8	F	L	51.2	D	48	78
							T	117.3	F	~383	#512
							T/R	-	-	-	-
				Tuckerman Ln WB	81.8	F	L	95.3	F	~372	#507
							T	48.7	D	83	122
							R	40.1	D	0	5
				MD 187 (Old Georgetown Road) NB	103.6	F	U/L	374.0	F	~299	#488
							T	33.7	C	343	390
							R	124.8	F	227	344
				MD 187 (Old Georgetown Road) SB	193.7	F	L	71.7	E	32	70
							T	195.7	F	~1,066	#1,172
							T/R	-	-	-	-

Note: 95th percentile queuing reported using Synchro software.
- Hyphen denotes that no value was recorded for this metric.
~ Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.
m Volume for the 95th percentile queue is metered by upstream signal.
Volume for the 95th percentile exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

Reporting Source:
† HCM 6th Signalized Intersection Summary used for Delay and LOS.
‡ HCM 2000 Signalized Intersection Capacity Analysis used for Delay and LOS.

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Table EX-11B - Rockledge Road / MD 187 (Old Georgetown Road) Corridor - (PM Peak)

Node	Location	Delay (s/veh)	LOS	Approach	Delay (s/veh)	LOS	Movement	Delay (s/veh)	LOS	50th %ile Queue (ft)	95th %ile Queue (ft)
E 1000[†]	Rockledge Dr at Rock Forest Dr	33.8	C	Rockledge Dr EB	61.1	E	L	58.8	E	173	225
							T	42.6	D	26	58
							R	68.6	E	0	73
				Rock Forest Dr WB	67.5	E	L	74.0	E	29	64
							T	55.8	E	8	28
							R	64.7	E	0	0
				Rockledge Dr NB	15.6	B	L	10.2	B	11	27
							T	15.8	B	203	291
							T/R	15.8	B	-	-
				Rockledge Dr SB	11.9	B	L	11.2	B	21	46
							T	12.1	B	54	86
							R	0.0	A	0	0
E 1001[‡]	Rockledge Dr at I-270 SB Off Ramp / I-270 SB Ramp Connector	40.4	D	I-270 SB Off Ramp EB	51.4	D	L/T	-	-	-	-
							T	82.7	F	296	#400
							R	0.3	A	0	0
				Rockledge Dr NB	45.3	D	T	105.5	F	~269	#384
							R	17.1	B	261	368
				Rockledge Dr SB	0.0	A	T	0.0	A	0	0
E 1002[‡]	Rockledge Dr at I-270 NB On Ramp / I-270 NB Ramp Connector	18.5	B	I-270 NB Ramp Connector WB	23.0	C	L	20.2	C	225	325
							L/T	-	-	-	-
							T	23.9	C	406	467
				Rockledge Dr NB	2.0	A	L	2.0	A	18	m22
E 1003[‡]	MD 187 (Old Georgetown Road) at Rock Spring Dr	50.8	D	Rock Spring Dr EB	71.9	E	L	81.7	F	285	#449
							L/T	82.5	F	290	#461
							R	31.2	C	0	34
				Rock Spring Dr WB	71.4	E	L/T/R	71.4	E	32	107
				MD 187 (Old Georgetown Road) NB	53.9	D	L	57.0	E	84	124
							T	53.6	D	~904	#992
							T/R	-	-	-	-
				MD 187 (Old Georgetown Road) SB	35.9	D	L	68.7	E	84	#197
							T	34.9	C	552	601
							R	27.0	C	90	117

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Table EX-11B - Rockledge Road / MD 187 (Old Georgetown Road) Corridor - (PM Peak)

Node	Location	Delay (s/veh)	LOS	Approach	Delay (s/veh)	LOS	Movement	Delay (s/veh)	LOS	50th %ile Queue (ft)	95th %ile Queue (ft)
E 1005‡	MD 187 (Old Georgetown Road) at I-270 SB Ramp Connector / I-270 SB On-Ramp	46.2	D	I-270 SB Ramp Connector EB	60.1	E	L	65.3	E	296	409
							L/T/R	63.4	E	302	413
							R	47.6	D	105	149
				MD 187 (Old Georgetown Road) NB	44.3	D	T	44.3	D	649	m651
							T/R	-	-	-	-
				MD 187 (Old Georgetown Road) SB	42.7	D	L	102.7	F	75	114
							T	37.2	D	567	616
E 1006‡	MD 187 (Old Georgetown Road) at I-270 NB Ramp Connector / I-270 NB Off-Ramp	14.5	B	I-270 NB Off Ramp WB	22.3	C	L	67.6	E	48	93
							L/T	69.4	E	70	123
							R	0.2	A	0	0
				MD 187 (Old Georgetown Road) NB	15.2	B	L	47.6	D	302	364
							T	8.6	A	312	393
				MD 187 (Old Georgetown Road) SB	12.1	B	T	16.5	B	169	m241
							R	0.2	A	0	m0
E 1009‡	MD 187 (Old Georgetown Road) at Tuckerman Ln	70.4	E	Tuckerman Ln EB	64.2	E	L	60.4	E	145	194
							T	67.1	E	204	262
							T/R	-	-	-	-
				Tuckerman Ln WB	115.1	F	L	161.1	F	~284	#400
							T	66.9	E	157	212
							R	48.6	D	0	24
				MD 187 (Old Georgetown Road) NB	66.4	E	U/L	255.9	F	~299	#514
							T	48.6	D	695	#889
							R	46.6	D	351	448
				MD 187 (Old Georgetown Road) SB	58.2	E	L	71.7	E	62	114
							T	57.8	E	~747	#915
							T/R	-	-	-	-

Note: 95th percentile queuing reported using Synchro software.
- Hyphen denotes that no value was recorded for this metric.
~ Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.
m Volume for the 95th percentile queue is metered by upstream signal.
Volume for the 95th percentile exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

Reporting Source:
† HCM 6th Signalized Intersection Summary used for Delay and LOS.
‡ HCM 2000 Signalized Intersection Capacity Analysis used for Delay and LOS.

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Table EX-12B - MD 190 (River Road) Corridor - (AM Peak)

Node	Location	Delay (s/veh)	LOS	Approach	Delay (s/veh)	LOS	Movement	Delay (s/veh)	LOS	50th %ile Queue (ft)	95th %ile Queue (ft)
E 1100‡	MD 190 (River Rd) at Seven Locks Rd	36.1	D	MD 190 (River Rd) EB	39.7	D	L	25.2	C	13	37
							T	39.9	D	546	#721
							T/R	-	-	-	-
				MD 190 (River Rd) WB	20.1	C	U/L	25.0	C	67	101
							T	19.1	B	254	310
							R	20.0	B	18	40
				Seven Locks Rd NB	13.4	B	L	68.8	E	21	50
							T	72.2	E	41	81
							R	0.2	A	0	0
				Seven Locks Rd SB	63.7	E	L	64.5	E	298	#456
							L/T/R	62.9	E	310	#451
E 1102‡	MD 190 (River Rd) at I-495 Outer Loop Off-Ramp	11.5	B	MD 190 (River Rd) EB	2.7	A	T	2.7	A	93	93
				MD 190 (River Rd) WB	3.8	A	T	3.8	A	67	98
				I-495 Outer Loop Off-Ramp NB	66.1	E	L	66.1	E	132	176
E 1105‡	MD 190 (River Rd) WB at I-495 Inner Loop On-Ramp	1.9	A	MD 190 (River Rd) EB	2.8	A	L	11.3	B	79	335
							T	0.1	A	0	0
				MD 190 (River Rd) WB	0.2	A	T	0.2	A	0	0
E 1107†	MD 190 (River Rd) at Burdette Rd	16.9	B	MD 190 (River Rd) EB	11.5	B	L	12.9	B	15	40
							T	11.5	B	382	926
							R	4.5	A	0	0
				MD 190 (River Rd) WB	11.1	B	L	11.4	B	1	5
							T	11.2	B	442	705
							R	5.4	A	0	0
				Burdette Rd NB	77.4	E	L/T/R	77.4	E	37	75
				Burdette Rd SB	91.9	F	L/T	74.0	E	88	138
							R	99.5	F	41	118

Note: 95th percentile queuing reported using Synchro software.

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m Volume for the 95th percentile queue is metered by upstream signal.

Reporting Source:

† HCM 6th Signalized Intersection Summary used for Delay and LOS.

‡ HCM 2000 Signalized Intersection Capacity Analysis used for Delay and LOS.

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Table EX-12B - MD 190 (River Road) Corridor - (PM Peak)

Node	Location	Delay (s/veh)	LOS	Approach	Delay (s/veh)	LOS	Movement	Delay (s/veh)	LOS	50th %ile Queue (ft)	95th %ile Queue (ft)
E 1100‡	MD 190 (River Rd) at Seven Locks Rd	39.1	D	MD 190 (River Rd) EB	47.6	D	L	58.9	E	21	59
							T	47.1	D	317	389
							T/R	-	-	-	-
				MD 190 (River Rd) WB	26.3	C	U/L	44.7	D	114	#281
							T	29.0	C	492	557
							R	15.2	B	26	60
				Seven Locks Rd NB	28.7	C	L	55.1	E	23	53
							T	76.3	E	199	292
							R	0.3	A	0	0
				Seven Locks Rd SB	80.4	F	L	61.3	E	293	#453
							L/T/R	94.3	F	~448	#687
E 1102‡	MD 190 (River Rd) at I-495 Outer Loop Off-Ramp	12.0	B	MD 190 (River Rd) EB	2.0	A	T	2.0	A	37	m107
				MD 190 (River Rd) WB	9.3	B	T	9.3	A	599	787
				I-495 Outer Loop Off-Ramp NB	68.3	E	L	68.3	E	147	192
E 1105‡	MD 190 (River Rd) WB at I-495 Inner Loop On-Ramp	7.8	A	MD 190 (River Rd) EB	4.1	A	L	20.9	C	107	194
							T	0.1	A	0	0
				MD 190 (River Rd) WB	11.8	B	T	11.8	B	384	573
E 1107†	MD 190 (River Rd) at Burdette Rd	31.7	C	MD 190 (River Rd) EB	30.4	C	L	195.1	F	~270	#522
							T	6.5	A	208	450
							R	3.4	A	0	11
				MD 190 (River Rd) WB	26.8	C	L	6.7	A	1	3
							T	27.4	C	1,295	#1,591
							R	6.6	A	1	15
				Burdette Rd NB	80.6	F	L/T/R	80.6	F	32	71
				Burdette Rd SB	102.3	F	L/T	78.4	E	62	112
							R	112.3	F	13	85

Note: 95th percentile queuing reported using Synchro software.

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Volume for the 95th percentile exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

Reporting Source:

† HCM 6th Signalized Intersection Summary used for Delay and LOS.

‡ HCM 2000 Signalized Intersection Capacity Analysis used for Delay and LOS.

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Table EX-13B - MD 187 (Old Georgetown Road) Corridor - (AM Peak)

Node	Location	Delay (s/veh)	LOS	Approach	Delay (s/veh)	LOS	Movement	Delay (s/veh)	LOS	50th %ile Queue (ft	95th %ile Queue (ft)
E 1200‡	MD 187 (Old Georgetown Rd) at Lone Oak Dr/Manor Oak Way	14.6	B	Lone Oak Dr EB	67.9	E	L/T	76.6	E	61	110
							R	64.9	E	147	208
				Manor Oak Way WB	63.4	E	L/T/R	63.4	E	9	32
				MD 187 (Old Georgetown Rd) NB	7.6	A	U/L	27.2	C	61	m118
							T	5.8	A	163	243
							R	2.3	A	0	m0
				MD 187 (Old Georgetown Rd) SB	12.7	B	L	6.6	A	1	8
							T	12.7	B	413	592
							T/R	-	-	-	-
E 1201‡	MD 187 (Old Georgetown Rd) at I-495 Outer Loop Off-Ramp	29.1	C	I-495 Outer Loop Off-Ramp WB	71.7	E	L	56.0	E	84	143
							L/T	56.1	E	86	146
							R	80.1	F	189	#340
				MD 187 (Old Georgetown Rd) NB	17.4	B	L	73.1	E	275	#455
							T	1.0	A	36	37
				MD 187 (Old Georgetown Rd) SB	26.3	C	T	26.3	C	126	132
							T/R	-	-	-	-
E 1202‡	MD 187 (Old Georgetown Rd) at I-495 Inner Loop Off-Ramp	6.9	A	I-495 Inner Loop Off-Ramp EB	10.2	B	L	69.2	E	48	88
							L/T	69.0	E	47	87
							R	0.7	A	0	0
				MD 187 (Old Georgetown Rd) NB	10.1	B	T	10.1	B	176	m206
							T/R	-	-	-	-
				MD 187 (Old Georgetown Rd) SB	3.7	A	L	21.1	C	89	m108
							T	1.7	A	69	79
E 1203‡	MD 187 (Old Georgetown Rd) at Ryland Dr/Church Dwy	16.2	B	Ryland Dr EB	123.7	F	L/T/R	123.7	F	~295	#488
				Church Dwy WB	49.3	D	L	50.0	D	31	67
							T	48.6	D	4	17
							R	48.9	D	0	44
				MD 187 (Old Georgetown Rd) NB	13.9	B	L	14.9	B	1	5
							T	13.9	B	185	222
							T/R	-	-	-	-
				MD 187 (Old Georgetown Rd) SB	3.8	A	U/L	2.3	A	7	11
							T	3.8	A	65	90
							T/R	-	-	-	-

Note: 95th percentile queuing reported using Synchro software.
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m Volume for the 95th percentile queue is metered by upstream signal.
Volume for the 95th percentile exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

Reporting Source:
‡ HCM 2000 Signalized Intersection Capacity Analysis used for Delay and LOS.

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Table EX-13B - MD 187 (Old Georgetown Road) Corridor - (PM Peak)

Node	Location	Delay (s/veh)	LOS	Approach	Delay (s/veh)	LOS	Movement	Delay (s/veh)	LOS	50th %ile Queue (ft	95th %ile Queue (ft)
E 1200‡	MD 187 (Old Georgetown Rd) at Lone Oak Dr/Manor Oak Way	12.5	B	Lone Oak Dr EB	61.1	E	L/T	70.5	E	97	154
							R	47.5	D	36	70
				Manor Oak Way WB	57.4	E	L/T/R	57.4	E	9	30
				MD 187 (Old Georgetown Rd) NB	6.4	A	U/L	67.8	E	95	m150
							T	2.3	A	94	m134
							R	3.5	A	0	m0
				MD 187 (Old Georgetown Rd) SB	16.1	B	L	12.8	B	2	11
							T	16.1	B	410	570
							T/R	-	-	-	-
E 1201‡	MD 187 (Old Georgetown Rd) at I-495 Outer Loop Off-Ramp	32.8	C	I-495 Outer Loop Off-Ramp WB	101.2	F	L	49.1	D	76	133
							L/T	49.1	D	77	133
							R	123.8	F	~386	#604
				MD 187 (Old Georgetown Rd) NB	12.0	B	L	74.4	E	194	m#270
							T	5.9	A	165	173
				MD 187 (Old Georgetown Rd) SB	38.9	D	T	38.9	D	505	706
							T/R	-	-	-	-
E 1202‡	MD 187 (Old Georgetown Rd) at I-495 Inner Loop Off-Ramp	30.0	C	I-495 Inner Loop Off-Ramp EB	48.5	D	L	71.6	E	213	310
							L/T	70.2	E	208	305
							R	0.2	A	0	0
				MD 187 (Old Georgetown Rd) NB	42.4	D	T	42.4	D	867	916
							T/R	-	-	-	-
				MD 187 (Old Georgetown Rd) SB	6.3	A	L	32.5	C	136	m190
							T	3.0	A	71	77
E 1203‡	MD 187 (Old Georgetown Rd) at Ryland Dr/Church Dwy	12.0	B	Ryland Dr EB	68.9	E	L/T/R	68.9	E	56	96
				Church Dwy WB	62.7	E	L	63.2	E	10	28
							T	62.6	E	5	17
							R	62.5	E	0	5
				MD 187 (Old Georgetown Rd) NB	8.7	A	L	4.4	A	1	8
							T	8.7	A	311	538
							T/R	-	-	-	-
				MD 187 (Old Georgetown Rd) SB	12.8	B	U/L	15.1	B	10	42
							T	12.7	B	268	504
							T/R	-	-	-	-

Note: 95th percentile queuing reported using Synchro software.
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m Volume for the 95th percentile queue is metered by upstream signal.
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Reporting Source:
‡ HCM 2000 Signalized Intersection Capacity Analysis used for Delay and LOS.

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Table EX-14B - MD 355 (Rockville Pike) / I-270 East Spur Corridor - (AM Peak)

Node	Location	Delay (s/veh)	LOS	Approach	Delay (s/veh)	LOS	Movement	Delay (s/veh)	LOS	50th %ile Queue (ft	95th %ile Queue (ft)
E 1300‡	MD 355 (Rockville Pike) at Grosvenor Ln	44.6	D	Grosvenor Ln EB	50.7	D	L	54.2	D	53	80
							R	48.9	D	128	220
				Grosvenor Ln WB	33.1	C	L	27.1	C	195	235
							T/R	49.5	D	162	259
				MD 355 (Rockville Pike) NW	36.6	D	T	36.6	D	455	548
				MD 355 (Rockville Pike) SB	52.1	D	T	53.7	D	~887	#1,004
							R	23.7	C	24	69
E 1307‡	MD 355 (Rockville Pike) at I-495 Inner Loop Off-Ramp	25.2	C	I-495 Inner Loop Off-Ramp SE	71.9	E	R	71.9	E	325	376
				MD 355 (Rockville Pike) SB	17.9	B	T	17.9	B	656	809
E 1309†	MD 355 (Rockville Pike) at Pooks Hill Rd	31.2	C	Pooks Hill Rd EB	94.7	F	L	94.7	F	280	#360
							R	0.0	A	78	166
				MD 355 (Rockville Pike) NB	8.8	A	L	71.5	E	54	m103
							T	7.0	A	31	61
				MD 355 (Rockville Pike) SB	34.1	C	T	35.1	D	1,154	403
							R	5.3	A	0	m5
E 1310‡	MD 355 (Rockville Pike) at Alta Vista Rd/Bellevue Dr	13.6	B	Alta Vista Rd EB	93.1	F	L/T/R	93.1	F	104	168
				Bellevue Dr WB	74.7	E	L/T/R	74.7	E	11	42
				MD 355 (Rockville Pike) NB	18.2	B	U/L	-	-	-	-
							T	18.2	B	309	380
							T/R	-	-	-	-
				MD 355 (Rockville Pike) SB	9.7	A	U/L	18.6	B	209	m254
							T	8.9	A	343	143
							T/R	-	-	-	-

Note: 95th percentile queuing reported using Synchro software.
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m Volume for the 95th percentile queue is metered by upstream signal.
Volume for the 95th percentile exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

Reporting Source:
† HCM 6th Signalized Intersection Summary used for Delay and LOS.
‡ HCM 2000 Signalized Intersection Capacity Analysis used for Delay and LOS.

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Table EX-14B - MD 355 (Rockville Pike) / I-270 East Spur Corridor - (PM Peak)

Node	Location	Delay (s/veh)	LOS	Approach	Delay (s/veh)	LOS	Movement	Delay (s/veh)	LOS	50th %ile Queue (ft	95th %ile Queue (ft)
E 1300‡	MD 355 (Rockville Pike) at Grosvenor Ln	36.0	D	Grosvenor Ln EB	56.4	E	L	68.0	E	80	118
							R	46.2	D	34	95
				Grosvenor Ln WB	46.1	D	L	32.8	C	80	97
							T/R	56.9	E	233	311
				MD 355 (Rockville Pike) NW	42.1	D	T	42.1	D	737	#1,040
				MD 355 (Rockville Pike) SB	22.9	C	T	23.5	C	401	541
							R	15.9	B	0	38
E 1307‡	MD 355 (Rockville Pike) at I-495 Inner Loop Off-Ramp	17.6	B	I-495 Inner Loop Off-Ramp SE	78.7	E	R	78.7	E	217	270
				MD 355 (Rockville Pike) SB	7.8	A	T	7.8	A	245	316
E 1309†	MD 355 (Rockville Pike) at Pooks Hill Rd	18.3	B	Pooks Hill Rd EB	101.6	F	L	101.6	F	153	206
							R	0.0	A	0	56
				MD 355 (Rockville Pike) NB	9.1	A	L	58.0	E	79	m89
							T	8.1	A	40	45
				MD 355 (Rockville Pike) SB	22.4	C	T	23.8	C	541	573
							R	12.2	B	3	3
E 1310‡	MD 355 (Rockville Pike) at Alta Vista Rd/Bellevue Dr	23.9	C	Alta Vista Rd EB	97.9	F	L/T/R	97.9	F	127	199
				Bellevue Dr WB	73.0	E	L/T/R	73.0	E	17	48
				MD 355 (Rockville Pike) NB	30.2	C	U/L	19.8	B	3	9
							T	30.3	C	1,071	1,238
							T/R	-	-	-	-
				MD 355 (Rockville Pike) SB	11.6	B	U/L	82.6	F	275	#449
							T	2.9	A	87	42
							T/R	-	-	-	-

Note: 95th percentile queuing reported using Synchro software.
- Hyphen denotes that no value was recorded for this metric.
m Volume for the 95th percentile queue is metered by upstream signal.
Volume for the 95th percentile exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

Reporting Source:
† HCM 6th Signalized Intersection Summary used for Delay and LOS.
‡ HCM 2000 Signalized Intersection Capacity Analysis used for Delay and LOS.

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SYNCHRO ANALYSIS OUTPUT TABLES

Table NB-2B - I-370 (Sam Eig Highway) Corridor - (AM Peak)

Node	Location	Delay (s/veh)	LOS	Approach	Delay (s/veh)	LOS	Movement	Delay (s/veh)	LOS	50th %ile Queue (ft)	95th %ile Queue (ft)
N 100‡	I-370 (Sam Eig Hwy) at Fields Rd	22.2	C	Fields Rd WB	54.0	D	L	73.0	E	92	130
							R	44.5	D	163	191
				I-370 (Sam Eig Hwy) NB	15.1	B	T	15.6	B	473	611
							R	12.6	B	186	349
				I-370 (Sam Eig Hwy) SB	22.9	C	L	74.4	E	255	304
							T	5.0	A	128	165
				Washingtonian Blvd Ramp SEB	3.9	A	R	3.9	A	20	39
N 104‡	Washingtonian Blvd at I-370 (Sam Eig Hwy) WB Ramps	20.5	C	Washingtonian Blvd Ramp WB	24.3	C	L	25.3	C	80	175
							L/T	25.3	C	81	176
							R	22.0	C	0	0
				Washingtonian Blvd NB	1.6	A	L	0.7	A	0	1
							T	1.8	A	1	2
				Washingtonian Blvd SB	25.2	C	T	25.2	C	101	155
							T/R	-	-	-	-
N 105‡	Washingtonian Blvd at I-370 (Sam Eig Hwy) EB Ramps	10.7	B	Washingtonian Blvd Ramp EB	29.5	C	L/T	29.8	C	14	43
							R	29.4	C	0	0
				Washingtonian Blvd NB	17.7	B	T	18.2	B	65	121
							R	16.7	B	0	0
				Washingtonian Blvd SB	4.1	A	L/T	-	-	-	-
							T	4.1	A	13	76
N 113‡	I-370 (Sam Eig Hwy) SBR at MD 119 (Great Seneca Hwy)	4.7	A	MD 119 (Great Seneca Hwy) EB	0.1	A	T	0.1	A	0	0
				MD 119 (Great Seneca Hwy) WB	3.8	A	T	3.8	A	4	5
				I-370 (Sam Eig Hwy) SB	26.8	C	R	26.8	C	30	177
N 114‡	I-370 (Sam Eig Hwy) at MD 119 (Great Seneca Hwy)	33.5	C	MD 119 (Great Seneca Hwy) EB	23.3	C	L	41.6	D	492	570
							T	13.6	B	589	660
				MD 119 (Great Seneca Hwy) WB	50.9	D	T	50.9	D	108	140
				I-370 (Sam Eig Hwy) SB	86.9	F	L	86.9	F	293	355
N 118‡	I-370 (Sam Eig Hwy) at Diamondback Dr	29.4	C	Diamondback Dr EB	77.3	E	L	78.2	E	365	417
							R	56.5	E	0	0
				Diamondback Dr WB	66.7	E	R	66.7	E	103	138
				I-370 (Sam Eig Hwy) NB	11.2	B	L	128.1	F	27	m47
							T	10.0	B	89	374
							R	0.1	A	0	m0
				I-370 (Sam Eig Hwy) SB	21.7	C	L	103.2	F	122	179
							T	21.8	C	199	381
							R	0.3	A	0	0

Note: 95th percentile queuing reported using Synchro software.
- Hyphen denotes that no value was recorded for this metric.
m Volume for the 95th percentile queue is metered by upstream signal.

Reporting Source:
‡ HCM 2000 Signalized Intersection Capacity Analysis used for Delay and LOS.

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Table NB-2B - I-370 (Sam Eig Highway) Corridor - (PM Peak)

Node	Location	Delay (s/veh)	LOS	Approach	Delay (s/veh)	LOS	Movement	Delay (s/veh)	LOS	50th %ile Queue (ft)	95th %ile Queue (ft)
N 100‡	I-370 (Sam Eig Hwy) at Fields Rd	28.4	C	Fields Rd WB	49.8	D	L	66.8	E	206	254
							R	39.0	D	260	303
				I-370 (Sam Eig Hwy) NB	28.0	C	T	28.8	C	619	343
							R	22.9	C	143	183
				I-370 (Sam Eig Hwy) SB	24.2	C	L	69.8	E	328	402
							T	12.6	B	450	544
				Washingtonian Blvd Ramp SEB	9.2	A	R	9.2	A	144	218
N 104‡	Washingtonian Blvd at I-370 (Sam Eig Hwy) WB Ramps	20.4	C	Washingtonian Blvd Ramp WB	33.2	C	L	34.1	C	102	#218
							L/T	33.8	C	101	216
							R	27.8	C	0	0
				Washingtonian Blvd NB	0.7	A	L	0.6	A	1	m2
							T	0.8	A	2	3
				Washingtonian Blvd SB	31.4	C	T	31.4	C	117	186
							T/R	-	-	-	-
N 105‡	Washingtonian Blvd at I-370 (Sam Eig Hwy) EB Ramps	21.7	C	Washingtonian Blvd Ramp EB	30.6	C	L/T	31.3	C	33	76
							R	30.3	C	0	0
				Washingtonian Blvd NB	24.8	C	T	27.0	C	232	395
							R	23.5	C	26	168
				Washingtonian Blvd SB	13.4	B	L/T	-	-	-	-
							T	13.4	B	33	68
N 113‡	I-370 (Sam Eig Hwy) SBR at MD 119 (Great Seneca Hwy)	10.9	B	MD 119 (Great Seneca Hwy) EB	0.0	A	T	0.0	A	0	0
				MD 119 (Great Seneca Hwy) WB	5.4	A	T	5.4	A	18	19
				I-370 (Sam Eig Hwy) SB	27.7	C	R	27.7	C	950	346
N 114‡	I-370 (Sam Eig Hwy) at MD 119 (Great Seneca Hwy)	44.9	D	MD 119 (Great Seneca Hwy) EB	26.2	C	L	41.8	D	361	428
							T	4.3	A	70	86
				MD 119 (Great Seneca Hwy) WB	56.6	E	T	56.6	E	586	647
				I-370 (Sam Eig Hwy) SB	69.9	E	L	69.9	E	134	201
N 118‡	I-370 (Sam Eig Hwy) at Diamondback Dr	38.5	D	Diamondback Dr EB	82.0	F	L	82.9	F	263	317
							R	64.2	E	0	0
				Diamondback Dr WB	58.2	E	R	58.2	E	180	216
				I-370 (Sam Eig Hwy) NB	52.2	D	L	72.1	E	107	178
							T	58.3	E	509	593
							R	0.1	A	0	0
				I-370 (Sam Eig Hwy) SB	22.7	C	L	80.6	F	176	253
							T	31.8	C	556	686
							R	3.4	A	898	1,236

Note: 95th percentile queuing reported using Synchro software.

- Hyphen denotes that no value was recorded for this metric.

m Volume for the 95th percentile queue is metered by upstream signal.

Volume for the 95th percentile exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

Reporting Source:

‡ HCM 2000 Signalized Intersection Capacity Analysis used for Delay and LOS.

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Table NB-3B - Shady Grove Road Corridor - (AM Peak)

Node	Location	Delay (s/veh)	LOS	Approach	Delay (s/veh)	LOS	Movement	Delay (s/veh)	LOS	50th %ile Queue (ft)	95th %ile Queue (ft)
N 200‡	Omega Dr at MD 28 (Key W Ave)	35.2	D	MD 28 (Key W Ave) EB	28.4	C	L	71.8	E	83	140
							T	27.7	C	484	730
							R	17.0	B	0	46
				MD 28 (Key W Ave) WB	31.7	C	U/L	-	-	-	-
							L	70.2	E	136	184
							T	15.4	B	79	141
							R	14.3	B	0	34
				Medical Center Dr NB	61.6	E	L	122.6	F	11	34
							T	56.6	E	31	49
							R	55.8	E	0	15
				Omega Dr SB	69.7	E	L	81.2	F	65	#112
							T	68.4	E	246	326
							R	50.4	D	0	14
N 203††	Omega Dr at I-270 SB Off-Ramp	-	-	I-270 Off-Ramp WB	-	-	L/R	24.9	C	-	5.3*
N 204†	Omega Dr / Fields Rd at Washingtonian Blvd	7.6	A	Fields Rd EB	5.7	A	L	18.6	B	11	33
							T	4.7	A	41	72
				Omega Dr WB	8.8	A	T	8.4	A	11	36
							T/R	9.1	A	-	-
				Washingtonian Blvd SB	13.4	B	L	13.6	B	16	36
							R	11.0	B	0	5
N 205‡	Shady Grove Rd at Corporate Blvd	22.0	C	Corporate Blvd EB	72.5	E	L	73.4	E	57	109
							L/T	72.9	E	57	109
							R	65.4	E	0	0
				Corporate Blvd WB	71.1	E	L/T	74.1	E	26	61
							R	69.6	E	0	0
				Shady Grove Rd NB	31.2	C	L	25.2	C	3	16
							T	31.2	C	352	474
							T/R	-	-	-	-
				Shady Grove Rd SB	13.5	B	U/L	51.1	D	342	475
							T	5.3	A	162	199
							T/R	-	-	-	-

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Table NB-3B - Shady Grove Road Corridor - (AM Peak)

Node	Location	Delay (s/veh)	LOS	Approach	Delay (s/veh)	LOS	Movement	Delay (s/veh)	LOS	50th %ile Queue (ft)	95th %ile Queue (ft)
N 207[†]	Shady Grove Rd at I-270 SB Off-Ramp	25.3	C	I-270 SB Off-Ramp EB	46.2	D	L	34.1	C	152	175
							R	52.1	D	452	498
				Shady Grove Rd NB	19.2	B	T	19.2	B	61	68
				Shady Grove Rd SB	12.8	B	T	12.8	B	420	452
							R	0.0	A	173	281
N 210[†]	Shady Grove Rd at I-270 NB Off-Ramp	24.4	C	I-270 NB Off-Ramp WB	54.5	D	L	54.5	D	421	453
							R	0.0	A	0	0
				Shady Grove Rd NB	13.5	B	T	13.5	B	95	139
							R	0.0	A	0	67
				Shady Grove Rd SB	13.2	B	T	13.2	B	230	216
N 212[‡]	Shady Grove Rd at Choke Cherry Rd	19.8	B	Choke Cherry Rd EB	64.8	E	L/T/R	71.5	E	34	80
							R	57.4	E	0	12
				Choke Cherry Rd WB	70.6	E	L	73.3	E	73	130
							L/T	71.4	E	73	129
							R	63.6	E	0	0
				Shady Grove Rd NB	16.7	B	U/L	32.5	C	52	149
							T	12.2	B	143	198
							R	25.2	C	31	71
				Shady Grove Rd SB	14.7	B	L	8.6	A	36	68
							T	15.2	B	275	395
							T/R	-	-	-	-
N 216[†]	Redland Blvd at Piccard Dr	10.7	B	I-270 NB Off-Ramp EB	6.2	A	L	5.1	A	32	72
							T	6.4	A	88	148
							T/R	6.5	A	-	-
				Redland Blvd WB	-	-	L	-	-	31	61
							R	-	-	0	0
				Piccard Dr NB	15.3	B	T	15.1	B	16	41
							R	15.4	B	0	13
				Piccard Dr SB	17.8	B	L/T	17.6	B	-	-
							T	18.1	B	84	130

Note: 95th percentile queuing reported using Synchro software.

- Hyphen denotes that no value was recorded for this metric.

Volume for the 95th percentile exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

* Unsignalized intersection 95th percentile queue reported in number of vehicles.

Reporting Source:

[†] HCM 6th Signalized Intersection Summary used for Delay and LOS.

[‡] HCM 2000 Signalized Intersection Capacity Analysis used for Delay and LOS.

[††] HCM 6th Two Way Stop Control used for Delay and LOS.

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Table NB-3B - Shady Grove Road Corridor - (PM Peak)

Node	Location	Delay (s/veh)	LOS	Approach	Delay (s/veh)	LOS	Movement	Delay (s/veh)	LOS	50th %ile Queue (ft)	95th %ile Queue (ft)
N 200‡	Omega Dr at MD 28 (Key W Ave)	37.8	D	MD 28 (Key W Ave) EB	22.4	C	L	76.1	E	83	145
							T	16.9	B	142	194
							R	14.3	B	0	0
				MD 28 (Key W Ave) WB	28.7	C	U/L	-	-	-	-
							L	70.1	E	48	81
							T	27.9	C	570	721
							R	16.8	B	0	44
				Medical Center Dr NB	65.1	E	L	82.1	F	156	#241
							T	58.6	E	172	210
							R	63.8	E	144	245
				Omega Dr SB	68.3	E	L	75.2	E	54	89
							T	66.7	E	104	161
							R	65.4	E	62	145
N 203††	Omega Dr at I-270 SB Off-Ramp	-	-	I-270 Off-Ramp WB	-	-	L/R	46.8	E	-	4.0*
N 204†	Omega Dr / Fields Rd at Washingtonian Blvd	12.7	B	Fields Rd EB	6.5	A	L	37.7	D	10	38
							T	2.9	A	12	24
				Omega Dr WB	10.6	B	T	10.1	B	293	435
							T/R	11.1	B	-	-
				Washingtonian Blvd SB	27.1	C	L	27.7	C	54	105
							R	25.5	C	3	40
N 205‡	Shady Grove Rd at Corporate Blvd	32.3	C	Corporate Blvd EB	79.5	E	L	81.3	F	89	#157
							L/T	81.8	F	90	#156
							R	63.3	E	0	0
				Corporate Blvd WB	77.4	E	L/T	54.5	D	60	102
							R	82.1	F	196	308
				Shady Grove Rd NB	28.9	C	L	17.8	B	8	25
							T	29.0	C	515	659
							T/R	-	-	-	-
				Shady Grove Rd SB	12.8	B	U/L	51.3	D	54	146
							T	7.7	A	106	182
							T/R	-	-	-	-

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Table NB-3B - Shady Grove Road Corridor - (PM Peak)

Node	Location	Delay (s/veh)	LOS	Approach	Delay (s/veh)	LOS	Movement	Delay (s/veh)	LOS	50th %ile Queue (ft)	95th %ile Queue (ft)
N 207[†]	Shady Grove Rd at I-270 SB Off-Ramp	17.7	B	I-270 SB Off-Ramp EB	64.1	E	L	58.8	E	130	169
							R	68.3	E	196	247
				Shady Grove Rd NB	5.7	A	T	5.7	A	52	65
				Shady Grove Rd SB	0.1	A	T	0.1	A	27	35
							R	0.0	A	191	226
N 210[†]	Shady Grove Rd at I-270 NB Off-Ramp	12.7	B	I-270 NB Off-Ramp WB	68.0	E	L	68.0	E	197	246
							R	0.0	A	0	0
				Shady Grove Rd NB	0.1	A	T	0.1	A	37	76
							R	0.0	A	10	77
				Shady Grove Rd SB	4.2	A	T	4.2	A	9	20
N 212[‡]	Shady Grove Rd at Choke Cherry Rd	38.7	D	Choke Cherry Rd EB	68.5	E	L/T/R	85.8	F	130	#230
							R	49.5	D	45	106
				Choke Cherry Rd WB	74.5	E	L	80.7	F	211	#312
							L/T	77.4	E	213	311
							R	53.1	D	0	8
				Shady Grove Rd NB	27.7	C	U/L	59.4	E	105	#234
							T	23.5	C	282	336
							R	25.9	C	15	62
				Shady Grove Rd SB	34.3	C	L	20.2	C	37	67
							T	35.0	C	524	605
							T/R	-	-	-	-
N 216[†]	Redland Blvd at Piccard Dr	13.1	B	I-270 NB Off-Ramp EB	5.9	A	L	5.1	A	9	25
							T	5.9	A	47	75
							T/R	5.9	A	-	-
				Redland Blvd WB	-	-	L	-	-	11	26
							R	-	-	0	22
				Piccard Dr NB	18.4	B	T	15.8	B	86	#161
							R	20.6	C	0	53
				Piccard Dr SB	13.6	B	L/T	13.7	B	-	-
							T	13.5	B	24	47

Note: 95th percentile queuing reported using Synchro software.

- Hyphen denotes that no value was recorded for this metric.

Volume for the 95th percentile exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

* Unsignalized intersection 95th percentile queue reported in number of vehicles.

Reporting Source:

[†] HCM 6th Signalized Intersection Summary used for Delay and LOS.

[‡] HCM 2000 Signalized Intersection Capacity Analysis used for Delay and LOS.

[††] HCM 6th Two Way Stop Control used for Delay and LOS.

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Table NB-4B - Gude Drive Corridor - (AM Peak)											
Node	**Location**	**Delay (s/veh)**	**LOS**	**Approach**	**Delay (s/veh)**	**LOS**	**Movement**	**Delay (s/veh)**	**LOS**	**50th %ile Queue (ft)**	**95th %ile Queue (ft)**
N 301[†]	Gude Dr at Research Blvd	62.2	E	Gude Dr EB	28.7	C	L	20.9	C	8	25
							T	29.7	C	289	#407
							R	22.5	C	0	0
				Gude Dr WB	19.7	B	L	40.1	D	198	#395
							T	10.1	B	59	52
							R	10.1	B	1	1
				Research Blvd NB	242.4	F	L	38.8	D	5	17
							T	47.5	D	84	127
							R	416.8	F	0	80
				Research Blvd SB	41.4	D	L	45.3	D	93	131
							T	39.0	D	123	190
							T/R	38.9	D	-	-
N 303[†]	Gude Dr at Piccard Dr	9.5	A	Gude Dr EB	5.1	A	L	7.7	A	27	m23
							T	4.6	A	14	m13
				Gude Dr WB	9.3	A	T	9.5	A	165	283
							R	6.8	A	0	24
				Piccard Dr SB	39.3	D	L	40.2	D	37	75
							R	39.0	D	73	120

Note: 95th percentile queuing reported using Synchro software.

- Hyphen denotes that no value was recorded for this metric.

m Volume for the 95th percentile queue is metered by upstream signal.

Volume for the 95th percentile exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

Reporting Source:

[†] HCM 6th Signalized Intersection Summary used for Delay and LOS.

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Table NB-4B - Gude Drive Corridor - (PM Peak)											
Node	**Location**	**Delay (s/veh)**	**LOS**	**Approach**	**Delay (s/veh)**	**LOS**	**Movement**	**Delay (s/veh)**	**LOS**	**50th %ile Queue (ft)**	**95th %ile Queue (ft)**
N 301[†]	Gude Dr at Research Blvd	104.2	F	Gude Dr EB	30.4	C	L	23.2	C	3	13
							T	30.5	C	222	#316
							R	23.1	C	0	0
				Gude Dr WB	16.4	B	L	26.6	C	112	#407
							T	12.5	B	100	103
							R	10.2	B	0	m4
				Research Blvd NB	346.8	F	L	34.1	C	76	126
							T	47.3	D	93	142
							R	665.2	F	0	99
				Research Blvd SB	43.9	D	L	45.8	D	104	143
							T	40.7	D	54	86
							T/R	40.8	D	-	-
N 303[†]	Gude Dr at Piccard Dr	18.4	B	Gude Dr EB	12.5	B	L	13.7	B	5	m8
							T	12.4	B	35	44
				Gude Dr WB	18.6	B	T	18.8	B	265	409
							R	11.9	B	3	23
				Piccard Dr SB	32.8	C	L	30.3	C	115	174
							R	34.0	C	214	272

Note: 95th percentile queuing reported using Synchro software.

- Hyphen denotes that no value was recorded for this metric.

m Volume for the 95th percentile queue is metered by upstream signal.

Volume for the 95th percentile exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

Reporting Source:

[†] HCM 6th Signalized Intersection Summary used for Delay and LOS.

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Table NB-5B - MD 28 (Montgomery Avenue) Corridor - (AM Peak)											
Node	**Location**	**Delay (s/veh)**	**LOS**	**Approach**	**Delay (s/veh)**	**LOS**	**Movement**	**Delay (s/veh)**	**LOS**	**50th %ile Queue (ft)**	**95th %ile Queue (ft)**
N 400‡	MD 28 (Montgomery Ave) at Hurley Ave	16.5	B	MD 28 (Montgomery Ave) EB	20.0	B	L	10.8	B	2	9
							T	20.0	B	480	605
							T/R	-	-	-	-
				MD 28 (Montgomery Ave) WB	7.7	A	U/L	66.8	E	114	184
							T	3.4	A	100	112
							T/R	-	-	-	-
				Hurley Ave NB	51.2	D	L/T	56.9	E	56	106
							R	48.9	D	0	67
				Hurley Ave SB	48.6	D	L	48.9	D	11	33
							T/R	48.0	D	4	20
N 401†	MD 28 (Montgomery Ave) at I-270 SB Ramps	14.9	B	MD 28 (Montgomery Ave) EB	13.6	B	T	13.6	B	14	30
							R	0.0	A	465	413
				MD 28 (Montgomery Ave) WB	6.7	A	T	6.7	A	156	215
				I-270 Off-Ramp SB	53.0	D	L	53.0	D	176	221
							R	0.0	A	72	129
N 405‡	MD 28 (Montgomery Ave) at I-270 NB Off-Ramp / Nelson St	21.9	C	MD 28 (Montgomery Ave) EB	11.6	B	L	20.9	C	137	186
							T	8.7	A	203	208
				MD 28 (Montgomery Ave) WB	26.2	C	T	26.2	C	188	260
							T/R	-	-	-	-
				I-270 Off-Ramp NB	46.6	D	T	46.6	D	108	175
							R	46.6	D	69	155
				Nelson St SB	27.0	C	L	57.4	E	21	52
							R	24.1	C	106	131
N 407‡	MD 28 (Montgomery Ave) at Laird St / Bullard Cir	13.7	B	MD 28 (Montgomery Ave) EB	14.2	B	L	0.9	A	0	m1
							T/R	14.3	B	422	#1,312
				MD 28 (Montgomery Ave) WB	5.5	A	L	2.9	A	1	4
							T/R	5.5	A	181	336
				Bullard Cir NB	46.9	D	L/T	47.1	D	11	32
							R	46.5	D	0	17
				Laird St SB	59.8	E	L/T/R	59.8	E	77	135

Note: 95th percentile queuing reported using Synchro software.

\- Hyphen denotes that no value was recorded for this metric.

m Volume for the 95th percentile queue is metered by upstream signal.

\# Volume for the 95th percentile exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

Reporting Source:

† HCM 6th Signalized Intersection Summary used for Delay and LOS.

‡ HCM 2000 Signalized Intersection Capacity Analysis used for Delay and LOS.

DRAFT

Table NB-5B - MD 28 (Montgomery Avenue) Corridor - (PM Peak)											
Node	**Location**	**Delay (s/veh)**	**LOS**	**Approach**	**Delay (s/veh)**	**LOS**	**Movement**	**Delay (s/veh)**	**LOS**	**50th %ile Queue (ft)**	**95th %ile Queue (ft)**
N 400‡	MD 28 (Montgomery Ave) at Hurley Ave	22.5	C	MD 28 (Montgomery Ave) EB	30.9	C	L	18.2	B	2	11
							T	31.0	C	589	666
							T/R	-	-	-	-
				MD 28 (Montgomery Ave) WB	11.9	B	U/L	73.7	E	257	#376
							T	3.8	A	126	157
							T/R	-	-	-	-
				Hurley Ave NB	53.6	D	L/T	62.7	E	72	131
							R	47.8	D	0	61
				Hurley Ave SB	48.9	D	L	49.6	D	27	62
							T/R	47.2	D	3	25
N 401†	MD 28 (Montgomery Ave) at I-270 SB Ramps	17.3	B	MD 28 (Montgomery Ave) EB	14.3	B	T	14.3	B	15	28
							R	0.0	A	585	654
				MD 28 (Montgomery Ave) WB	10.2	B	T	10.2	B	258	327
				I-270 Off-Ramp SB	55.1	E	L	55.1	E	208	259
							R	0.0	A	98	166
N 405‡	MD 28 (Montgomery Ave) at I-270 NB Off-Ramp / Nelson St	25.1	C	MD 28 (Montgomery Ave) EB	13.1	B	L	34.1	C	96	182
							T	9.1	A	185	228
				MD 28 (Montgomery Ave) WB	29.6	C	T	29.6	C	311	364
							T/R	-	-	-	-
				I-270 Off-Ramp NB	44.1	D	T	47.9	D	210	310
							R	38.1	D	39	106
				Nelson St SB	30.1	C	L	64.2	E	26	#64
							R	27.6	C	192	257
N 407‡	MD 28 (Montgomery Ave) at Laird St / Bullard Cir	13.7	B	MD 28 (Montgomery Ave) EB	15.3	B	L	0.4	A	0	m1
							T/R	15.7	B	846	#1,427
				MD 28 (Montgomery Ave) WB	8.1	A	L	1.9	A	0	4
							T/R	8.1	A	250	875
				Bullard Cir NB	51.0	D	L/T	51.3	D	8	23
							R	50.7	D	0	17
				Laird St SB	53.1	D	L/T/R	53.1	D	20	68

Note: 95th percentile queuing reported using Synchro software.

- Hyphen denotes that no value was recorded for this metric.

m Volume for the 95th percentile queue is metered by upstream signal.

Volume for the 95th percentile exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

Reporting Source:

† HCM 6th Signalized Intersection Summary used for Delay and LOS.

‡ HCM 2000 Signalized Intersection Capacity Analysis used for Delay and LOS.

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Table NB-6B - MD 189 (Falls Road) Corridor - (AM Peak)											
Node	**Location**	**Delay (s/veh)**	**LOS**	**Approach**	**Delay (s/veh)**	**LOS**	**Movement**	**Delay (s/veh)**	**LOS**	**50th %ile Queue (ft)**	**95th %ile Queue (ft)**
N 500‡	MD 189 (Falls Rd) at Wootton Pkwy	53.1	D	MD 189 (Falls Rd) EB	52.6	D	L	76.3	E	120	189
							T	52.9	D	436	524
							R	27.6	C	12	52
				MD 189 (Falls Rd) WB	54.1	D	L	81.2	F	273	#382
							T	33.0	C	185	244
							R	15.3	B	0	28
				Wootton Pkwy NB	45.8	D	L	64.6	E	104	#207
							T	54.1	D	62	95
							R	20.4	C	0	36
				Wootton Pkwy SB	54.8	D	L	70.6	E	393	#654
							T	63.9	E	393	476
							R	0.2	A	0	0
N 503‡	MD 189 (Falls Rd) at I-270 Ramps (SPUI)	37.8	D	MD 189 (Falls Rd) EB	40.8	D	L	33.9	C	376	525
							T	51.8	D	144	197
				MD 189 (Falls Rd) WB	31.1	C	L	22.3	C	172	220
							T	48.0	D	127	177
				I-270 Off-Ramp SEB	56.3	E	L	56.3	E	146	230
				I-270 Off-Ramp NWB	41.9	D	L	41.9	D	20	40
N 505‡	MD 189 (Falls Rd / Maryland Ave) at Great Falls Rd / Potomac Valley Rd	16.8	B	MD 189 (Falls Rd) EB	3.3	A	U/L	4.4	A	46	90
							T	2.8	A	73	120
							T/R	-	-	-	-
				MD 189 (Maryland Ave) WB	18.2	B	L	14.9	B	3	18
							T	18.3	B	121	223
							T/R	-	-	-	-
				Potomac Valley Rd NB	43.6	D	L	46.1	D	26	68
							T/R	35.1	D	2	22
				Great Falls Rd SB	42.5	D	L/T	40.1	D	20	57
							R	42.7	D	188	300

Note: 95th percentile queuing reported using Synchro software.

- Hyphen denotes that no value was recorded for this metric.

Volume for the 95th percentile exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

Reporting Source:

‡ HCM 2000 Signalized Intersection Capacity Analysis used for Delay and LOS.

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Table NB-6B - MD 189 (Falls Road) Corridor - (PM Peak)

Node	Location	Delay (s/veh)	LOS	Approach	Delay (s/veh)	LOS	Movement	Delay (s/veh)	LOS	50th %ile Queue (ft)	95th %ile Queue (ft)
N 500‡	MD 189 (Falls Rd) at Wootton Pkwy	44.2	D	MD 189 (Falls Rd) EB	44.2	D	L	82.5	F	160	#257
							T	38.1	D	204	264
							R	27.0	C	0	48
				MD 189 (Falls Rd) WB	46.4	D	L	68.9	E	138	187
							T	44.7	D	393	475
							R	28.2	C	116	189
				Wootton Pkwy NB	47.0	D	L	36.1	D	94	146
							T	61.7	E	421	506
							R	24.8	C	0	59
				Wootton Pkwy SB	28.4	C	L	42.1	D	80	143
							T	39.3	D	74	108
							R	0.1	A	0	0
N 503‡	MD 189 (Falls Rd) at I-270 Ramps (SPUI)	54.4	D	MD 189 (Falls Rd) EB	57.4	E	L	46.8	D	485	633
							T	69.5	E	255	322
				MD 189 (Falls Rd) WB	50.5	D	L	39.4	D	248	304
							T	70.2	E	182	239
				I-270 Off-Ramp SEB	60.8	E	L	60.8	E	329	448
				I-270 Off-Ramp NWB	49.1	D	L	49.1	D	143	190
N 505‡	MD 189 (Falls Rd / Maryland Ave) at Great Falls Rd / Potomac Valley Rd	15.0	B	MD 189 (Falls Rd) EB	3.7	A	U/L	6.2	A	50	119
							T	2.8	A	74	122
							T/R	-	-	-	-
				MD 189 (Maryland Ave) WB	14.8	B	L	11.0	B	1	9
							T	14.8	B	147	257
							T/R	-	-	-	-
				Potomac Valley Rd NB	43.6	D	L	45.0	D	25	64
							T/R	36.7	D	2	18
				Great Falls Rd SB	46.5	D	L/T	38.1	D	11	35
							R	47.0	D	162	257

Note: 95th percentile queuing reported using Synchro software.

Reporting Source:

- Hyphen denotes that no value was recorded for this metric.

‡ HCM 2000 Signalized Intersection Capacity Analysis used for Delay and LOS.

Volume for the 95th percentile exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

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Table NB-7B - Wootton Parkway Corridor - (AM Peak)											
Node	**Location**	**Delay (s/veh)**	**LOS**	**Approach**	**Delay (s/veh)**	**LOS**	**Movement**	**Delay (s/veh)**	**LOS**	**50th %ile Queue (ft)**	**95th %ile Queue (ft)**
N 600‡	Wootton Pkwy at Seven Locks Rd	33.2	C	Wootton Pkwy EB	48.8	D	L	30.1	C	10	30
							T	75.0	E	215	#318
							R	22.5	C	0	54
				Wootton Pkwy WB	14.5	B	L	20.6	C	240	#511
							T	4.2	A	51	10
							T/R	-	-	-	-
				Seven Locks Rd NB	14.6	B	L	34.3	C	46	88
							L/T	34.3	C	46	88
							R	0.2	A	0	0
				Seven Locks Rd SB	42.2	D	L/T	42.6	D	18	45
							R	40.9	D	0	0
N 601†	Wootton Pkwy at Tower Oaks Rd	25.5	C	Wootton Pkwy EB	21.3	C	L	47.2	D	13	m20
							T	20.5	C	29	m47
							R	0.0	A	0	m0
				Wootton Pkwy WB	26.6	C	L	47.7	D	167	218
							T	10.5	B	48	207
							R	8.0	A	0	0
				Tower Oaks Blvd NB	37.2	D	L	37.1	D	33	58
							T	37.5	D	6	17
							R	0.0	A	0	0
				Tower Oaks Blvd SB	39.2	D	L	38.4	D	6	18
							T	39.6	D	6	17
							R	0.0	A	0	0

Note: 95th percentile queuing reported using Synchro software.

- Hyphen denotes that no value was recorded for this metric.

m Volume for the 95th percentile queue is metered by upstream signal.

Volume for the 95th percentile exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

Reporting Source:

† HCM 6th Signalized Intersection Summary used for Delay and LOS.

‡ HCM 2000 Signalized Intersection Capacity Analysis used for Delay and LOS.

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Table NB-7B - Wootton Parkway Corridor - (PM Peak)											
Node	**Location**	**Delay (s/veh)**	**LOS**	**Approach**	**Delay (s/veh)**	**LOS**	**Movement**	**Delay (s/veh)**	**LOS**	**50th %ile Queue (ft)**	**95th %ile Queue (ft)**
N 600‡	Wootton Pkwy at Seven Locks Rd	30.0	C	Wootton Pkwy EB	26.7	C	L	29.0	C	2	11
							T	35.5	D	107	154
							R	11.9	B	0	27
				Wootton Pkwy WB	20.4	C	L	26.4	C	163	m#336
							T	16.9	B	145	m102
							T/R	-	-	-	-
				Seven Locks Rd NB	37.9	D	L	57.2	E	282	#486
							L/T	53.3	D	274	#473
							R	0.4	A	0	0
				Seven Locks Rd SB	42.1	D	L/T	42.6	D	12	35
							R	41.3	D	0	0
N 601†	Wootton Pkwy at Tower Oaks Rd	24.3	C	Wootton Pkwy EB	18.5	B	L	47.9	D	9	m25
							T	17.9	B	62	287
							R	0.0	A	0	m0
				Wootton Pkwy WB	25.7	C	L	62.4	E	73	108
							T	13.6	B	47	200
							R	10.4	B	0	0
				Tower Oaks Blvd NB	35.6	D	L	35.6	D	~137	158
							T	34.5	C	3	11
							R	0.0	A	0	0
				Tower Oaks Blvd SB	36.8	D	L	36.0	D	29	54
							T	38.5	D	7	20
							R	0.0	A	0	0

Note: 95th percentile queuing reported using Synchro software.

- Hyphen denotes that no value was recorded for this metric.

~ Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.

m Volume for the 95th percentile queue is metered by upstream signal.

Volume for the 95th percentile exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

Reporting Source:

† HCM 6th Signalized Intersection Summary used for Delay and LOS.

‡ HCM 2000 Signalized Intersection Capacity Analysis used for Delay and LOS.

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Table NB-8B - Montrose Road Corridor - (AM Peak)											
Node	**Location**	**Delay (s/veh)**	**LOS**	**Approach**	**Delay (s/veh)**	**LOS**	**Movement**	**Delay (s/veh)**	**LOS**	**50th %ile Queue (ft)**	**95th %ile Queue (ft)**
N 701‡	Montrose Rd at Seven Locks Rd	29.7	C	Montrose Rd EB	52.8	D	L	48.1	D	50	95
							T	53.8	D	117	167
							T/R	-	-	-	-
				Montrose Rd WB	32.2	C	L	38.6	D	152	m221
							L/T	-	-	-	-
							T	35.1	D	152	200
							R	11.1	B	8	m17
				Seven Locks Rd NB	10.3	B	L	37.1	D	10	31
							T	37.8	D	72	112
							R	0.8	A	0	0
				Seven Locks Rd SB	34.9	C	L	53.2	D	183	235
							T	23.3	C	207	263
							T/R	-	-	-	-
N 702††	Montrose Rd at Potomac Ave	-	-	Potomac Rd NB	-	-	R	42.5	E	-	5.6*
				Potomac Rd SB	-	-	R	14.9	B	-	0.9*
N 707‡	Montrose Rd at Tower Oaks Blvd	19.2	B	Montrose Rd EB	7.6	A	L	32.8	C	68	m139
							T	4.3	A	127	154
				Montrose Rd WB	19.2	B	T	19.8	B	468	539
							R	10.6	B	0	28
				Tower Oaks Blvd SB	56.5	E	L	60.1	E	97	141
							R	55.0	D	36	103
				I-270 NB Off-Ramp NEB	2.0	A	R	2.0	A	0	0
N 708‡§	Montrose Rd at Farm Ln	1.9	A	Montrose Rd EB	1.9	A	T	1.9	A	0	383
				Montrose Rd WB	1.9	A	T	1.9	A	0	399
							T/R	-	-	-	-
				Farm Ln SB	0.0	A	R	0.0	A	0	0
N 709†	Montrose Rd at Hitching Post Ln / Farm Haven Dr	12.9	B	Montrose Rd EB	12.3	B	L	8.0	A	1	4
							T	11.8	B	221	409
							T/R	13.2	B	-	-
				Montrose Rd WB	10.7	B	L	9.6	A	2	6
							T	10.3	B	194	358
							T/R	11.3	B	-	-
				Hitching Post Ln NB	39.2	D	L	40.8	D	70	#132
							T/R	32.8	C	2	27
				Farm Haven Dr SB	34.1	C	L	34.2	C	16	43
							T/R	34.1	C	2	38

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Table NB-8B - Montrose Road Corridor - (AM Peak)

Node	Location	Delay (s/veh)	LOS	Approach	Delay (s/veh)	LOS	Movement	Delay (s/veh)	LOS	50th %ile Queue (ft)	95th %ile Queue (ft)
N 710‡	Tower Oaks Blvd at I-270 NB Ramps / GEICO Ent	18.7	B	Tower Oaks Blvd EB	18.0	B	L/T	-	-	-	-
							T/R	18.0	B	89	186
				Tower Oaks Blvd WB	14.0	B	L/T	-	-	-	-
							T/R	14.0	B	31	74
				I-270 NB Ramps NB	21.0	C	L	21.9	C	84	#285
							L/T	21.7	C	83	#280
							R	13.3	B	0	10
				GEICO Ent SB	31.5	C	L/T/R	31.5	C	3	21
N 712‡	Tower Oaks Blvd at Commercial Dr	3.6	A	Commercial Dr WB	33.2	C	L	33.2	C	1	6
							L/R	-	-	-	-
				Tower Oaks Blvd NB	4.9	A	T	5.0	A	0	146
							R	3.5	A	0	14
				Tower Oaks Blvd SB	1.6	A	L	1.9	A	0	10
							T	1.6	A	0	35

Note: 95th percentile queuing reported using Synchro software.
- Hyphen denotes that no value was recorded for this metric.
* Unsignalized intersection 95th percentile queue reported in number of vehicles.
m Volume for the 95th percentile queue is metered by upstream signal.
Volume for the 95th percentile exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.
§ Red light on Montrose Road by Farm Lane is triggered by pedestrian signal call. Farm Lane is yield-controlled.

Reporting Source:
† HCM 6th Signalized Intersection Summary used for Delay and LOS.
‡ HCM 2000 Signalized Intersection Capacity Analysis used for Delay and LOS.
†† HCM 6th Two Way Stop Control used for Delay and LOS.

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Table NB-8B - Montrose Road Corridor - (PM Peak)											
Node	**Location**	**Delay (s/veh)**	**LOS**	**Approach**	**Delay (s/veh)**	**LOS**	**Movement**	**Delay (s/veh)**	**LOS**	**50th %ile Queue (ft)**	**95th %ile Queue (ft)**
N 701‡	Montrose Rd at Seven Locks Rd	35.3	D	Montrose Rd EB	75.5	E	L	50.7	D	51	97
							T	79.7	E	168	#267
							T/R	-	-	-	-
				Montrose Rd WB	29.6	C	L	41.3	D	349	m#529
							L/T	-	-	-	-
							T	33.2	C	347	431
							R	13.3	B	127	m202
				Seven Locks Rd NB	28.5	C	L	40.9	D	52	105
							T	52.3	D	255	#353
							R	0.6	A	0	0
				Seven Locks Rd SB	36.3	D	L	54.4	D	71	109
							T	29.6	C	146	195
							T/R	-	-	-	-
N 702††	Montrose Rd at Potomac Ave	-	-	Potomac Rd NB	-	-	R	18.9	C	-	1.5*
				Potomac Rd SB	-	-	R	104.9	F	-	8.4*
N 707‡	Montrose Rd at Tower Oaks Blvd	10.5	B	Montrose Rd EB	5.7	A	L	23.7	C	10	m57
							T	4.7	A	246	m292
				Montrose Rd WB	7.8	A	T	8.4	A	543	0
							R	0.2	A	0	m0
				Tower Oaks Blvd SB	61.4	E	L	65.6	E	55	90
							R	59.3	E	23	73
				I-270 NB Off-Ramp NEB	1.5	A	R	1.5	A	0	0
N 708‡§	Montrose Rd at Farm Ln	4.4	A	Montrose Rd EB	3.1	A	T	3.1	A	0	369
				Montrose Rd WB	5.4	A	T	5.4	A	0	698
							T/R	-	-	-	-
				Farm Ln SB	0.0	A	R	0.0	A	0	0
N 709†	Montrose Rd at Hitching Post Ln / Farm Haven Dr	10.8	B	Montrose Rd EB	8.3	A	L	10.7	B	2	6
							T	8.0	A	167	334
							T/R	9.0	A	-	-
				Montrose Rd WB	11.2	B	L	6.6	A	2	6
							T	10.5	B	273	542
							T/R	12.4	B	-	-
				Hitching Post Ln NB	41.3	D	L	42.4	D	39	#92
							T/R	39.0	D	6	34
				Farm Haven Dr SB	39.4	D	L	40.0	D	12	35
							T/R	38.9	D	3	27

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Table NB-8B - Montrose Road Corridor - (PM Peak)

Node	Location	Delay (s/veh)	LOS	Approach	Delay (s/veh)	LOS	Movement	Delay (s/veh)	LOS	50th %ile Queue (ft)	95th %ile Queue (ft)
N 710‡	Tower Oaks Blvd at I-270 NB Ramps / GEICO Ent	17.6	B	Tower Oaks Blvd EB	17.1	B	L/T	-	-	-	-
							T/R	17.1	B	53	127
				Tower Oaks Blvd WB	16.0	B	L/T	-	-	-	-
							T/R	16.0	B	30	78
				I-270 NB Ramps NB	18.3	B	L	18.4	B	57	189
							L/T	18.5	B	58	193
							R	12.8	B	0	0
				GEICO Ent SB	28.4	C	L/T/R	28.4	C	7	36
N 712‡	Tower Oaks Blvd at Commercial Dr	5.0	A	Commercial Dr WB	31.1	C	L	31.1	C	7	21
							L/R	-	-	-	-
				Tower Oaks Blvd NB	5.1	A	T	5.1	A	38	115
							R	3.8	A	0	7
				Tower Oaks Blvd SB	2.0	A	L	1.9	A	2	7
							T	2.0	A	17	26

Note: 95th percentile queuing reported using Synchro software.
- Hyphen denotes that no value was recorded for this metric.
* Unsignalized intersection 95th percentile queue reported in number of vehicles.
m Volume for the 95th percentile queue is metered by upstream signal.
Volume for the 95th percentile exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.
§ Red light on Montrose Road by Farm Lane is triggered by pedestrian signal call. Farm Lane is yield-controlled.

Reporting Source:
† HCM 6th Signalized Intersection Summary used for Delay and LOS.
‡ HCM 2000 Signalized Intersection Capacity Analysis used for Delay and LOS.
†† HCM 6th Two Way Stop Control used for Delay and LOS.

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Table NB-9B - Westlake Terrace Corridor - (AM Peak)

Node	Location	Delay (s/veh)	LOS	Approach	Delay (s/veh)	LOS	Movement	Delay (s/veh)	LOS	50th %ile Queue (ft)	95th %ile Queue (ft)
N 800†	Westlake Terr at Westfield Montgomery Mall Ent / Motor City Dr	12.6	B	Westlake Terr EB	8.0	A	L	7.7	A	25	60
							T	8.1	A	91	147
							T/R	8.1	A	-	-
				Westlake Terr WB	4.4	A	L	5.3	A	25	52
							T	3.9	A	22	46
							T/R	4.4	A	-	-
				Westfield Montgomery Mall Ent NB	48.8	D	L	50.1	D	3	15
							T/R	48.7	D	15	52
				Motor City Dr SB	54.3	D	L	57.3	E	72	123
							T/R	49.7	D	3	43
N 801‡	Westlake Terr at I-270 Spur Ramps	12.0	B	Westlake Terr EB	12.5	B	L	12.1	B	16	61
							T	12.6	B	53	122
				Westlake Terr WB	12.7	B	T	12.9	B	56	128
							R	10.2	B	0	19
				I-270 Spur Ramps SB	9.8	A	L/R	9.8	A	51	154
N 802‡	Westlake Terr at Rockledge Dr	29.4	C	Westlake Terr EB	24.2	C	L	21.8	C	109	#511
							T	25.7	C	95	190
							T/R	-	-	-	-
				Westlake Terr WB	37.0	D	L	29.1	C	41	118
							T	39.3	D	97	156
							T/R	-	-	-	-
				Rockledge Dr NB	48.4	D	L/T	49.3	D	6	22
							R	46.6	D	0	0
				Rockledge Dr SB	28.6	C	L	25.2	C	51	82
							L/T	32.7	C	207	265
							R	25.5	C	0	53

Note: 95th percentile queuing reported using Synchro software.
- Hyphen denotes that no value was recorded for this metric.
Volume for the 95th percentile exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

Reporting Source:
† HCM 6th Signalized Intersection Summary used for Delay and LOS.
‡ HCM 2000 Signalized Intersection Capacity Analysis used for Delay and LOS.

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Table NB-9B - Westlake Terrace Corridor - (PM Peak)

Node	Location	Delay (s/veh)	LOS	Approach	Delay (s/veh)	LOS	Movement	Delay (s/veh)	LOS	50th %ile Queue (ft)	95th %ile Queue (ft)
N 800†	Westlake Terr at Westfield Montgomery Mall Ent / Motor City Dr	23.7	C	Westlake Terr EB	22.1	C	L	21.1	C	18	55
							T	22.2	C	85	155
							T/R	22.2	C	-	-
				Westlake Terr WB	14.5	B	L	15.5	B	72	143
							T	14.2	B	114	192
							T/R	14.2	B	-	-
				Westfield Montgomery Mall Ent NB	33.3	C	L	31.4	C	25	48
							T/R	33.7	C	6	58
				Motor City Dr SB	47.5	D	L	53.1	D	157	228
							T/R	29.3	C	9	39
N 801‡	Westlake Terr at I-270 Spur Ramps	8.8	A	Westlake Terr EB	8.8	A	L	14.0	B	56	149
							T	6.0	A	38	64
				Westlake Terr WB	6.6	A	T	6.6	A	61	98
							R	6.6	A	0	29
				I-270 Spur Ramps SB	20.4	C	L/R	20.4	C	38	154
N 802‡	Westlake Terr at Rockledge Dr	46.9	D	Westlake Terr EB	33.2	C	L	39.3	D	127	#217
							T	29.4	C	103	163
							T/R	-	-	-	-
				Westlake Terr WB	44.4	D	L	33.1	C	3	11
							T	44.5	D	223	290
							T/R	-	-	-	-
				Rockledge Dr NB	54.8	D	L/T	65.3	E	235	#382
							R	39.5	D	0	64
				Rockledge Dr SB	53.8	D	L	35.5	D	71	124
							L/T	35.5	D	71	124
							R	61.2	E	234	#446

Note: 95th percentile queuing reported using Synchro software.
- Hyphen denotes that no value was recorded for this metric.
Volume for the 95th percentile exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

Reporting Source:
† HCM 6th Signalized Intersection Summary used for Delay and LOS.
‡ HCM 2000 Signalized Intersection Capacity Analysis used for Delay and LOS.

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Table NB-10B - Democracy Boulevard Corridor - (AM Peak)

Node	Location	Delay (s/veh)	LOS	Approach	Delay (s/veh)	LOS	Movement	Delay (s/veh)	LOS	50th %ile Queue (ft)	95th %ile Queue (ft)
N 900†	Democracy Blvd at Taveshire Way	10.5	B	Democracy Blvd EB	4.7	A	T	4.7	A	99	136
				Democracy Blvd WB	3.8	A	T	3.8	A	41	59
				Taveshire Way SB	54.0	D	L	48.7	D	52	75
							R	62.1	E	8	65
N 901‡	Democracy Blvd at I-270 SB On-Ramp / I-270 Spur SB Off-Ramp	32.0	C	Democracy Blvd EB	34.2	C	T	34.2	C	458	517
							T/R	-	-	-	-
				Democracy Blvd WB	8.1	A	T	8.1	A	76	86
				I-270 Spur Off Ramp SB	49.4	D	L	51.3	D	196	254
							R	46.0	D	0	75
N 902‡	Democracy Blvd at I-270 SB On-Ramp	5.5	A	Democracy Blvd EB	0.5	A	T	0.5	A	8	8
				Democracy Blvd WB	14.3	B	L	41.2	D	160	206
							T	0.7	A	0	0
N 903‡	Democracy Blvd at I-270 Spur NB Ramps	7.3	A	Democracy Blvd EB	0.3	A	T	0.3	A	0	0
							T/R	-	-	-	-
				Democracy Blvd WB	1.4	A	T	1.4	A	19	27
				I-270 Spur Off Ramp NB	69.1	E	L	69.1	E	128	172
N 904‡	Democracy Blvd at I-270 Spur NB Off-Ramp	18.8	B	Democracy Blvd EB	15.5	B	T	15.5	B	373	457
				Democracy Blvd WB	0.1	A	T	0.1	A	0	m0
				I-270 Spur Off Ramp NB	38.0	D	R	38.0	D	442	477
N 906‡	Democracy Blvd at Fernwood Rd	41.1	D	Democracy Blvd EB	42.9	D	U/L	-	-	-	-
							L	67.5	E	464	#602
							T	47.6	D	327	313
							R	0.6	A	0	0
				Democracy Blvd WB	45.0	D	L	68.3	E	220	#334
							T	54.0	D	39	62
							R	0.1	A	0	0
				Fernwood Rd NB	43.8	D	L	62.8	E	666	#931
							R	0.3	A	0	0
				Fernwood Rd SB	9.9	A	L	24.8	C	32	52
							R	0.1	A	0	0

Note: 95th percentile queuing reported using Synchro software.
- Hyphen denotes that no value was recorded for this metric.
m Volume for the 95th percentile queue is metered by upstream signal.
Volume for the 95th percentile exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

Reporting Source:
† HCM 6th Signalized Intersection Summary used for Delay and LOS.
‡ HCM 2000 Signalized Intersection Capacity Analysis used for Delay and LOS.

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Table NB-10B - Democracy Boulevard Corridor - (PM Peak)											
Node	**Location**	**Delay (s/veh)**	**LOS**	**Approach**	**Delay (s/veh)**	**LOS**	**Movement**	**Delay (s/veh)**	**LOS**	**50th %ile Queue (ft)**	**95th %ile Queue (ft)**
N 900†	Democracy Blvd at Taveshire Way	12.1	B	Democracy Blvd EB	4.4	A	T	4.4	A	64	103
				Democracy Blvd WB	4.9	A	T	4.9	A	108	163
				Taveshire Way SB	51.5	D	L	49.4	D	85	108
							R	56.9	E	82	137
N 901‡	Democracy Blvd at I-270 SB On-Ramp / I-270 Spur SB Off-Ramp	46.7	D	Democracy Blvd EB	63.6	E	T	63.6	E	413	#477
							T/R	-	-	-	-
				Democracy Blvd WB	18.5	B	T	18.5	B	148	168
				I-270 Spur Off Ramp SB	51.8	E	L	27.2	C	141	182
							R	66.9	E	626	#909
N 902‡	Democracy Blvd at I-270 SB On-Ramp	17.8	B	Democracy Blvd EB	2.5	A	T	2.5	A	14	54
				Democracy Blvd WB	33.2	C	L	87.3	F	281	#403
							T	0.7	A	0	0
N 903‡	Democracy Blvd at I-270 Spur NB Ramps	7.2	A	Democracy Blvd EB	1.0	A	T	1.0	A	21	24
							T/R	-	-	-	-
				Democracy Blvd WB	3.7	A	T	3.7	A	95	128
				I-270 Spur Off Ramp NB	69.2	E	L	69.2	E	107	148
N 904‡	Democracy Blvd at I-270 Spur NB Off-Ramp	8.6	A	Democracy Blvd EB	3.2	A	T	3.2	A	82	161
				Democracy Blvd WB	0.2	A	T	0.2	A	0	0
				I-270 Spur Off Ramp NB	48.3	D	R	48.3	D	207	235
N 906‡	Democracy Blvd at Fernwood Rd	31.3	C	Democracy Blvd EB	34.0	C	U/L	-	-	-	-
							L	62.3	E	69	107
							T	47.6	D	295	351
							R	0.6	A	0	0
				Democracy Blvd WB	38.7	D	L	76.0	E	272	#456
							T	30.8	C	212	268
							R	0.1	A	0	0
				Fernwood Rd NB	40.2	D	L	55.7	E	498	645
							R	0.2	A	0	0
				Fernwood Rd SB	9.2	A	L	28.1	C	89	118
							R	0.9	A	0	0

Note: 95th percentile queuing reported using Synchro software.
- Hyphen denotes that no value was recorded for this metric.
Volume for the 95th percentile exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

Reporting Source:
† HCM 6th Signalized Intersection Summary used for Delay and LOS.
‡ HCM 2000 Signalized Intersection Capacity Analysis used for Delay and LOS.

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Table NB-11B - Rockledge Road / MD 187 (Old Georgetown Road) Corridor - (AM Peak)											
Node	**Location**	**Delay (s/veh)**	**LOS**	**Approach**	**Delay (s/veh)**	**LOS**	**Movement**	**Delay (s/veh)**	**LOS**	**50th %ile Queue (ft)**	**95th %ile Queue (ft)**
N 1000[†]	Rockledge Dr at Rock Forest Dr	24.3	C	Rockledge Dr EB	56.3	E	L	58.8	E	88	127
							T	46.6	D	8	26
							R	49.2	D	0	0
				Rock Forest Dr WB	67.0	E	L	76.5	E	32	71
							T	52.9	D	12	35
							R	64.7	E	0	0
				Rockledge Dr NB	9.9	A	L	10.4	B	29	57
							T	9.6	A	42	69
							T/R	9.6	A	-	-
				Rockledge Dr SB	13.8	B	L	8.4	A	7	20
							T	14.0	B	224	318
							R	0.0	A	0	0
N 1001[‡]	Rockledge Dr at I-270 SB Off Ramp / I-270 SB Ramp Connector	19.0	B	I-270 SB Off Ramp EB	30.5	C	L/T	-	-	-	-
							T	67.8	E	367	442
							R	1.6	A	0	0
				Rockledge Dr NB	33.8	C	T	65.5	E	73	111
							R	22.7	C	131	172
				Rockledge Dr SB	0.0	A	T	0.0	A	0	0
N 1002[‡]	Rockledge Dr at I-270 NB On Ramp / I-270 NB Ramp Connector	39.0	D	I-270 NB Ramp Connector WB	41.8	D	L	49.1	D	697	#1,009
							L/T	-	-	-	-
							T	38.1	D	628	741
				Rockledge Dr NB	0.3	A	L	0.3	A	0	0
N 1003[‡]	MD 187 (Old Georgetown Road) at Rock Spring Dr	40.5	D	Rock Spring Dr EB	75.2	E	L	91.5	F	301	#482
							L/T	89.3	F	298	#480
							R	45.4	D	122	208
				Rock Spring Dr WB	73.6	E	L/T/R	73.6	E	10	48
				MD 187 (Old Georgetown Road) NB	28.2	C	L	75.2	E	90	#149
							T	21.1	C	260	301
							T/R	-	-	-	-
				MD 187 (Old Georgetown Road) SB	34.7	C	L	75.2	E	42	m59
							T	34.7	C	575	534
							R	31.3	C	95	177

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Table NB-11B - Rockledge Road / MD 187 (Old Georgetown Road) Corridor - (AM Peak)											
Node	**Location**	**Delay (s/veh)**	**LOS**	**Approach**	**Delay (s/veh)**	**LOS**	**Movement**	**Delay (s/veh)**	**LOS**	**50th %ile Queue (ft)**	**95th %ile Queue (ft)**
N 1005‡	MD 187 (Old Georgetown Road) at I-270 SB Ramp Connector / I-270 SB On-Ramp	23.4	C	I-270 SB Ramp Connector EB	49.5	D	L	36.1	D	80	118
							L/T/R	36.0	D	80	118
							R	53.8	D	376	426
				MD 187 (Old Georgetown Road) NB	24.3	C	T	24.3	C	202	218
							T/R	-	-	-	-
				MD 187 (Old Georgetown Road) SB	12.6	B	L	37.5	D	0	0
							T	9.5	A	280	308
N 1006‡	MD 187 (Old Georgetown Road) at I-270 NB Ramp Connector / I-270 NB Off-Ramp	9.6	A	I-270 NB Off Ramp WB	16.0	B	L	69.7	E	68	121
							L/T	69.0	E	67	120
							R	0.4	A	0	0
				MD 187 (Old Georgetown Road) NB	16.3	B	L	91.6	F	160	211
							T	0.9	A	44	48
				MD 187 (Old Georgetown Road) SB	4.4	A	T	6.1	A	147	m119
							R	0.1	A	0	m0
N 1009‡	MD 187 (Old Georgetown Road) at Tuckerman Ln	139.6	F	Tuckerman Ln EB	78.9	E	L	47.6	D	49	78
							T	84.3	F	364	#496
							T/R	-	-	-	-
				Tuckerman Ln WB	257.0	F	L	334.2	F	~535	#664
							T	59.8	E	97	141
							R	48.4	D	0	9
				MD 187 (Old Georgetown Road) NB	56.3	E	U/L	300.2	F	~300	#490
							T	17.0	B	132	170
							R	20.6	C	12	46
				MD 187 (Old Georgetown Road) SB	181.0	F	L	71.5	E	32	69
							T	182.7	F	~1,101	#1,205
							T/R	-	-	-	-

Note: 95th percentile queuing reported using Synchro software.
- Hyphen denotes that no value was recorded for this metric.
~ Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.
m Volume for the 95th percentile queue is metered by upstream signal.
Volume for the 95th percentile exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

Reporting Source:
† HCM 6th Signalized Intersection Summary used for Delay and LOS.
‡ HCM 2000 Signalized Intersection Capacity Analysis used for Delay and LOS.

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Table NB-11B - Rockledge Road / MD 187 (Old Georgetown Road) Corridor - (PM Peak)											
Node	**Location**	**Delay (s/veh)**	**LOS**	**Approach**	**Delay (s/veh)**	**LOS**	**Movement**	**Delay (s/veh)**	**LOS**	**50th %ile Queue (ft)**	**95th %ile Queue (ft)**
N 1000[†]	Rockledge Dr at Rock Forest Dr	34.8	C	Rockledge Dr EB	59.6	E	L	55.2	E	193	240
							T	40.3	D	29	59
							R	70.8	E	0	73
				Rock Forest Dr WB	67.7	E	L	76.5	E	32	70
							T	54.9	D	8	28
							R	62.8	E	0	0
				Rockledge Dr NB	18.3	B	L	11.5	B	12	32
							T	18.7	B	246	362
							T/R	18.6	B	-	-
				Rockledge Dr SB	13.7	B	L	13.3	B	24	54
							T	13.8	B	65	104
							R	0.0	A	0	0
N 1001[‡]	Rockledge Dr at I-270 SB Off Ramp / I-270 SB Ramp Connector	34.0	C	I-270 SB Off Ramp EB	47.4	D	L/T	-	-	-	-
							T	79.5	E	297	#393
							R	0.4	A	0	0
				Rockledge Dr NB	35.8	C	T	70.4	E	244	311
							R	19.2	B	317	439
				Rockledge Dr SB	0.0	A	T	0.0	A	0	0
N 1002[‡]	Rockledge Dr at I-270 NB On Ramp / I-270 NB Ramp Connector	25.0	C	I-270 NB Ramp Connector WB	32.1	D	L	27.3	C	316	453
							L/T	-	-	-	-
							T	33.6	C	560	643
				Rockledge Dr NB	0.1	A	L	0.1	A	0	0
N 1003[‡]	MD 187 (Old Georgetown Road) at Rock Spring Dr	61.5	E	Rock Spring Dr EB	76.9	E	L	87.4	F	322	#509
							L/T	88.8	F	329	#520
							R	32.4	C	19	60
				Rock Spring Dr WB	155.1	F	L/T/R	155.1	F	53	#203
				MD 187 (Old Georgetown Road) NB	57.8	E	L	59.6	E	91	134
							T	57.7	E	~877	#998
							T/R	-	-	-	-
				MD 187 (Old Georgetown Road) SB	52.5	D	L	95.3	F	~112	#247
							T	47.7	D	548	603
							R	66.1	E	117	174

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Table NB-11B - Rockledge Road / MD 187 (Old Georgetown Road) Corridor - (PM Peak)											
Node	**Location**	**Delay (s/veh)**	**LOS**	**Approach**	**Delay (s/veh)**	**LOS**	**Movement**	**Delay (s/veh)**	**LOS**	**50th %ile Queue (ft)**	**95th %ile Queue (ft)**
N 1005‡	MD 187 (Old Georgetown Road) at I-270 SB Ramp Connector / I-270 SB On-Ramp	22.2	C	I-270 SB Ramp Connector EB	61.8	E	L	68.3	E	348	#505
							L/T/R	65.4	E	350	487
							R	44.8	D	104	151
				MD 187 (Old Georgetown Road) NB	17.4	B	T	17.4	B	418	m421
							T/R	-	-	-	-
				MD 187 (Old Georgetown Road) SB	9.9	A	L	26.3	C	51	77
							T	8.7	A	94	178
N 1006‡	MD 187 (Old Georgetown Road) at I-270 NB Ramp Connector / I-270 NB Off-Ramp	14.6	B	I-270 NB Off Ramp WB	18.2	B	L	72.5	E	46	91
							L/T	72.0	E	46	91
							R	0.2	A	0	0
				MD 187 (Old Georgetown Road) NB	16.7	B	L	73.6	E	268	245
							T	3.4	A	199	209
				MD 187 (Old Georgetown Road) SB	10.8	B	T	14.7	B	171	m198
							R	0.1	A	0	m0
N 1009‡	MD 187 (Old Georgetown Road) at Tuckerman Ln	76.7	E	Tuckerman Ln EB	61.0	E	L	57.8	E	152	195
							T	63.4	E	217	267
							T/R	-	-	-	-
				Tuckerman Ln WB	168.7	F	L	253.9	F	~340	#458
							T	76.4	E	169	#242
							R	50.7	D	0	29
				MD 187 (Old Georgetown Road) NB	46.5	D	U/L	246.2	F	~333	#525
							T	29.9	C	~834	#918
							R	16.9	B	118	442
				MD 187 (Old Georgetown Road) SB	87.0	F	L	77.5	E	67	#172
							T	87.3	F	~899	#1,079
							T/R	-	-	-	-

Note: 95th percentile queuing reported using Synchro software.
- Hyphen denotes that no value was recorded for this metric.
~ Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.
m Volume for the 95th percentile queue is metered by upstream signal.
Volume for the 95th percentile exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

Reporting Source:
† HCM 6th Signalized Intersection Summary used for Delay and LOS.
‡ HCM 2000 Signalized Intersection Capacity Analysis used for Delay and LOS.

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Table NB-12B - MD 190 (River Road) Corridor - (AM Peak)

Node	Location	Delay (s/veh)	LOS	Approach	Delay (s/veh)	LOS	Movement	Delay (s/veh)	LOS	50th %ile Queue (ft)	95th %ile Queue (ft)
N 1100‡	MD 190 (River Rd) at Seven Locks Rd	37.4	D	MD 190 (River Rd) EB	41.3	D	L	23.7	C	13	33
							T	41.5	D	634	742
							T/R	-	-	-	-
				MD 190 (River Rd) WB	18.2	B	U/L	65.1	E	83	#165
							T	12.8	B	139	168
							R	1.6	A	0	4
				Seven Locks Rd NB	19.2	B	L	83.2	F	21	54
							T	132.7	F	42	#105
							R	0.2	A	0	0
				Seven Locks Rd SB	66.5	E	L	70.5	E	360	#535
							L/T/R	62.5	E	345	480
N 1102‡	MD 190 (River Rd) at I-495 Outer Loop Off-Ramp	12.1	B	MD 190 (River Rd) EB	2.6	A	T	2.6	A	25	97
				MD 190 (River Rd) WB	4.1	A	T	4.1	A	80	117
				I-495 Outer Loop Off-Ramp NB	65.7	E	L	65.7	E	142	187
N 1105‡	MD 190 (River Rd) WB at I-495 Inner Loop On-Ramp	0.7	A	MD 190 (River Rd) EB	0.9	A	L	4.8	A	5	47
							T	0.1	A	0	0
				MD 190 (River Rd) WB	0.2	A	T	0.2	A	0	0
N 1107†	MD 190 (River Rd) at Burdette Rd	18.1	B	MD 190 (River Rd) EB	12.5	B	L	15.7	B	17	40
							T	12.5	B	425	859
							R	4.9	A	0	0
				MD 190 (River Rd) WB	12.5	B	L	12.5	B	1	5
							T	12.5	B	508	747
							R	5.8	A	0	0
				Burdette Rd NB	74.8	E	L/T/R	74.8	E	45	84
				Burdette Rd SB	95.2	F	L/T	71.1	E	60	104
							R	101.8	F	123	207

Note: 95th percentile queuing reported using Synchro software.

- Hyphen denotes that no value was recorded for this metric.

Volume for the 95th percentile exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

Reporting Source:

† HCM 6th Signalized Intersection Summary used for Delay and LOS.

‡ HCM 2000 Signalized Intersection Capacity Analysis used for Delay and LOS.

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Table NB-12B - MD 190 (River Road) Corridor - (PM Peak)

Node	Location	Delay (s/veh)	LOS	Approach	Delay (s/veh)	LOS	Movement	Delay (s/veh)	LOS	50th %ile Queue (ft)	95th %ile Queue (ft)
N 1100‡	MD 190 (River Rd) at Seven Locks Rd	45.0	D	MD 190 (River Rd) EB	62.3	E	L	88.0	F	24	#80
							T	61.4	E	385	#491
							T/R	-	-	-	-
				MD 190 (River Rd) WB	36.0	D	U/L	67.6	E	221	m#403
							T	40.3	D	682	766
							R	17.4	B	40	36
				Seven Locks Rd NB	30.7	C	L	56.9	E	23	55
							T	88.8	F	205	#341
							R	0.3	A	0	0
				Seven Locks Rd SB	68.6	E	L	57.9	E	314	445
							L/T/R	77.0	E	426	#637
N 1102‡	MD 190 (River Rd) at I-495 Outer Loop Off-Ramp	9.4	A	MD 190 (River Rd) EB	1.1	A	T	1.1	A	28	35
				MD 190 (River Rd) WB	5.5	A	T	5.5	A	171	202
				I-495 Outer Loop Off-Ramp NB	70.7	E	L	70.7	E	150	200
N 1105‡	MD 190 (River Rd) WB at I-495 Inner Loop On-Ramp	7.0	A	MD 190 (River Rd) EB	4.7	A	L	24.1	C	103	215
							T	0.2	A	0	0
				MD 190 (River Rd) WB	9.7	A	T	9.7	A	327	496
N 1107†	MD 190 (River Rd) at Burdette Rd	40.9	D	MD 190 (River Rd) EB	17.9	B	L	93.2	F	244	344
							T	7.1	A	238	444
							R	3.6	A	0	11
				MD 190 (River Rd) WB	54.5	D	L	9.7	A	1	4
							T	55.6	E	~1,643	#1,886
							R	10.1	B	0	1
				Burdette Rd NB	80.0	F	L/T/R	80.0	F	32	72
				Burdette Rd SB	104.1	F	L/T	77.8	E	62	112
							R	114.5	F	0	72

Note: 95th percentile queuing reported using Synchro software.

- Hyphen denotes that no value was recorded for this metric.

~ Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.

m Volume for the 95th percentile queue is metered by upstream signal.

Volume for the 95th percentile exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

Reporting Source:

† HCM 6th Signalized Intersection Summary used for Delay and LOS.

‡ HCM 2000 Signalized Intersection Capacity Analysis used for Delay and LOS.

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Table NB-13B - MD 187 (Old Georgetown Road) Corridor - (AM Peak)

Node	Location	Delay (s/veh)	LOS	Approach	Delay (s/veh)	LOS	Movement	Delay (s/veh)	LOS	50th %ile Queue (ft)	95th %ile Queue (ft)
N 1200‡	MD 187 (Old Georgetown Rd) at Lone Oak Dr/Manor Oak Way	15.9	B	Lone Oak Dr EB	70.3	E	L/T	77.4	E	66	116
							R	68.0	E	178	243
				Manor Oak Way WB	62.9	E	L/T/R	62.9	E	9	31
				MD 187 (Old Georgetown Rd) NB	7.0	A	U/L	38.5	D	82	m142
							T	4.0	A	152	182
							R	2.4	A	0	m0
				MD 187 (Old Georgetown Rd) SB	14.6	B	L	7.2	A	1	8
							T	14.7	B	483	686
							T/R	-	-	-	-
N 1201‡	MD 187 (Old Georgetown Rd) at I-495 Outer Loop Off-Ramp	37.3	D	I-495 Outer Loop Off-Ramp WB	76.3	E	L	54.0	D	83	143
							L/T	54.0	D	85	146
							R	87.8	F	233	#417
				MD 187 (Old Georgetown Rd) NB	21.7	C	L	89.0	F	291	#490
							T	2.3	A	73	78
				MD 187 (Old Georgetown Rd) SB	37.6	D	T	37.6	D	~802	#1,077
							T/R	-	-	-	-
N 1202‡	MD 187 (Old Georgetown Rd) at I-495 Inner Loop Off-Ramp	8.9	A	I-495 Inner Loop Off-Ramp EB	18.6	B	L	68.5	E	96	152
							L/T	68.5	E	97	154
							R	0.6	A	0	0
				MD 187 (Old Georgetown Rd) NB	12.4	A	T	12.4	B	193	m246
							T/R	-	-	-	-
				MD 187 (Old Georgetown Rd) SB	3.7	A	L	20.3	C	94	m94
							T	1.9	A	69	m75
N 1203‡	MD 187 (Old Georgetown Rd) at Ryland Dr/Church Dwy	15.8	B	Ryland Dr EB	124.9	F	L/T/R	124.9	F	~296	#490
				Church Dwy WB	49.2	D	L	49.8	D	27	59
							T	48.6	D	4	17
							R	49.0	D	0	45
				MD 187 (Old Georgetown Rd) NB	13.9	B	L	15.7	B	1	5
							T	13.9	B	185	222
							T/R	-	-	-	-
				MD 187 (Old Georgetown Rd) SB	3.4	A	U/L	2.0	A	6	10
							T	3.5	A	55	75
							T/R	-	-	-	-

Note: 95th percentile queuing reported using Synchro software.
- Hyphen denotes that no value was recorded for this metric.
~ Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.
m Volume for the 95th percentile queue is metered by upstream signal.
Volume for the 95th percentile exceeds capacity, queue may be longer. Queue shown is maximum after two

Reporting Source:
‡ HCM 2000 Signalized Intersection Capacity Analysis used for Delay and LOS.

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Table NB-13B - MD 187 (Old Georgetown Road) Corridor - (PM Peak)											
Node	**Location**	**Delay (s/veh)**	**LOS**	**Approach**	**Delay (s/veh)**	**LOS**	**Movement**	**Delay (s/veh)**	**LOS**	**50th %ile Queue (ft)**	**95th %ile Queue (ft)**
N 1200‡	MD 187 (Old Georgetown Rd) at Lone Oak Dr/Manor Oak Way	17.4	B	Lone Oak Dr EB	60.9	E	L/T	71.2	E	102	161
							R	47.3	D	44	81
				Manor Oak Way WB	57.0	E	L/T/R	57.0	E	9	30
				MD 187 (Old Georgetown Rd) NB	14.6	B	U/L	36.4	D	105	m180
							T	13.2	B	519	653
							R	3.6	A	0	m0
				MD 187 (Old Georgetown Rd) SB	17.0	B	L	14.0	B	2	12
							T	17.0	B	439	595
							T/R	-	-	-	-
N 1201‡	MD 187 (Old Georgetown Rd) at I-495 Outer Loop Off-Ramp	14.9	B	I-495 Outer Loop Off-Ramp WB	75.4	E	L	50.3	D	76	133
							L/T	50.3	D	77	133
							R	88.1	F	284	#470
				MD 187 (Old Georgetown Rd) NB	5.0	A	L	50.3	D	172	m#205
							T	1.2	A	68	32
				MD 187 (Old Georgetown Rd) SB	12.6	B	T	12.6	B	154	164
							T/R	-	-	-	-
N 1202‡	MD 187 (Old Georgetown Rd) at I-495 Inner Loop Off-Ramp	21.5	C	I-495 Inner Loop Off-Ramp EB	46.0	D	L	69.9	E	197	287
							L/T	69.2	E	195	284
							R	0.2	A	0	0
				MD 187 (Old Georgetown Rd) NB	25.5	C	T	25.5	C	790	230
							T/R	-	-	-	-
				MD 187 (Old Georgetown Rd) SB	7.7	A	L	49.7	D	154	m219
							T	2.5	A	33	160
N 1203‡	MD 187 (Old Georgetown Rd) at Ryland Dr/Church Dwy	7.9	A	Ryland Dr EB	68.9	E	L/T/R	68.9	E	56	96
				Church Dwy WB	62.7	E	L	63.2	E	10	28
							T	62.6	E	5	17
							R	62.5	E	0	11
				MD 187 (Old Georgetown Rd) NB	9.4	A	L	4.5	A	1	8
							T	9.4	A	363	624
							T/R	-	-	-	-
				MD 187 (Old Georgetown Rd) SB	2.0	A	U/L	34.0	C	1	35
							T	1.3	A	13	60
							T/R	-	-	-	-

Note: 95th percentile queuing reported using Synchro software.
- Hyphen denotes that no value was recorded for this metric.
m Volume for the 95th percentile queue is metered by upstream signal.
Volume for the 95th percentile exceeds capacity, queue may be longer. Queue shown is maximum after two

Reporting Source:
‡ HCM 2000 Signalized Intersection Capacity Analysis used for Delay and LOS.

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Table NB-14B - MD 355 (Rockville Pike) / I-270 East Spur Corridor - (AM Peak)

Node	Location	Delay (s/veh)	LOS	Approach	Delay (s/veh)	LOS	Move-ment	Delay (s/veh)	LOS	50th %ile Queue (ft	95th %ile Queue (ft)
N 1300‡	MD 355 (Rockville Pike) at Grosvenor Ln	32.6	C	Grosvenor Ln EB	59.6	E	L	60.5	E	47	79
							R	59.2	E	160	259
				Grosvenor Ln WB	44.6	D	L	38.7	D	259	321
							T/R	60.6	E	195	294
				MD 355 (Rockville Pike) NW	23.6	C	T	23.6	C	347	406
				MD 355 (Rockville Pike) SB	28.8	C	T	29.5	C	656	720
							R	15.5	B	6	35
N 1307‡	MD 355 (Rockville Pike) at I-495 Inner Loop Off-Ramp	24.8	C	I-495 Inner Loop Off-Ramp SE	76.2	E	R	76.2	E	322	392
				MD 355 (Rockville Pike) SB	17.2	B	T	17.2	B	697	771
N 1309†	MD 355 (Rockville Pike) at Pooks Hill Rd	31.3	C	Pooks Hill Rd EB	96.9	F	L	96.9	F	300	#398
							R	0.0	A	73	155
				MD 355 (Rockville Pike) NB	9.1	A	L	74.5	E	49	m92
							T	7.6	A	35	64
				MD 355 (Rockville Pike) SB	33.9	C	T	34.9	C	470	476
							R	4.5	A	0	m4
N 1310‡	MD 355 (Rockville Pike) at Alta Vista Rd/Bellevue Dr	15.2	B	Alta Vista Rd EB	93.6	F	L/T/R	93.6	F	112	177
				Bellevue Dr WB	73.9	E	L/T/R	73.9	E	11	41
				MD 355 (Rockville Pike) NB	22.1	C	U/L	-	-	-	-
							T	22.1	C	369	451
							T/R	-	-	-	-
				MD 355 (Rockville Pike) SB	10.4	B	U/L	18.9	B	248	m275
							T	9.6	A	340	158
							T/R	-	-	-	-

Note: 95th percentile queuing reported using Synchro software.
- Hyphen denotes that no value was recorded for this metric.
m Volume for the 95th percentile queue is metered by upstream signal.
Volume for the 95th percentile exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

Reporting Source:
† HCM 6th Signalized Intersection Summary used for Delay and LOS.
‡ HCM 2000 Signalized Intersection Capacity Analysis used for Delay and LOS.

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Table NB-14B - MD 355 (Rockville Pike) / I-270 East Spur Corridor - (PM Peak)

Node	Location	Delay (s/veh)	LOS	Approach	Delay (s/veh)	LOS	Move-ment	Delay (s/veh)	LOS	50th %ile Queue (ft	95th %ile Queue (ft)
N 1300‡	MD 355 (Rockville Pike) at Grosvenor Ln	31.5	C	Grosvenor Ln EB	61.6	E	L	66.1	E	77	113
							R	58.1	E	111	205
				Grosvenor Ln WB	59.2	E	L	38.4	D	95	132
							T/R	78.0	E	246	#429
				MD 355 (Rockville Pike) NW	30.9	C	T	30.9	C	686	789
				MD 355 (Rockville Pike) SB	19.0	C	T	19.4	B	404	449
							R	12.6	B	0	27
N 1307‡	MD 355 (Rockville Pike) at I-495 Inner Loop Off-Ramp	17.1	B	I-495 Inner Loop Off-Ramp SE	78.9	E	R	78.9	E	215	269
				MD 355 (Rockville Pike) SB	8.1	A	T	8.1	A	273	350
N 1309†	MD 355 (Rockville Pike) at Pooks Hill Rd	15.8	B	Pooks Hill Rd EB	99.1	F	L	99.1	F	157	211
							R	0.0	A	1	55
				MD 355 (Rockville Pike) NB	10.7	B	L	72.4	E	77	m82
							T	9.5	A	110	m97
				MD 355 (Rockville Pike) SB	14.3	B	T	15.4	B	283	290
							R	6.5	A	0	6
N 1310‡	MD 355 (Rockville Pike) at Alta Vista Rd/Bellevue Dr	27.1	C	Alta Vista Rd EB	99.8	F	L/T/R	99.8	F	134	208
				Bellevue Dr WB	72.4	E	L/T/R	72.4	E	17	48
				MD 355 (Rockville Pike) NB	35.8	D	U/L	22.5	C	3	9
							T	35.8	D	1,195	1,360
							T/R	-	-	-	-
				MD 355 (Rockville Pike) SB	11.9	B	U/L	98.9	F	291	#493
							T	1.2	A	35	16
							T/R	-	-	-	-

Note: 95th percentile queuing reported using Synchro software.

\- Hyphen denotes that no value was recorded for this metric.

m Volume for the 95th percentile queue is metered by upstream signal.

\# Volume for the 95th percentile exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

Reporting Source:

† HCM 6th Signalized Intersection Summary used for Delay and LOS.

‡ HCM 2000 Signalized Intersection Capacity Analysis used for Delay and LOS.

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2027 PREFERRED ALTERNATIVE

SYNCHRO ANALYSIS OUTPUT TABLES

Table BP1-2B - I-370 (Sam Eig Highway) Corridor - (AM Peak)

Node	Location	Delay (s/veh)	LOS	Approach	Delay (s/veh)	LOS	Movement	Delay (s/veh)	LOS	50th %ile Queue (ft)	95th %ile Queue (ft)
P 100‡	I-370 (Sam Eig Hwy) at Fields Rd	22.2	C	Fields Rd WB	53.8	D	L	72.5	E	92	129
							R	44.7	D	166	195
				I-370 (Sam Eig Hwy) NB	15.0	B	T	15.5	B	478	615
							R	12.5	B	182	348
				I-370 (Sam Eig Hwy) SB	22.9	C	L	74.5	E	249	297
							T	5.1	A	126	162
				Washingtonian Blvd Ramp SEB	4.1	A	R	4.1	A	21	39
P 104‡	Washingtonian Blvd at I-370 (Sam Eig Hwy) WB Ramps	20.0	C	Washingtonian Blvd Ramp WB	22.6	C	L	23.0	C	84	173
							L/T	22.8	C	82	170
							R	18.1	B	0	0
				Washingtonian Blvd NB	2.7	A	L	2.7	A	1	3
							T	2.6	A	1	3
				Washingtonian Blvd SB	24.6	C	T	24.6	C	29	57
							T/R	-	-	-	-
P 105‡	Washingtonian Blvd at I-370 (Sam Eig Hwy) EB Ramps	14.3	B	Washingtonian Blvd Ramp EB	26.2	C	L/T	25.5	C	4	16
							R	26.2	C	0	26
				Washingtonian Blvd NB	27.1	C	T	28.1	C	42	90
							R	26.5	C	0	38
				Washingtonian Blvd SB	3.6	A	L/T	-	-	-	-
							T	3.6	A	18	87
P 113‡	I-370 (Sam Eig Hwy) SBR at MD 119 (Great Seneca Hwy)	5.4	A	MD 119 (Great Seneca Hwy) EB	0.1	A	T	0.1	A	0	0
				MD 119 (Great Seneca Hwy) WB	3.8	A	T	3.8	A	4	5
				I-370 (Sam Eig Hwy) SB	32.0	C	R	32.0	C	21	168
P 114‡	I-370 (Sam Eig Hwy) at MD 119 (Great Seneca Hwy)	33.8	C	MD 119 (Great Seneca Hwy) EB	24.0	C	L	43.6	D	506	587
							T	13.6	B	589	660
				MD 119 (Great Seneca Hwy) WB	49.3	D	T	49.3	D	106	138
				I-370 (Sam Eig Hwy) SB	87.0	F	L	87.0	F	286	348
P 118‡	I-370 (Sam Eig Hwy) at Diamondback Dr	29.3	C	Diamondback Dr EB	77.5	E	L	78.4	E	369	423
							R	56.3	E	0	0
				Diamondback Dr WB	66.7	E	R	66.7	E	103	138
				I-370 (Sam Eig Hwy) NB	10.8	B	L	126.2	F	27	m45
							T	9.7	A	89	354
							R	0.1	A	0	m0
				I-370 (Sam Eig Hwy) SB	21.6	C	L	103.9	F	121	186
							T	21.6	C	197	370
							R	0.3	A	0	0

Note: 95th percentile queuing reported using Synchro software.
- Hyphen denotes that no value was recorded for this metric.
m Volume for the 95th percentile queue is metered by upstream signal.

Reporting Source:
‡ HCM 2000 Signalized Intersection Capacity Analysis used for Delay and LOS.

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Table BP1-2B - I-370 (Sam Eig Highway) Corridor - (PM Peak)

Node	Location	Delay (s/veh)	LOS	Approach	Delay (s/veh)	LOS	Movement	Delay (s/veh)	LOS	50th %ile Queue (ft)	95th %ile Queue (ft)
P 100‡	I-370 (Sam Eig Hwy) at Fields Rd	28.2	C	Fields Rd WB	47.3	D	L	67.0	E	206	254
							R	34.6	C	257	302
				I-370 (Sam Eig Hwy) NB	28.6	C	T	29.5	C	765	336
							R	22.9	C	142	179
				I-370 (Sam Eig Hwy) SB	24.2	C	L	70.7	E	325	402
							T	12.4	B	440	538
				Washingtonian Blvd Ramp SEB	9.2	A	R	9.2	A	146	222
P 104‡	Washingtonian Blvd at I-370 (Sam Eig Hwy) WB Ramps	22.9	C	Washingtonian Blvd Ramp WB	37.3	D	L	37.7	D	120	#236
							L/T	37.2	D	116	#224
							R	28.3	C	0	0
				Washingtonian Blvd NB	2.6	A	L	2.4	A	16	m44
							T	3.2	A	2	m10
				Washingtonian Blvd SB	37.6	D	T	37.6	D	42	76
							T/R	-	-	-	-
P 105‡	Washingtonian Blvd at I-370 (Sam Eig Hwy) EB Ramps	26.4	C	Washingtonian Blvd Ramp EB	33.1	C	L/T	32.2	C	5	18
							R	33.1	C	0	38
				Washingtonian Blvd NB	29.5	C	T	34.3	C	216	#417
							R	27.1	C	0	130
				Washingtonian Blvd SB	17.0	B	L/T	-	-	-	-
							T	17.0	B	41	120
P 113‡	I-370 (Sam Eig Hwy) SBR at MD 119 (Great Seneca Hwy)	10.6	B	MD 119 (Great Seneca Hwy) EB	0.0	A	T	0.0	A	0	0
				MD 119 (Great Seneca Hwy) WB	5.2	A	T	5.2	A	18	19
				I-370 (Sam Eig Hwy) SB	27.1	C	R	27.1	C	946	346
P 114‡	I-370 (Sam Eig Hwy) at MD 119 (Great Seneca Hwy)	44.6	D	MD 119 (Great Seneca Hwy) EB	26.6	C	L	42.6	D	364	432
							T	4.3	A	70	86
				MD 119 (Great Seneca Hwy) WB	55.3	E	T	55.3	E	581	642
				I-370 (Sam Eig Hwy) SB	71.1	E	L	71.1	E	134	201
P 118‡	I-370 (Sam Eig Hwy) at Diamondback Dr	38.7	D	Diamondback Dr EB	82.0	F	L	82.9	F	263	317
							R	64.2	E	0	0
				Diamondback Dr WB	58.2	E	R	58.2	E	180	216
				I-370 (Sam Eig Hwy) NB	52.7	D	L	72.4	E	108	179
							T	58.8	E	509	593
							R	0.1	A	0	0
				I-370 (Sam Eig Hwy) SB	22.7	C	L	82.6	F	177	253
							T	31.5	C	553	682
							R	3.4	A	869	1,227

Note: 95th percentile queuing reported using Synchro software.
- Hyphen denotes that no value was recorded for this metric.
m Volume for the 95th percentile queue is metered by upstream signal.
Volume for the 95th percentile exceeds capacity, queue may be longer. Queue shown is maximum after two

Reporting Source:
‡ HCM 2000 Signalized Intersection Capacity Analysis used for Delay and LOS.

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Table BP1-3B - Shady Grove Road Corridor - (AM Peak)

Node	Location	Delay (s/veh)	LOS	Approach	Delay (s/veh)	LOS	Movement	Delay (s/veh)	LOS	50th %ile Queue (ft)	95th %ile Queue (ft)
P 200‡	Omega Dr at MD 28 (Key W Ave)	35.2	D	MD 28 (Key W Ave) EB	28.4	C	L	71.8	E	83	140
							T	27.7	C	484	730
							R	17.0	B	0	46
				MD 28 (Key W Ave) WB	31.7	C	U/L	-	-	-	-
							L	70.2	E	136	184
							T	15.4	B	79	141
							R	14.3	B	0	34
				Medical Center Dr NB	61.6	E	L	122.6	F	11	34
							T	56.6	E	31	49
							R	55.8	E	0	15
				Omega Dr SB	69.7	E	L	81.2	F	65	#112
							T	68.4	E	246	326
							R	50.4	D	0	14
P 203††	Omega Dr at I-270 SB Off-Ramp	-	-	I-270 Off-Ramp WB	-	-	L	24.2	C	-	5.1*
P 204†	Omega Dr / Fields Rd at Washingtonian Blvd	7.6	A	Fields Rd EB	5.7	A	L	18.6	B	11	33
							T	4.7	A	41	72
				Omega Dr WB	8.8	A	T	8.4	A	11	36
							T/R	9.1	A	-	-
				Washingtonian Blvd SB	13.4	B	L	13.6	B	16	36
							R	11.0	B	0	5
P 205‡	Shady Grove Rd at Corporate Blvd	20.1	C	Corporate Blvd EB	78.4	E	L	79.3	E	54	105
							L/T	79.9	E	55	107
							R	66.7	E	0	0
				Corporate Blvd WB	71.1	E	L/T	74.1	E	26	61
							R	69.5	E	0	0
				Shady Grove Rd NB	27.7	C	L	22.7	C	3	15
							T	27.7	C	321	437
							T/R	-	-	-	-
				Shady Grove Rd SB	12.4	B	U/L	49.5	D	316	453
							T	4.2	A	139	130
							T/R	-	-	-	-

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Table BP1-3B - Shady Grove Road Corridor - (AM Peak)											
Node	**Location**	**Delay (s/veh)**	**LOS**	**Approach**	**Delay (s/veh)**	**LOS**	**Movement**	**Delay (s/veh)**	**LOS**	**50th %ile Queue (ft)**	**95th %ile Queue (ft)**
P 207†	Shady Grove Rd at I-270 SB Off-Ramp	24.8	C	I-270 SB Off-Ramp EB	46.6	D	L	34.9	C	156	180
							R	52.5	D	446	492
				Shady Grove Rd NB	17.4	B	T	17.4	B	46	52
				Shady Grove Rd SB	12.1	B	T	12.1	B	419	503
							R	0.0	A	169	442
P 210†	Shady Grove Rd at I-270 NB Off-Ramp	24.2	C	I-270 NB Off-Ramp WB	54.6	D	L	54.6	D	417	449
							R	0.0	A	0	0
				Shady Grove Rd NB	13.2	B	T	13.2	B	96	139
							R	0.0	A	0	67
				Shady Grove Rd SB	13.0	B	T	13.0	B	118	46
P 212‡	Shady Grove Rd at Choke Cherry Rd	19.3	B	Choke Cherry Rd EB	64.2	E	L/T/R	70.7	E	34	78
							R	57.1	E	0	11
				Choke Cherry Rd WB	69.9	E	L	72.3	E	73	129
							L/T	70.8	E	73	128
							R	63.4	E	0	0
				Shady Grove Rd NB	15.1	B	U/L	33.3	C	48	132
							T	11.5	B	130	148
							R	19.2	B	32	37
				Shady Grove Rd SB	15.0	B	L	8.7	A	36	73
							T	15.6	B	276	411
							T/R	-	-	-	-
P 216†	Redland Blvd at Piccard Dr	12.5	B	I-270 NB Off-Ramp EB	5.2	A	L	4.9	A	10	33
							T	5.2	A	20	48
							T/R	5.3	A	-	-
				Redland Blvd WB	-	-	L	-	-	30	61
							R	-	-	0	0
				Piccard Dr NB	14.3	B	T	14.1	B	15	39
							R	14.4	B	0	13
				Piccard Dr SB	16.6	B	L/T	16.4	B	-	-
							T	16.8	B	81	125

Note: 95th percentile queuing reported using Synchro software.

- Hyphen denotes that no value was recorded for this metric.

Volume for the 95th percentile exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

* Unsignalized intersection 95th percentile queue reported in number of vehicles.

Reporting Source:

† HCM 6th Signalized Intersection Summary used for Delay and LOS.

‡ HCM 2000 Signalized Intersection Capacity Analysis used for Delay and LOS.

†† HCM 6th Two Way Stop Control used for Delay and LOS.

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Table BP1-3B - Shady Grove Road Corridor - (PM Peak)

Node	Location	Delay (s/veh)	LOS	Approach	Delay (s/veh)	LOS	Movement	Delay (s/veh)	LOS	50th %ile Queue (ft)	95th %ile Queue (ft)
P 200‡	Omega Dr at MD 28 (Key W Ave)	37.8	D	MD 28 (Key W Ave) EB	22.4	C	L	76.1	E	83	145
							T	16.9	B	142	194
							R	14.3	B	0	0
				MD 28 (Key W Ave) WB	28.7	C	U/L	-	-	-	-
							L	70.1	E	48	81
							T	27.9	C	570	721
							R	16.8	B	0	44
				Medical Center Dr NB	65.1	E	L	82.1	F	156	#241
							T	58.6	E	172	210
							R	63.8	E	144	245
				Omega Dr SB	68.3	E	L	75.2	E	54	89
							T	66.7	E	104	161
							R	65.4	E	62	145
P 203††	Omega Dr at I-270 SB Off-Ramp	-	-	I-270 Off-Ramp WB	-	-	L	46.8	E	-	4.0*
P 204†	Omega Dr / Fields Rd at Washingtonian Blvd	12.7	B	Fields Rd EB	6.5	A	L	37.7	D	10	38
							T	2.9	A	12	24
				Omega Dr WB	10.6	B	T	10.1	B	293	435
							T/R	11.1	B	-	-
				Washingtonian Blvd SB	27.1	C	L	27.7	C	54	105
							R	25.5	C	3	40
P 205‡	Shady Grove Rd at Corporate Blvd	31.0	C	Corporate Blvd EB	79.5	E	L	81.3	F	89	#157
							L/T	81.8	F	90	#156
							R	63.3	E	0	0
				Corporate Blvd WB	76.2	E	L/T	55.3	E	60	102
							R	80.6	F	184	292
				Shady Grove Rd NB	27.5	C	L	17.0	B	8	25
							T	27.6	C	491	650
							T/R	-	-	-	-
				Shady Grove Rd SB	10.6	B	U/L	53.0	D	60	123
							T	5.2	A	76	89
							T/R	-	-	-	-

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Table BP1-3B - Shady Grove Road Corridor - (PM Peak)

Node	Location	Delay (s/veh)	LOS	Approach	Delay (s/veh)	LOS	Movement	Delay (s/veh)	LOS	50th %ile Queue (ft)	95th %ile Queue (ft)
P 207†	Shady Grove Rd at I-270 SB Off-Ramp	17.0	B	I-270 SB Off-Ramp EB	65.1	E	L	59.8	E	123	161
							R	69.2	E	185	235
				Shady Grove Rd NB	4.8	A	T	4.8	A	14	31
				Shady Grove Rd SB	0.1	A	T	0.1	A	27	54
							R	0.0	A	193	330
P 210†	Shady Grove Rd at I-270 NB Off-Ramp	9.9	A	I-270 NB Off-Ramp WB	70.9	E	L	70.9	E	147	192
							R	0.0	A	0	0
				Shady Grove Rd NB	0.1	A	T	0.1	A	88	103
							R	0.0	A	479	733
				Shady Grove Rd SB	3.1	A	T	3.1	A	17	34
P 212‡	Shady Grove Rd at Choke Cherry Rd	37.0	D	Choke Cherry Rd EB	68.5	E	L/T/R	85.8	F	130	#230
							R	49.5	D	45	106
				Choke Cherry Rd WB	74.5	E	L	80.7	F	211	#312
							L/T	77.4	E	213	311
							R	53.1	D	0	8
				Shady Grove Rd NB	22.9	C	U/L	71.8	E	132	#236
							T	18.4	B	217	240
							R	9.5	A	9	10
				Shady Grove Rd SB	34.3	C	L	20.0	B	37	67
							T	35.0	C	524	605
							T/R	-	-	-	-
P 216†	Redland Blvd at Piccard Dr	13.5	B	I-270 NB Off-Ramp EB	5.7	A	L	5.1	A	8	23
							T	5.8	A	39	65
							T/R	5.8	A	-	-
				Redland Blvd WB	-	-	L	-	-	11	26
							R	-	-	0	22
				Piccard Dr NB	18.4	B	T	15.8	B	86	#161
							R	20.6	C	0	53
				Piccard Dr SB	13.6	B	L/T	13.7	B	-	-
							T	13.5	B	24	47

Note: 95th percentile queuing reported using Synchro software.
- Hyphen denotes that no value was recorded for this metric.
Volume for the 95th percentile exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.
* Unsignalized intersection 95th percentile queue reported in number of vehicles.

Reporting Source:
† HCM 6th Signalized Intersection Summary used for Delay and LOS.
‡ HCM 2000 Signalized Intersection Capacity Analysis used for Delay and LOS.
†† HCM 6th Two Way Stop Control used for Delay and LOS.

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Table BP1-4B - Gude Drive Corridor - (AM Peak)											
Node	**Location**	**Delay (s/veh)**	**LOS**	**Approach**	**Delay (s/veh)**	**LOS**	**Movement**	**Delay (s/veh)**	**LOS**	**50th %ile Queue (ft)**	**95th %ile Queue (ft)**
P 301†	Gude Dr at Research Blvd	27.2	C	Gude Dr EB	36.3	D	L	60.3	E	10	32
							T	38.3	D	252	344
							R	18.6	B	0	0
				Gude Dr WB	10.0	B	L	25.7	C	141	m184
							T	2.6	A	81	m106
							R	3.1	A	13	m29
				Research Blvd NB	30.5	C	L	39.8	D	5	17
							T	51.7	D	85	128
							R	10.8	B	28	64
				Research Blvd SB	42.3	D	L	45.3	D	95	134
							T	40.4	D	124	190
							T/R	40.3	D	-	-
P 302‡	Gude Dr at I-270 Managed Lanes Direct Connector	29.5	C	Gude Dr EB	18.4	B	L	55.7	E	51	m84
							T	19.5	B	360	310
							R	4.5	A	0	1
				Gude Dr WB	19.1	B	L	24.6	C	50	39
							T	18.0	B	262	340
							TR	-	-	-	-
				I-270 Managed Lanes Ramp NB	62.0	E	L	58.4	E	242	#407
							R	65.4	E	157	#332
				I-270 Managed Lanes Ramp SB	35.8	D	L	33.1	C	117	189
							R	43.6	D	0	2
P 303†	Gude Dr at Piccard Dr	8.2	A	Gude Dr EB	2.4	A	L	9.1	A	22	m88
							T	0.3	A	121	m310
				Gude Dr WB	11.1	B	T	11.4	B	162	284
							R	9.0	A	0	31
				Piccard Dr SB	35.2	D	L	39.5	D	37	75
							R	33.9	C	82	113

Note: 95th percentile queuing reported using Synchro software.

- Hyphen denotes that no value was recorded for this metric.

m Volume for the 95th percentile queue is metered by upstream signal.

Volume for the 95th percentile exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

Reporting Source:

† HCM 6th Signalized Intersection Summary used for Delay and LOS.

‡ HCM 2000 Signalized Intersection Capacity Analysis used for Delay and LOS.

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Table BP1-4B - Gude Drive Corridor - (PM Peak)											
Node	**Location**	**Delay (s/veh)**	**LOS**	**Approach**	**Delay (s/veh)**	**LOS**	**Movement**	**Delay (s/veh)**	**LOS**	**50th %ile Queue (ft)**	**95th %ile Queue (ft)**
P 301[†]	Gude Dr at Research Blvd	22.9	C	Gude Dr EB	38.1	D	L	73.0	E	3	15
							T	38.3	D	191	265
							R	13.9	B	0	0
				Gude Dr WB	5.4	A	L	18.9	B	0	m176
							T	0.6	A	88	247
							R	0.3	A	1	m2
				Research Blvd NB	29.5	C	L	34.8	C	79	125
							T	49.8	D	95	142
							R	13.8	B	68	118
				Research Blvd SB	44.5	D	L	46.1	D	106	145
							T	41.8	D	55	86
							T/R	41.9	D	-	-
P 302[‡]	Gude Dr at I-270 Managed Lanes Direct Connector	27.4	C	Gude Dr EB	20.0	C	L	51.1	D	62	m#108
							T	20.3	C	209	312
							R	6.1	A	39	57
				Gude Dr WB	25.7	C	L	48.8	D	152	202
							T	17.6	B	182	309
							TR	-	-	-	-
				I-270 Managed Lanes Ramp NB	45.3	D	L	49.9	D	226	#330
							R	38.3	D	46	126
				I-270 Managed Lanes Ramp SB	35.2	D	L	34.7	C	143	217
							R	40.9	D	0	0
P 303[†]	Gude Dr at Piccard Dr	18.7	B	Gude Dr EB	2.3	A	L	13.7	B	72	m127
							T	0.7	A	149	197
				Gude Dr WB	18.0	B	T	18.2	B	325	467
							R	10.7	B	1	16
				Piccard Dr SB	60.1	E	L	33.7	C	109	169
							R	70.3	E	235	317

Note: 95th percentile queuing reported using Synchro software.
- Hyphen denotes that no value was recorded for this metric.
m Volume for the 95th percentile queue is metered by upstream signal.
Volume for the 95th percentile exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

Reporting Source:
[†] HCM 6th Signalized Intersection Summary used for Delay and LOS.
[‡] HCM 2000 Signalized Intersection Capacity Analysis used for Delay and LOS.

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Table BP1-5B - MD 28 (Montgomery Avenue) Corridor - (AM Peak)											
Node	**Location**	**Delay (s/veh)**	**LOS**	**Approach**	**Delay (s/veh)**	**LOS**	**Movement**	**Delay (s/veh)**	**LOS**	**50th %ile Queue (ft)**	**95th %ile Queue (ft)**
P 400‡	MD 28 (Montgomery Ave) at Hurley Ave	16.4	B	MD 28 (Montgomery Ave) EB	19.9	B	L	10.7	B	2	9
							T	19.9	B	481	609
							T/R	-	-	-	-
				MD 28 (Montgomery Ave) WB	7.8	A	U/L	68.0	E	110	180
							T	3.5	A	101	115
							T/R	-	-	-	-
				Hurley Ave NB	50.9	D	L/T	56.1	E	56	105
							R	48.8	D	0	66
				Hurley Ave SB	48.4	D	L/T	48.7	D	11	33
							R	47.9	D	4	20
P 401†	MD 28 (Montgomery Ave) at I-270 SB Ramps	14.1	B	MD 28 (Montgomery Ave) EB	13.2	B	T	13.2	B	14	30
							R	0.0	A	456	397
				MD 28 (Montgomery Ave) WB	6.2	A	T	6.2	A	151	209
				I-270 Off-Ramp SB	53.4	D	L	53.4	D	162	206
							R	0.0	A	53	103
P 405‡	MD 28 (Montgomery Ave) at I-270 NB Off-Ramp / Nelson St	21.7	C	MD 28 (Montgomery Ave) EB	11.0	B	L	19.5	B	133	176
							T	8.3	A	192	189
				MD 28 (Montgomery Ave) WB	26.7	C	T	26.7	C	188	264
							T/R	-	-	-	-
				I-270 Off-Ramp NB	46.1	D	T	46.0	D	100	164
							R	46.2	D	64	149
				Nelson St SB	26.6	C	L	57.4	E	21	52
							R	23.7	C	105	125
P 407‡	MD 28 (Montgomery Ave) at Laird St / Bullard Cir	12.7	B	MD 28 (Montgomery Ave) EB	12.6	B	L	0.9	A	0	m1
							T/R	12.6	B	422	#1,256
				MD 28 (Montgomery Ave) WB	5.4	A	L	2.6	A	1	4
							T/R	5.5	A	178	331
				Bullard Cir NB	46.9	D	L/T	47.1	D	11	32
							R	46.5	D	0	17
				Laird St SB	59.8	E	L/T/R	59.8	E	77	135

Note: 95th percentile queuing reported using Synchro software.

\- Hyphen denotes that no value was recorded for this metric.

m Volume for the 95th percentile queue is metered by upstream signal.

\# Volume for the 95th percentile exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

Reporting Source:

† HCM 6th Signalized Intersection Summary used for Delay and LOS.

‡ HCM 2000 Signalized Intersection Capacity Analysis used for Delay and LOS.

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Table BP1-5B - MD 28 (Montgomery Avenue) Corridor - (PM Peak)

Node	Location	Delay (s/veh)	LOS	Approach	Delay (s/veh)	LOS	Movement	Delay (s/veh)	LOS	50th %ile Queue (ft)	95th %ile Queue (ft)
P 400‡	MD 28 (Montgomery Ave) at Hurley Ave	22.2	C	MD 28 (Montgomery Ave) EB	30.6	C	L	18.1	B	2	11
							T	30.6	C	584	661
							T/R	-	-	-	-
				MD 28 (Montgomery Ave) WB	11.7	B	U/L	70.9	E	253	#370
							T	4.1	A	125	193
							T/R	-	-	-	-
				Hurley Ave NB	53.6	D	L/T	62.7	E	72	131
							R	47.8	D	0	61
				Hurley Ave SB	49.2	D	L/T	50.0	D	30	67
							R	47.2	D	3	25
P 401†	MD 28 (Montgomery Ave) at I-270 SB Ramps	19.3	B	MD 28 (Montgomery Ave) EB	24.1	C	T	24.1	C	17	30
							R	0.0	A	566	631
				MD 28 (Montgomery Ave) WB	10.0	A	T	10.0	A	251	492
				I-270 Off-Ramp SB	52.5	D	L	52.5	D	203	244
							R	0.0	A	165	244
P 405‡	MD 28 (Montgomery Ave) at I-270 NB Off-Ramp / Nelson St	24.8	C	MD 28 (Montgomery Ave) EB	12.9	B	L	32.2	C	92	176
							T	9.2	A	183	240
				MD 28 (Montgomery Ave) WB	29.5	C	T	29.5	C	302	354
							T/R	-	-	-	-
				I-270 Off-Ramp NB	44.5	D	T	48.2	D	199	296
							R	39.0	D	39	107
				Nelson St SB	29.5	C	L	60.3	E	25	60
							R	27.2	C	185	247
P 407‡	MD 28 (Montgomery Ave) at Laird St / Bullard Cir	13.9	B	MD 28 (Montgomery Ave) EB	16.1	B	L	0.3	A	0	m1
							T/R	16.4	B	853	#1446
				MD 28 (Montgomery Ave) WB	7.5	A	L	2.0	A	0	4
							T/R	7.5	A	233	805
				Bullard Cir NB	51.0	D	L/T	51.3	D	8	23
							R	50.7	D	0	17
				Laird St SB	53.1	D	L/T/R	53.1	D	20	68

Note: 95th percentile queuing reported using Synchro software.

- Hyphen denotes that no value was recorded for this metric.

m Volume for the 95th percentile queue is metered by upstream signal.

Volume for the 95th percentile exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

Reporting Source:

† HCM 6th Signalized Intersection Summary used for Delay and LOS.

‡ HCM 2000 Signalized Intersection Capacity Analysis used for Delay and LOS.

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Table BD-6B - MD 189 (Falls Road) Corridor - (AM Peak)

Node	Location	Delay (s/veh)	LOS	Approach	Delay (s/veh)	LOS	Movement	Delay (s/veh)	LOS	50th %ile Queue (ft)	95th %ile Queue (ft)
P 500‡	MD 189 (Falls Rd) at Wootton Pkwy	49.4	D	MD 189 (Falls Rd) EB	54.3	D	L	78.2	E	120	191
							T	54.3	D	430	516
							R	27.9	C	3	39
				MD 189 (Falls Rd) WB	49.9	D	L	74.0	E	254	#413
							T	33.6	C	186	253
							R	13.7	B	0	28
				Wootton Pkwy NB	43.8	D	L	59.2	E	91	147
							T	56.9	E	62	93
							R	21.1	C	0	40
				Wootton Pkwy SB	47.0	D	L	53.2	D	374	#511
							T	59.7	E	390	456
							R	0.2	A	0	0
P 508‡	MD 189 (Falls Rd) Crossover at I-270 SB Ramps	16.4	B	MD 189 (Falls Rd) NB	14.5	B	T	14.5	B	206	258
				MD 189 (Falls Rd) WB	21.0	C	T	21.0	C	37	103
P 510‡	MD 189 (Falls Rd) EB at I-270 SB Ramp	5.5	A	MD 189 (Falls Rd) EB	0.8	A	T	0.8	A	2	3
				I-270 SB Ramp SB	28.5	C	L	28.5	C	0	11
P 511‡	MD 189 (Falls Rd) WB at I-270 NB Ramps	2.0	A	MD 189 (Falls Rd) WB	0.7	A	T	0.7	A	0	0
				I-270 NB Ramp NB	22.1	C	L	22.1	C	0	0
P 513‡	MD 189 (Falls Rd) Crossover at I-270 NB Ramps	21.7	C	MD 189 (Falls Rd) EB	25.6	C	T	25.6	C	111	148
				MD 189 (Falls Rd) SB	19.5	B	T	19.5	B	214	240
P 514‡	MD 189 (Falls Rd) EB at I-270 NB Ramps	8.7	A	MD 189 (Falls Rd) EB	0.8	A	T	0.8	A	0	0
				I-270 NB Ramp NB	14.7	B	R	14.7	B	113	163
P 505‡	MD 189 (Falls Rd / Maryland Ave) at Great Falls Rd / Potomac Valley Rd	18.1	B	MD 189 (Falls Rd) EB	4.5	A	U/L	3.8	A	26	45
							T/R	4.8	A	89	430
				MD 189 (Maryland Ave) WB	21.5	C	L	17.7	B	4	19
							T	21.6	C	160	253
							T/R	-	-	-	-
				Potomac Valley Rd NB	51.5	D	L	52.8	D	37	76
							T/R	47.0	D	3	24
				Great Falls Rd SB	41.0	D	L/T	50.8	D	29	64
							R	40.2	D	262	316

Note: 95th percentile queuing reported using Synchro software.
- Hyphen denotes that no value was recorded for this metric.
Volume for the 95th percentile exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

Reporting Source:
‡ HCM 2000 Signalized Intersection Capacity Analysis used for Delay and LOS.

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Table BD-6B - MD 189 (Falls Road) Corridor - (PM Peak)

Node	Location	Delay (s/veh)	LOS	Approach	Delay (s/veh)	LOS	Movement	Delay (s/veh)	LOS	50th %ile Queue (ft)	95th %ile Queue (ft)
P 500‡	MD 189 (Falls Rd) at Wootton Pkwy	43.7	D	MD 189 (Falls Rd) EB	43.0	D	L	81.2	F	161	243
							T	36.7	D	199	259
							R	26.3	C	0	47
				MD 189 (Falls Rd) WB	45.7	D	L	69.3	E	141	190
							T	43.1	D	383	474
							R	28.6	C	109	184
				Wootton Pkwy NB	46.4	D	L	35.4	D	82	131
							T	60.8	E	426	508
							R	23.8	C	0	57
				Wootton Pkwy SB	29.6	C	L	44.1	D	68	120
							T	40.6	D	85	121
							R	0.1	A	0	0
P 508‡	MD 189 (Falls Rd) Crossover at I-270 SB Ramps	21.2	C	MD 189 (Falls Rd) NB	20.9	C	T	20.9	C	261	322
				MD 189 (Falls Rd) WB	21.6	C	T	21.6	C	121	167
P 510‡	MD 189 (Falls Rd) EB at I-270 SB Ramp	7.3	A	MD 189 (Falls Rd) EB	1.0	A	T	1.0	A	2	3
				I-270 SB Ramp SB	25.9	C	L	25.9	C	32	64
P 511‡	MD 189 (Falls Rd) WB at I-270 NB Ramps	5.5	A	MD 189 (Falls Rd) WB	0.9	A	T	0.9	A	0	0
				I-270 NB Ramp NB	20.2	C	L	20.2	C	29	56
P 513‡	MD 189 (Falls Rd) Crossover at I-270 NB Ramps	24.3	C	MD 189 (Falls Rd) EB	23.8	C	T	23.8	C	167	213
				MD 189 (Falls Rd) SB	24.6	C	T	24.6	C	335	196
P 514‡	MD 189 (Falls Rd) EB at I-270 NB Ramps	8.4	A	MD 189 (Falls Rd) EB	0.9	A	T	0.9	A	0	0
				I-270 NB Ramp NB	19.1	B	R	19.1	B	98	144
P 505‡	MD 189 (Falls Rd / Maryland Ave) at Great Falls Rd / Potomac Valley Rd	16.8	B	MD 189 (Falls Rd) EB	4.5	A	U/L	4.6	A	19	31
							T/R	4.5	A	79	509
				MD 189 (Maryland Ave) WB	17.2	B	L	12.9	B	2	10
							T	17.2	B	194	299
							T/R	-	-	-	-
				Potomac Valley Rd NB	56.8	E	L	57.7	E	37	76
							T/R	52.0	D	4	21
				Great Falls Rd SB	48.6	D	L/T	53.4	D	16	42
							R	48.3	D	239	301

Note: 95th percentile queuing reported using Synchro software.
- Hyphen denotes that no value was recorded for this metric.

Reporting Source:
‡ HCM 2000 Signalized Intersection Capacity Analysis used for Delay and LOS.

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Table BP1-7B - Wootton Parkway Corridor - (AM Peak)											
Node	**Location**	**Delay (s/veh)**	**LOS**	**Approach**	**Delay (s/veh)**	**LOS**	**Movement**	**Delay (s/veh)**	**LOS**	**50th %ile Queue (ft)**	**95th %ile Queue (ft)**
P 600‡	Wootton Pkwy at Seven Locks Rd	22.8	C	Wootton Pkwy EB	27.9	C	L	57.6	E	9	28
							T	36.1	D	154	210
							R	20.4	C	9	59
				Wootton Pkwy WB	19.1	B	L	25.6	C	195	#357
							T	5.8	A	22	86
							T/R	-	-	-	-
				Seven Locks Rd NB	14.3	B	L	33.9	C	51	95
							L/T	33.9	C	51	95
							R	0.2	A	0	0
				Seven Locks Rd SB	42.3	D	L/T	42.8	D	21	51
							R	40.7	D	0	0
P 601†	Wootton Pkwy at Tower Oaks Rd	26.0	C	Wootton Pkwy EB	13.2	B	L	45.7	D	16	m33
							T	12.2	B	91	#370
							R	0.0	A	0	0
				Wootton Pkwy WB	31.9	C	L	57.8	E	164	218
							T	15.1	B	65	257
							R	10.7	B	0	0
				Tower Oaks Blvd NB	33.3	C	L	33.4	C	107	#155
							T	32.5	C	6	17
							R	0.0	A	0	0
				Tower Oaks Blvd SB	39.2	D	L	38.4	D	6	18
							T	39.6	D	6	17
							R	0.0	A	0	0
P 612†	Wootton Pkwy at I-270 Managed Lanes Direct Connector	24.7	C	Wootton Pkwy EB	20.2	C	L	26.0	C	54	58
							T	17.8	B	170	236
							T/R	-	-	-	-
				Wootton Pkwy WB	18.5	B	L	38.0	D	67	m140
							T	10.6	B	166	85
							T/R	-	-	-	-
				I-270 Managed Lane Ramp NB	39.4	D	L	34.4	C	31	63
							R	40.1	D	117	198
				I-270 Managed Lane Ramp SB	34.2	C	L	40.2	D	85	139
							R	30.0	C	0	54

Note: 95th percentile queuing reported using Synchro software.
- Hyphen denotes that no value was recorded for this metric.
m Volume for the 95th percentile queue is metered by upstream signal.
Volume for the 95th percentile exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

Reporting Source:
† HCM 6th Signalized Intersection Summary used for Delay and LOS.
‡ HCM 2000 Signalized Intersection Capacity Analysis used for Delay and LOS.

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Table BP1-7B - Wootton Parkway Corridor - (PM Peak)

Node	Location	Delay (s/veh)	LOS	Approach	Delay (s/veh)	LOS	Movement	Delay (s/veh)	LOS	50th %ile Queue (ft)	95th %ile Queue (ft)
P 600‡	Wootton Pkwy at Seven Locks Rd	32.6	C	Wootton Pkwy EB	26.9	C	L	47.8	D	3	14
							T	36.4	D	96	156
							R	12.3	B	0	30
				Wootton Pkwy WB	27.8	C	L	36.5	D	92	#165
							T	21.3	C	44	157
							T/R	-	-	-	-
				Seven Locks Rd NB	37.6	D	L	58.6	E	284	#489
							L/T	54.5	D	276	#477
							R	0.5	A	0	0
				Seven Locks Rd SB	44.3	D	L/T	44.7	D	12	35
							R	42.4	D	0	0
P 601†	Wootton Pkwy at Tower Oaks Rd	27.4	C	Wootton Pkwy EB	21.9	C	L	46.8	D	16	m30
							T	21.2	C	227	#401
							R	0.0	A	0	0
				Wootton Pkwy WB	30.0	C	L	79.8	E	79	117
							T	17.0	B	156	323
							R	11.0	B	0	0
				Tower Oaks Blvd NB	35.4	D	L	35.5	D	~140	161
							T	34.4	C	3	11
							R	0.0	A	0	0
				Tower Oaks Blvd SB	36.8	D	L	36.0	D	29	54
							T	38.5	D	7	20
							R	0.0	A	0	0
P 612†	Wootton Pkwy at I-270 Managed Lanes Direct Connector	23.2	C	Wootton Pkwy EB	17.6	B	L	44.0	D	95	157
							T	11.9	B	88	131
							T/R	-	-	-	-
				Wootton Pkwy WB	18.9	B	L	29.5	C	175	m127
							T	8.7	A	117	m121
							T/R	-	-	-	-
				I-270 Managed Lane Ramp NB	32.9	C	L	34.2	C	69	119
							R	32.5	C	109	196
				I-270 Managed Lane Ramp SB	38.5	D	L	42.1	D	117	184
							R	33.6	C	0	51

Note: 95th percentile queuing reported using Synchro software.
- Hyphen denotes that no value was recorded for this metric.
m Volume for the 95th percentile queue is metered by upstream signal.
Volume for the 95th percentile exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

Reporting Source:
† HCM 6th Signalized Intersection Summary used for Delay and LOS.
‡ HCM 2000 Signalized Intersection Capacity Analysis used for Delay and LOS.

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Table BP1-8B - Montrose Road Corridor - (AM Peak)											
Node	**Location**	**Delay (s/veh)**	**LOS**	**Approach**	**Delay (s/veh)**	**LOS**	**Movement**	**Delay (s/veh)**	**LOS**	**50th %ile Queue (ft)**	**95th %ile Queue (ft)**
P 701‡	Montrose Rd at Seven Locks Rd	29.9	C	Montrose Rd EB	52.2	D	L	48.1	D	50	95
							T	53.1	D	112	161
							T/R	-	-	-	-
				Montrose Rd WB	32.0	C	L	37.6	D	158	m227
							L/T	-	-	-	-
							T	34.4	C	158	m201
							R	14.2	B	0	m20
				Seven Locks Rd NB	10.6	B	L	37.5	D	10	31
							T	38.1	D	73	112
							R	0.7	A	0	0
				Seven Locks Rd SB	35.5	D	L	53.8	D	177	230
							T	24.1	C	211	268
							T/R	-	-	-	-
P 702††	Montrose Rd at Potomac Ave	-	-	Potomac Rd NB	-	-	R	37.7	E	-	5.0*
				Potomac Rd SB	-	-	R	15.0	C	-	0.9*
P 707‡	Montrose Rd at Tower Oaks Blvd	17.5	B	Montrose Rd EB	6.0	A	L	17.3	B	13	m58
							T	5.3	A	153	182
				Montrose Rd WB	16.7	B	T	17.2	B	416	494
							R	9.2	A	0	25
				Tower Oaks Blvd SB	56.7	E	L	53.5	D	86	128
							R	58.1	E	76	#150
				I-270 NB Off-Ramp NEB	1.8	A	R	1.8	A	0	0
P 708‡§	Montrose Rd at Farm Ln	1.9	A	Montrose Rd EB	1.9	A	T	1.9	A	0	382
				Montrose Rd WB	1.9	A	T	1.9	A	0	397
							T/R	-	-	-	-
				Farm Ln SB	0.0	A	R	0.0	A	0	0
P 709†	Montrose Rd at Hitching Post Ln / Farm Haven Dr	12.9	B	Montrose Rd EB	12.3	B	L	7.9	A	1	4
							T	11.8	B	221	408
							T/R	13.2	B	-	-
				Montrose Rd WB	10.7	B	L	9.5	A	2	6
							T	10.3	B	194	356
							T/R	11.3	B	-	-
				Hitching Post Ln NB	39.2	D	L	40.8	D	70	#132
							T/R	32.8	C	2	27
				Farm Haven Dr SB	34.1	C	L	34.2	C	16	43
							T/R	34.1	C	2	38

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Table BP1-8B - Montrose Road Corridor - (AM Peak)											
Node	**Location**	**Delay (s/veh)**	**LOS**	**Approach**	**Delay (s/veh)**	**LOS**	**Movement**	**Delay (s/veh)**	**LOS**	**50th %ile Queue (ft)**	**95th %ile Queue (ft)**
P 710‡	Tower Oaks Blvd at I-270 NB Ramps / GEICO Ent	18.2	B	Tower Oaks Blvd EB	17.6	B	L/T	-	-	-	-
							T/R	17.6	B	84	177
				Tower Oaks Blvd WB	13.4	B	L/T	-	-	-	-
							T/R	13.4	B	20	52
				I-270 NB Ramps NB	20.0	B	L	20.7	C	76	#263
							L/T	20.5	C	75	#260
							R	13.1	B	0	7
				GEICO Ent SB	31.4	C	L/T/R	31.4	C	3	21
P 712‡	Tower Oaks Blvd at Commercial Dr	3.4	A	Commercial Dr WB	33.2	C	L	33.2	C	1	6
							L/R	-	-	-	-
				Tower Oaks Blvd NB	4.7	A	T	4.7	A	0	124
							R	3.5	A	0	14
				Tower Oaks Blvd SB	1.6	A	L	1.5	A	0	10
							T	1.6	A	0	33

Note: 95th percentile queuing reported using Synchro software.
- Hyphen denotes that no value was recorded for this metric.
* Unsignalized intersection 95th percentile queue reported in number of vehicles.
m Volume for the 95th percentile queue is metered by upstream signal.
Volume for the 95th percentile exceeds capacity, queue may be longer. Queue shown is maximum after two
§ Red light on Montrose Road by Farm Lane is triggered by pedestrian signal call. Farm Lane is yield-controlled.

Reporting Source:
† HCM 6th Signalized Intersection Summary used for Delay and LOS.
‡ HCM 2000 Signalized Intersection Capacity Analysis used for Delay and LOS.
†† HCM 6th Two Way Stop Control used for Delay and LOS.

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Table BP1-8B - Montrose Road Corridor - (PM Peak)

Node	Location	Delay (s/veh)	LOS	Approach	Delay (s/veh)	LOS	Movement	Delay (s/veh)	LOS	50th %ile Queue (ft)	95th %ile Queue (ft)
P 701‡	Montrose Rd at Seven Locks Rd	34.4	C	Montrose Rd EB	73.0	E	L	52.2	D	51	98
							T	76.9	E	152	#243
							T/R	-	-	-	-
				Montrose Rd WB	29.7	C	L	39.7	D	337	m459
							L/T	-	-	-	-
							T	32.8	C	347	m430
							R	15.9	B	158	m230
				Seven Locks Rd NB	27.7	C	L	39.7	D	51	104
							T	49.0	D	251	#341
							R	0.5	A	0	0
				Seven Locks Rd SB	35.1	D	L	53.6	D	65	101
							T	28.8	C	144	193
							T/R	-	-	-	-
P 702††	Montrose Rd at Potomac Ave	-	-	Potomac Rd NB	-	-	R	17.6	C	-	1.4*
				Potomac Rd SB	-	-	R	104.9	F	-	8.4*
P 707‡	Montrose Rd at Tower Oaks Blvd	12.7	B	Montrose Rd EB	8.5	A	L	23.2	C	9	m38
							T	7.9	A	303	359
				Montrose Rd WB	11.2	B	T	11.9	B	603	34
							R	0.3	A	0	m0
				Tower Oaks Blvd SB	51.2	D	L	48.5	D	49	80
							R	52.3	D	64	119
				I-270 NB Off-Ramp NEB	1.5	A	R	1.5	A	0	0
P 708‡§	Montrose Rd at Farm Ln	4.0	A	Montrose Rd EB	2.4	A	T	2.4	A	0	173
				Montrose Rd WB	5.3	A	T	5.3	A	0	681
							T/R	-	-	-	-
				Farm Ln SB	0.0	A	R	0.0	A	0	0
P 709†	Montrose Rd at Hitching Post Ln / Farm Haven Dr	10.4	B	Montrose Rd EB	8.0	A	L	9.5	A	1	4
							T	7.7	A	156	311
							T/R	8.6	A	-	-
				Montrose Rd WB	10.7	B	L	6.2	A	2	6
							T	10.1	B	267	528
							T/R	11.8	B	-	-
				Hitching Post Ln NB	41.3	D	L	42.4	D	39	#92
							T/R	39.0	D	6	34
				Farm Haven Dr SB	39.4	D	L	40.0	D	12	35
							T/R	38.9	D	3	27

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Table BP1-8B - Montrose Road Corridor - (PM Peak)											
Node	**Location**	**Delay (s/veh)**	**LOS**	**Approach**	**Delay (s/veh)**	**LOS**	**Movement**	**Delay (s/veh)**	**LOS**	**50th %ile Queue (ft)**	**95th %ile Queue (ft)**
P 710‡	Tower Oaks Blvd at I-270 NB Ramps / GEICO Ent	17.5	B	Tower Oaks Blvd EB	17.3	B	L/T	-	-	-	-
							T/R	17.3	B	58	138
				Tower Oaks Blvd WB	15.5	B	L/T	-	-	-	-
							T/R	15.5	B	26	70
				I-270 NB Ramps NB	17.9	B	L	18.1	B	52	173
							L/T	18.2	B	54	177
							R	13.1	B	0	0
				GEICO Ent SB	28.9	C	L/T/R	28.9	C	7	37
P 712‡	Tower Oaks Blvd at Commercial Dr	4.8	A	Commercial Dr WB	31.1	C	L	31.1	C	7	21
							L/R	-	-	-	-
				Tower Oaks Blvd NB	4.9	A	T	5.0	A	33	102
							R	3.8	A	0	7
				Tower Oaks Blvd SB	2.0	A	L	1.8	A	2	7
							T	2.0	A	19	28

Note: 95th percentile queuing reported using Synchro software.
- Hyphen denotes that no value was recorded for this metric.
* Unsignalized intersection 95th percentile queue reported in number of vehicles.
m Volume for the 95th percentile queue is metered by upstream signal.
Volume for the 95th percentile exceeds capacity, queue may be longer. Queue shown is maximum after two
§ Red light on Montrose Road by Farm Lane is triggered by pedestrian signal call. Farm Lane is yield-controlled.

Reporting Source:
† HCM 6th Signalized Intersection Summary used for Delay and LOS.
‡ HCM 2000 Signalized Intersection Capacity Analysis used for Delay and LOS.
†† HCM 6th Two Way Stop Control used for Delay and LOS.

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Table BP1-9B - Westlake Terrace Corridor - (AM Peak)											
Node	**Location**	**Delay (s/veh)**	**LOS**	**Approach**	**Delay (s/veh)**	**LOS**	**Movement**	**Delay (s/veh)**	**LOS**	**50th %ile Queue (ft)**	**95th %ile Queue (ft)**
P 800†	Westlake Terr at Westfield Montgomery Mall Ent / Motor City Dr	9.6	A	Westlake Terr EB	5.8	A	L	5.6	A	21	49
							T	5.9	A	78	120
							T/R	5.9	A	-	-
				Westlake Terr WB	3.0	A	L	3.7	A	21	41
							T	2.6	A	18	35
							T/R	2.9	A	-	-
				Westfield Montgomery Mall Ent NB	57.3	E	L	56.1	E	4	16
							T/R	57.4	E	16	56
				Motor City Dr SB	59.8	E	L	58.5	E	24	57
							T/R	60.5	E	4	46
P 801‡	Westlake Terr at I-270 Managed Lanes Direct Connector	33.3	C	Westlake Terr EB	33.7	C	L	49.1	D	100	#187
							T	28.3	C	132	182
							T/R	-	-	-	-
				Westlake Terr WB	24.8	C	L	42.0	D	63	m113
							T	23.9	C	164	223
							T/R	10.6	B	0	m12
				I-270 Spur Ramps NB	19.8	B	L/R	19.8	B	48	111
				I-270 Spur Ramps SB	53.4	D	L/R	53.4	D	214	#437
P 802‡	Westlake Terr at Rockledge Dr	30.8	C	Westlake Terr EB	25.3	C	L	25.9	C	151	m#492
							T	25.0	C	112	m212
							T/R	-	-	-	-
				Westlake Terr WB	41.4	D	L	30.0	C	42	118
							T	44.4	D	132	190
							T/R	-	-	-	-
				Rockledge Dr NB	49.4	D	L/T	50.4	D	10	30
							R	46.3	D	0	0
				Rockledge Dr SB	28.1	C	L	24.8	C	51	83
							L/T	32.0	C	205	269
							R	25.6	C	0	56

Note: 95th percentile queuing reported using Synchro software.
- Hyphen denotes that no value was recorded for this metric.
m Volume for the 95th percentile queue is metered by upstream signal.
Volume for the 95th percentile exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

Reporting Source:
† HCM 6th Signalized Intersection Summary used for Delay and LOS.
‡ HCM 2000 Signalized Intersection Capacity Analysis used for Delay and LOS.

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Table BP1-9B - Westlake Terrace Corridor - (PM Peak)											
Node	**Location**	**Delay (s/veh)**	**LOS**	**Approach**	**Delay (s/veh)**	**LOS**	**Movement**	**Delay (s/veh)**	**LOS**	**50th %ile Queue (ft)**	**95th %ile Queue (ft)**
P 800†	Westlake Terr at Westfield Montgomery Mall Ent / Motor City Dr	18.9	B	Westlake Terr EB	24.3	C	L	23.0	C	19	58
							T	24.4	C	92	168
							T/R	24.4	C	-	-
				Westlake Terr WB	4.4	A	L	15.1	B	38	m65
							T	0.8	A	55	80
							T/R	0.9	A	-	-
				Westfield Montgomery Mall Ent NB	31.9	C	L	29.8	C	25	47
							T/R	32.2	C	6	57
				Motor City Dr SB	46.3	D	L	51.7	D	166	237
							T/R	27.8	C	9	37
P 801‡	Westlake Terr at I-270 Managed Lanes Direct Connector	31.9	C	Westlake Terr EB	24.6	C	L	37.1	D	246	208
							T	15.9	B	95	138
							T/R	-	-	-	-
				Westlake Terr WB	25.9	C	L	46.0	D	110	m175
							T	25.1	C	187	m313
							T/R	19.8	B	6	m59
				I-270 Spur Ramps NB	38.4	D	L/R	38.4	D	18	70
				I-270 Spur Ramps SB	70.8	E	L/R	70.8	E	177	283
P 802‡	Westlake Terr at Rockledge Dr	46.9	D	Westlake Terr EB	28.9	C	L	34.3	C	152	m#236
							T	25.5	C	124	184
							T/R	-	-	-	-
				Westlake Terr WB	45.4	D	L	32.8	C	2	11
							T	45.5	D	246	#342
							T/R	-	-	-	-
				Rockledge Dr NB	57.9	E	L/T	70.2	E	250	#411
							R	39.3	D	0	64
				Rockledge Dr SB	54.7	D	L	38.3	D	72	127
							L/T	38.3	D	72	127
							R	61.0	E	183	#400

Note: 95th percentile queuing reported using Synchro software.
- Hyphen denotes that no value was recorded for this metric.
m Volume for the 95th percentile queue is metered by upstream signal.
Volume for the 95th percentile exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

Reporting Source:
† HCM 6th Signalized Intersection Summary used for Delay and LOS.
‡ HCM 2000 Signalized Intersection Capacity Analysis used for Delay and LOS.

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Table BP1-10B - Democracy Boulevard Corridor - (AM Peak)											
Node	**Location**	**Delay (s/veh)**	**LOS**	**Approach**	**Delay (s/veh)**	**LOS**	**Movement**	**Delay (s/veh)**	**LOS**	**50th %ile Queue (ft)**	**95th %ile Queue (ft)**
P 900†	Democracy Blvd at Taveshire Way	10.4	B	Democracy Blvd EB	4.7	A	T	4.7	A	97	137
				Democracy Blvd WB	3.8	A	T	3.8	A	43	62
				Taveshire Way SB	54.1	D	L	48.8	D	52	75
							R	62.2	E	11	69
P 901‡	Democracy Blvd at I-270 SB On-Ramp / I-270 Spur SB Off-Ramp	27.8	C	Democracy Blvd EB	22.1	C	T	22.1	C	348	434
							T/R	-	-	-	-
				Democracy Blvd WB	14.3	B	L	44.8	D	150	202
							T	1.5	A	15	16
				I-270 Spur Off Ramp SB	62.5	E	L	66.9	E	203	250
							R	54.8	D	0	77
P 903‡	Democracy Blvd at I-270 Spur NB Ramps	10.7	B	Democracy Blvd EB	5.2	A	T	5.2	A	178	192
							T/R	-	-	-	-
				Democracy Blvd WB	2.7	A	T	2.7	A	39	50
				I-270 Spur Off Ramp NB	68.8	E	L	68.8	E	128	172
P 904‡	Democracy Blvd at I-270 Spur NB Off-Ramp	16.8	B	Democracy Blvd EB	10.6	B	T	10.6	B	131	320
				Democracy Blvd WB	0.1	A	T	0.1	A	0	m0
				I-270 Spur Off Ramp NB	40.0	D	R	40.0	D	430	477
P 906‡	Democracy Blvd at Fernwood Rd	36.6	D	Democracy Blvd EB	33.9	C	U/L	-	-	-	-
							L	54.4	D	471	#564
							T	36.6	D	255	274
							R	0.6	A	0	0
				Democracy Blvd WB	44.2	D	L	67.5	E	220	#332
							T	52.5	D	39	61
							R	0.1	A	0	0
				Fernwood Rd NB	46.1	D	L	66.8	E	658	#920
							R	0.3	A	0	0
				Fernwood Rd SB	10.7	B	L	26.3	C	33	54
							R	0.1	A	0	0

Note: 95th percentile queuing reported using Synchro software.
- Hyphen denotes that no value was recorded for this metric.
Volume for the 95th percentile exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

Reporting Source:
† HCM 6th Signalized Intersection Summary used for Delay and LOS.
‡ HCM 2000 Signalized Intersection Capacity Analysis used for Delay and LOS.

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Table BP1-10B - Democracy Boulevard Corridor - (PM Peak)											
Node	**Location**	**Delay (s/veh)**	**LOS**	**Approach**	**Delay (s/veh)**	**LOS**	**Movement**	**Delay (s/veh)**	**LOS**	**50th %ile Queue (ft)**	**95th %ile Queue (ft)**
P 900†	Democracy Blvd at Taveshire Way	12.0	B	Democracy Blvd EB	4.4	A	T	4.4	A	64	103
				Democracy Blvd WB	5.0	A	T	5.0	A	115	171
				Taveshire Way SB	51.7	D	L	49.6	D	85	108
							R	57.3	E	82	137
P 901‡	Democracy Blvd at I-270 SB On-Ramp / I-270 Spur SB Off-Ramp	47.0	D	Democracy Blvd EB	61.7	E	T	61.7	E	421	#520
							T/R	-	-	-	-
				Democracy Blvd WB	33.8	C	L	65.7	E	252	#335
							T	18.1	B	171	193
				I-270 Spur Off Ramp SB	49.5	D	L	28.7	C	141	181
							R	63.3	E	559	#818
P 903‡	Democracy Blvd at I-270 Spur NB Ramps	8.5	A	Democracy Blvd EB	2.0	A	T	2.0	A	27	30
							T/R	-	-	-	-
				Democracy Blvd WB	4.2	A	T	4.2	A	106	143
				I-270 Spur Off Ramp NB	68.9	E	L	68.9	E	123	165
P 904‡	Democracy Blvd at I-270 Spur NB Off-Ramp	7.8	A	Democracy Blvd EB	3.0	A	T	3.0	A	32	37
				Democracy Blvd WB	0.2	A	T	0.2	A	0	0
				I-270 Spur Off Ramp NB	49.8	D	R	49.8	D	180	211
P 906‡	Democracy Blvd at Fernwood Rd	30.6	C	Democracy Blvd EB	35.7	D	U/L	-	-	-	-
							L	61.7	E	64	100
							T	50.6	D	281	#367
							R	0.5	A	0	0
				Democracy Blvd WB	38.0	D	L	69.1	E	267	#468
							T	32.2	C	211	284
							R	0.1	A	0	0
				Fernwood Rd NB	35.4	D	L	48.9	D	489	591
							R	0.2	A	0	0
				Fernwood Rd SB	8.7	A	L	26.7	C	88	108
							R	0.9	A	0	0

Note: 95th percentile queuing reported using Synchro software.
- Hyphen denotes that no value was recorded for this metric.
Volume for the 95th percentile exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

Reporting Source:
† HCM 6th Signalized Intersection Summary used for Delay and LOS.
‡ HCM 2000 Signalized Intersection Capacity Analysis used for Delay and LOS.

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Table BP1-11B - Rockledge Road / MD 187 (Old Georgetown Road) Corridor - (AM Peak)											
Node	**Location**	**Delay (s/veh)**	**LOS**	**Approach**	**Delay (s/veh)**	**LOS**	**Movement**	**Delay (s/veh)**	**LOS**	**50th %ile Queue (ft)**	**95th %ile Queue (ft)**
P 1000[†]	Rockledge Dr at Rock Forest Dr	24.7	C	Rockledge Dr EB	56.8	E	L	59.4	E	92	132
							T	46.2	D	8	26
							R	48.8	D	0	0
				Rock Forest Dr WB	67.0	E	L	76.5	E	32	71
							T	52.9	D	12	35
							R	64.7	E	0	0
				Rockledge Dr NB	9.9	A	L	10.4	B	30	57
							T	9.7	A	45	73
							T/R	9.7	A	-	-
				Rockledge Dr SB	13.9	B	L	8.7	A	6	17
							T	14.0	B	215	304
							R	0.0	A	0	0
P 1001[‡]	Rockledge Dr at I-270 SB Off Ramp / I-270 SB Ramp Connector	19.2	B	I-270 SB Off Ramp EB	30.0	C	L/T	-	-	-	-
							T	63.9	E	374	441
							R	1.4	A	0	0
				Rockledge Dr NB	35.5	D	T	66.3	E	79	119
							R	24.3	C	144	188
				Rockledge Dr SB	0.0	A	T	0.0	A	0	0
P 1002[‡]	Rockledge Dr at I-270 NB On Ramp / I-270 NB Ramp Connector	39.6	D	I-270 NB Ramp Connector WB	42.8	D	L	49.8	D	661	#980
							L/T	-	-	-	-
							T	39.1	D	602	732
				Rockledge Dr NB	0.2	A	L	0.2	A	0	0
P 1003[‡]	MD 187 (Old Georgetown Road) at Rock Spring Dr	39.3	D	Rock Spring Dr EB	73.6	E	L	88.3	F	286	#458
							L/T	87.8	F	287	#458
							R	46.5	D	124	210
				Rock Spring Dr WB	73.6	E	L/T/R	73.6	E	10	48
				MD 187 (Old Georgetown Road) NB	28.4	C	L	77.9	E	90	#155
							T	20.5	C	248	291
							T/R	-	-	-	-
				MD 187 (Old Georgetown Road) SB	33.4	C	L	75.0	E	42	m56
							T	33.9	C	640	531
							R	28.1	C	103	153

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Table BP1-11B - Rockledge Road / MD 187 (Old Georgetown Road) Corridor - (AM Peak)

Node	Location	Delay (s/veh)	LOS	Approach	Delay (s/veh)	LOS	Movement	Delay (s/veh)	LOS	50th %ile Queue (ft)	95th %ile Queue (ft)
P 1005‡	MD 187 (Old Georgetown Road) at I-270 SB Ramp Connector / I-270 SB On-Ramp	22.8	C	I-270 SB Ramp Connector EB	51.8	D	L	38.2	D	97	150
							L/T/R	38.0	D	97	149
							R	57.2	E	371	449
				MD 187 (Old Georgetown Road) NB	22.7	C	T	22.7	C	195	211
							T/R	-	-	-	-
				MD 187 (Old Georgetown Road) SB	11.9	B	L	38.2	D	0	0
							T	8.9	A	296	324
P 1006‡	MD 187 (Old Georgetown Road) at I-270 NB Ramp Connector / I-270 NB Off-Ramp	9.6	A	I-270 NB Off Ramp WB	17.1	B	L	69.8	E	71	125
							L/T	68.9	E	70	122
							R	0.3	A	0	0
				MD 187 (Old Georgetown Road) NB	16.0	B	L	92.9	F	154	205
							T	1.1	A	45	59
				MD 187 (Old Georgetown Road) SB	4.5	A	T	6.1	A	154	m121
							R	0.1	A	0	m0
P 1009‡	MD 187 (Old Georgetown Road) at Tuckerman Ln	148.8	F	Tuckerman Ln EB	82.4	F	L	47.6	D	49	78
							T	88.3	F	372	#509
							T/R	-	-	-	-
				Tuckerman Ln WB	273.5	F	L	354.6	F	~558	#688
							T	59.8	E	97	141
							R	48.4	D	0	9
				MD 187 (Old Georgetown Road) NB	51.3	D	U/L	275.3	F	~263	#464
							T	17.9	B	142	185
							R	17.4	B	11	27
				MD 187 (Old Georgetown Road) SB	198.5	F	L	71.5	E	32	69
							T	200.4	F	~1,157	#1,261
							T/R	-	-	-	-

Note: 95th percentile queuing reported using Synchro software.
- Hyphen denotes that no value was recorded for this metric.
~ Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.
m Volume for the 95th percentile queue is metered by upstream signal.
Volume for the 95th percentile exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

Reporting Source:
† HCM 6th Signalized Intersection Summary used for Delay and LOS.
‡ HCM 2000 Signalized Intersection Capacity Analysis used for Delay and LOS.

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Table BP1-11B - Rockledge Road / MD 187 (Old Georgetown Road) Corridor - (PM Peak)											
Node	**Location**	**Delay (s/veh)**	**LOS**	**Approach**	**Delay (s/veh)**	**LOS**	**Movement**	**Delay (s/veh)**	**LOS**	**50th %ile Queue (ft)**	**95th %ile Queue (ft)**
P 1000[†]	Rockledge Dr at Rock Forest Dr	34.5	C	Rockledge Dr EB	58.5	E	L	56.0	E	203	255
							T	39.6	D	28	59
							R	66.3	E	0	73
				Rock Forest Dr WB	68.9	E	L	76.5	E	32	71
							T	55.0	D	8	28
							R	65.6	E	0	0
				Rockledge Dr NB	19.7	B	L	12.1	B	13	32
							T	20.1	C	273	392
							T/R	20.0	B	-	-
				Rockledge Dr SB	14.5	B	L	14.3	B	30	62
							T	14.6	B	81	123
							R	0.0	A	0	0
P 1001[‡]	Rockledge Dr at I-270 SB Off Ramp / I-270 SB Ramp Connector	32.1	C	I-270 SB Off Ramp EB	33.0	C	L/T	-	-	-	-
							T	64.5	E	287	351
							R	0.6	A	0	0
				Rockledge Dr NB	40.9	D	T	74.3	E	280	#353
							R	23.3	C	368	514
				Rockledge Dr SB	0.0	A	T	0.0	A	0	m0
P 1002[‡]	Rockledge Dr at I-270 NB On Ramp / I-270 NB Ramp Connector	28.5	C	I-270 NB Ramp Connector WB	37.7	D	L	32.0	C	348	507
							L/T	-	-	-	-
							T	39.6	D	601	712
				Rockledge Dr NB	0.1	A	L	0.1	A	0	m0
P 1003[‡]	MD 187 (Old Georgetown Road) at Rock Spring Dr	58.4	E	Rock Spring Dr EB	75.4	E	L	85.5	F	318	#501
							L/T	87.4	F	326	#513
							R	31.9	C	19	60
				Rock Spring Dr WB	155.1	F	L/T/R	155.1	F	53	#203
				MD 187 (Old Georgetown Road) NB	56.7	E	L	58.8	E	91	132
							T	56.5	E	~861	#990
							T/R	-	-	-	-
				MD 187 (Old Georgetown Road) SB	46.2	D	L	94.0	F	~108	#239
							T	43.0	D	619	670
							R	46.3	D	114	164

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Table BP1-11B - Rockledge Road / MD 187 (Old Georgetown Road) Corridor - (PM Peak)

Node	Location	Delay (s/veh)	LOS	Approach	Delay (s/veh)	LOS	Movement	Delay (s/veh)	LOS	50th %ile Queue (ft)	95th %ile Queue (ft)
P 1005‡	MD 187 (Old Georgetown Road) at I-270 SB Ramp Connector / I-270 SB On-Ramp	24.5	C	I-270 SB Ramp Connector EB	55.2	E	L	59.9	E	320	432
							L/T/R	58.4	E	324	434
							R	45.7	D	143	191
				MD 187 (Old Georgetown Road) NB	24.2	C	T	24.2	C	591	m672
							T/R	-	-	-	-
				MD 187 (Old Georgetown Road) SB	8.9	A	L	22.6	C	56	79
							T	7.8	A	106	190
P 1006‡	MD 187 (Old Georgetown Road) at I-270 NB Ramp Connector / I-270 NB Off-Ramp	15.8	B	I-270 NB Off Ramp WB	22.6	C	L	69.8	E	56	106
							L/T	69.4	E	56	106
							R	0.2	A	0	0
				MD 187 (Old Georgetown Road) NB	17.5	B	L	75.2	E	272	272
							T	4.1	A	192	201
				MD 187 (Old Georgetown Road) SB	12.2	B	T	16.7	B	191	m218
							R	0.1	A	0	m0
P 1009‡	MD 187 (Old Georgetown Road) at Tuckerman Ln	73.6	E	Tuckerman Ln EB	61.0	E	L	57.8	E	152	195
							T	63.4	E	217	267
							T/R	-	-	-	-
				Tuckerman Ln WB	168.7	F	L	253.9	F	~340	#458
							T	76.4	E	169	#242
							R	50.7	D	0	29
				MD 187 (Old Georgetown Road) NB	39.0	D	U/L	231.5	F	~318	#510
							T	23.0	C	~438	#883
							R	10.3	B	115	155
				MD 187 (Old Georgetown Road) SB	87.0	F	L	77.5	E	67	#172
							T	87.3	F	~899	#1,079
							T/R	-	-	-	-

Note: 95th percentile queuing reported using Synchro software.
- Hyphen denotes that no value was recorded for this metric.
~ Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.
m Volume for the 95th percentile queue is metered by upstream signal.
Volume for the 95th percentile exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

Reporting Source:
† HCM 6th Signalized Intersection Summary used for Delay and LOS.
‡ HCM 2000 Signalized Intersection Capacity Analysis used for Delay and LOS.

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Table BP1-12B - MD 190 (River Road) Corridor - (AM Peak)

Node	Location	Delay (s/veh)	LOS	Approach	Delay (s/veh)	LOS	Movement	Delay (s/veh)	LOS	50th %ile Queue (ft)	95th %ile Queue (ft)
P 1100‡	MD 190 (River Rd) at Seven Locks Rd	34.4	C	MD 190 (River Rd) EB	34.8	C	L	22.5	C	12	34
							T	35.0	C	508	632
							T/R	-	-	-	-
				MD 190 (River Rd) WB	18.6	B	U/L	25.6	C	55	93
							T	18.0	B	184	235
							R	15.3	B	0	34
				Seven Locks Rd NB	15.7	B	L	76.0	E	21	53
							T	90.5	F	42	86
							R	0.2	A	0	0
				Seven Locks Rd SB	65.1	E	L	66.4	E	312	433
							L/T/R	63.9	E	320	441
P 1102‡	MD 190 (River Rd) at I-495 Outer Loop Ramps	20.8	C	MD 190 (River Rd) EB	17.2	B	T	17.8	B	146	216
							R	16.6	B	0	41
				MD 190 (River Rd) WB	13.3	B	L	31.1	C	97	87
							T	3.3	A	33	29
				I-495 Outer Loop Off-Ramp SB	39.2	D	L	41.3	D	124	156
							R	32.4	C	0	55
P 1105‡	MD 190 (River Rd) at I-495 Inner Loop Ramps	18.3	B	MD 190 (River Rd) EB	6.8	A	L	70.0	E	84	m117
							T	1.7	A	9	58
				MD 190 (River Rd) WB	18.3	B	T	18.3	B	201	279
				I-495 Inner Loop Off-Ramp NB	38.6	D	L	25.6	C	40	54
							R	43.0	D	199	252
P 1107†	MD 190 (River Rd) at Burdette Rd	20.7	C	MD 190 (River Rd) EB	16.4	B	L	23.2	C	11	m66
							T	16.3	B	579	1,231
							R	5.1	A	0	m2
				MD 190 (River Rd) WB	14.5	B	L	19.3	B	1	5
							T	14.6	B	627	891
							R	6.1	A	0	0
				Burdette Rd NB	73.8	E	L/T/R	73.8	E	44	84
				Burdette Rd SB	96.6	F	L/T	70.1	E	60	104
							R	103.5	F	136	224

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Table BP1-12B - MD 190 (River Road) Corridor - (AM Peak)											
Node	**Location**	**Delay (s/veh)**	**LOS**	**Approach**	**Delay (s/veh)**	**LOS**	**Movement**	**Delay (s/veh)**	**LOS**	**50th %ile Queue (ft)**	**95th %ile Queue (ft)**
P 1109‡	MD 190 (River Rd) at I-495 Managed Lanes Direct Connector	13.8	B	MD 190 (River Rd) EB	12.0	B	L	21.2	C	42	61
							T	11.2	B	182	223
							R	8.7	A	0	m0
				MD 190 (River Rd) WB	8.9	A	L	25.3	C	144	156
							T	3.1	A	13	31
							R	0.4	A	0	0
				I-495 Managed Lanes Direct Connector NB	32.1	C	L	38.3	D	6	17
							R	31.0	C	0	0
				I-495 Managed Lanes Direct Connector SB	39.8	D	L	40.9	D	43	72
							R	38.4	D	0	0

Note: 95th percentile queuing reported using Synchro software.

\- Hyphen denotes that no value was recorded for this metric.

m Volume for the 95th percentile queue is metered by upstream signal.

\# Volume for the 95th percentile exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

Reporting Source:

† HCM 6th Signalized Intersection Summary used for Delay and LOS.

‡ HCM 2000 Signalized Intersection Capacity Analysis used for Delay and LOS.

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Table BP1-12B - MD 190 (River Road) Corridor - (PM Peak)											
Node	**Location**	**Delay (s/veh)**	**LOS**	**Approach**	**Delay (s/veh)**	**LOS**	**Movement**	**Delay (s/veh)**	**LOS**	**50th %ile Queue (ft)**	**95th %ile Queue (ft)**
P 1100‡	MD 190 (River Rd) at Seven Locks Rd	51.9	D	MD 190 (River Rd) EB	60.2	E	L	87.2	F	23	#79
							T	59.3	E	384	466
							T/R	-	-	-	-
				MD 190 (River Rd) WB	48.3	D	U/L	75.7	E	225	#402
							T	45.1	D	651	759
							R	43.7	D	296	540
				Seven Locks Rd NB	32.4	C	L	57.6	E	24	55
							T	94.9	F	206	#353
							R	0.3	A	0	0
				Seven Locks Rd SB	71.9	E	L	60.0	E	325	#461
							L/T/R	81.3	F	435	#661
P 1102‡	MD 190 (River Rd) at I-495 Outer Loop Ramps	17.6	B	MD 190 (River Rd) EB	19.5	B	T	20.6	C	220	314
							R	14.9	B	0	29
				MD 190 (River Rd) WB	9.9	A	L	34.0	C	111	m109
							T	4.7	A	110	370
				I-495 Outer Loop Off-Ramp SB	39.8	D	L	40.3	D	109	135
							R	38.8	D	65	140
P 1105‡	MD 190 (River Rd) at I-495 Inner Loop Ramps	19.8	B	MD 190 (River Rd) EB	11.6	B	L	52.2	D	99	#165
							T	7.9	A	127	141
				MD 190 (River Rd) WB	17.0	B	T	17.0	B	413	m359
				I-495 Inner Loop Off-Ramp NB	40.1	D	L	42.8	D	149	189
							R	31.5	C	34	69
P 1107†	MD 190 (River Rd) at Burdette Rd	44.7	D	MD 190 (River Rd) EB	33.9	C	L	214.5	F	223	#519
							T	7.5	A	265	585
							R	3.8	A	3	10
				MD 190 (River Rd) WB	48.9	D	L	8.1	A	1	5
							T	49.9	D	~1,825	#1,930
							R	8.0	A	0	1
				Burdette Rd NB	79.7	E	L/T/R	79.7	E	38	74
				Burdette Rd SB	92.6	F	L/T	76.4	E	62	104
							R	98.9	F	48	116

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Table BP1-12B - MD 190 (River Road) Corridor - (PM Peak)											
Node	**Location**	**Delay (s/veh)**	**LOS**	**Approach**	**Delay (s/veh)**	**LOS**	**Movement**	**Delay (s/veh)**	**LOS**	**50th %ile Queue (ft)**	**95th %ile Queue (ft)**
P 1109‡	MD 190 (River Rd) at I-495 Managed Lanes Direct Connector	22.0	C	MD 190 (River Rd) EB	12.8	B	L	34.9	C	97	#172
							T	9.4	A	180	181
							R	0.5	A	0	0
				MD 190 (River Rd) WB	21.8	C	L	40.7	D	82	110
							T	19.9	B	356	393
							R	6.7	A	0	m1
				I-495 Managed Lanes Direct Connector NB	44.0	D	L	47.7	D	113	160
							R	34.7	C	0	3
				I-495 Managed Lanes Direct Connector SB	37.4	D	L	38.0	D	82	122
							R	35.8	D	0	0

Note: 95th percentile queuing reported using Synchro software.

- Hyphen denotes that no value was recorded for this metric.

~ Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.

m Volume for the 95th percentile queue is metered by upstream signal.

Volume for the 95th percentile exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

Reporting Source:

† HCM 6th Signalized Intersection Summary used for Delay and LOS.

‡ HCM 2000 Signalized Intersection Capacity Analysis used for Delay and LOS.

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Table BP1-13B - MD 187 (Old Georgetown Road) Corridor - (AM Peak)											
Node	**Location**	**Delay (s/veh)**	**LOS**	**Approach**	**Delay (s/veh)**	**LOS**	**Movement**	**Delay (s/veh)**	**LOS**	**50th %ile Queue (ft)**	**95th %ile Queue (ft)**
P 1200‡	MD 187 (Old Georgetown Rd) at Lone Oak Dr/Manor Oak Way	15.5	B	Lone Oak Dr EB	69.6	E	L/T	77.4	E	66	116
							R	67.1	E	178	241
				Manor Oak Way WB	62.9	E	L/T/R	62.9	E	9	31
				MD 187 (Old Georgetown Rd) NB	5.8	A	U/L	35.5	D	85	m125
							T	3.0	A	154	167
							R	2.4	A	0	m0
				MD 187 (Old Georgetown Rd) SB	14.8	B	L	7.3	A	1	8
							T	14.8	B	484	691
							T/R	-	-	-	-
P 1201‡	MD 187 (Old Georgetown Rd) at I-495 Outer Loop Off-Ramp	37.3	D	I-495 Outer Loop Off-Ramp WB	81.8	F	L	55.0	D	85	145
							L/T	55.0	E	86	148
							R	95.8	F	237	#431
				MD 187 (Old Georgetown Rd) NB	21.0	C	L	85.9	F	297	#489
							T	2.8	A	79	84
				MD 187 (Old Georgetown Rd) SB	37.3	D	T	37.3	D	~693	#829
							T/R	-	-	-	-
P 1202‡	MD 187 (Old Georgetown Rd) at I-495 Inner Loop Off-Ramp	10.6	B	I-495 Inner Loop Off-Ramp EB	19.3	B	L	68.9	E	105	166
							L/T	68.7	E	105	165
							R	0.6	A	0	0
				MD 187 (Old Georgetown Rd) NB	17.3	B	T	17.3	B	238	263
							T/R	-	-	-	-
				MD 187 (Old Georgetown Rd) SB	3.4	A	L	18.6	B	116	m116
							T	1.7	A	69	m75
P 1203‡	MD 187 (Old Georgetown Rd) at Ryland Dr/Church Dwy	14.5	B	Ryland Dr EB	73.4	E	L/T/R	73.4	E	264	357
				Church Dwy WB	44.1	D	L	44.6	D	25	52
							T	43.5	D	4	15
							R	43.9	D	0	18
				MD 187 (Old Georgetown Rd) NB	17.7	B	L	20.2	C	2	7
							T	17.7	B	218	297
							T/R	-	-	-	-
				MD 187 (Old Georgetown Rd) SB	5.5	A	U/L	2.7	A	8	14
							T	5.6	A	69	387
							T/R	-	-	-	-

Note: 95th percentile queuing reported using Synchro software.

- Hyphen denotes that no value was recorded for this metric.

~ Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.

m Volume for the 95th percentile queue is metered by upstream signal.

Volume for the 95th percentile exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

Reporting Source:

‡ HCM 2000 Signalized Intersection Capacity Analysis used for Delay and LOS.

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Table BP1-13B - MD 187 (Old Georgetown Road) Corridor - (PM Peak)

Node	Location	Delay (s/veh)	LOS	Approach	Delay (s/veh)	LOS	Movement	Delay (s/veh)	LOS	50th %ile Queue (ft)	95th %ile Queue (ft)
P 1200‡	MD 187 (Old Georgetown Rd) at Lone Oak Dr/Manor Oak Way	17.7	B	Lone Oak Dr EB	60.6	E	L/T	71.2	E	102	161
							R	46.6	D	44	78
				Manor Oak Way WB	57.0	E	L/T/R	57.0	E	9	30
				MD 187 (Old Georgetown Rd) NB	14.9	B	U/L	34.4	C	105	m167
							T	13.7	B	586	656
							R	3.6	A	0	m0
				MD 187 (Old Georgetown Rd) SB	17.5	B	L	14.3	B	2	13
							T	17.5	B	439	636
							T/R	-	-	-	-
P 1201‡	MD 187 (Old Georgetown Rd) at I-495 Outer Loop Off-Ramp	17.9	B	I-495 Outer Loop Off-Ramp WB	68.2	E	L	47.6	D	74	129
							L/T	47.7	D	76	131
							R	78.4	E	291	#459
				MD 187 (Old Georgetown Rd) NB	6.0	A	L	32.4	C	188	m209
							T	3.6	A	190	198
				MD 187 (Old Georgetown Rd) SB	20.5	C	T	20.5	C	120	128
							T/R	-	-	-	-
P 1202‡	MD 187 (Old Georgetown Rd) at I-495 Inner Loop Off-Ramp	22.5	C	I-495 Inner Loop Off-Ramp EB	50.7	D	L	72.9	E	240	349
							L/T	74.4	E	247	#357
							R	0.2	A	0	0
				MD 187 (Old Georgetown Rd) NB	23.9	C	T	23.9	C	791	235
							T/R	-	-	-	-
				MD 187 (Old Georgetown Rd) SB	9.2	A	L	48.7	D	172	m205
							T	4.0	A	73	79
P 1203‡	MD 187 (Old Georgetown Rd) at Ryland Dr/Church Dwy	7.7	A	Ryland Dr EB	68.9	E	L/T/R	68.9	E	56	96
				Church Dwy WB	62.7	E	L	63.2	E	10	28
							T	62.6	E	5	17
							R	62.5	E	0	11
				MD 187 (Old Georgetown Rd) NB	9.3	A	L	4.5	A	1	8
							T	9.3	A	359	615
							T/R	-	-	-	-
				MD 187 (Old Georgetown Rd) SB	1.7	A	U/L	38.2	D	1	33
							T	0.9	A	13	30
							T/R	-	-	-	-

Note: 95th percentile queuing reported using Synchro software.
- Hyphen denotes that no value was recorded for this metric.
m Volume for the 95th percentile queue is metered by upstream signal.
Volume for the 95th percentile exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

Reporting Source:
‡ HCM 2000 Signalized Intersection Capacity Analysis used for Delay and LOS.

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Table BP1-14B - MD 355 (Rockville Pike) / I-270 East Spur Corridor - (AM Peak)												
Node	**Location**	**Delay (s/veh)**	**LOS**	**Approach**	**Delay (s/veh)**	**LOS**	**Move-ment**	**Delay (s/veh)**	**LOS**	**50th %ile Queue (ft**	**95th %ile Queue (ft)**
P 1300‡	MD 355 (Rockville Pike) at Grosvenor Ln	32.7	C	Grosvenor Ln EB	59.8	E	L	60.9	E	56	89
							R	59.2	E	159	258
				Grosvenor Ln WB	44.1	D	L	38.9	D	263	325
							T/R	59.2	E	183	282
				MD 355 (Rockville Pike) NW	24.2	C	T	24.2	C	370	433
				MD 355 (Rockville Pike) SB	29.0	C	T	29.8	C	671	736
							R	15.7	B	7	40
P 1307‡	MD 355 (Rockville Pike) at I-495 Inner Loop Off-Ramp	25.1	C	I-495 Inner Loop Off-Ramp SE	77.5	E	R	77.5	E	326	400
				MD 355 (Rockville Pike) SB	17.3	B	T	17.3	B	715	772
P 1309†	MD 355 (Rockville Pike) at Pooks Hill Rd	32.8	C	Pooks Hill Rd EB	94.5	F	L	94.5	F	297	#386
							R	0.0	A	89	180
				MD 355 (Rockville Pike) NB	9.6	A	L	74.6	E	63	m115
							T	7.8	A	35	49
				MD 355 (Rockville Pike) SB	36.4	D	T	37.4	D	786	478
							R	4.7	A	0	m3
P 1310‡	MD 355 (Rockville Pike) at Alta Vista Rd/Bellevue Dr	16.3	B	Alta Vista Rd EB	93.6	F	L/T/R	93.6	F	112	177
				Bellevue Dr WB	73.9	E	L/T/R	73.9	E	11	41
				MD 355 (Rockville Pike) NB	23.4	C	U/L	-	-	-	-
							T	23.4	C	384	468
							T/R	-	-	-	-
				MD 355 (Rockville Pike) SB	11.5	B	U/L	16.8	B	215	m237
							T	11.0	B	330	195
							T/R	-	-	-	-

Note: 95th percentile queuing reported using Synchro software.
- Hyphen denotes that no value was recorded for this metric.
m Volume for the 95th percentile queue is metered by upstream signal.
Volume for the 95th percentile exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

Reporting Source:
† HCM 6th Signalized Intersection Summary used for Delay and LOS.
‡ HCM 2000 Signalized Intersection Capacity Analysis used for Delay and LOS.

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Table BP1-14B - MD 355 (Rockville Pike) / I-270 East Spur Corridor - (PM Peak)											
Node	**Location**	**Delay (s/veh)**	**LOS**	**Approach**	**Delay (s/veh)**	**LOS**	**Move-ment**	**Delay (s/veh)**	**LOS**	**50th %ile Queue (ft**	**95th %ile Queue (ft)**
P 1300‡	MD 355 (Rockville Pike) at Grosvenor Ln	32.3	C	Grosvenor Ln EB	61.0	E	L	67.8	E	82	120
							R	55.0	D	91	179
				Grosvenor Ln WB	59.5	E	L	37.4	D	88	123
							T/R	77.3	E	263	#443
				MD 355 (Rockville Pike) NW	32.4	C	T	32.4	C	696	801
				MD 355 (Rockville Pike) SB	19.1	B	T	19.5	B	382	426
							R	13.0	B	0	29
P 1307‡	MD 355 (Rockville Pike) at I-495 Inner Loop Off-Ramp	18.3	B	I-495 Inner Loop Off-Ramp SE	77.8	E	R	77.8	E	235	288
				MD 355 (Rockville Pike) SB	8.9	A	T	8.9	A	284	363
P 1309†	MD 355 (Rockville Pike) at Pooks Hill Rd	15.4	B	Pooks Hill Rd EB	99.1	F	L	99.1	F	154	207
							R	0.0	A	0	55
				MD 355 (Rockville Pike) NB	10.1	B	L	72.5	E	84	m92
							T	8.8	A	109	m97
				MD 355 (Rockville Pike) SB	14.3	B	T	15.4	B	282	287
							R	6.6	A	0	5
P 1310‡	MD 355 (Rockville Pike) at Alta Vista Rd/Bellevue Dr	23.5	C	Alta Vista Rd EB	99.8	F	L/T/R	99.8	F	134	208
				Bellevue Dr WB	72.4	E	L/T/R	72.4	E	17	48
				MD 355 (Rockville Pike) NB	29.0	C	U/L	21.3	C	3	9
							T	29.1	C	1,067	1,222
							T/R	-	-	-	-
				MD 355 (Rockville Pike) SB	12.4	B	U/L	108.2	F	~282	#486
							T	1.4	A	37	18
							T/R	-	-	-	-

Note: 95th percentile queuing reported using Synchro software.

- Hyphen denotes that no value was recorded for this metric.

~ Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.

m Volume for the 95th percentile queue is metered by upstream signal.

Volume for the 95th percentile exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

Reporting Source:

† HCM 6th Signalized Intersection Summary used for Delay and LOS.

‡ HCM 2000 Signalized Intersection Capacity Analysis used for Delay and LOS.

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2045 NO BUILD CONDITIONS

SYNCHRO ANALYSIS OUTPUT TABLES

Table NB-2B - I-370 (Sam Eig Highway) Corridor - (AM Peak)

Node	Location	Delay (s/veh)	LOS	Approach	Delay (s/veh)	LOS	Movement	Delay (s/veh)	LOS	50th %ile Queue (ft)	95th %ile Queue (ft)
N 100‡	I-370 (Sam Eig Hwy) at Fields Rd	23.4	C	Fields Rd WB	52.9	D	L	72.6	E	102	140
							R	42.7	D	171	199
				I-370 (Sam Eig Hwy) NB	17.6	B	T	18.3	B	527	671
							R	14.7	B	244	418
				I-370 (Sam Eig Hwy) SB	23.0	C	L	73.4	E	277	326
							T	5.4	A	147	186
				Washingtonian Blvd Ramp SEB	4.1	A	R	4.1	A	21	39
N 104‡	Washingtonian Blvd at I-370 (Sam Eig Hwy) WB Ramps	22.1	C	Washingtonian Blvd Ramp WB	27.7	C	L	29.0	C	98	209
							L/T	29.0	C	100	210
							R	24.5	C	0	0
				Washingtonian Blvd NB	1.5	A	L	0.9	A	1	1
							T	1.6	A	4	5
				Washingtonian Blvd SB	26.7	C	T	26.7	C	120	190
							T/R	-	-	-	-
N 105‡	Washingtonian Blvd at I-370 (Sam Eig Hwy) EB Ramps	11.5	B	Washingtonian Blvd Ramp EB	30.2	C	L/T	31.2	C	36	81
							R	29.6	C	0	0
				Washingtonian Blvd NB	18.7	B	T	19.3	B	72	139
							R	17.6	B	0	0
				Washingtonian Blvd SB	4.2	A	L/T	-	-	-	-
							T	4.2	A	21	102
N 113‡	I-370 (Sam Eig Hwy) SBR at MD 119 (Great Seneca Hwy)	5.0	A	MD 119 (Great Seneca Hwy) EB	0.2	A	T	0.2	A	0	0
				MD 119 (Great Seneca Hwy) WB	3.9	A	T	3.9	A	4	5
				I-370 (Sam Eig Hwy) SB	28.4	C	R	28.4	C	53	234
N 114‡	I-370 (Sam Eig Hwy) at MD 119 (Great Seneca Hwy)	34.7	C	MD 119 (Great Seneca Hwy) EB	24.3	C	L	42.2	D	532	614
							T	15.0	B	707	789
				MD 119 (Great Seneca Hwy) WB	51.2	D	T	51.2	D	118	151
				I-370 (Sam Eig Hwy) SB	90.7	F	L	90.7	F	314	#381
N 118‡	I-370 (Sam Eig Hwy) at Diamondback Dr	30.6	C	Diamondback Dr EB	78.0	E	L	79.1	E	391	452
							R	55.2	E	0	0
				Diamondback Dr WB	65.5	E	R	65.5	E	109	144
				I-370 (Sam Eig Hwy) NB	12.8	B	L	128.7	F	27	m44
							T	11.9	B	100	462
							R	0.1	A	0	m0
				I-370 (Sam Eig Hwy) SB	23.0	C	L	104.5	F	135	198
							T	23.3	C	220	418
							R	0.4	A	0	0

Note: 95th percentile queuing reported using Synchro software.
- Hyphen denotes that no value was recorded for this metric.
m Volume for the 95th percentile queue is metered by upstream signal.
Volume for the 95th percentile exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

Reporting Source:
‡ HCM 2000 Signalized Intersection Capacity Analysis used for Delay and LOS.

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Table NB-2B - I-370 (Sam Eig Highway) Corridor - (PM Peak)

Node	Location	Delay (s/veh)	LOS	Approach	Delay (s/veh)	LOS	Movement	Delay (s/veh)	LOS	50th %ile Queue (ft)	95th %ile Queue (ft)
N 100‡	I-370 (Sam Eig Hwy) at Fields Rd	29.6	C	Fields Rd WB	50.4	D	L	67.5	E	229	281
							R	38.8	D	267	319
				I-370 (Sam Eig Hwy) NB	29.8	C	T	30.8	C	801	352
							R	23.8	C	154	194
				I-370 (Sam Eig Hwy) SB	25.1	C	L	71.0	E	340	420
							T	13.5	B	490	578
				Washingtonian Blvd Ramp SEB	9.6	A	R	9.6	A	152	224
N 104‡	Washingtonian Blvd at I-370 (Sam Eig Hwy) WB Ramps	20.7	C	Washingtonian Blvd Ramp WB	34.1	C	L	34.8	C	104	#235
							L/T	34.9	C	107	#242
							R	28.4	C	0	0
				Washingtonian Blvd NB	0.8	A	L	0.7	A	1	m2
							T	0.8	A	2	3
				Washingtonian Blvd SB	31.4	C	T	31.4	C	123	190
							T/R	-	-	-	-
N 105‡	Washingtonian Blvd at I-370 (Sam Eig Hwy) EB Ramps	21.7	C	Washingtonian Blvd Ramp EB	31.1	C	L/T	31.8	C	33	79
							R	30.8	C	0	0
				Washingtonian Blvd NB	24.9	C	T	26.7	C	240	398
							R	23.8	C	30	177
				Washingtonian Blvd SB	13.1	B	L/T	-	-	-	-
							T	13.1	B	34	77
N 113‡	I-370 (Sam Eig Hwy) SBR at MD 119 (Great Seneca Hwy)	12.4	B	MD 119 (Great Seneca Hwy) EB	0.0	A	T	0.0	A	0	0
				MD 119 (Great Seneca Hwy) WB	6.2	A	T	6.2	A	19	38
				I-370 (Sam Eig Hwy) SB	31.9	C	R	31.9	C	1,001	1,078
N 114‡	I-370 (Sam Eig Hwy) at MD 119 (Great Seneca Hwy)	46.4	D	MD 119 (Great Seneca Hwy) EB	26.6	C	L	43.3	D	388	458
							T	4.0	A	73	88
				MD 119 (Great Seneca Hwy) WB	57.0	E	T	57.0	E	648	711
				I-370 (Sam Eig Hwy) SB	81.1	F	L	81.1	F	156	#233
N 118‡	I-370 (Sam Eig Hwy) at Diamondback Dr	40.0	D	Diamondback Dr EB	83.2	F	L	84.3	F	273	332
							R	63.9	E	0	0
				Diamondback Dr WB	57.6	E	R	57.6	E	188	225
				I-370 (Sam Eig Hwy) NB	54.1	D	L	73.3	E	115	187
							T	60.8	E	537	619
							R	0.2	A	0	0
				I-370 (Sam Eig Hwy) SB	24.2	C	L	84.1	F	183	263
							T	33.6	C	609	733
							R	4.1	A	1,036	1,295

Note: 95th percentile queuing reported using Synchro software.
- Hyphen denotes that no value was recorded for this metric.
m Volume for the 95th percentile queue is metered by upstream signal.
Volume for the 95th percentile exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

Reporting Source:
‡ HCM 2000 Signalized Intersection Capacity Analysis used for Delay and LOS.

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Table NB-3B - Shady Grove Road Corridor - (AM Peak)

Node	Location	Delay (s/veh)	LOS	Approach	Delay (s/veh)	LOS	Movement	Delay (s/veh)	LOS	50th %ile Queue (ft)	95th %ile Queue (ft)
N 200‡	Omega Dr at MD 28 (Key W Ave)	38.8	D	MD 28 (Key W Ave) EB	33.5	C	L	73.7	E	88	148
							T	33.3	C	611	824
							R	18.5	B	0	46
				MD 28 (Key W Ave) WB	32.9	C	U/L	-	-	-	-
							L	71.6	E	145	#228
							T	16.8	B	91	156
							R	15.4	B	0	36
				Medical Center Dr NB	59.2	E	L	122.6	F	11	34
							T	54.5	D	33	51
							R	53.7	D	0	20
				Omega Dr SB	71.2	E	L	88.0	F	71	#126
							T	68.1	E	276	358
							R	48.5	D	0	19
N 203††	Omega Dr at I-270 SB Off-Ramp	-	-	I-270 Off-Ramp WB	-	-	L/R	36.1	E	-	7.8*
N 204†	Omega Dr / Fields Rd at Washingtonian Blvd	7.8	A	Fields Rd EB	5.8	A	L	18.5	B	12	36
							T	4.8	A	46	82
				Omega Dr WB	9.1	A	T	8.6	A	12	40
							T/R	9.5	A	-	-
				Washingtonian Blvd SB	13.5	B	L	13.8	B	18	39
							R	10.9	B	0	5
N 205‡	Shady Grove Rd at Corporate Blvd	23.1	C	Corporate Blvd EB	74.6	E	L	75.6	E	61	114
							L/T	75.3	E	61	114
							R	65.5	E	0	0
				Corporate Blvd WB	73.0	E	L/T	78.1	E	31	70
							R	70.0	E	0	0
				Shady Grove Rd NB	33.2	C	L	26.1	C	3	16
							T	33.2	C	401	513
							T/R	-	-	-	-
				Shady Grove Rd SB	13.7	B	U/L	52.6	D	367	488
							T	5.3	A	161	201
							T/R	-	-	-	-

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Table NB-3B - Shady Grove Road Corridor - (AM Peak)											
Node	**Location**	**Delay (s/veh)**	**LOS**	**Approach**	**Delay (s/veh)**	**LOS**	**Movement**	**Delay (s/veh)**	**LOS**	**50th %ile Queue (ft)**	**95th %ile Queue (ft)**
N 207†	Shady Grove Rd at I-270 SB Off-Ramp	26.5	C	I-270 SB Off-Ramp EB	45.3	D	L	32.2	C	146	172
							R	51.3	D	471	526
				Shady Grove Rd NB	21.3	C	T	21.3	C	65	73
				Shady Grove Rd SB	14.7	B	T	14.7	B	443	503
							R	0.0	A	187	429
N 210†	Shady Grove Rd at I-270 NB Off-Ramp	21.8	C	I-270 NB Off-Ramp WB	54.4	D	L	54.4	D	428	460
							R	0.0	A	0	0
				Shady Grove Rd NB	5.7	A	T	5.7	A	100	156
							R	0.0	A	0	66
				Shady Grove Rd SB	13.7	B	T	13.7	B	205	118
N 212‡	Shady Grove Rd at Choke Cherry Rd	25.0	C	Choke Cherry Rd EB	63.3	E	L/T/R	71.7	E	55	107
							R	54.0	D	0	28
				Choke Cherry Rd WB	70.1	E	L	74.3	E	107	171
							L/T	71.3	E	105	168
							R	60.6	E	0	4
				Shady Grove Rd NB	20.6	C	U/L	35.4	D	77	173
							T	16.0	B	166	238
							R	29.9	C	29	84
				Shady Grove Rd SB	19.2	B	L	11.6	B	47	93
							T	20.0	C	331	484
							T/R	-	-	-	-
N 216†	Redland Blvd at Piccard Dr	10.9	B	I-270 NB Off-Ramp EB	6.8	A	L	5.5	A	32	74
							T	7.0	A	93	158
							T/R	7.1	A	-	-
				Redland Blvd WB	-	-	L	-	-	35	67
							R	-	-	0	0
				Piccard Dr NB	14.1	B	T	14.0	B	17	42
							R	14.2	B	0	15
				Piccard Dr SB	16.8	B	L/T	16.5	B	-	-
							T	17.0	B	91	140

Note: 95th percentile queuing reported using Synchro software.
- Hyphen denotes that no value was recorded for this metric.
Volume for the 95th percentile exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.
* Unsignalized intersection 95th percentile queue reported in number of vehicles.

Reporting Source:
† HCM 6th Signalized Intersection Summary used for Delay and LOS.
‡ HCM 2000 Signalized Intersection Capacity Analysis used for Delay and LOS.
†† HCM 6th Two Way Stop Control used for Delay and LOS.

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Table NB-3B - Shady Grove Road Corridor - (PM Peak)

Node	Location	Delay (s/veh)	LOS	Approach	Delay (s/veh)	LOS	Movement	Delay (s/veh)	LOS	50th %ile Queue (ft)	95th %ile Queue (ft)
N 200‡	Omega Dr at MD 28 (Key W Ave)	41.2	D	MD 28 (Key W Ave) EB	24.3	C	L	82.6	F	88	#173
							T	18.5	B	169	213
							R	15.3	B	0	0
				MD 28 (Key W Ave) WB	33.3	C	U/L	-	-	-	-
							L	71.1	E	51	85
							T	33.1	C	723	826
							R	18.0	B	0	45
				Medical Center Dr NB	67.4	E	L	90.5	F	173	#296
							T	56.3	E	182	228
							R	68.0	E	196	313
				Omega Dr SB	69.7	E	L	81.5	F	60	#104
							T	64.0	E	111	173
							R	66.3	E	91	182
N 203††	Omega Dr at I-270 SB Off-Ramp	-	-	I-270 Off-Ramp WB	-	-	L/R	98.8	F	-	7.1*
N 204†	Omega Dr / Fields Rd at Washingtonian Blvd	15.6	B	Fields Rd EB	6.7	A	L	43.1	D	12	38
							T	2.9	A	14	27
				Omega Dr WB	13.6	B	T	12.0	B	374	548
							T/R	15.1	B	-	-
				Washingtonian Blvd SB	31.6	C	L	32.3	C	72	115
							R	29.4	C	14	52
N 205‡	Shady Grove Rd at Corporate Blvd	33.8	C	Corporate Blvd EB	83.4	F	L	85.8	F	92	#175
							L/T	86.9	F	94	#181
							R	63.6	E	0	0
				Corporate Blvd WB	78.4	E	L/T	53.9	D	64	110
							R	83.7	F	206	#332
				Shady Grove Rd NB	30.5	C	L	18.2	B	8	25
							T	30.6	C	556	681
							T/R	-	-	-	-
				Shady Grove Rd SB	13.9	B	U/L	78.9	E	80	146
							T	5.5	A	73	84
							T/R	-	-	-	-

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Table NB-3B - Shady Grove Road Corridor - (PM Peak)											
Node	**Location**	**Delay (s/veh)**	**LOS**	**Approach**	**Delay (s/veh)**	**LOS**	**Movement**	**Delay (s/veh)**	**LOS**	**50th %ile Queue (ft)**	**95th %ile Queue (ft)**
N 207[†]	Shady Grove Rd at I-270 SB Off-Ramp	18.6	B	I-270 SB Off-Ramp EB	62.7	E	L	56.6	E	136	173
							R	67.2	E	219	271
				Shady Grove Rd NB	6.7	A	T	6.7	A	34	50
				Shady Grove Rd SB	0.1	A	T	0.1	A	30	82
							R	0.0	A	146	259
N 210[†]	Shady Grove Rd at I-270 NB Off-Ramp	12.5	B	I-270 NB Off-Ramp WB	68.3	E	L	68.3	E	197	246
							R	0.0	A	0	0
				Shady Grove Rd NB	0.1	A	T	0.1	A	135	142
							R	0.0	A	0	725
				Shady Grove Rd SB	4.2	A	T	4.2	A	25	42
N 212[‡]	Shady Grove Rd at Choke Cherry Rd	45.8	D	Choke Cherry Rd EB	70.7	E	L/T/R	91.8	F	185	#320
							R	47.5	D	82	155
				Choke Cherry Rd WB	72.7	E	L	81.9	F	275	#428
							L/T	75.5	E	273	#412
							R	48.7	D	0	58
				Shady Grove Rd NB	31.4	C	U/L	90.7	F	149	#269
							T	26.0	C	223	283
							R	14.9	B	0	33
				Shady Grove Rd SB	44.2	D	L	27.6	C	47	80
							T	45.2	D	547	616
							T/R	-	-	-	-
N 216[†]	Redland Blvd at Piccard Dr	13.8	B	I-270 NB Off-Ramp EB	6.3	A	L	5.4	A	10	27
							T	6.4	A	54	85
							T/R	6.4	A	-	-
				Redland Blvd WB	-	-	L	-	-	13	29
							R	-	-	0	27
				Piccard Dr NB	19.6	B	T	16.0	B	97	#196
							R	22.8	C	0	56
				Piccard Dr SB	13.8	B	L/T	14.3	B	-	-
							T	13.4	B	27	52

Note: 95th percentile queuing reported using Synchro software.
- Hyphen denotes that no value was recorded for this metric.
Volume for the 95th percentile exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.
* Unsignalized intersection 95th percentile queue reported in number of vehicles.

Reporting Source:
[†] HCM 6th Signalized Intersection Summary used for Delay and LOS.
[‡] HCM 2000 Signalized Intersection Capacity Analysis used for Delay and LOS.
[††] HCM 6th Two Way Stop Control used for Delay and LOS.

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Table NB-4B - Gude Drive Corridor - (AM Peak)											
Node	**Location**	**Delay (s/veh)**	**LOS**	**Approach**	**Delay (s/veh)**	**LOS**	**Movement**	**Delay (s/veh)**	**LOS**	**50th %ile Queue (ft)**	**95th %ile Queue (ft)**
N 301†	Gude Dr at Research Blvd	68.7	E	Gude Dr EB	40.0	D	L	26.6	C	8	26
							T	41.8	D	287	#421
							R	28.9	C	0	0
				Gude Dr WB	29.5	C	L	63.4	E	~182	#477
							T	11.4	B	55	65
							R	11.2	B	1	2
				Research Blvd NB	250.5	F	L	38.7	D	5	17
							T	47.5	D	84	130
							R	429.3	F	0	83
				Research Blvd SB	41.3	D	L	47.8	D	118	160
							T	36.2	D	118	190
							T/R	36.2	D	-	-
N 303†	Gude Dr at Piccard Dr	11.5	B	Gude Dr EB	6.6	A	L	12.3	B	42	m24
							T	5.4	A	14	m13
				Gude Dr WB	11.6	B	T	12.0	B	222	374
							R	8.2	A	0	29
				Piccard Dr SB	37.3	D	L	38.5	D	44	85
							R	36.9	D	98	141

Note: 95th percentile queuing reported using Synchro software.
- Hyphen denotes that no value was recorded for this metric.
m Volume for the 95th percentile queue is metered by upstream signal.
Volume for the 95th percentile exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.
~ Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.

Reporting Source:
† HCM 6th Signalized Intersection Summary used for Delay and LOS.

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Table NB-4B - Gude Drive Corridor - (PM Peak)											
Node	**Location**	**Delay (s/veh)**	**LOS**	**Approach**	**Delay (s/veh)**	**LOS**	**Movement**	**Delay (s/veh)**	**LOS**	**50th %ile Queue (ft)**	**95th %ile Queue (ft)**
N 301†	Gude Dr at Research Blvd	121.4	F	Gude Dr EB	32.3	C	L	23.4	C	2	12
							T	32.5	C	251	#356
							R	23.2	C	0	0
				Gude Dr WB	18.8	B	L	35.5	D	~207	#459
							T	12.3	B	91	104
							R	10.4	B	0	m2
				Research Blvd NB	422.8	F	L	37.1	D	76	128
							T	52.0	D	94	#160
							R	803.1	F	16	#169
				Research Blvd SB	43.8	D	L	46.8	D	110	151
							T	38.7	D	52	84
							T/R	38.8	D	-	-
N 303†	Gude Dr at Piccard Dr	20.0	B	Gude Dr EB	14.5	B	L	16.0	B	6	m8
							T	14.4	B	37	46
				Gude Dr WB	20.8	C	T	21.1	C	282	438
							R	12.9	B	2	21
				Piccard Dr SB	31.6	C	L	29.1	C	131	192
							R	32.9	C	232	289

Note: 95th percentile queuing reported using Synchro software.
- Hyphen denotes that no value was recorded for this metric.
m Volume for the 95th percentile queue is metered by upstream signal.
Volume for the 95th percentile exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.
~ Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.

Reporting Source:
† HCM 6th Signalized Intersection Summary used for Delay and LOS.

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Table NB-5B - MD 28 (Montgomery Avenue) Corridor - (AM Peak)

Node	Location	Delay (s/veh)	LOS	Approach	Delay (s/veh)	LOS	Movement	Delay (s/veh)	LOS	50th %ile Queue (ft)	95th %ile Queue (ft)
N 400‡	MD 28 (Montgomery Ave) at Hurley Ave	16.9	B	MD 28 (Montgomery Ave) EB	21.2	C	L	11.1	B	2	9
							T	21.3	C	535	646
							T/R	-	-	-	-
				MD 28 (Montgomery Ave) WB	7.5	A	U/L	66.7	E	114	187
							T	3.4	A	99	113
							T/R	-	-	-	-
				Hurley Ave NB	51.3	D	L/T	57.5	E	60	112
							R	48.7	D	0	68
				Hurley Ave SB	48.3	D	L	48.6	D	11	33
							T/R	47.8	D	4	20
N 401†	MD 28 (Montgomery Ave) at I-270 SB Ramps	13.0	B	MD 28 (Montgomery Ave) EB	12.7	B	T	12.7	B	15	33
							R	0.0	A	418	364
				MD 28 (Montgomery Ave) WB	5.6	A	T	5.6	A	160	242
				I-270 Off-Ramp SB	54.5	D	L	54.5	D	138	172
							R	0.0	A	131	198
N 405‡	MD 28 (Montgomery Ave) at I-270 NB Off-Ramp / Nelson St	23.3	C	MD 28 (Montgomery Ave) EB	11.8	B	L	23.1	C	131	214
							T	8.0	A	166	205
				MD 28 (Montgomery Ave) WB	29.1	C	T	29.1	C	219	290
							T/R	-	-	-	-
				I-270 Off-Ramp NB	47.7	D	T	46.3	D	119	190
							R	48.6	D	99	195
				Nelson St SB	24.9	C	L	57.4	E	21	52
							R	22.0	C	101	131
N 407‡	MD 28 (Montgomery Ave) at Laird St / Bullard Cir	15.9	B	MD 28 (Montgomery Ave) EB	17.4	B	L	1.1	A	0	m1
							T/R	17.5	B	518	#1,365
				MD 28 (Montgomery Ave) WB	6.3	A	L	3.8	A	1	5
							T/R	6.3	A	219	390
				Bullard Cir NB	46.4	D	L/T	46.7	D	11	32
							R	46.1	D	0	17
				Laird St SB	61.7	E	L/T/R	61.7	E	84	146

Note: 95th percentile queuing reported using Synchro software.
- Hyphen denotes that no value was recorded for this metric.
m Volume for the 95th percentile queue is metered by upstream signal.
Volume for the 95th percentile exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

Reporting Source:
† HCM 6th Signalized Intersection Summary used for Delay and LOS.
‡ HCM 2000 Signalized Intersection Capacity Analysis used for Delay and LOS.

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Table NB-5B - MD 28 (Montgomery Avenue) Corridor - (PM Peak)

Node	Location	Delay (s/veh)	LOS	Approach	Delay (s/veh)	LOS	Movement	Delay (s/veh)	LOS	50th %ile Queue (ft)	95th %ile Queue (ft)
N 400‡	MD 28 (Montgomery Ave) at Hurley Ave	24.2	C	MD 28 (Montgomery Ave) EB	34.4	C	L	18.6	B	2	11
							T	34.4	C	623	#752
							T/R	-	-	-	-
				MD 28 (Montgomery Ave) WB	12.5	B	U/L	76.0	E	275	m#394
							T	4.1	A	134	192
							T/R	-	-	-	-
				Hurley Ave NB	54.4	D	L/T	64.7	E	76	#146
							R	47.6	D	0	62
				Hurley Ave SB	48.9	D	L	49.7	D	30	67
							T/R	46.9	D	3	25
N 401†	MD 28 (Montgomery Ave) at I-270 SB Ramps	17.9	B	MD 28 (Montgomery Ave) EB	14.8	B	T	14.8	B	17	m30
							R	0.0	A	590	m675
				MD 28 (Montgomery Ave) WB	11.1	B	T	11.1	B	286	402
				I-270 Off-Ramp SB	55.1	E	L	55.1	E	213	267
							R	0.0	A	137	218
N 405‡	MD 28 (Montgomery Ave) at I-270 NB Off-Ramp / Nelson St	26.6	C	MD 28 (Montgomery Ave) EB	14.8	B	L	38.9	D	110	200
							T	10.3	B	217	285
				MD 28 (Montgomery Ave) WB	31.5	C	T	31.5	C	329	375
							T/R	-	-	-	-
				I-270 Off-Ramp NB	44.3	D	T	48.6	D	241	350
							R	36.3	D	35	98
				Nelson St SB	30.2	C	L	66.6	E	29	#77
							R	27.4	C	203	284
N 407‡	MD 28 (Montgomery Ave) at Laird St / Bullard Cir	16.1	B	MD 28 (Montgomery Ave) EB	19.2	B	L	0.4	A	0	m1
							T/R	19.7	B	843	#1,506
				MD 28 (Montgomery Ave) WB	8.9	A	L	2.4	A	0	4
							T/R	8.9	A	279	#1,005
				Bullard Cir NB	50.7	D	L/T	51.0	D	7	23
							R	50.5	D	0	17
				Laird St SB	53.3	D	L/T/R	53.3	D	24	74

Note: 95th percentile queuing reported using Synchro software.
- Hyphen denotes that no value was recorded for this metric.
m Volume for the 95th percentile queue is metered by upstream signal.
Volume for the 95th percentile exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

Reporting Source:
† HCM 6th Signalized Intersection Summary used for Delay and LOS.
‡ HCM 2000 Signalized Intersection Capacity Analysis used for Delay and LOS.

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Table NB-6B - MD 189 (Falls Road) Corridor - (AM Peak)

Node	Location	Delay (s/veh)	LOS	Approach	Delay (s/veh)	LOS	Movement	Delay (s/veh)	LOS	50th %ile Queue (ft)	95th %ile Queue (ft)
N 500‡	MD 189 (Falls Rd) at Wootton Pkwy	57.9	E	MD 189 (Falls Rd) EB	57.8	E	L	76.3	E	120	189
							T	58.8	E	467	#592
							R	29.2	C	3	42
				MD 189 (Falls Rd) WB	50.0	D	L	72.3	E	271	#407
							T	33.0	C	182	252
							R	14.0	B	0	28
				Wootton Pkwy NB	50.4	D	L	77.1	E	106	#209
							T	57.0	E	70	102
							R	20.5	C	0	39
				Wootton Pkwy SB	65.9	E	L	111.1	F	~576	#827
							T	59.0	E	384	444
							R	0.3	A	0	0
N 503‡	MD 189 (Falls Rd) at I-270 Ramps (SPUI)	38.5	D	MD 189 (Falls Rd) EB	42.3	D	L	36.1	D	408	569
							T	52.4	D	148	203
				MD 189 (Falls Rd) WB	31.3	C	L	22.7	C	186	237
							T	48.4	D	132	183
				I-270 Off-Ramp SEB	56.3	E	L	56.3	E	146	230
				I-270 Off-Ramp NWB	41.8	D	L	41.8	D	18	37
N 505‡	MD 189 (Falls Rd / Maryland Ave) at Great Falls Rd / Potomac Valley Rd	18.0	B	MD 189 (Falls Rd) EB	3.3	A	U/L	4.7	A	48	93
							T	2.8	A	74	123
							T/R	-	-	-	-
				MD 189 (Maryland Ave) WB	19.5	B	L	15.7	B	4	18
							T	19.6	B	135	235
							T/R	-	-	-	-
				Potomac Valley Rd NB	45.4	D	L	48.2	D	27	68
							T/R	35.9	D	2	22
				Great Falls Rd SB	45.0	D	L/T	44.2	D	24	62
							R	45.1	D	206	327

Note: 95th percentile queuing reported using Synchro software.

- Hyphen denotes that no value was recorded for this metric.

Volume for the 95th percentile exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

~ Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.

Reporting Source:

‡ HCM 2000 Signalized Intersection Capacity Analysis used for Delay and LOS.

DRAFT

Table NB-6B - MD 189 (Falls Road) Corridor - (PM Peak)

Node	Location	Delay (s/veh)	LOS	Approach	Delay (s/veh)	LOS	Movement	Delay (s/veh)	LOS	50th %ile Queue (ft)	95th %ile Queue (ft)
N 500‡	MD 189 (Falls Rd) at Wootton Pkwy	44.3	D	MD 189 (Falls Rd) EB	44.6	D	L	82.9	F	181	#286
							T	36.6	D	212	277
							R	26.4	C	0	45
				MD 189 (Falls Rd) WB	46.0	D	L	68.3	E	133	179
							T	45.4	D	414	501
							R	28.8	C	150	232
				Wootton Pkwy NB	47.5	D	L	38.4	D	75	123
							T	64.0	E	402	486
							R	23.8	C	0	57
				Wootton Pkwy SB	29.2	C	L	44.6	D	90	159
							T	39.8	D	80	114
							R	0.1	A	0	0
N 503‡	MD 189 (Falls Rd) at I-270 Ramps (SPUI)	55.1	E	MD 189 (Falls Rd) EB	58.0	E	L	48.0	D	506	659
							T	69.1	E	267	334
				MD 189 (Falls Rd) WB	51.9	D	L	41.0	D	273	333
							T	71.3	E	195	254
				I-270 Off-Ramp SEB	61.2	E	L	61.2	E	335	455
				I-270 Off-Ramp NWB	49.9	D	L	49.9	D	163	212
N 505‡	MD 189 (Falls Rd / Maryland Ave) at Great Falls Rd / Potomac Valley Rd	15.3	B	MD 189 (Falls Rd) EB	4.9	A	U/L	9.0	A	55	167
							T	3.4	A	84	140
							T/R	-	-	-	-
				MD 189 (Maryland Ave) WB	17.8	B	L	12.9	B	1	10
							T	17.8	B	168	299
							T/R	-	-	-	-
				Potomac Valley Rd NB	40.0	D	L	40.6	D	28	70
							T/R	36.5	D	2	19
				Great Falls Rd SB	39.7	D	L/T	37.4	D	11	36
							R	39.9	D	181	281

Note: 95th percentile queuing reported using Synchro software.
- Hyphen denotes that no value was recorded for this metric.
Volume for the 95th percentile exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

Reporting Source:
‡ HCM 2000 Signalized Intersection Capacity Analysis used for Delay and LOS.

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Table NB-7B - Wootton Parkway Corridor - (AM Peak)

Node	Location	Delay (s/veh)	LOS	Approach	Delay (s/veh)	LOS	Movement	Delay (s/veh)	LOS	50th %ile Queue (ft)	95th %ile Queue (ft)
N 600‡	Wootton Pkwy at Seven Locks Rd	36.2	D	Wootton Pkwy EB	45.6	D	L	30.4	C	12	34
							T	69.3	E	209	#308
							R	22.4	C	0	54
				Wootton Pkwy WB	31.2	C	L	44.8	D	~367	#617
							T	4.1	A	50	8
							T/R	-	-	-	-
				Seven Locks Rd NB	14.5	B	L	34.3	C	48	92
							L/T	34.3	C	48	92
							R	0.2	A	0	0
				Seven Locks Rd SB	42.2	D	L/T	42.6	D	18	45
							R	40.9	D	0	0
N 601†	Wootton Pkwy at Tower Oaks Rd	25.3	C	Wootton Pkwy EB	21.5	C	L	47.2	D	13	m21
							T	20.7	C	30	m51
							R	0.0	A	0	m0
				Wootton Pkwy WB	26.1	C	L	47.5	D	166	216
							T	11.2	B	55	232
							R	8.2	A	0	0
				Tower Oaks Blvd NB	36.9	D	L	36.9	D	39	65
							T	37.0	D	6	17
							R	0.0	A	0	0
				Tower Oaks Blvd SB	39.2	D	L	38.4	D	6	18
							T	39.6	D	6	17
							R	0.0	A	0	0

Note: 95th percentile queuing reported using Synchro software.

- Hyphen denotes that no value was recorded for this metric.

m Volume for the 95th percentile queue is metered by upstream signal.

Volume for the 95th percentile exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

~ Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.

Reporting Source:

† HCM 6th Signalized Intersection Summary used for Delay and LOS.

‡ HCM 2000 Signalized Intersection Capacity Analysis used for Delay and LOS.

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Table NB-7B - Wootton Parkway Corridor - (PM Peak)

Node	Location	Delay (s/veh)	LOS	Approach	Delay (s/veh)	LOS	Movement	Delay (s/veh)	LOS	50th %ile Queue (ft)	95th %ile Queue (ft)
N 600‡	Wootton Pkwy at Seven Locks Rd	27.7	C	Wootton Pkwy EB	27.8	C	L	30.8	C	5	19
							T	36.9	D	101	145
							R	12.5	B	0	27
				Wootton Pkwy WB	18.8	B	L	24.8	C	150	m#403
							T	14.5	B	101	m64
							T/R	-	-	-	-
				Seven Locks Rd NB	33.1	C	L	53.0	D	272	#470
							L/T	49.6	D	266	#458
							R	0.6	A	0	0
				Seven Locks Rd SB	43.6	D	L/T	44.3	D	9	29
							R	42.6	D	0	0
N 601†	Wootton Pkwy at Tower Oaks Rd	24.0	C	Wootton Pkwy EB	18.8	B	L	47.9	D	9	m25
							T	18.2	B	74	303
							R	0.0	A	0	0
				Wootton Pkwy WB	25.6	C	L	62.4	E	73	108
							T	13.4	B	47	196
							R	10.3	B	0	0
				Tower Oaks Blvd NB	34.3	C	L	34.3	C	~110	141
							T	34.6	C	1	6
							R	0.0	A	0	0
				Tower Oaks Blvd SB	37.0	D	L	36.1	D	29	54
							T	38.7	D	7	20
							R	0.0	A	0	0

Note: 95th percentile queuing reported using Synchro software.
- Hyphen denotes that no value was recorded for this metric.
m Volume for the 95th percentile queue is metered by upstream signal.
Volume for the 95th percentile exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.
~ Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.

Reporting Source:
† HCM 6th Signalized Intersection Summary used for Delay and LOS.
‡ HCM 2000 Signalized Intersection Capacity Analysis used for Delay and LOS.

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Table NB-8B - Montrose Road Corridor - (AM Peak)											
Node	**Location**	**Delay (s/veh)**	**LOS**	**Approach**	**Delay (s/veh)**	**LOS**	**Movement**	**Delay (s/veh)**	**LOS**	**50th %ile Queue (ft)**	**95th %ile Queue (ft)**
N 701‡	Montrose Rd at Seven Locks Rd	30.0	C	Montrose Rd EB	53.0	D	L	48.5	D	53	102
							T	54.1	D	119	170
							T/R	-	-	-	-
				Montrose Rd WB	32.4	C	L	39.2	D	157	m227
							L/T	-	-	-	-
							T	35.4	D	157	m207
							R	10.4	B	7	m17
				Seven Locks Rd NB	10.9	B	L	37.6	D	10	32
							T	38.3	D	80	122
							R	0.8	A	0	0
				Seven Locks Rd SB	35.1	D	L	53.5	D	187	240
							T	24.1	C	233	293
							T/R	-	-	-	-
N 702††	Montrose Rd at Potomac Ave	-	-	Potomac Rd NB	-	-	R	47.3	E	-	6.2*
				Potomac Rd SB	-	-	R	15.6	C	-	1.1*
N 707‡	Montrose Rd at Tower Oaks Blvd	20.4	C	Montrose Rd EB	8.2	A	L	35.3	D	80	m157
							T	4.3	A	130	157
				Montrose Rd WB	21.3	C	T	22.1	C	527	598
							R	11.2	B	0	31
				Tower Oaks Blvd SB	58.2	E	L	63.6	E	108	#158
							R	55.6	E	39	108
				I-270 NB Off-Ramp NEB	2.6	A	R	2.6	A	0	0
N 708‡§	Montrose Rd at Farm Ln	2.0	A	Montrose Rd EB	2.0	A	T	2.0	A	0	432
				Montrose Rd WB	2.1	A	T	2.1	A	0	453
							T/R	-	-	-	-
				Farm Ln SB	0.0	A	R	0.0	A	0	0

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Table NB-8B - Montrose Road Corridor - (AM Peak)

Node	Location	Delay (s/veh)	LOS	Approach	Delay (s/veh)	LOS	Movement	Delay (s/veh)	LOS	50th %ile Queue (ft)	95th %ile Queue (ft)
N 709†	Montrose Rd at Hitching Post Ln / Farm Haven Dr	14.3	B	Montrose Rd EB	13.9	B	L	9.0	A	1	4
							T	13.3	B	260	465
							T/R	15.1	B	-	-
				Montrose Rd WB	12.0	B	L	11.2	B	2	6
							T	11.5	B	229	404
							T/R	12.8	B	-	-
				Hitching Post Ln NB	39.2	D	L	41.1	D	73	#145
							T/R	32.3	C	2	29
				Farm Haven Dr SB	33.7	C	L	34.0	C	19	47
							T/R	33.6	C	2	40
N 710‡	Tower Oaks Blvd at I-270 NB Ramps / GEICO Ent	19.1	B	Tower Oaks Blvd EB	18.4	B	L/T	-	-	-	-
							T/R	18.4	B	100	207
				Tower Oaks Blvd WB	13.8	B	L/T	-	-	-	-
							T/R	13.8	B	36	85
				I-270 NB Ramps NB	22.3	C	L	23.2	C	90	#282
							L/T	23.0	C	89	#277
							R	14.0	B	0	10
				GEICO Ent SB	31.7	C	L/T/R	31.7	C	3	21
N 712‡	Tower Oaks Blvd at Commercial Dr	4.0	A	Commercial Dr WB	32.3	C	L	32.3	C	1	6
							L/R	-	-	-	-
				Tower Oaks Blvd NB	5.7	A	T	5.9	A	55	154
							R	4.1	A	0	17
				Tower Oaks Blvd SB	1.7	A	L	2.2	A	0	11
							T	-	-	-	-

Note: 95th percentile queuing reported using Synchro software.
- Hyphen denotes that no value was recorded for this metric.
* Unsignalized intersection 95th percentile queue reported in number of vehicles.
m Volume for the 95th percentile queue is metered by upstream signal.
Volume for the 95th percentile exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.
§ Red light on Montrose Road by Farm Lane is triggered by pedestrian signal call. Farm Lane is yield-controlled.

Reporting Source:
† HCM 6th Signalized Intersection Summary used for Delay and LOS.
‡ HCM 2000 Signalized Intersection Capacity Analysis used for Delay and LOS.
†† HCM 6th Two Way Stop Control used for Delay and LOS.

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Table NB-8B - Montrose Road Corridor - (PM Peak)											
Node	**Location**	**Delay (s/veh)**	**LOS**	**Approach**	**Delay (s/veh)**	**LOS**	**Movement**	**Delay (s/veh)**	**LOS**	**50th %ile Queue (ft)**	**95th %ile Queue (ft)**
N 701‡	Montrose Rd at Seven Locks Rd	37.6	D	Montrose Rd EB	77.1	E	L	51.2	D	54	104
							T	81.7	F	170	#271
							T/R	-	-	-	-
				Montrose Rd WB	30.5	C	L	42.4	D	346	m#496
							L/T	-	-	-	-
							T	34.0	C	344	m434
							R	14.8	B	143	m213
				Seven Locks Rd NB	34.2	C	L	41.7	D	57	113
							T	61.5	E	285	#407
							R	0.6	A	0	0
				Seven Locks Rd SB	36.6	D	L	54.6	D	73	112
							T	30.2	C	163	215
							T/R	-	-	-	-
N 702††	Montrose Rd at Potomac Ave	-	-	Potomac Rd NB	-	-	R	19.6	C	-	1.7*
				Potomac Rd SB	-	-	R	143.3	F	-	10.7*
N 707‡	Montrose Rd at Tower Oaks Blvd	12.0	B	Montrose Rd EB	7.0	A	L	35.2	D	35	m92
							T	5.0	A	258	m305
				Montrose Rd WB	8.7	A	T	9.3	A	600	0
							R	0.2	A	0	m0
				Tower Oaks Blvd SB	67.4	E	L	81.3	F	76	#138
							R	58.1	E	19	69
				I-270 NB Off-Ramp NEB	1.6	A	R	1.6	A	0	0
N 708‡§	Montrose Rd at Farm Ln	4.8	A	Montrose Rd EB	3.5	A	T	3.5	A	0	464
				Montrose Rd WB	5.9	A	T	5.9	A	0	774
							T/R	-	-	-	-
				Farm Ln SB	0.0	A	R	0.0	A	0	0

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Table NB-8B - Montrose Road Corridor - (PM Peak)

Node	Location	Delay (s/veh)	LOS	Approach	Delay (s/veh)	LOS	Movement	Delay (s/veh)	LOS	50th %ile Queue (ft)	95th %ile Queue (ft)
N 709†	Montrose Rd at Hitching Post Ln / Farm Haven Dr	11.7	B	Montrose Rd EB	9.2	A	L	11.6	B	1	4
							T	8.7	A	189	379
							T/R	10.0	A	-	-
				Montrose Rd WB	12.2	B	L	7.7	A	2	6
							T	11.4	B	302	601
							T/R	13.6	B	-	-
				Hitching Post Ln NB	41.1	D	L	42.2	D	42	#101
							T/R	38.9	D	6	35
				Farm Haven Dr SB	39.3	D	L	40.1	D	14	40
							T/R	38.5	D	3	27
N 710‡	Tower Oaks Blvd at I-270 NB Ramps / GEICO Ent	18.5	B	Tower Oaks Blvd EB	17.8	B	L/T	-	-	-	-
							T/R	17.8	B	79	127
				Tower Oaks Blvd WB	17.6	B	L/T	-	-	-	-
							T/R	17.6	B	52	91
				I-270 NB Ramps NB	18.9	B	L	19.1	B	86	189
							L/T	19.3	B	87	192
							R	13.1	B	0	0
				GEICO Ent SB	26.9	C	L/T/R	26.9	C	11	41
N 712‡	Tower Oaks Blvd at Commercial Dr	5.8	A	Commercial Dr WB	30.2	C	L	30.2	C	8	24
							L/R	-	-	-	-
				Tower Oaks Blvd NB	5.8	A	T	5.8	A	35	106
							R	4.3	A	0	4
				Tower Oaks Blvd SB	2.1	A	L	1.9	A	3	8
							T	-	-	-	-

Note: 95th percentile queuing reported using Synchro software.

- Hyphen denotes that no value was recorded for this metric.

* Unsignalized intersection 95th percentile queue reported in number of vehicles.

m Volume for the 95th percentile queue is metered by upstream signal.

Volume for the 95th percentile exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

§ Red light on Montrose Road by Farm Lane is triggered by pedestrian signal call. Farm Lane is yield-controlled.

Reporting Source:

† HCM 6th Signalized Intersection Summary used for Delay and LOS.

‡ HCM 2000 Signalized Intersection Capacity Analysis used for Delay and LOS.

†† HCM 6th Two Way Stop Control used for Delay and LOS.

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Table NB-9B - Westlake Terrace Corridor - (AM Peak)											
Node	**Location**	**Delay (s/veh)**	**LOS**	**Approach**	**Delay (s/veh)**	**LOS**	**Movement**	**Delay (s/veh)**	**LOS**	**50th %ile Queue (ft)**	**95th %ile Queue (ft)**
N 800†	Westlake Terr at Westfield Montgomery Mall Ent / Motor City Dr	13.5	B	Westlake Terr EB	9.2	A	L	8.7	A	30	71
							T	9.3	A	113	181
							T/R	9.3	A	-	-
				Westlake Terr WB	5.0	A	L	6.1	A	28	58
							T	4.5	A	24	50
							T/R	5.0	A	-	-
				Westfield Montgomery Mall Ent NB	47.2	D	L	48.7	D	3	15
							T/R	47.0	D	15	52
				Motor City Dr SB	53.4	D	L	56.8	E	84	138
							T/R	47.9	D	3	43
N 801‡	Westlake Terr at I-270 Spur Ramps	14.1	B	Westlake Terr EB	15.3	B	L	14.1	B	20	75
							T	15.5	B	80	177
				Westlake Terr WB	14.4	B	T	14.7	B	72	160
							R	11.6	B	0	23
				I-270 Spur Ramps SB	11.6	B	L/R	11.6	B	83	233
N 802‡	Westlake Terr at Rockledge Dr	34.9	C	Westlake Terr EB	38.2	D	L	49.7	D	179	#602
							T	30.9	C	147	#253
							T/R	-	-	-	-
				Westlake Terr WB	39.3	D	L	29.5	C	48	126
							T	42.1	D	112	170
							T/R	-	-	-	-
				Rockledge Dr NB	48.4	D	L/T	49.3	D	6	22
							R	46.6	D	0	0
				Rockledge Dr SB	27.2	C	L	23.6	C	53	87
							L/T	31.3	C	222	293
							R	24.0	C	0	54

Note: 95th percentile queuing reported using Synchro software.
- Hyphen denotes that no value was recorded for this metric.
Volume for the 95th percentile exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

Reporting Source:
† HCM 6th Signalized Intersection Summary used for Delay and LOS.
‡ HCM 2000 Signalized Intersection Capacity Analysis used for Delay and LOS.

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Table NB-9B - Westlake Terrace Corridor - (PM Peak)											
Node	**Location**	**Delay (s/veh)**	**LOS**	**Approach**	**Delay (s/veh)**	**LOS**	**Movement**	**Delay (s/veh)**	**LOS**	**50th %ile Queue (ft)**	**95th %ile Queue (ft)**
N 800†	Westlake Terr at Westfield Montgomery Mall Ent / Motor City Dr	24.1	C	Westlake Terr EB	23.3	C	L	22.5	C	21	64
							T	23.4	C	91	164
							T/R	23.4	C	-	-
				Westlake Terr WB	15.3	B	L	16.2	B	79	156
							T	15.0	B	127	212
							T/R	15.0	B	-	-
				Westfield Montgomery Mall Ent NB	32.8	C	L	31.2	C	29	53
							T/R	33.1	C	6	58
				Motor City Dr SB	47.2	D	L	53.2	D	161	233
							T/R	28.8	C	9	39
N 801‡	Westlake Terr at I-270 Spur Ramps	10.1	B	Westlake Terr EB	11.9	B	L	22.5	C	70	191
							T	6.2	A	42	65
				Westlake Terr WB	6.9	A	T	6.9	A	73	107
							R	6.9	A	0	29
				I-270 Spur Ramps SB	21.7	C	L/R	21.7	C	50	#193
N 802‡	Westlake Terr at Rockledge Dr	54.3	D	Westlake Terr EB	44.2	D	L	63.8	E	134	#290
							T	31.7	C	106	167
							T/R	-	-	-	-
				Westlake Terr WB	52.6	D	L	35.6	D	3	11
							T	52.7	D	243	313
							T/R	-	-	-	-
				Rockledge Dr NB	58.3	E	L/T	71.7	E	259	#430
							R	39.1	D	0	66
				Rockledge Dr SB	60.2	E	L	34.2	C	78	134
							L/T	34.1	C	78	133
							R	71.1	E	291	#529

Note: 95th percentile queuing reported using Synchro software.
- Hyphen denotes that no value was recorded for this metric.
Volume for the 95th percentile exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

Reporting Source:
† HCM 6th Signalized Intersection Summary used for Delay and LOS.
‡ HCM 2000 Signalized Intersection Capacity Analysis used for Delay and LOS.

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Table NB-10B - Democracy Boulevard Corridor - (AM Peak)											
Node	**Location**	**Delay (s/veh)**	**LOS**	**Approach**	**Delay (s/veh)**	**LOS**	**Movement**	**Delay (s/veh)**	**LOS**	**50th %ile Queue (ft)**	**95th %ile Queue (ft)**
N 900†	Democracy Blvd at Taveshire Way	10.8	B	Democracy Blvd EB	5.0	A	T	5.0	A	102	156
				Democracy Blvd WB	4.1	A	T	4.1	A	44	70
				Taveshire Way SB	53.4	D	L	47.8	D	53	75
							R	61.5	E	24	83
N 901‡	Democracy Blvd at I-270 SB On-Ramp / I-270 Spur SB Off-Ramp	33.0	C	Democracy Blvd EB	35.7	D	T	35.7	D	470	530
							T/R	-	-	-	-
				Democracy Blvd WB	5.5	A	T	5.5	A	61	74
				I-270 Spur Off Ramp SB	51.1	D	L	53.7	D	237	300
							R	46.1	D	0	77
N 902‡	Democracy Blvd at I-270 SB On-Ramp	5.5	A	Democracy Blvd EB	0.5	A	T	0.5	A	9	9
				Democracy Blvd WB	14.0	B	L	36.1	D	169	226
							T	0.7	A	0	0
N 903‡	Democracy Blvd at I-270 Spur NB Ramps	6.8	A	Democracy Blvd EB	0.3	A	T	0.3	A	0	0
							T/R	-	-	-	-
				Democracy Blvd WB	1.3	A	T	1.3	A	20	28
				I-270 Spur Off Ramp NB	69.1	E	L	69.1	E	128	172
N 904‡	Democracy Blvd at I-270 Spur NB Off-Ramp	20.0	B	Democracy Blvd EB	19.7	B	T	19.7	B	415	471
				Democracy Blvd WB	0.1	A	T	0.1	A	0	m0
				I-270 Spur Off Ramp NB	36.3	D	R	36.3	D	463	531
N 906‡	Democracy Blvd at Fernwood Rd	47.3	D	Democracy Blvd EB	49.4	D	U/L	-	-	-	-
							L	86.2	F	~537	#677
							T	46.3	D	322	336
							R	0.6	A	0	0
				Democracy Blvd WB	47.7	D	L	74.6	E	243	#385
							T	55.4	E	35	57
							R	0.1	A	0	0
				Fernwood Rd NB	53.2	D	L	81.5	F	~858	#1,113
							R	0.4	A	0	0
				Fernwood Rd SB	10.6	B	L	23.8	C	45	68
							R	0.2	A	0	0

Note: 95th percentile queuing reported using Synchro software.

- Hyphen denotes that no value was recorded for this metric.

~ Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.

m Volume for the 95th percentile queue is metered by upstream signal.

Volume for the 95th percentile exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

Reporting Source:

† HCM 6th Signalized Intersection Summary used for Delay and LOS.

‡ HCM 2000 Signalized Intersection Capacity Analysis used for Delay and LOS.

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Table NB-10B - Democracy Boulevard Corridor - (PM Peak)											
Node	**Location**	**Delay (s/veh)**	**LOS**	**Approach**	**Delay (s/veh)**	**LOS**	**Movement**	**Delay (s/veh)**	**LOS**	**50th %ile Queue (ft)**	**95th %ile Queue (ft)**
N 900†	Democracy Blvd at Taveshire Way	11.7	B	Democracy Blvd EB	4.5	A	T	4.5	A	59	95
				Democracy Blvd WB	5.3	A	T	5.3	A	136	200
				Taveshire Way SB	51.3	D	L	48.2	D	74	95
							R	57.9	E	95	150
N 901‡	Democracy Blvd at I-270 SB On-Ramp / I-270 Spur SB Off-Ramp	50.9	D	Democracy Blvd EB	56.8	E	T	56.8	E	357	415
							T/R	-	-	-	-
				Democracy Blvd WB	19.9	B	T	19.9	B	177	199
				I-270 Spur Off Ramp SB	72.3	E	L	27.5	C	153	196
							R	99.2	F	~815	#1,072
N 902‡	Democracy Blvd at I-270 SB On-Ramp	18.6	B	Democracy Blvd EB	1.6	A	T	1.6	A	12	34
				Democracy Blvd WB	33.3	C	L	94.6	F	290	#417
							T	0.7	A	0	0
N 903‡	Democracy Blvd at I-270 Spur NB Ramps	7.5	A	Democracy Blvd EB	1.1	A	T	1.1	A	23	26
							T/R	-	-	-	-
				Democracy Blvd WB	4.1	A	T	4.1	A	114	152
				I-270 Spur Off Ramp NB	69.1	E	L	69.1	E	112	154
N 904‡	Democracy Blvd at I-270 Spur NB Off-Ramp	9.7	A	Democracy Blvd EB	6.0	A	T	6.0	A	116	161
				Democracy Blvd WB	0.2	A	T	0.2	A	0	0
				I-270 Spur Off Ramp NB	40.7	D	R	40.7	D	257	281
N 906‡	Democracy Blvd at Fernwood Rd	38.0	D	Democracy Blvd EB	40.3	D	U/L	-	-	-	-
							L	62.6	E	71	109
							T	58.4	E	312	369
							R	0.6	A	0	0
				Democracy Blvd WB	48.2	D	L	100.1	F	318	#524
							T	35.2	D	219	265
							R	0.1	A	0	0
				Fernwood Rd NB	55.0	D	L	78.1	E	~719	#965
							R	0.3	A	0	0
				Fernwood Rd SB	9.1	A	L	25.4	C	120	159
							R	1.4	A	0	0

Note: 95th percentile queuing reported using Synchro software.

- Hyphen denotes that no value was recorded for this metric.

~ Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.

Volume for the 95th percentile exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

Reporting Source:

† HCM 6th Signalized Intersection Summary used for Delay and LOS.

‡ HCM 2000 Signalized Intersection Capacity Analysis used for Delay and LOS.

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Table NB-11B - Rockledge Road / MD 187 (Old Georgetown Road) Corridor - (AM Peak)

Node	Location	Delay (s/veh)	LOS	Approach	Delay (s/veh)	LOS	Movement	Delay (s/veh)	LOS	50th %ile Queue (ft)	95th %ile Queue (ft)
N 1000†	Rockledge Dr at Rock Forest Dr	26.8	C	Rockledge Dr EB	57.7	E	L	61.0	E	102	146
							T	46.1	D	11	33
							R	49.4	D	0	0
				Rock Forest Dr WB	65.1	E	L	72.1	E	46	92
							T	52.7	D	20	50
							R	64.3	E	0	0
				Rockledge Dr NB	11.7	B	L	13.4	B	42	75
							T	10.8	B	55	87
							T/R	10.8	B	-	-
				Rockledge Dr SB	16.8	B	L	9.8	A	8	21
							T	17.0	B	278	410
							R	0.0	A	0	#185
N 1001‡	Rockledge Dr at I-270 SB Off Ramp / I-270 SB Ramp Connector	20.1	C	I-270 SB Off Ramp EB	30.5	D	L/T	-	-	-	-
							T	69.9	E	406	491
							R	2.7	A	0	0
				Rockledge Dr NB	35.7	D	T	69.9	E	87	129
							R	23.6	C	160	206
				Rockledge Dr SB	0.0	A	T	0.0	A	0	0
N 1002‡	Rockledge Dr at I-270 NB On Ramp / I-270 NB Ramp Connector	43.4	D	I-270 NB Ramp Connector WB	46.9	D	L	55.3	E	775	#1,095
							L/T	-	-	-	-
							T	42.7	D	726	839
				Rockledge Dr NB	0.2	A	L	0.2	A	0	0
N 1003‡	MD 187 (Old Georgetown Road) at Rock Spring Dr	46.6	D	Rock Spring Dr EB	79.1	E	L	97.7	F	344	#564
							L/T	96.2	F	345	#563
							R	46.7	D	173	273
				Rock Spring Dr WB	73.6	E	L/T/R	73.6	E	10	48
				MD 187 (Old Georgetown Road) NB	30.6	C	L	79.3	E	99	#170
							T	22.7	C	271	313
							T/R	-	-	-	-
				MD 187 (Old Georgetown Road) SB	42.7	D	L	74.8	E	42	m53
							T	44.2	D	551	728
							R	33.8	C	114	231

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Table NB-11B - Rockledge Road / MD 187 (Old Georgetown Road) Corridor - (AM Peak)											
Node	**Location**	**Delay (s/veh)**	**LOS**	**Approach**	**Delay (s/veh)**	**LOS**	**Movement**	**Delay (s/veh)**	**LOS**	**50th %ile Queue (ft)**	**95th %ile Queue (ft)**
N 1005‡	MD 187 (Old Georgetown Road) at I-270 SB Ramp Connector / I-270 SB On-Ramp	25.8	C	I-270 SB Ramp Connector EB	49.0	D	L	33.2	C	80	124
							L/T/R	33.1	C	78	124
							R	53.9	D	423	503
				MD 187 (Old Georgetown Road) NB	27.0	C	T	27.0	C	220	m233
							T/R	-	-	-	-
				MD 187 (Old Georgetown Road) SB	15.6	B	L	36.3	D	0	0
							T	13.2	B	326	435
N 1006‡	MD 187 (Old Georgetown Road) at I-270 NB Ramp Connector / I-270 NB Off-Ramp	11.1	B	I-270 NB Off Ramp WB	19.7	B	L	70.4	E	89	149
							L/T	69.6	E	90	148
							R	0.4	A	0	0
				MD 187 (Old Georgetown Road) NB	17.8	B	L	92.3	F	183	237
							T	1.1	A	47	51
				MD 187 (Old Georgetown Road) SB	5.4	A	T	7.3	A	165	m127
							R	0.1	A	0	m0
N 1009‡	MD 187 (Old Georgetown Road) at Tuckerman Ln	156.7	F	Tuckerman Ln EB	95.6	F	L	47.7	D	54	85
							T	103.8	F	~422	#555
							T/R	-	-	-	-
				Tuckerman Ln WB	281.3	F	L	369.5	F	~575	#705
							T	60.4	E	105	150
							R	48.3	D	0	12
				MD 187 (Old Georgetown Road) NB	56.5	E	U/L	306.7	F	~324	#502
							T	17.2	B	139	179
							R	20.0	C	10	45
				MD 187 (Old Georgetown Road) SB	208.7	F	L	72.0	E	37	78
							T	211.0	F	~1,190	#1,293
							T/R	-	-	-	-

Note: 95th percentile queuing reported using Synchro software.
- Hyphen denotes that no value was recorded for this metric.
~ Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.
m Volume for the 95th percentile queue is metered by upstream signal.
Volume for the 95th percentile exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

Reporting Source:
† HCM 6th Signalized Intersection Summary used for Delay and LOS.
‡ HCM 2000 Signalized Intersection Capacity Analysis used for Delay and LOS.

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Table NB-11B - Rockledge Road / MD 187 (Old Georgetown Road) Corridor - (PM Peak)

Node	Location	Delay (s/veh)	LOS	Approach	Delay (s/veh)	LOS	Movement	Delay (s/veh)	LOS	50th %ile Queue (ft)	95th %ile Queue (ft)
N 1000†	Rockledge Dr at Rock Forest Dr	40.6	D	Rockledge Dr EB	66.1	E	L	56.1	E	215	270
							T	36.8	D	40	76
							R	86.9	F	0	83
				Rock Forest Dr WB	61.8	E	L	71.9	E	45	91
							T	50.9	D	12	35
							R	53.9	D	0	0
				Rockledge Dr NB	25.3	C	L	15.0	B	19	42
							T	26.0	C	312	440
							T/R	25.8	C	-	-
				Rockledge Dr SB	18.1	B	L	18.5	B	35	70
							T	18.0	B	91	133
							R	0.0	A	0	0
N 1001‡	Rockledge Dr at I-270 SB Off Ramp / I-270 SB Ramp Connector	40.6	D	I-270 SB Off Ramp EB	59.1	E	L/T	-	-	-	-
							T	108.2	F	~374	#504
							R	0.6	A	0	0
				Rockledge Dr NB	40.2	D	T	77.9	E	282	#372
							R	22.2	C	397	529
				Rockledge Dr SB	0.0	A	T	0.0	A	0	m0
N 1002‡	Rockledge Dr at I-270 NB On Ramp / I-270 NB Ramp Connector	32.9	C	I-270 NB Ramp Connector WB	41.7	D	L	30.4	C	397	561
							L/T	-	-	-	-
							T	45.3	D	776	887
				Rockledge Dr NB	0.2	A	L	0.2	A	0	m0
N 1003‡	MD 187 (Old Georgetown Road) at Rock Spring Dr	98.7	F	Rock Spring Dr EB	116.9	F	L	136.0	F	~462	#684
							L/T	139.3	F	~472	#698
							R	32.4	C	37	85
				Rock Spring Dr WB	418.8	F	L/T/R	418.8	F	~141	#309
				MD 187 (Old Georgetown Road) NB	103.4	F	L	60.0	E	100	143
							T	106.7	F	~1,153	#1,232
							T/R	-	-	-	-
				MD 187 (Old Georgetown Road) SB	53.6	D	L	146.6	F	~121	#259
							T	47.1	D	545	595
							R	56.3	E	123	154

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Table NB-11B - Rockledge Road / MD 187 (Old Georgetown Road) Corridor - (PM Peak)

Node	Location	Delay (s/veh)	LOS	Approach	Delay (s/veh)	LOS	Movement	Delay (s/veh)	LOS	50th %ile Queue (ft)	95th %ile Queue (ft)
N 1005‡	MD 187 (Old Georgetown Road) at I-270 SB Ramp Connector / I-270 SB On-Ramp	31.7	C	I-270 SB Ramp Connector EB	66.7	E	L	75.5	E	403	#605
							L/T/R	71.6	E	406	#600
							R	44.0	D	122	173
				MD 187 (Old Georgetown Road) NB	28.4	C	T	28.4	C	~679	m453
							T/R	-	-	-	-
				MD 187 (Old Georgetown Road) SB	19.0	B	L	27.6	C	48	48
							T	18.4	B	157	313
N 1006‡	MD 187 (Old Georgetown Road) at I-270 NB Ramp Connector / I-270 NB Off-Ramp	15.6	B	I-270 NB Off Ramp WB	25.6	C	L	71.4	E	82	142
							L/T	69.8	E	81	141
							R	0.2	A	0	0
				MD 187 (Old Georgetown Road) NB	15.6	B	L	52.1	D	300	m215
							T	4.4	A	241	m252
				MD 187 (Old Georgetown Road) SB	13.8	B	T	18.8	B	228	m238
							R	0.1	A	0	m0
N 1009‡	MD 187 (Old Georgetown Road) at Tuckerman Ln	92.3	F	Tuckerman Ln EB	61.2	E	L	58.1	E	168	214
							T	63.6	E	230	283
							T/R	-	-	-	-
				Tuckerman Ln WB	179.0	F	L	272.3	F	~357	#476
							T	86.3	F	187	#279
							R	50.7	D	0	36
				MD 187 (Old Georgetown Road) NB	61.7	E	U/L	261.4	F	~350	#545
							T	47.4	D	~926	#1,014
							R	26.2	C	199	798
				MD 187 (Old Georgetown Road) SB	111.6	F	L	80.7	F	73	#184
							T	112.7	F	~986	#1,150
							T/R	-	-	-	-

Note: 95th percentile queuing reported using Synchro software.
- Hyphen denotes that no value was recorded for this metric.
~ Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.
m Volume for the 95th percentile queue is metered by upstream signal.
Volume for the 95th percentile exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

Reporting Source:
† HCM 6th Signalized Intersection Summary used for Delay and LOS.
‡ HCM 2000 Signalized Intersection Capacity Analysis used for Delay and LOS.

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Table NB-12B - MD 190 (River Road) Corridor - (AM Peak)

Node	Location	Delay (s/veh)	LOS	Approach	Delay (s/veh)	LOS	Movement	Delay (s/veh)	LOS	50th %ile Queue (ft)	95th %ile Queue (ft)
N 1100‡	MD 190 (River Rd) at Seven Locks Rd	41.6	D	MD 190 (River Rd) EB	45.8	D	L	25.1	C	13	33
							T	46.2	D	661	#810
							T/R	-	-	-	-
				MD 190 (River Rd) WB	21.6	C	U/L	84.7	F	110	#223
							T	13.5	B	160	190
							R	1.2	A	0	2
				Seven Locks Rd NB	24.3	C	L	89.2	F	26	62
							T	164.3	F	48	#123
							R	0.3	A	0	0
				Seven Locks Rd SB	71.8	E	L	76.7	E	401	#606
							L/T/R	66.9	E	387	#569
N 1102‡	MD 190 (River Rd) at I-495 Outer Loop Off-Ramp	13.5	B	MD 190 (River Rd) EB	2.6	A	T	2.6	A	25	m108
				MD 190 (River Rd) WB	4.8	A	T	4.8	A	100	147
				I-495 Outer Loop Off-Ramp NB	65.0	E	L	65.0	E	163	208
N 1105‡	MD 190 (River Rd) WB at I-495 Inner Loop On-Ramp	0.5	A	MD 190 (River Rd) EB	0.7	A	L	4.4	A	1	132
							T	0.1	A	0	0
				MD 190 (River Rd) WB	0.3	A	T	0.3	A	0	0
N 1107†	MD 190 (River Rd) at Burdette Rd	21.5	C	MD 190 (River Rd) EB	15.2	B	L	25.1	C	19	68
							T	14.9	B	514	914
							R	5.6	A	0	0
				MD 190 (River Rd) WB	16.0	B	L	15.5	B	1	5
							T	16.1	B	680	907
							R	6.6	A	0	0
				Burdette Rd NB	73.0	E	L/T/R	73.0	E	49	92
				Burdette Rd SB	97.0	F	L/T	68.6	E	66	113
							R	104.5	F	162	254

Note: 95th percentile queuing reported using Synchro software.

- Hyphen denotes that no value was recorded for this metric.

m Volume for the 95th percentile queue is metered by upstream signal.

Volume for the 95th percentile exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

Reporting Source:

† HCM 6th Signalized Intersection Summary used for Delay and LOS.

‡ HCM 2000 Signalized Intersection Capacity Analysis used for Delay and LOS.

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Table NB-12B - MD 190 (River Road) Corridor - (PM Peak)

Node	Location	Delay (s/veh)	LOS	Approach	Delay (s/veh)	LOS	Movement	Delay (s/veh)	LOS	50th %ile Queue (ft)	95th %ile Queue (ft)
N 1100‡	MD 190 (River Rd) at Seven Locks Rd	49.3	D	MD 190 (River Rd) EB	66.9	E	L	89.4	F	23	#77
							T	66.1	E	382	#485
							T/R	-	-	-	-
				MD 190 (River Rd) WB	39.5	D	U/L	75.2	E	235	m#415
							T	44.5	D	702	#836
							R	18.1	B	44	41
				Seven Locks Rd NB	35.3	D	L	56.7	E	29	63
							T	99.6	F	229	#392
							R	0.3	A	0	0
				Seven Locks Rd SB	75.1	E	L	59.3	E	338	#485
							L/T/R	87.3	F	471	#716
N 1102‡	MD 190 (River Rd) at I-495 Outer Loop Off-Ramp	10.7	B	MD 190 (River Rd) EB	1.1	A	T	1.1	A	31	m36
				MD 190 (River Rd) WB	7.7	A	T	7.7	A	526	542
				I-495 Outer Loop Off-Ramp NB	70.9	E	L	70.9	E	153	204
N 1105‡	MD 190 (River Rd) WB at I-495 Inner Loop On-Ramp	3.7	A	MD 190 (River Rd) EB	1.9	A	L	10.8	B	31	91
							T	0.2	A	0	0
				MD 190 (River Rd) WB	6.3	A	T	6.3	A	225	359
N 1107†	MD 190 (River Rd) at Burdette Rd	49.9	D	MD 190 (River Rd) EB	18.9	B	L	93.9	F	270	380
							T	8.2	A	281	512
							R	3.8	A	0	11
				MD 190 (River Rd) WB	71.9	E	L	10.9	B	1	4
							T	73.5	E	~1,731	#1,940
							R	11.3	B	0	5
				Burdette Rd NB	80.7	F	L/T/R	80.7	F	39	81
				Burdette Rd SB	105.4	F	L/T	77.2	E	69	122
							R	116.8	F	0	73

Note: 95th percentile queuing reported using Synchro software.

- Hyphen denotes that no value was recorded for this metric.

m Volume for the 95th percentile queue is metered by upstream signal.

Volume for the 95th percentile exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

Reporting Source:

† HCM 6th Signalized Intersection Summary used for Delay and LOS.

‡ HCM 2000 Signalized Intersection Capacity Analysis used for Delay and LOS.

DRAFT

Table NB-13B - MD 187 (Old Georgetown Road) Corridor - (AM Peak)

Node	Location	Delay (s/veh)	LOS	Approach	Delay (s/veh)	LOS	Movement	Delay (s/veh)	LOS	50th %ile Queue (ft)	95th %ile Queue (ft)
N 1200‡	MD 187 (Old Georgetown Rd) at Lone Oak Dr/Manor Oak Way	25.1	C	Lone Oak Dr EB	83.4	F	L/T	71.5	E	87	143
							R	86.7	F	280	375
				Manor Oak Way WB	59.3	E	L/T/R	59.3	E	14	40
				MD 187 (Old Georgetown Rd) NB	6.5	A	U/L	38.5	D	73	m135
							T	3.4	A	13	m249
							R	3.2	A	0	m0
				MD 187 (Old Georgetown Rd) SB	26.5	C	L	9.2	A	2	8
							T	26.5	C	875	#1,172
							T/R	-	-	-	-
N 1201‡	MD 187 (Old Georgetown Rd) at I-495 Outer Loop Off-Ramp	96.0	F	I-495 Outer Loop Off-Ramp WB	86.5	F	L	55.6	E	88	150
							L/T	55.6	E	89	152
							R	103.2	F	245	#452
				MD 187 (Old Georgetown Rd) NB	54.5	D	L	200.6	F	~491	#714
							T	4.5	A	94	80
				MD 187 (Old Georgetown Rd) SB	118.4	F	T	118.4	F	~1,446	#1,491
							T/R	-	-	-	-
N 1202‡	MD 187 (Old Georgetown Rd) at I-495 Inner Loop Off-Ramp	9.4	A	I-495 Inner Loop Off-Ramp EB	22.1	C	L	68.5	E	96	152
							L/T	68.5	E	97	154
							R	0.4	A	0	0
				MD 187 (Old Georgetown Rd) NB	17.4	B	T	17.4	B	260	315
							T/R	-	-	-	-
				MD 187 (Old Georgetown Rd) SB	2.0	A	L	16.0	B	107	m66
							T	0.8	A	69	m63
N 1203‡	MD 187 (Old Georgetown Rd) at Ryland Dr/Church Dwy	16.5	B	Ryland Dr EB	86.7	F	L/T/R	86.7	F	299	#478
				Church Dwy WB	43.4	D	L	43.9	D	25	55
							T	42.8	D	4	16
							R	43.3	D	0	26
				MD 187 (Old Georgetown Rd) NB	19.3	B	L	27.7	C	2	7
							T	19.2	B	260	310
							T/R	-	-	-	-
				MD 187 (Old Georgetown Rd) SB	6.9	A	U/L	5.4	A	6	24
							T	7.0	A	137	158
							T/R	-	-	-	-

Note: 95th percentile queuing reported using Synchro software.

- Hyphen denotes that no value was recorded for this metric.

~ Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.

m Volume for the 95th percentile queue is metered by upstream signal.

Volume for the 95th percentile exceeds capacity, queue may be longer. Queue shown is maximum after two

Reporting Source:

‡ HCM 2000 Signalized Intersection Capacity Analysis used for Delay and LOS.

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Table NB-13B - MD 187 (Old Georgetown Road) Corridor - (PM Peak)

Node	Location	Delay (s/veh)	LOS	Approach	Delay (s/veh)	LOS	Movement	Delay (s/veh)	LOS	50th %ile Queue (ft)	95th %ile Queue (ft)
N 1200‡	MD 187 (Old Georgetown Rd) at Lone Oak Dr/Manor Oak Way	20.7	C	Lone Oak Dr EB	61.9	E	L/T	74.8	E	127	197
							R	45.0	D	58	97
				Manor Oak Way WB	55.5	E	L/T/R	55.5	E	15	40
				MD 187 (Old Georgetown Rd) NB	17.7	B	U/L	43.0	D	134	m200
							T	16.1	B	615	710
							R	4.1	A	0	m0
				MD 187 (Old Georgetown Rd) SB	20.1	C	L	15.5	B	2	12
							T	20.1	C	508	674
							T/R	-	-	-	-
N 1201‡	MD 187 (Old Georgetown Rd) at I-495 Outer Loop Off-Ramp	11.6	B	I-495 Outer Loop Off-Ramp WB	69.1	E	L	55.0	E	65	114
							L/T	55.0	E	65	114
							R	76.9	E	194	294
				MD 187 (Old Georgetown Rd) NB	4.0	A	L	29.4	C	126	m138
							T	2.4	A	129	134
				MD 187 (Old Georgetown Rd) SB	11.2	B	T	11.2	B	111	119
							T/R	-	-	-	-
N 1202‡	MD 187 (Old Georgetown Rd) at I-495 Inner Loop Off-Ramp	17.2	B	I-495 Inner Loop Off-Ramp EB	42.7	D	L	73.6	E	169	256
							L/T	72.7	E	167	253
							R	0.2	A	0	0
				MD 187 (Old Georgetown Rd) NB	17.9	B	T	17.9	B	856	175
							T/R	-	-	-	-
				MD 187 (Old Georgetown Rd) SB	8.0	A	L	54.9	D	167	m218
							T	2.1	A	57	60
N 1203‡	MD 187 (Old Georgetown Rd) at Ryland Dr/Church Dwy	10.4	B	Ryland Dr EB	66.7	E	L/T/R	66.7	E	68	111
				Church Dwy WB	60.4	E	L	60.8	E	10	28
							T	60.3	E	5	17
							R	60.3	E	0	11
				MD 187 (Old Georgetown Rd) NB	12.0	B	L	5.4	A	2	8
							T	12.0	B	471	753
							T/R	-	-	-	-
				MD 187 (Old Georgetown Rd) SB	4.4	A	U/L	32.7	C	3	45
							T	3.8	A	61	134
							T/R	-	-	-	-

Note: 95th percentile queuing reported using Synchro software.
- Hyphen denotes that no value was recorded for this metric.
m Volume for the 95th percentile queue is metered by upstream signal.

Reporting Source:
‡ HCM 2000 Signalized Intersection Capacity Analysis used for Delay and LOS.

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Table NB-14B - MD 355 (Rockville Pike) / I-270 East Spur Corridor - (AM Peak)

Node	Location	Delay (s/veh)	LOS	Approach	Delay (s/veh)	LOS	Move-ment	Delay (s/veh)	LOS	50th %ile Queue (ft	95th %ile Queue (ft)
N 1300‡	MD 355 (Rockville Pike) at Grosvenor Ln	33.4	C	Grosvenor Ln EB	59.1	E	L	60.6	E	51	82
							R	58.4	E	160	259
				Grosvenor Ln WB	45.8	D	L	38.5	D	265	328
							T/R	63.9	E	227	334
				MD 355 (Rockville Pike) NW	24.9	C	T	24.9	C	380	444
				MD 355 (Rockville Pike) SB	29.3	C	T	30.1	C	658	723
							R	15.8	B	6	36
N 1307‡	MD 355 (Rockville Pike) at I-495 Inner Loop Off-Ramp	25.4	C	I-495 Inner Loop Off-Ramp SE	75.9	E	R	75.9	E	319	388
				MD 355 (Rockville Pike) SB	18.4	B	T	18.4	B	769	854
N 1309†	MD 355 (Rockville Pike) at Pooks Hill Rd	35.7	D	Pooks Hill Rd EB	107.5	F	L	107.5	F	335	#461
							R	0.0	A	86	171
				MD 355 (Rockville Pike) NB	9.8	A	L	75.4	E	49	m90
							T	8.5	A	39	63
				MD 355 (Rockville Pike) SB	39.3	D	T	40.5	D	1,306	618
							R	4.3	A	0	m3
N 1310‡	MD 355 (Rockville Pike) at Alta Vista Rd/Bellevue Dr	17.5	B	Alta Vista Rd EB	95.2	F	L/T/R	95.2	F	118	185
				Bellevue Dr WB	73.4	E	L/T/R	73.4	E	11	45
				MD 355 (Rockville Pike) NB	23.4	C	U/L	-	-	-	-
							T	23.4	C	426	512
							T/R	-	-	-	-
				MD 355 (Rockville Pike) SB	12.8	B	U/L	19.0	B	261	m286
							T	12.3	B	292	222
							T/R	-	-	-	-

Note: 95th percentile queuing reported using Synchro software.
- Hyphen denotes that no value was recorded for this metric.
m Volume for the 95th percentile queue is metered by upstream signal.
Volume for the 95th percentile exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

Reporting Source:
† HCM 6th Signalized Intersection Summary used for Delay and LOS.
‡ HCM 2000 Signalized Intersection Capacity Analysis used for Delay and LOS.

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Table NB-14B - MD 355 (Rockville Pike) / I-270 East Spur Corridor - (PM Peak)											
Node	**Location**	**Delay (s/veh)**	**LOS**	**Approach**	**Delay (s/veh)**	**LOS**	**Move-ment**	**Delay (s/veh)**	**LOS**	**50th %ile Queue (ft**	**95th %ile Queue (ft)**
N 1300‡	MD 355 (Rockville Pike) at Grosvenor Ln	36.5	D	Grosvenor Ln EB	61.3	E	L	66.6	E	79	117
							R	57.1	E	118	214
				Grosvenor Ln WB	62.5	E	L	37.5	D	95	132
							T/R	83.2	F	277	#479
				MD 355 (Rockville Pike) NW	40.9	D	T	40.9	D	803	#990
				MD 355 (Rockville Pike) SB	19.8	B	T	20.3	C	407	453
							R	13.1	B	0	28
N 1307‡	MD 355 (Rockville Pike) at I-495 Inner Loop Off-Ramp	16.5	B	I-495 Inner Loop Off-Ramp SE	79.5	E	R	79.5	E	212	265
				MD 355 (Rockville Pike) SB	8.4	A	T	8.4	A	313	399
N 1309†	MD 355 (Rockville Pike) at Pooks Hill Rd	16.5	B	Pooks Hill Rd EB	99.3	F	L	99.3	F	161	215
							R	0.0	A	2	57
				MD 355 (Rockville Pike) NB	11.5	B	L	73.1	E	84	m87
							T	10.3	B	115	m102
				MD 355 (Rockville Pike) SB	15.1	B	T	16.3	B	308	313
							R	6.6	A	0	7
N 1310‡	MD 355 (Rockville Pike) at Alta Vista Rd/Bellevue Dr	29.3	C	Alta Vista Rd EB	99.8	F	L/T/R	99.8	F	134	208
				Bellevue Dr WB	72.4	E	L/T/R	72.4	E	17	48
				MD 355 (Rockville Pike) NB	38.6	D	U/L	26.2	C	3	9
							T	38.7	D	1,253	#1,513
							T/R	-	-	-	-
				MD 355 (Rockville Pike) SB	14.4	B	U/L	119.4	F	~339	#553
							T	1.5	A	39	17
							T/R	-	-	-	-

Note: 95th percentile queuing reported using Synchro software.

- Hyphen denotes that no value was recorded for this metric.

~ Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.

m Volume for the 95th percentile queue is metered by upstream signal.

Volume for the 95th percentile exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

Reporting Source:

† HCM 6th Signalized Intersection Summary used for Delay and LOS.

‡ HCM 2000 Signalized Intersection Capacity Analysis used for Delay and LOS.

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2045 PREFERRED ALTERNATIVE

SYNCHRO ANALYSIS OUTPUT TABLES

Table BP1-2B - I-370 (Sam Eig Highway) Corridor - (AM Peak)

Node	Location	Delay (s/veh)	LOS	Approach	Delay (s/veh)	LOS	Movement	Delay (s/veh)	LOS	50th %ile Queue (ft)	95th %ile Queue (ft)
P 100‡	I-370 (Sam Eig Hwy) at Fields Rd	23.5	C	Fields Rd WB	53.2	D	L	72.1	E	101	140
							R	43.6	D	175	203
				I-370 (Sam Eig Hwy) NB	17.6	B	T	18.2	B	547	695
							R	14.4	B	237	408
				I-370 (Sam Eig Hwy) SB	23.2	C	L	74.0	E	258	307
							T	5.4	A	136	173
				Washingtonian Blvd Ramp SEB	4.3	A	R	4.3	A	23	42
P 104‡	Washingtonian Blvd at I-370 (Sam Eig Hwy) WB Ramps	22.2	C	Washingtonian Blvd Ramp WB	24.7	C	L	24.9	C	103	#211
							L/T	25.2	C	105	#220
							R	18.4	B	0	0
				Washingtonian Blvd NB	4.6	A	L	5.0	A	5	15
							T	2.8	A	1	2
				Washingtonian Blvd SB	24.9	C	T	24.9	C	33	64
							T/R	-	-	-	-
P 105‡	Washingtonian Blvd at I-370 (Sam Eig Hwy) EB Ramps	14.0	B	Washingtonian Blvd Ramp EB	27.0	C	L/T	26.2	C	4	17
							R	27.0	C	0	35
				Washingtonian Blvd NB	28.0	C	T	29.1	C	41	89
							R	27.5	C	0	46
				Washingtonian Blvd SB	3.6	A	L/T	-	-	-	-
							T	3.6	A	32	120
P 113‡	I-370 (Sam Eig Hwy) SBR at MD 119 (Great Seneca Hwy)	4.8	A	MD 119 (Great Seneca Hwy) EB	0.2	A	T	0.2	A	0	0
				MD 119 (Great Seneca Hwy) WB	3.9	A	T	3.9	A	4	5
				I-370 (Sam Eig Hwy) SB	28.5	C	R	28.5	C	44	212
P 114‡	I-370 (Sam Eig Hwy) at MD 119 (Great Seneca Hwy)	34.1	C	MD 119 (Great Seneca Hwy) EB	24.6	C	L	42.7	D	547	632
							T	15.0	B	707	789
				MD 119 (Great Seneca Hwy) WB	51.2	D	T	51.2	D	118	151
				I-370 (Sam Eig Hwy) SB	86.9	F	L	86.9	F	296	359
P 118‡	I-370 (Sam Eig Hwy) at Diamondback Dr	30.7	C	Diamondback Dr EB	78.2	E	L	79.4	E	397	459
							R	54.9	D	0	0
				Diamondback Dr WB	66.3	E	R	66.3	E	113	149
				I-370 (Sam Eig Hwy) NB	12.7	B	L	128.8	F	27	m44
							T	11.9	B	102	456
							R	0.1	A	0	m0
				I-370 (Sam Eig Hwy) SB	22.7	C	L	105.0	F	122	191
							T	23.4	C	209	394
							R	0.4	A	0	0

Note: 95th percentile queuing reported using Synchro software.
- Hyphen denotes that no value was recorded for this metric.
m Volume for the 95th percentile queue is metered by upstream signal.
Volume for the 95th percentile exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

Reporting Source:
‡ HCM 2000 Signalized Intersection Capacity Analysis used for Delay and LOS.

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Table BP1-2B - I-370 (Sam Eig Highway) Corridor - (PM Peak)

Node	Location	Delay (s/veh)	LOS	Approach	Delay (s/veh)	LOS	Movement	Delay (s/veh)	LOS	50th %ile Queue (ft)	95th %ile Queue (ft)
P 100‡	I-370 (Sam Eig Hwy) at Fields Rd	29.1	C	Fields Rd WB	47.4	D	L	67.5	E	229	281
							R	33.9	C	267	317
				I-370 (Sam Eig Hwy) NB	29.8	C	T	30.8	C	791	354
							R	23.8	C	154	194
				I-370 (Sam Eig Hwy) SB	25.0	C	L	70.8	E	338	415
							T	13.3	B	481	569
				Washingtonian Blvd Ramp SEB	9.7	A	R	9.7	A	157	232
P 104‡	Washingtonian Blvd at I-370 (Sam Eig Hwy) WB Ramps	23.2	C	Washingtonian Blvd Ramp WB	37.8	D	L	38.2	D	123	#245
							L/T	37.8	D	121	#241
							R	28.3	C	0	0
				Washingtonian Blvd NB	2.9	A	L	2.8	A	19	m55
							T	3.4	A	2	m9
				Washingtonian Blvd SB	37.5	D	T	37.5	D	43	77
							T/R	-	-	-	-
P 105‡	Washingtonian Blvd at I-370 (Sam Eig Hwy) EB Ramps	26.9	C	Washingtonian Blvd Ramp EB	33.1	C	L/T	32.2	C	5	18
							R	33.2	C	0	38
				Washingtonian Blvd NB	30.3	C	T	35.8	D	224	#432
							R	27.5	C	0	136
				Washingtonian Blvd SB	17.0	B	L/T	-	-	-	-
							T	17.0	B	45	123
P 113‡	I-370 (Sam Eig Hwy) SBR at MD 119 (Great Seneca Hwy)	12.2	B	MD 119 (Great Seneca Hwy) EB	0.0	A	T	0.0	A	0	0
				MD 119 (Great Seneca Hwy) WB	6.2	A	T	6.2	A	19	38
				I-370 (Sam Eig Hwy) SB	31.4	C	R	31.4	C	997	1,075
P 114‡	I-370 (Sam Eig Hwy) at MD 119 (Great Seneca Hwy)	46.4	D	MD 119 (Great Seneca Hwy) EB	26.6	C	L	43.3	D	388	458
							T	4.0	A	73	88
				MD 119 (Great Seneca Hwy) WB	57.0	E	T	57.0	E	648	711
				I-370 (Sam Eig Hwy) SB	81.3	F	L	81.3	F	156	#233
P 118‡	I-370 (Sam Eig Hwy) at Diamondback Dr	40.1	D	Diamondback Dr EB	83.4	F	L	84.6	F	276	336
							R	63.7	E	0	0
				Diamondback Dr WB	57.6	E	R	57.6	E	188	225
				I-370 (Sam Eig Hwy) NB	54.3	D	L	73.4	E	115	187
							T	61.0	E	538	619
							R	0.2	A	0	0
				I-370 (Sam Eig Hwy) SB	24.3	C	L	83.5	F	183	265
							T	33.9	C	608	730
							R	4.0	A	1,012	1,268

Note: 95th percentile queuing reported using Synchro software.
- Hyphen denotes that no value was recorded for this metric.
m Volume for the 95th percentile queue is metered by upstream signal.
Volume for the 95th percentile exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

Reporting Source:
‡ HCM 2000 Signalized Intersection Capacity Analysis used for Delay and LOS.

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Table BP1-3B - Shady Grove Road Corridor - (AM Peak)

Node	Location	Delay (s/veh)	LOS	Approach	Delay (s/veh)	LOS	Movement	Delay (s/veh)	LOS	50th %ile Queue (ft)	95th %ile Queue (ft)
P 200‡	Omega Dr at MD 28 (Key W Ave)	38.2	D	MD 28 (Key W Ave) EB	32.8	C	L	72.7	E	88	147
							T	32.6	C	603	824
							R	18.2	B	0	46
				MD 28 (Key W Ave) WB	32.3	C	U/L	-	-	-	-
							L	70.6	E	145	#219
							T	16.3	B	90	156
							R	15.1	B	0	36
				Medical Center Dr NB	60.0	E	L	122.6	F	11	34
							T	55.4	E	33	52
							R	54.5	D	0	20
				Omega Dr SB	71.8	E	L	88.0	F	71	#126
							T	68.9	E	266	348
							R	49.3	D	0	19
P 203†	Omega Dr at I-270 SB Off-Ramp	-	-	I-270 Off-Ramp WB	-	-	L	32.2	D	-	6.8*
P 204†	Omega Dr / Fields Rd at Washingtonian Blvd	7.8	A	Fields Rd EB	5.8	A	L	18.5	B	12	36
							T	4.8	A	46	82
				Omega Dr WB	9.1	A	T	8.6	A	12	40
							T/R	9.5	A	-	-
				Washingtonian Blvd SB	13.5	B	L	13.8	B	18	39
							R	10.9	B	0	5
P 205‡	Shady Grove Rd at Corporate Blvd	20.6	C	Corporate Blvd EB	72.5	E	L	73.4	E	57	109
							L/T	72.9	E	57	109
							R	65.4	E	0	0
				Corporate Blvd WB	71.7	E	L/T	75.3	E	31	69
							R	69.4	E	0	0
				Shady Grove Rd NB	29.5	C	L	23.3	C	3	15
							T	29.5	C	349	468
							T/R	-	-	-	-
				Shady Grove Rd SB	11.8	B	U/L	49.6	D	310	435
							T	3.6	A	94	212
							T/R	-	-	-	-

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Table BP1-3B - Shady Grove Road Corridor - (AM Peak)

Node	Location	Delay (s/veh)	LOS	Approach	Delay (s/veh)	LOS	Movement	Delay (s/veh)	LOS	50th %ile Queue (ft)	95th %ile Queue (ft)
P 207†	Shady Grove Rd at I-270 SB Off-Ramp	21.1	C	I-270 SB Off-Ramp EB	45.1	D	L	33.2	C	162	187
							R	51.2	D	464	513
				Shady Grove Rd NB	19.2	B	T	19.2	B	49	56
				Shady Grove Rd SB	0.8	A	T	0.8	A	403	456
							R	0.0	A	243	555
P 210†	Shady Grove Rd at I-270 NB Off-Ramp	19.5	B	I-270 NB Off-Ramp WB	56.4	E	L	56.4	E	386	423
							R	0.0	A	0	0
				Shady Grove Rd NB	3.9	A	T	3.9	A	103	148
							R	0.0	A	0	0
				Shady Grove Rd SB	11.4	B	T	11.4	B	102	50
P 212‡	Shady Grove Rd at Choke Cherry Rd	24.4	C	Choke Cherry Rd EB	64.1	E	L/T/R	72.8	E	55	109
							R	54.5	D	0	29
				Choke Cherry Rd WB	70.4	E	L	74.6	E	107	172
							L/T	71.5	E	105	168
							R	60.7	E	0	4
				Shady Grove Rd NB	19.4	B	U/L	34.7	C	70	169
							T	14.8	B	159	226
							R	28.1	C	34	78
				Shady Grove Rd SB	18.9	B	L	11.3	B	47	89
							T	19.6	B	332	473
							T/R	-	-	-	-
P 216†	Redland Blvd at Piccard Dr	13.0	B	I-270 NB Off-Ramp EB	5.4	A	L	5.1	A	8	28
							T	5.4	A	16	41
							T/R	5.4	A	-	-
				Redland Blvd WB	-	-	L	-	-	34	67
							R	-	-	0	0
				Piccard Dr NB	13.7	B	T	13.5	B	17	41
							R	13.8	B	0	15
				Piccard Dr SB	16.2	B	L/T	16.0	B	-	-
							T	16.4	B	88	136

Note: 95th percentile queuing reported using Synchro software.
- Hyphen denotes that no value was recorded for this metric.
Volume for the 95th percentile exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.
* Unsignalized intersection 95th percentile queue reported in number of vehicles.

Reporting Source:
† HCM 6th Signalized Intersection Summary used for Delay and LOS.
‡ HCM 2000 Signalized Intersection Capacity Analysis used for Delay and LOS.
†† HCM 6th Two Way Stop Control used for Delay and LOS.

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Table BP1-3B - Shady Grove Road Corridor - (PM Peak)

Node	Location	Delay (s/veh)	LOS	Approach	Delay (s/veh)	LOS	Movement	Delay (s/veh)	LOS	50th %ile Queue (ft)	95th %ile Queue (ft)
P 200‡	Omega Dr at MD 28 (Key W Ave)	41.2	D	MD 28 (Key W Ave) EB	24.3	C	L	82.6	F	88	#173
							T	18.5	B	169	213
							R	15.3	B	0	0
				MD 28 (Key W Ave) WB	33.3	C	U/L	-	-	-	-
							L	71.1	E	51	85
							T	33.1	C	723	826
							R	18.0	B	0	45
				Medical Center Dr NB	67.4	E	L	90.5	F	173	#296
							T	56.3	E	182	228
							R	68.0	E	196	313
				Omega Dr SB	69.7	E	L	81.5	F	60	#104
							T	64.0	E	111	173
							R	66.3	E	91	182
P 203††	Omega Dr at I-270 SB Off-Ramp	-	-	I-270 Off-Ramp WB	-	-	L	98.0	F	-	6.9*
P 204†	Omega Dr / Fields Rd at Washingtonian Blvd	15.6	B	Fields Rd EB	6.7	A	L	43.1	D	12	38
							T	2.9	A	14	27
				Omega Dr WB	13.6	B	T	12.0	B	374	548
							T/R	15.1	B	-	-
				Washingtonian Blvd SB	31.6	C	L	32.3	C	72	115
							R	29.4	C	14	52
P 205‡	Shady Grove Rd at Corporate Blvd	31.8	C	Corporate Blvd EB	79.2	E	L	81.3	F	89	#157
							L/T	81.8	F	90	#156
							R	63.4	E	0	0
				Corporate Blvd WB	76.2	E	L/T	54.8	D	65	109
							R	81.1	F	194	303
				Shady Grove Rd NB	28.0	C	L	17.2	B	8	25
							T	28.1	C	500	647
							T/R	-	-	-	-
				Shady Grove Rd SB	11.2	B	U/L	54.6	D	58	129
							T	5.7	A	74	98
							T/R	-	-	-	-

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Table BP1-3B - Shady Grove Road Corridor - (PM Peak)

Node	Location	Delay (s/veh)	LOS	Approach	Delay (s/veh)	LOS	Movement	Delay (s/veh)	LOS	50th %ile Queue (ft)	95th %ile Queue (ft)
P 207†	Shady Grove Rd at I-270 SB Off-Ramp	18.4	B	I-270 SB Off-Ramp EB	65.2	E	L	62.1	E	163	206
							R	68.4	E	182	232
				Shady Grove Rd NB	4.8	A	T	4.8	A	29	26
				Shady Grove Rd SB	0.1	A	T	0.1	A	35	43
							R	0.0	A	156	310
P 210†	Shady Grove Rd at I-270 NB Off-Ramp	8.6	A	I-270 NB Off-Ramp WB	71.7	E	L	71.7	E	130	175
							R	0.0	A	0	0
				Shady Grove Rd NB	0.1	A	T	0.1	A	171	183
							R	0.0	A	469	688
				Shady Grove Rd SB	2.8	A	T	2.8	A	22	29
P 212‡	Shady Grove Rd at Choke Cherry Rd	44.5	D	Choke Cherry Rd EB	70.8	E	L/T/R	91.8	F	185	#320
							R	47.7	D	82	155
				Choke Cherry Rd WB	72.7	E	L	81.9	F	275	#428
							L/T	75.5	E	273	#412
							R	48.7	D	0	58
				Shady Grove Rd NB	28.0	C	U/L	86.7	F	144	#255
							T	23.3	C	216	260
							R	9.0	A	1	21
				Shady Grove Rd SB	44.0	D	L	27.5	C	47	80
							T	44.9	D	547	616
							T/R	-	-	-	-
P 216†	Redland Blvd at Piccard Dr	15.1	B	I-270 NB Off-Ramp EB	5.8	A	L	5.4	A	6	20
							T	5.9	A	29	51
							T/R	5.9	A	-	-
				Redland Blvd WB	-	-	L	-	-	13	29
							R	-	-	0	27
				Piccard Dr NB	19.6	B	T	16.0	B	97	#196
							R	22.8	C	0	56
				Piccard Dr SB	13.8	B	L/T	14.3	B	-	-
							T	13.4	B	27	52

Note: 95th percentile queuing reported using Synchro software.
- Hyphen denotes that no value was recorded for this metric.
Volume for the 95th percentile exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.
* Unsignalized intersection 95th percentile queue reported in number of vehicles.

Reporting Source:
† HCM 6th Signalized Intersection Summary used for Delay and LOS.
‡ HCM 2000 Signalized Intersection Capacity Analysis used for Delay and LOS.
†† HCM 6th Two Way Stop Control used for Delay and LOS.

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Table BP1-4B - Gude Drive Corridor - (AM Peak)

Node	Location	Delay (s/veh)	LOS	Approach	Delay (s/veh)	LOS	Movement	Delay (s/veh)	LOS	50th %ile Queue (ft)	95th %ile Queue (ft)
P 301†	Gude Dr at Research Blvd	29.2	C	Gude Dr EB	53.1	D	L	60.3	E	10	32
							T	57.1	E	313	#453
							R	20.4	C	0	0
				Gude Dr WB	7.3	A	L	23.3	C	144	m#204
							T	0.4	A	121	m182
							R	0.8	A	3	m21
				Research Blvd NB	31.1	C	L	39.8	D	5	17
							T	51.8	D	85	130
							R	9.7	A	15	48
				Research Blvd SB	42.3	D	L	48.5	D	122	167
							T	37.1	D	120	190
							T/R	37.1	D	-	-
P 302‡	Gude Dr at I-270 Managed Lanes Direct Connector	37.0	D	Gude Dr EB	31.7	C	L	52.2	D	59	m80
							T	38.0	D	428	m#557
							R	3.4	A	0	m2
				Gude Dr WB	21.3	C	L	25.9	C	37	m62
							T	20.4	C	418	491
							TR	-	-	-	-
				I-270 Managed Lanes Ramp NB	73.5	E	L	75.2	E	300	#507
							R	71.7	E	198	#396
				I-270 Managed Lanes Ramp SB	34.6	C	L	31.6	C	129	205
							R	42.3	D	0	16
P 303†	Gude Dr at Piccard Dr	14.8	B	Gude Dr EB	6.9	A	L	27.7	C	81	m142
							T	0.3	A	98	m350
				Gude Dr WB	22.4	C	T	23.1	C	344	#553
							R	14.5	B	5	42
				Piccard Dr SB	28.0	C	L	36.3	D	33	70
							R	26.4	C	116	156

Note: 95th percentile queuing reported using Synchro software.
- Hyphen denotes that no value was recorded for this metric.
m Volume for the 95th percentile queue is metered by upstream signal.
Volume for the 95th percentile exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

Reporting Source:
† HCM 6th Signalized Intersection Summary used for Delay and LOS.
‡ HCM 2000 Signalized Intersection Capacity Analysis used for Delay and LOS.

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Table BP1-4B - Gude Drive Corridor - (PM Peak)											
Node	**Location**	**Delay (s/veh)**	**LOS**	**Approach**	**Delay (s/veh)**	**LOS**	**Movement**	**Delay (s/veh)**	**LOS**	**50th %ile Queue (ft)**	**95th %ile Queue (ft)**
P 301†	Gude Dr at Research Blvd	28.4	C	Gude Dr EB	39.6	D	L	73.0	E	3	15
							T	39.8	D	293	#378
							R	12.3	B	0	0
				Gude Dr WB	6.6	A	L	27.8	C	98	m130
							T	0.6	A	119	m225
							R	0.4	A	1	m9
				Research Blvd NB	45.8	D	L	37.1	D	76	128
							T	54.3	D	96	#160
							R	43.4	D	78	147
				Research Blvd SB	45.8	D	L	49.9	D	132	181
							T	37.4	D	52	85
							T/R	37.4	D	-	-
P 302‡	Gude Dr at I-270 Managed Lanes Direct Connector	32.4	C	Gude Dr EB	21.8	C	L	54.6	D	92	m121
							T	21.7	C	238	#452
							R	8.2	A	44	m53
				Gude Dr WB	31.0	C	L	37.9	D	146	m#180
							T	28.5	C	459	554
							TR	-	-	-	-
				I-270 Managed Lanes Ramp NB	60.2	E	L	60.5	E	240	#408
							R	59.8	E	131	#279
				I-270 Managed Lanes Ramp SB	41.3	D	L	41.4	D	184	281
							R	40.1	D	0	0
P 303†	Gude Dr at Piccard Dr	32.3	C	Gude Dr EB	24.8	C	L	39.8	D	78	m173
							T	21.4	C	68	387
				Gude Dr WB	34.1	C	T	34.4	C	420	#576
							R	17.0	B	1	17
				Piccard Dr SB	47.1	D	L	31.9	C	109	169
							R	51.5	D	318	475

Note: 95th percentile queuing reported using Synchro software.
- Hyphen denotes that no value was recorded for this metric.
m Volume for the 95th percentile queue is metered by upstream signal.
Volume for the 95th percentile exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

Reporting Source:
† HCM 6th Signalized Intersection Summary used for Delay and LOS.
‡ HCM 2000 Signalized Intersection Capacity Analysis used for Delay and LOS.

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Table BP1-5B - MD 28 (Montgomery Avenue) Corridor - (AM Peak)											
Node	**Location**	**Delay (s/veh)**	**LOS**	**Approach**	**Delay (s/veh)**	**LOS**	**Movement**	**Delay (s/veh)**	**LOS**	**50th %ile Queue (ft)**	**95th %ile Queue (ft)**
P 400‡	MD 28 (Montgomery Ave) at Hurley Ave	17.4	B	MD 28 (Montgomery Ave) EB	23.0	C	L	13.0	B	2	10
							T	23.0	C	571	671
							T/R	-	-	-	-
				MD 28 (Montgomery Ave) WB	8.0	A	U/L	68.3	E	138	m#218
							T	3.6	A	122	136
							T/R	-	-	-	-
				Hurley Ave NB	51.3	D	L/T	57.5	E	60	112
							R	48.7	D	0	69
				Hurley Ave SB	48.3	D	L/T	48.6	D	11	33
							R	47.8	D	4	20
P 401†	MD 28 (Montgomery Ave) at I-270 SB Ramps	7.7	A	MD 28 (Montgomery Ave) EB	0.2	A	T	0.2	A	16	37
							R	0.0	A	366	335
				MD 28 (Montgomery Ave) WB	5.5	A	T	5.5	A	216	486
				I-270 Off-Ramp SB	55.9	E	L	55.9	E	111	143
							R	0.0	A	131	200
P 405‡	MD 28 (Montgomery Ave) at I-270 NB Off-Ramp / Nelson St	21.1	C	MD 28 (Montgomery Ave) EB	9.2	A	L	19.9	B	86	188
							T	5.5	A	101	134
				MD 28 (Montgomery Ave) WB	26.7	C	T	26.7	C	208	283
							T/R	-	-	-	-
				I-270 Off-Ramp NB	47.6	D	T	46.5	D	89	151
							R	48.1	D	71	159
				Nelson St SB	27.5	C	L	59.7	E	25	60
							R	23.9	C	107	134
P 407‡	MD 28 (Montgomery Ave) at Laird St / Bullard Cir	14.0	B	MD 28 (Montgomery Ave) EB	14.1	B	L	1.1	A	0	m1
							T/R	14.2	B	581	#1,283
				MD 28 (Montgomery Ave) WB	6.3	A	L	2.9	A	1	4
							T/R	6.3	A	219	390
				Bullard Cir NB	46.4	D	L/T	46.7	D	11	32
							R	46.1	D	0	17
				Laird St SB	61.7	E	L/T/R	61.7	E	84	146

Note: 95th percentile queuing reported using Synchro software.
- Hyphen denotes that no value was recorded for this metric.
m Volume for the 95th percentile queue is metered by upstream signal.
Volume for the 95th percentile exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

Reporting Source:
† HCM 6th Signalized Intersection Summary used for Delay and LOS.
‡ HCM 2000 Signalized Intersection Capacity Analysis used for Delay and LOS.

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Table BP1-5B - MD 28 (Montgomery Avenue) Corridor - (PM Peak)											
Node	**Location**	**Delay (s/veh)**	**LOS**	**Approach**	**Delay (s/veh)**	**LOS**	**Movement**	**Delay (s/veh)**	**LOS**	**50th %ile Queue (ft)**	**95th %ile Queue (ft)**
P 400‡	MD 28 (Montgomery Ave) at Hurley Ave	24.4	C	MD 28 (Montgomery Ave) EB	34.6	C	L	18.7	B	2	11
							T	34.6	C	620	#749
							T/R	-	-	-	-
				MD 28 (Montgomery Ave) WB	13.0	B	U/L	73.6	E	279	m#383
							T	5.0	A	145	276
							T/R	-	-	-	-
				Hurley Ave NB	54.4	D	L/T	64.7	E	76	#146
							R	47.6	D	0	62
				Hurley Ave SB	48.6	D	L/T	49.2	D	27	62
							R	46.9	D	3	25
P 401†	MD 28 (Montgomery Ave) at I-270 SB Ramps	19.7	B	MD 28 (Montgomery Ave) EB	25.3	C	T	25.3	C	18	m31
							R	0.0	A	513	m584
				MD 28 (Montgomery Ave) WB	10.9	B	T	10.9	B	429	726
				I-270 Off-Ramp SB	51.2	D	L	51.2	D	198	232
							R	0.0	A	173	248
P 405‡	MD 28 (Montgomery Ave) at I-270 NB Off-Ramp / Nelson St	24.2	C	MD 28 (Montgomery Ave) EB	11.9	B	L	29.0	C	85	169
							T	8.6	A	164	278
				MD 28 (Montgomery Ave) WB	29.3	C	T	29.3	C	284	332
							T/R	-	-	-	-
				I-270 Off-Ramp NB	45.4	D	T	49.6	D	213	314
							R	38.4	D	32	97
				Nelson St SB	30.0	C	L	62.6	E	29	67
							R	27.2	C	190	253
P 407‡	MD 28 (Montgomery Ave) at Laird St / Bullard Cir	15.5	B	MD 28 (Montgomery Ave) EB	19.2	B	L	0.3	A	0	m1
							T/R	19.7	B	899	#1,520
				MD 28 (Montgomery Ave) WB	6.8	A	L	2.7	A	0	5
							T/R	6.8	A	213	691
				Bullard Cir NB	50.7	D	L/T	51.0	D	7	23
							R	50.5	D	0	17
				Laird St SB	53.2	D	L/T/R	53.2	D	24	72

Note: 95th percentile queuing reported using Synchro software.
- Hyphen denotes that no value was recorded for this metric.
m Volume for the 95th percentile queue is metered by upstream signal.
Volume for the 95th percentile exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

Reporting Source:
† HCM 6th Signalized Intersection Summary used for Delay and LOS.
‡ HCM 2000 Signalized Intersection Capacity Analysis used for Delay and LOS.

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Table BD-6B - MD 189 (Falls Road) Corridor - (AM Peak)

Node	Location	Delay (s/veh)	LOS	Approach	Delay (s/veh)	LOS	Movement	Delay (s/veh)	LOS	50th %ile Queue (ft)	95th %ile Queue (ft)
P 500‡	MD 189 (Falls Rd) at Wootton Pkwy	48.8	D	MD 189 (Falls Rd) EB	52.4	D	L	75.8	E	109	176
							T	51.5	D	501	#631
							R	25.4	C	0	4
				MD 189 (Falls Rd) WB	45.6	D	L	71.7	E	203	#323
							T	32.1	C	197	280
							R	12.5	B	0	28
				Wootton Pkwy NB	35.1	D	L	53.5	D	64	99
							T	59.1	E	63	93
							R	22.5	C	65	157
				Wootton Pkwy SB	53.7	D	L	77.9	E	~433	#632
							T	59.7	E	380	441
							R	0.3	A	0	0
P 508‡	MD 189 (Falls Rd) Crossover at I-270 SB Ramps	17.3	B	MD 189 (Falls Rd) NB	15.3	B	T	15.3	B	257	318
				MD 189 (Falls Rd) WB	21.9	C	T	21.9	C	51	147
P 510‡	MD 189 (Falls Rd) EB at I-270 SB Ramp	5.1	A	MD 189 (Falls Rd) EB	0.9	A	T	0.9	A	3	3
				I-270 SB Ramp SB	29.4	C	L	29.4	C	6	34
P 511‡	MD 189 (Falls Rd) WB at I-270 NB Ramps	2.9	A	MD 189 (Falls Rd) WB	0.9	A	T	0.9	A	0	0
				I-270 NB Ramp NB	21.0	C	L	21.0	C	0	13
P 513‡	MD 189 (Falls Rd) Crossover at I-270 NB Ramps	24.2	C	MD 189 (Falls Rd) EB	28.1	C	T	28.1	C	136	205
				MD 189 (Falls Rd) SB	21.7	C	T	21.7	C	228	257
P 514‡	MD 189 (Falls Rd) EB at I-270 NB Ramps	7.9	A	MD 189 (Falls Rd) EB	0.9	A	T	0.9	A	0	0
				I-270 NB Ramp NB	15.3	B	R	15.3	B	106	152
P 505‡	MD 189 (Falls Rd / Maryland Ave) at Great Falls Rd / Potomac Valley Rd	18.8	B	MD 189 (Falls Rd) EB	4.5	A	U/L	4.6	A	22	50
							T/R	4.5	A	73	107
				MD 189 (Maryland Ave) WB	25.3	C	L	20.3	C	5	20
							T	25.4	C	187	284
							T/R	-	-	-	-
				Potomac Valley Rd NB	51.6	D	L	53.0	D	37	76
							T/R	47.0	D	3	24
				Great Falls Rd SB	38.4	D	L/T	51.6	D	33	69
							R	37.4	D	284	338

Note: 95th percentile queuing reported using Synchro software.

- Hyphen denotes that no value was recorded for this metric.

Volume for the 95th percentile exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

~ Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.

Reporting Source:

‡ HCM 2000 Signalized Intersection Capacity Analysis used for Delay and LOS.

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Table BD-6B - MD 189 (Falls Road) Corridor - (PM Peak)											
Node	**Location**	**Delay (s/veh)**	**LOS**	**Approach**	**Delay (s/veh)**	**LOS**	**Movement**	**Delay (s/veh)**	**LOS**	**50th %ile Queue (ft)**	**95th %ile Queue (ft)**
P 500‡	MD 189 (Falls Rd) at Wootton Pkwy	44.5	D	MD 189 (Falls Rd) EB	43.4	D	L	82.9	F	181	#286
							T	35.2	D	212	271
							R	25.9	C	0	44
				MD 189 (Falls Rd) WB	46.0	D	L	69.3	E	141	190
							T	44.3	D	435	523
							R	29.5	C	146	228
				Wootton Pkwy NB	48.2	D	L	36.6	D	34	66
							T	64.7	E	423	509
							R	22.6	C	0	55
				Wootton Pkwy SB	32.2	C	L	47.4	D	71	#132
							T	41.7	D	112	153
							R	0.1	A	0	0
P 508‡	MD 189 (Falls Rd) Crossover at I-270 SB Ramps	25.0	C	MD 189 (Falls Rd) NB	23.1	C	T	23.1	C	294	362
				MD 189 (Falls Rd) WB	27.4	C	T	27.4	C	178	257
P 510‡	MD 189 (Falls Rd) EB at I-270 SB Ramp	6.8	A	MD 189 (Falls Rd) EB	1.1	A	T	1.1	A	2	3
				I-270 SB Ramp SB	24.8	C	L	24.8	C	42	74
P 511‡	MD 189 (Falls Rd) WB at I-270 NB Ramps	6.7	A	MD 189 (Falls Rd) WB	1.0	A	T	1.0	A	0	0
				I-270 NB Ramp NB	22.4	C	L	22.4	C	70	105
P 513‡	MD 189 (Falls Rd) Crossover at I-270 NB Ramps	25.0	C	MD 189 (Falls Rd) EB	26.2	C	T	26.2	C	178	238
				MD 189 (Falls Rd) SB	24.0	C	T	24.0	C	407	218
P 514‡	MD 189 (Falls Rd) EB at I-270 NB Ramps	8.1	A	MD 189 (Falls Rd) EB	1.0	A	T	1.0	A	0	0
				I-270 NB Ramp NB	18.3	B	R	18.3	B	118	165
P 505‡	MD 189 (Falls Rd / Maryland Ave) at Great Falls Rd / Potomac Valley Rd	19.5	B	MD 189 (Falls Rd) EB	6.7	A	U/L	10.9	B	29	80
							T/R	5.1	A	80	206
				MD 189 (Maryland Ave) WB	22.7	C	L	16.2	B	2	11
							T	22.7	C	259	383
							T/R	-	-	-	-
				Potomac Valley Rd NB	57.7	E	L	58.8	E	41	81
							T/R	51.6	D	4	20
				Great Falls Rd SB	45.6	D	L/T	52.9	D	16	42
							R	45.2	D	285	347

Note: 95th percentile queuing reported using Synchro software.
- Hyphen denotes that no value was recorded for this metric.
Volume for the 95th percentile exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

Reporting Source:
‡ HCM 2000 Signalized Intersection Capacity Analysis used for Delay and LOS.

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Table BP1-7B - Wootton Parkway Corridor - (AM Peak)											
Node	**Location**	**Delay (s/veh)**	**LOS**	**Approach**	**Delay (s/veh)**	**LOS**	**Movement**	**Delay (s/veh)**	**LOS**	**50th %ile Queue (ft)**	**95th %ile Queue (ft)**
P 600‡	Wootton Pkwy at Seven Locks Rd	25.8	C	Wootton Pkwy EB	24.4	C	L	46.3	D	12	35
							T	31.6	C	126	175
							R	18.8	B	10	60
				Wootton Pkwy WB	33.2	C	L	45.1	D	~250	#394
							T	9.3	A	51	102
							T/R	-	-	-	-
				Seven Locks Rd NB	14.5	B	L	33.7	C	67	122
							L/T	33.7	C	67	122
							R	0.3	A	0	0
				Seven Locks Rd SB	40.7	D	L/T	41.1	D	30	64
							R	39.0	D	0	0
P 601†	Wootton Pkwy at Tower Oaks Rd	26.2	C	Wootton Pkwy EB	14.4	B	L	45.7	D	16	m29
							T	13.4	B	131	#407
							R	0.0	A	0	m0
				Wootton Pkwy WB	31.9	C	L	57.8	E	164	218
							T	15.4	B	68	267
							R	10.8	B	0	0
				Tower Oaks Blvd NB	33.3	C	L	33.4	C	~112	#163
							T	32.3	C	6	17
							R	0.0	A	0	0
				Tower Oaks Blvd SB	39.1	D	L	38.2	D	6	18
							T	39.5	D	7	20
							R	0.0	A	0	0
P 612†	Wootton Pkwy at I-270 Managed Lanes Direct Connector	26.1	C	Wootton Pkwy EB	23.6	C	L	31.0	C	71	88
							T	20.4	C	165	235
							T/R	-	-	-	-
				Wootton Pkwy WB	18.3	B	L	32.6	C	62	m143
							T	12.4	B	185	m131
							T/R	-	-	-	-
				I-270 Managed Lane Ramp NB	40.5	D	L	33.6	C	30	62
							R	41.4	D	165	254
				I-270 Managed Lane Ramp SB	34.8	C	L	41.1	D	96	156
							R	29.9	C	0	54

Note: 95th percentile queuing reported using Synchro software.

- Hyphen denotes that no value was recorded for this metric.

~ Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.

Volume for the 95th percentile exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

m Volume for the 95th percentile queue is metered by upstream signal.

Reporting Source:

† HCM 6th Signalized Intersection Summary used for Delay and LOS.

‡ HCM 2000 Signalized Intersection Capacity Analysis used for Delay and LOS.

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Table BP1-7B - Wootton Parkway Corridor - (PM Peak)											
Node	**Location**	**Delay (s/veh)**	**LOS**	**Approach**	**Delay (s/veh)**	**LOS**	**Movement**	**Delay (s/veh)**	**LOS**	**50th %ile Queue (ft)**	**95th %ile Queue (ft)**
P 600‡	Wootton Pkwy at Seven Locks Rd	31.9	C	Wootton Pkwy EB	26.1	C	L	47.8	D	3	14
							T	36.4	D	109	156
							R	12.6	B	0	32
				Wootton Pkwy WB	29.3	C	L	39.0	D	97	#159
							T	23.6	C	91	181
							T/R	-	-	-	-
				Seven Locks Rd NB	36.0	D	L	57.2	E	282	#486
							L/T	53.3	D	274	#473
							R	0.6	A	0	0
				Seven Locks Rd SB	42.2	D	L/T	42.6	D	18	46
							R	40.8	D	0	0
P 601†	Wootton Pkwy at Tower Oaks Rd	36.0	D	Wootton Pkwy EB	24.2	C	L	68.6	E	33	m55
							T	21.3	C	243	#450
							R	0.0	A	0	m0
				Wootton Pkwy WB	45.2	D	L	133.2	F	93	134
							T	19.2	B	187	376
							R	11.7	B	0	0
				Tower Oaks Blvd NB	35.7	D	L	35.7	D	~140	161
							T	34.4	C	1	6
							R	0.0	A	0	0
				Tower Oaks Blvd SB	37.0	D	L	36.1	D	29	54
							T	38.7	D	7	20
							R	0.0	A	0	0
P 612†	Wootton Pkwy at I-270 Managed Lanes Direct Connector	23.9	C	Wootton Pkwy EB	19.6	B	L	44.2	D	101	166
							T	14.1	B	102	150
							T/R	-	-	-	-
				Wootton Pkwy WB	18.0	B	L	28.9	C	162	m157
							T	7.6	A	134	m96
							T/R	-	-	-	-
				I-270 Managed Lane Ramp NB	35.2	D	L	33.7	C	71	124
							R	35.7	D	151	248
				I-270 Managed Lane Ramp SB	39.4	D	L	43.7	D	128	203
							R	33.2	C	0	53

Note: 95th percentile queuing reported using Synchro software.

- Hyphen denotes that no value was recorded for this metric.

~ Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.

Volume for the 95th percentile exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

m Volume for the 95th percentile queue is metered by upstream signal.

Reporting Source:

† HCM 6th Signalized Intersection Summary used for Delay and LOS.

‡ HCM 2000 Signalized Intersection Capacity Analysis used for Delay and LOS.

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Table BP1-8B - Montrose Road Corridor - (AM Peak)

Node	Location	Delay (s/veh)	LOS	Approach	Delay (s/veh)	LOS	Movement	Delay (s/veh)	LOS	50th %ile Queue (ft)	95th %ile Queue (ft)
P 701‡	Montrose Rd at Seven Locks Rd	29.9	C	Montrose Rd EB	52.4	D	L	48.5	D	53	102
							T	53.4	D	114	164
							T/R	-	-	-	-
				Montrose Rd WB	31.3	C	L	36.7	D	153	m213
							L/T	-	-	-	-
							T	33.7	C	153	m194
							R	14.1	B	10	m19
				Seven Locks Rd NB	11.4	B	L	37.7	D	10	32
							T	38.4	D	80	122
							R	0.7	A	0	0
				Seven Locks Rd SB	35.2	D	L	53.6	D	175	227
							T	25.0	C	237	298
							T/R	-	-	-	-
P 702††	Montrose Rd at Potomac Ave	-	-	Potomac Rd NB	-	-	R	35.9	E	-	4.7*
				Potomac Rd SB	-	-	R	15.5	C	-	1.1*
P 707‡	Montrose Rd at Tower Oaks Blvd	17.6	B	Montrose Rd EB	6.3	A	L	17.3	B	9	m42
							T	5.8	A	178	220
				Montrose Rd WB	18.2	B	T	18.7	B	479	569
							R	9.2	A	0	25
				Tower Oaks Blvd SB	55.8	E	L	52.5	D	77	117
							R	57.2	E	72	143
				I-270 NB Off-Ramp NEB	1.8	A	R	1.8	A	0	0
P 708‡§	Montrose Rd at Farm Ln	2.0	A	Montrose Rd EB	2.0	A	T	2.0	A	0	417
				Montrose Rd WB	2.1	A	T	2.1	A	0	455
							T/R	-	-	-	-
				Farm Ln SB	0.0	A	R	0.0	A	0	0

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Table BP1-8B - Montrose Road Corridor - (AM Peak)

Node	Location	Delay (s/veh)	LOS	Approach	Delay (s/veh)	LOS	Movement	Delay (s/veh)	LOS	50th %ile Queue (ft)	95th %ile Queue (ft)
P 709†	Montrose Rd at Hitching Post Ln / Farm Haven Dr	14.2	B	Montrose Rd EB	13.6	B	L	9.0	A	1	4
							T	13.0	B	250	447
							T/R	14.7	B	-	-
				Montrose Rd WB	12.0	B	L	10.8	B	2	6
							T	11.6	B	229	406
							T/R	12.8	B	-	-
				Hitching Post Ln NB	39.2	D	L	41.1	D	73	#145
							T/R	32.3	C	2	29
				Farm Haven Dr SB	33.7	C	L	34.0	C	19	47
							T/R	33.6	C	2	40
P 710‡	Tower Oaks Blvd at I-270 NB Ramps / GEICO Ent	17.9	B	Tower Oaks Blvd EB	17.7	B	L/T	-	-	-	-
							T/R	17.7	B	83	175
				Tower Oaks Blvd WB	13.4	B	L/T	-	-	-	-
							T/R	13.4	B	18	48
				I-270 NB Ramps NB	19.2	B	L	19.7	B	70	#236
							L/T	19.8	B	71	#241
							R	13.1	B	0	4
				GEICO Ent SB	31.3	C	L/T/R	31.3	C	3	21
P 712‡	Tower Oaks Blvd at Commercial Dr	3.6	A	Commercial Dr WB	32.3	C	L	32.3	C	1	6
							L/R	-	-	-	-
				Tower Oaks Blvd NB	5.1	A	T	5.2	A	38	111
							R	4.1	A	0	15
				Tower Oaks Blvd SB	1.6	A	L	1.5	A	0	11
							T	1.6	A	0	33

Note: 95th percentile queuing reported using Synchro software.

- Hyphen denotes that no value was recorded for this metric.

* Unsignalized intersection 95th percentile queue reported in number of vehicles.

m Volume for the 95th percentile queue is metered by upstream signal.

Volume for the 95th percentile exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

§ Red light on Montrose Road by Farm Lane is triggered by pedestrian signal call. Farm Lane is yield-controlled.

Reporting Source:

† HCM 6th Signalized Intersection Summary used for Delay and LOS.

‡ HCM 2000 Signalized Intersection Capacity Analysis used for Delay and LOS.

†† HCM 6th Two Way Stop Control used for Delay and LOS.

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Table BP1-8B - Montrose Road Corridor - (PM Peak)

Node	Location	Delay (s/veh)	LOS	Approach	Delay (s/veh)	LOS	Movement	Delay (s/veh)	LOS	50th %ile Queue (ft)	95th %ile Queue (ft)
P 701‡	Montrose Rd at Seven Locks Rd	36.7	D	Montrose Rd EB	72.9	E	L	52.8	D	55	105
							T	77.0	E	151	#242
							T/R	-	-	-	-
				Montrose Rd WB	32.3	C	L	44.6	D	353	m#523
							L/T	-	-	-	-
							T	35.3	D	354	m441
							R	16.7	B	160	m226
				Seven Locks Rd NB	32.1	C	L	40.5	D	56	112
							T	54.8	D	280	#395
							R	0.5	A	0	0
				Seven Locks Rd SB	35.2	D	L	53.6	D	65	101
							T	29.4	C	161	212
							T/R	-	-	-	-
P 702††	Montrose Rd at Potomac Ave	-	-	Potomac Rd NB	-	-	R	18.2	C	-	1.7*
				Potomac Rd SB	-	-	R	162.9	F	-	11.4*
P 707‡	Montrose Rd at Tower Oaks Blvd	15.1	B	Montrose Rd EB	9.4	A	L	23.0	C	9	m33
							T	8.9	A	332	394
				Montrose Rd WB	13.0	B	T	13.7	B	676	4
							R	0.3	A	0	m0
				Tower Oaks Blvd SB	56.7	E	L	49.9	D	66	102
							R	59.7	E	103	#171
				I-270 NB Off-Ramp NEB	1.5	A	R	1.5	A	0	0
P 708‡§	Montrose Rd at Farm Ln	4.3	A	Montrose Rd EB	2.5	A	T	2.5	A	0	208
				Montrose Rd WB	5.7	A	T	5.7	A	0	749
							T/R	-	-	-	-
				Farm Ln SB	0.0	A	R	0.0	A	0	0

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Table BP1-8B - Montrose Road Corridor - (PM Peak)

Node	Location	Delay (s/veh)	LOS	Approach	Delay (s/veh)	LOS	Movement	Delay (s/veh)	LOS	50th %ile Queue (ft)	95th %ile Queue (ft)
P 709†	Montrose Rd at Hitching Post Ln / Farm Haven Dr	11.4	B	Montrose Rd EB	8.8	A	L	11.1	B	1	4
							T	8.4	A	178	356
							T/R	9.6	A	-	-
				Montrose Rd WB	11.8	B	L	7.2	A	2	6
							T	11.1	B	294	583
							T/R	13.2	B	-	-
				Hitching Post Ln NB	41.1	D	L	42.2	D	42	#101
							T/R	38.9	D	6	35
				Farm Haven Dr SB	39.3	D	L	40.1	D	14	40
							T/R	38.5	D	3	27
P 710‡	Tower Oaks Blvd at I-270 NB Ramps / GEICO Ent	19.0	B	Tower Oaks Blvd EB	19.4	B	L/T	-	-	-	-
							T/R	19.4	B	126	194
				Tower Oaks Blvd WB	15.2	B	L/T	-	-	-	-
							T/R	15.2	B	36	65
				I-270 NB Ramps NB	19.4	B	L	19.6	B	75	151
							L/T	19.5	B	74	149
							R	15.1	B	0	0
				GEICO Ent SB	29.4	C	L/T/R	29.4	C	13	43
P 712‡	Tower Oaks Blvd at Commercial Dr	5.1	A	Commercial Dr WB	30.2	C	L	30.2	C	8	24
							L/R	-	-	-	-
				Tower Oaks Blvd NB	5.4	A	T	5.5	A	27	86
							R	4.4	A	0	7
				Tower Oaks Blvd SB	2.2	A	L	1.9	A	3	8
							T	2.2	A	25	35

Note: 95th percentile queuing reported using Synchro software.

- Hyphen denotes that no value was recorded for this metric.

* Unsignalized intersection 95th percentile queue reported in number of vehicles.

m Volume for the 95th percentile queue is metered by upstream signal.

Volume for the 95th percentile exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

§ Red light on Montrose Road by Farm Lane is triggered by pedestrian signal call. Farm Lane is yield-controlled.

Reporting Source:

† HCM 6th Signalized Intersection Summary used for Delay and LOS.

‡ HCM 2000 Signalized Intersection Capacity Analysis used for Delay and LOS.

†† HCM 6th Two Way Stop Control used for Delay and LOS.

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Table BP1-9B - Westlake Terrace Corridor - (AM Peak)											
Node	**Location**	**Delay (s/veh)**	**LOS**	**Approach**	**Delay (s/veh)**	**LOS**	**Movement**	**Delay (s/veh)**	**LOS**	**50th %ile Queue (ft)**	**95th %ile Queue (ft)**
P 800†	Westlake Terr at Westfield Montgomery Mall Ent / Motor City Dr	9.8	A	Westlake Terr EB	6.0	A	L	5.8	A	24	55
							T	6.0	A	84	127
							T/R	6.0	A	-	-
				Westlake Terr WB	3.0	A	L	3.7	A	21	41
							T	2.6	A	18	35
							T/R	3.0	A	-	-
				Westfield Montgomery Mall Ent NB	57.2	E	L	56.4	E	4	16
							T/R	57.3	E	16	56
				Motor City Dr SB	60.6	E	L	58.4	E	24	57
							T/R	61.7	E	4	48
P 801‡	Westlake Terr at I-270 Spur Ramps	37.5	D	Westlake Terr EB	41.8	D	L	66.6	E	106	#219
							T	33.4	C	143	196
							T/R	-	-	-	-
				Westlake Terr WB	27.5	C	L	54.6	D	91	m#206
							T	23.4	C	132	187
							T/R	8.9	A	0	m6
				I-270 Spur Ramps NB	18.0	B	L/R	18.0	B	49	115
				I-270 Spur Ramps SB	58.6	E	L/R	58.6	E	257	#497
P 802‡	Westlake Terr at Rockledge Dr	34.8	C	Westlake Terr EB	33.6	C	L	42.6	D	181	m#525
							T	27.9	C	147	m222
							T/R	-	-	-	-
				Westlake Terr WB	46.3	D	L	29.8	C	49	126
							T	50.6	D	161	225
							T/R	-	-	-	-
				Rockledge Dr NB	49.4	D	L/T	50.4	D	10	30
							R	46.3	D	0	0
				Rockledge Dr SB	26.7	C	L	23.1	C	52	88
							L/T	30.6	C	216	297
							R	24.3	C	0	59

Note: 95th percentile queuing reported using Synchro software.
- Hyphen denotes that no value was recorded for this metric.
Volume for the 95th percentile exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.
m Volume for the 95th percentile queue is metered by upstream signal.

Reporting Source:
† HCM 6th Signalized Intersection Summary used for Delay and LOS.
‡ HCM 2000 Signalized Intersection Capacity Analysis used for Delay and LOS.

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Table BP1-9B - Westlake Terrace Corridor - (PM Peak)

Node	Location	Delay (s/veh)	LOS	Approach	Delay (s/veh)	LOS	Movement	Delay (s/veh)	LOS	50th %ile Queue (ft)	95th %ile Queue (ft)
P 800†	Westlake Terr at Westfield Montgomery Mall Ent / Motor City Dr	20.7	C	Westlake Terr EB	29.7	C	L	27.8	C	24	70
							T	30.0	C	122	212
							T/R	29.9	C	-	-
				Westlake Terr WB	5.3	A	L	18.0	B	40	m71
							T	1.0	A	59	87
							T/R	1.1	A	-	-
				Westfield Montgomery Mall Ent NB	28.6	C	L	26.5	C	27	47
							T/R	29.0	C	6	55
				Motor City Dr SB	46.2	D	L	52.1	D	187	263
							T/R	24.5	C	8	35
P 801‡	Westlake Terr at I-270 Spur Ramps	32.2	C	Westlake Terr EB	26.3	C	L	39.9	D	291	232
							T	16.8	B	105	148
							T/R	-	-	-	-
				Westlake Terr WB	25.9	C	L	46.3	D	120	m160
							T	26.2	C	217	m315
							T/R	18.2	B	5	m41
				I-270 Spur Ramps NB	37.9	D	L/R	37.9	D	31	90
				I-270 Spur Ramps SB	71.1	E	L/R	71.1	E	185	#327
P 802‡	Westlake Terr at Rockledge Dr	53.0	D	Westlake Terr EB	42.0	D	L	65.2	E	186	m#330
							T	27.0	C	140	m200
							T/R	-	-	-	-
				Westlake Terr WB	54.3	D	L	35.3	D	2	11
							T	54.4	D	262	#372
							T/R	-	-	-	-
				Rockledge Dr NB	60.5	E	L/T	75.0	E	270	#449
							R	39.1	D	4	72
				Rockledge Dr SB	56.1	E	L	37.2	D	80	137
							L/T	37.2	D	80	137
							R	63.8	E	216	#449

Note: 95th percentile queuing reported using Synchro software.
- Hyphen denotes that no value was recorded for this metric.
Volume for the 95th percentile exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.
m Volume for the 95th percentile queue is metered by upstream signal.

Reporting Source:
† HCM 6th Signalized Intersection Summary used for Delay and LOS.
‡ HCM 2000 Signalized Intersection Capacity Analysis used for Delay and LOS.

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Table BP1-10B - Democracy Boulevard Corridor - (AM Peak)											
Node	**Location**	**Delay (s/veh)**	**LOS**	**Approach**	**Delay (s/veh)**	**LOS**	**Movement**	**Delay (s/veh)**	**LOS**	**50th %ile Queue (ft)**	**95th %ile Queue (ft)**
P 900†	Democracy Blvd at Taveshire Way	10.8	B	Democracy Blvd EB	5.2	A	T	5.2	A	109	167
				Democracy Blvd WB	4.1	A	T	4.1	A	46	73
				Taveshire Way SB	53.1	D	L	47.9	D	56	78
							R	61.2	E	27	86
P 901‡	Democracy Blvd at I-270 SB On-Ramp / I-270 Spur SB Off-Ramp	28.2	C	Democracy Blvd EB	25.1	C	T	25.1	C	404	501
							T/R	-	-	-	-
				Democracy Blvd WB	13.7	B	L	44.0	D	162	218
							T	2.0	A	18	58
				I-270 Spur Off Ramp SB	63.1	E	L	66.5	E	237	286
							R	51.8	D	0	60
P 903‡	Democracy Blvd at I-270 Spur NB Ramps	12.4	B	Democracy Blvd EB	7.0	A	T	7.0	A	208	223
							T/R	-	-	-	-
				Democracy Blvd WB	3.0	A	T	3.0	A	42	51
				I-270 Spur Off Ramp NB	68.7	E	L	68.7	E	155	201
P 904‡	Democracy Blvd at I-270 Spur NB Off-Ramp	16.3	B	Democracy Blvd EB	11.1	B	T	11.1	B	222	113
				Democracy Blvd WB	0.1	A	T	0.1	A	0	m0
				I-270 Spur Off Ramp NB	38.7	D	R	38.7	D	451	522
P 906‡	Democracy Blvd at Fernwood Rd	41.5	D	Democracy Blvd EB	39.6	D	U/L	-	-	-	-
							L	66.6	E	~503	#641
							T	39.6	D	246	314
							R	0.6	A	0	0
				Democracy Blvd WB	46.9	D	L	73.4	E	243	#382
							T	54.5	D	35	57
							R	0.1	A	0	0
				Fernwood Rd NB	51.7	D	L	80.8	F	~804	#1,058
							R	0.4	A	0	0
				Fernwood Rd SB	11.7	B	L	25.6	C	47	71
							R	0.2	A	0	0

Note: 95th percentile queuing reported using Synchro software.

- Hyphen denotes that no value was recorded for this metric.

~ Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.

m Volume for the 95th percentile queue is metered by upstream signal.

Volume for the 95th percentile exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

Reporting Source:

† HCM 6th Signalized Intersection Summary used for Delay and LOS.

‡ HCM 2000 Signalized Intersection Capacity Analysis used for Delay and LOS.

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Table BP1-10B - Democracy Boulevard Corridor - (PM Peak)											
Node	**Location**	**Delay (s/veh)**	**LOS**	**Approach**	**Delay (s/veh)**	**LOS**	**Movement**	**Delay (s/veh)**	**LOS**	**50th %ile Queue (ft)**	**95th %ile Queue (ft)**
P 900†	Democracy Blvd at Taveshire Way	11.3	B	Democracy Blvd EB	4.4	A	T	4.4	A	58	93
				Democracy Blvd WB	5.6	A	T	5.6	A	170	247
				Taveshire Way SB	51.7	D	L	48.3	D	71	92
							R	58.7	E	98	153
P 901‡	Democracy Blvd at I-270 SB On-Ramp / I-270 Spur SB Off-Ramp	39.5	D	Democracy Blvd EB	51.6	D	T	51.6	D	344	411
							T/R	-	-	-	-
				Democracy Blvd WB	28.7	C	L	58.4	E	232	296
							T	19.4	B	359	390
				I-270 Spur Off Ramp SB	47.5	D	L	30.6	C	160	198
							R	60.4	E	519	#716
P 903‡	Democracy Blvd at I-270 Spur NB Ramps	12.3	B	Democracy Blvd EB	2.4	A	T	2.4	A	43	52
							T/R	-	-	-	-
				Democracy Blvd WB	7.0	A	T	7.0	A	182	242
				I-270 Spur Off Ramp NB	67.2	E	L	67.2	E	202	251
P 904‡	Democracy Blvd at I-270 Spur NB Off-Ramp	8.3	A	Democracy Blvd EB	6.1	A	T	6.1	A	142	153
				Democracy Blvd WB	0.2	A	T	0.2	A	0	0
				I-270 Spur Off Ramp NB	40.5	D	R	40.5	D	219	253
P 906‡	Democracy Blvd at Fernwood Rd	47.1	D	Democracy Blvd EB	66.1	E	U/L	-	-	-	-
							L	63.2	E	76	115
							T	102.3	F	~368	#463
							R	0.6	A	0	0
				Democracy Blvd WB	54.7	D	L	111.8	F	~337	#536
							T	42.1	D	269	320
							R	0.1	A	0	0
				Fernwood Rd NB	54.9	D	L	75.6	E	~806	#1,057
							R	0.3	A	0	0
				Fernwood Rd SB	7.7	A	L	21.6	C	110	145
							R	1.8	A	0	0

Note: 95th percentile queuing reported using Synchro software.

- Hyphen denotes that no value was recorded for this metric.

~ Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.

Volume for the 95th percentile exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

Reporting Source:

† HCM 6th Signalized Intersection Summary used for Delay and LOS.

‡ HCM 2000 Signalized Intersection Capacity Analysis used for Delay and LOS.

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Table BP1-11B - Rockledge Road / MD 187 (Old Georgetown Road) Corridor - (AM Peak)

Node	Location	Delay (s/veh)	LOS	Approach	Delay (s/veh)	LOS	Movement	Delay (s/veh)	LOS	50th %ile Queue (ft)	95th %ile Queue (ft)
P 1000†	Rockledge Dr at Rock Forest Dr	27.0	C	Rockledge Dr EB	58.0	E	L	61.4	E	105	150
							T	45.9	D	11	33
							R	49.2	D	0	0
				Rock Forest Dr WB	65.1	E	L	72.1	E	46	92
							T	52.7	D	20	50
							R	64.3	E	0	0
				Rockledge Dr NB	11.6	B	L	13.1	B	42	75
							T	10.9	B	56	88
							T/R	10.9	B	-	-
				Rockledge Dr SB	16.6	B	L	9.9	A	8	21
							T	16.8	B	265	383
							R	0.0	A	0	#105
P 1001‡	Rockledge Dr at I-270 SB Off Ramp / I-270 SB Ramp Connector	22.0	C	I-270 SB Off Ramp EB	30.4	C	L/T	-	-	-	-
							T	67.6	E	436	523
							R	3.0	A	0	0
				Rockledge Dr NB	42.1	D	T	74.1	E	122	171
							R	24.9	C	146	190
				Rockledge Dr SB	0.1	A	T	0.1	A	0	0
P 1002‡	Rockledge Dr at I-270 NB On Ramp / I-270 NB Ramp Connector	39.2	D	I-270 NB Ramp Connector WB	43.8	D	L	50.7	D	681	#970
							L/T	-	-	-	-
							T	40.2	D	623	724
				Rockledge Dr NB	0.2	A	L	0.2	A	0	0
P 1003‡	MD 187 (Old Georgetown Road) at Rock Spring Dr	48.7	D	Rock Spring Dr EB	79.1	E	L	97.9	F	~344	#564
							L/T	95.4	F	342	#561
							R	47.4	D	175	276
				Rock Spring Dr WB	73.6	E	L/T/R	73.6	E	10	48
				MD 187 (Old Georgetown Road) NB	31.3	C	L	83.2	F	100	#176
							T	22.8	C	268	310
							T/R	-	-	-	-
				MD 187 (Old Georgetown Road) SB	46.3	D	L	76.6	E	48	m57
							T	49.8	D	626	#990
							R	29.4	C	115	m209

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Table BP1-11B - Rockledge Road / MD 187 (Old Georgetown Road) Corridor - (AM Peak)

Node	Location	Delay (s/veh)	LOS	Approach	Delay (s/veh)	LOS	Movement	Delay (s/veh)	LOS	50th %ile Queue (ft)	95th %ile Queue (ft)
P 1005‡	MD 187 (Old Georgetown Road) at I-270 SB Ramp Connector / I-270 SB On-Ramp	25.9	C	I-270 SB Ramp Connector EB	52.0	D	L	36.9	D	117	183
							L/T/R	36.7	D	116	180
							R	58.7	E	406	509
				MD 187 (Old Georgetown Road) NB	24.1	C	T	24.1	C	219	m233
							T/R	-	-	-	-
				MD 187 (Old Georgetown Road) SB	16.9	B	L	35.8	D	102	148
							T	15.0	B	389	426
P 1006‡	MD 187 (Old Georgetown Road) at I-270 NB Ramp Connector / I-270 NB Off-Ramp	12.7	B	I-270 NB Off Ramp WB	28.4	C	L	71.6	E	151	223
							L/T	69.4	E	151	221
							R	0.4	A	0	0
				MD 187 (Old Georgetown Road) NB	16.9	B	L	99.6	F	157	208
							T	2.3	A	73	84
				MD 187 (Old Georgetown Road) SB	6.3	A	T	8.4	A	175	m136
							R	0.1	A	0	m0
P 1009‡	MD 187 (Old Georgetown Road) at Tuckerman Ln	157.7	F	Tuckerman Ln EB	95.6	F	L	47.7	D	54	85
							T	103.8	F	~422	#555
							T/R	-	-	-	-
				Tuckerman Ln WB	281.3	F	L	369.5	F	~575	#705
							T	60.4	E	105	150
							R	48.3	D	0	12
				MD 187 (Old Georgetown Road) NB	61.9	E	U/L	351.5	F	~362	#517
							T	17.9	B	165	208
							R	15.9	B	16	76
				MD 187 (Old Georgetown Road) SB	211.6	F	L	72.0	E	37	78
							T	214.0	F	~1,200	#1,302
							T/R	-	-	-	-

Note: 95th percentile queuing reported using Synchro software.
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~ Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.
m Volume for the 95th percentile queue is metered by upstream signal.
Volume for the 95th percentile exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

Reporting Source:
† HCM 6th Signalized Intersection Summary used for Delay and LOS.
‡ HCM 2000 Signalized Intersection Capacity Analysis used for Delay and LOS.

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Table BP1-11B - Rockledge Road / MD 187 (Old Georgetown Road) Corridor - (PM Peak)

Node	Location	Delay (s/veh)	LOS	Approach	Delay (s/veh)	LOS	Movement	Delay (s/veh)	LOS	50th %ile Queue (ft)	95th %ile Queue (ft)
P 1000†	Rockledge Dr at Rock Forest Dr	41.1	D	Rockledge Dr EB	69.7	E	L	56.4	E	211	265
							T	37.5	D	40	76
							R	96.2	F	0	83
				Rock Forest Dr WB	62.1	E	L	72.0	E	45	91
							T	51.3	D	12	35
							R	54.4	D	0	0
				Rockledge Dr NB	24.8	C	L	15.0	B	19	42
							T	25.5	C	303	431
							T/R	25.4	C	-	-
				Rockledge Dr SB	18.0	B	L	18.2	B	40	77
							T	17.9	B	106	152
							R	0.0	A	0	0
P 1001‡	Rockledge Dr at I-270 SB Off Ramp / I-270 SB Ramp Connector	34.8	C	I-270 SB Off Ramp EB	32.4	C	L/T	-	-	-	-
							T	67.7	E	343	421
							R	1.1	A	0	0
				Rockledge Dr NB	47.9	D	T	85.5	F	318	#432
							R	25.9	C	397	519
				Rockledge Dr SB	0.0	A	T	0.0	A	0	m0
P 1002‡	Rockledge Dr at I-270 NB On Ramp / I-270 NB Ramp Connector	33.4	C	I-270 NB Ramp Connector WB	44.5	D	L	36.1	D	412	580
							L/T	-	-	-	-
							T	47.3	D	689	793
				Rockledge Dr NB	0.5	A	L	0.5	A	0	m0
P 1003‡	MD 187 (Old Georgetown Road) at Rock Spring Dr	96.8	F	Rock Spring Dr EB	112.4	F	L	130.4	F	~449	#671
							L/T	134.5	F	~462	#686
							R	31.9	C	36	84
				Rock Spring Dr WB	418.8	F	L/T/R	418.8	F	~141	#309
				MD 187 (Old Georgetown Road) NB	97.2	F	L	59.3	E	99	142
							T	100.2	F	~1,125	#1,204
							T/R	-	-	-	-
				MD 187 (Old Georgetown Road) SB	59.6	E	L	167.1	F	~134	#272
							T	52.4	D	559	649
							R	59.5	E	111	176

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Table BP1-11B - Rockledge Road / MD 187 (Old Georgetown Road) Corridor - (PM Peak)

Node	Location	Delay (s/veh)	LOS	Approach	Delay (s/veh)	LOS	Movement	Delay (s/veh)	LOS	50th %ile Queue (ft)	95th %ile Queue (ft)
P 1005‡	MD 187 (Old Georgetown Road) at I-270 SB Ramp Connector / I-270 SB On-Ramp	27.2	C	I-270 SB Ramp Connector EB	54.9	D	L	59.8	E	322	437
							L/T/R	58.0	E	325	438
							R	45.7	D	148	198
				MD 187 (Old Georgetown Road) NB	26.6	C	T	26.6	C	~658	m532
							T/R	-	-	-	-
				MD 187 (Old Georgetown Road) SB	14.2	B	L	31.3	C	51	72
							T	13.0	B	139	201
P 1006‡	MD 187 (Old Georgetown Road) at I-270 NB Ramp Connector / I-270 NB Off-Ramp	14.8	B	I-270 NB Off Ramp WB	28.8	C	L	70.7	E	82	141
							L/T	69.3	E	81	140
							R	0.2	A	0	0
				MD 187 (Old Georgetown Road) NB	16.3	B	L	67.1	E	288	m235
							T	4.5	A	202	210
				MD 187 (Old Georgetown Road) SB	10.1	B	T	13.9	B	146	m168
							R	0.1	A	0	m0
P 1009‡	MD 187 (Old Georgetown Road) at Tuckerman Ln	94.2	F	Tuckerman Ln EB	61.2	E	L	58.1	E	168	214
							T	63.6	E	230	283
							T/R	-	-	-	-
				Tuckerman Ln WB	183.2	F	L	279.3	F	~363	#482
							T	86.3	F	187	#279
							R	50.7	D	0	36
				MD 187 (Old Georgetown Road) NB	62.0	E	U/L	272.0	F	~362	#558
							T	46.9	D	~929	#1,015
							R	23.4	C	117	797
				MD 187 (Old Georgetown Road) SB	115.4	F	L	80.7	F	73	#184
							T	116.6	F	~1,000	#1,164
							T/R	-	-	-	-

Note: 95th percentile queuing reported using Synchro software.
- Hyphen denotes that no value was recorded for this metric.
~ Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.
m Volume for the 95th percentile queue is metered by upstream signal.
Volume for the 95th percentile exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

Reporting Source:
† HCM 6th Signalized Intersection Summary used for Delay and LOS.
‡ HCM 2000 Signalized Intersection Capacity Analysis used for Delay and LOS.

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Table BP1-12B - MD 190 (River Road) Corridor - (AM Peak)											
Node	**Location**	**Delay (s/veh)**	**LOS**	**Approach**	**Delay (s/veh)**	**LOS**	**Movement**	**Delay (s/veh)**	**LOS**	**50th %ile Queue (ft)**	**95th %ile Queue (ft)**
P 1100‡	MD 190 (River Rd) at Seven Locks Rd	38.0	D	MD 190 (River Rd) EB	39.2	D	L	24.1	C	13	34
							T	39.5	D	571	680
							T/R	-	-	-	-
				MD 190 (River Rd) WB	20.7	C	U/L	33.1	C	60	120
							T	19.3	B	188	233
							R	16.4	B	0	34
				Seven Locks Rd NB	17.9	B	L	78.4	E	26	61
							T	102.0	F	48	#102
							R	0.2	A	0	0
				Seven Locks Rd SB	67.6	E	L	69.6	E	352	#520
							L/T/R	65.7	E	358	#508
P 1102‡	MD 190 (River Rd) at I-495 Outer Loop Ramps	21.6	C	MD 190 (River Rd) EB	18.5	B	T	19.1	B	162	236
							R	17.8	B	0	43
				MD 190 (River Rd) WB	13.7	B	L	30.2	C	115	97
							T	3.6	A	37	29
				I-495 Outer Loop Off-Ramp SB	39.5	D	L	41.7	D	131	163
							R	32.1	C	0	55
P 1105‡	MD 190 (River Rd) at I-495 Inner Loop Ramps	19.1	B	MD 190 (River Rd) EB	7.2	A	L	70.5	E	87	m122
							T	2.2	A	12	78
				MD 190 (River Rd) WB	19.7	B	T	19.7	B	201	262
				I-495 Inner Loop Off-Ramp NB	40.1	D	L	25.4	C	40	56
							R	45.1	D	206	268
P 1107†	MD 190 (River Rd) at Burdette Rd	24.8	C	MD 190 (River Rd) EB	21.0	C	L	35.4	D	32	m#112
							T	20.6	C	856	1,375
							R	5.7	A	0	m1
				MD 190 (River Rd) WB	17.5	B	L	26.5	C	1	5
							T	17.6	B	840	946
							R	6.8	A	0	0
				Burdette Rd NB	72.6	E	L/T/R	72.6	E	48	93
				Burdette Rd SB	98.4	F	L/T	68.2	E	64	114
							R	106.1	F	210	311

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Table BP1-12B - MD 190 (River Road) Corridor - (AM Peak)											
Node	**Location**	**Delay (s/veh)**	**LOS**	**Approach**	**Delay (s/veh)**	**LOS**	**Movement**	**Delay (s/veh)**	**LOS**	**50th %ile Queue (ft)**	**95th %ile Queue (ft)**
P 1109‡	MD 190 (River Rd) at I-495 Managed Lanes Direct Connector	13.6	B	MD 190 (River Rd) EB	11.2	B	L	20.2	C	45	53
							T	10.4	B	193	235
							R	8.5	A	0	m0
				MD 190 (River Rd) WB	9.2	A	L	26.4	C	153	167
							T	3.1	A	14	31
							R	0.3	A	0	0
				I-495 Managed Lanes Direct Connector NB	32.3	C	L	38.0	D	6	17
							R	31.3	C	0	0
				I-495 Managed Lanes Direct Connector SB	40.1	D	L	41.6	D	48	78
							R	38.3	D	0	0

Note: 95th percentile queuing reported using Synchro software.

\- Hyphen denotes that no value was recorded for this metric.

m Volume for the 95th percentile queue is metered by upstream signal.

\# Volume for the 95th percentile exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

Reporting Source:

† HCM 6th Signalized Intersection Summary used for Delay and LOS.

‡ HCM 2000 Signalized Intersection Capacity Analysis used for Delay and LOS.

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Table BP1-12B - MD 190 (River Road) Corridor - (PM Peak)											
Node	**Location**	**Delay (s/veh)**	**LOS**	**Approach**	**Delay (s/veh)**	**LOS**	**Movement**	**Delay (s/veh)**	**LOS**	**50th %ile Queue (ft)**	**95th %ile Queue (ft)**
P 1100‡	MD 190 (River Rd) at Seven Locks Rd	58.3	E	MD 190 (River Rd) EB	68.2	E	L	89.4	F	23	#77
							T	67.4	E	388	#497
							T/R	-	-	-	-
				MD 190 (River Rd) WB	56.2	E	U/L	88.4	F	245	#439
							T	53.1	D	690	#843
							R	49.7	D	348	#685
				Seven Locks Rd NB	35.0	C	L	56.7	E	29	63
							T	99.6	F	229	#392
							R	0.4	A	0	0
				Seven Locks Rd SB	76.0	E	L	60.0	E	344	#505
							L/T/R	88.3	F	474	#721
P 1102‡	MD 190 (River Rd) at I-495 Outer Loop Ramps	17.9	B	MD 190 (River Rd) EB	20.3	C	T	21.5	C	229	325
							R	15.5	B	0	30
				MD 190 (River Rd) WB	10.0	B	L	31.9	C	110	m110
							T	5.1	A	158	412
				I-495 Outer Loop Off-Ramp SB	40.0	D	L	40.2	D	110	136
							R	39.5	D	69	145
P 1105‡	MD 190 (River Rd) at I-495 Inner Loop Ramps	21.6	C	MD 190 (River Rd) EB	11.9	B	L	52.5	D	119	m#189
							T	7.5	A	126	149
				MD 190 (River Rd) WB	18.8	B	T	18.8	B	405	m311
				I-495 Inner Loop Off-Ramp NB	40.9	D	L	43.8	D	154	194
							R	35.7	D	94	147
P 1107†	MD 190 (River Rd) at Burdette Rd	79.9	E	MD 190 (River Rd) EB	44.3	D	L	285.3	F	273	#591
							T	9.6	A	276	667
							R	4.4	A	3	m11
				MD 190 (River Rd) WB	105.9	F	L	9.8	A	1	5
							T	108.2	F	~2,233	#2,322
							R	8.5	A	0	4
				Burdette Rd NB	77.3	E	L/T/R	77.3	E	37	74
				Burdette Rd SB	93.2	F	L/T	74.1	E	69	113
							R	100.0	F	89	165

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Table BP1-12B - MD 190 (River Road) Corridor - (PM Peak)											
Node	**Location**	**Delay (s/veh)**	**LOS**	**Approach**	**Delay (s/veh)**	**LOS**	**Movement**	**Delay (s/veh)**	**LOS**	**50th %ile Queue (ft)**	**95th %ile Queue (ft)**
P 1109‡	MD 190 (River Rd) at I-495 Managed Lanes Direct Connector	23.0	C	MD 190 (River Rd) EB	13.7	B	L	41.5	D	101	#177
							T	9.0	A	181	147
							R	0.3	A	0	m0
				MD 190 (River Rd) WB	22.4	C	L	39.7	D	87	114
							T	20.5	C	341	373
							R	6.6	A	2	m2
				I-495 Managed Lanes Direct Connector NB	46.2	D	L	50.8	D	125	#194
							R	33.8	C	0	6
				I-495 Managed Lanes Direct Connector SB	37.4	D	L	37.9	D	89	132
							R	36.0	D	0	0

Note: 95th percentile queuing reported using Synchro software.

- Hyphen denotes that no value was recorded for this metric.

~ Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.

m Volume for the 95th percentile queue is metered by upstream signal.

Volume for the 95th percentile exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

Reporting Source:

† HCM 6th Signalized Intersection Summary used for Delay and LOS.

‡ HCM 2000 Signalized Intersection Capacity Analysis used for Delay and LOS.

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Table BP1-13B - MD 187 (Old Georgetown Road) Corridor - (AM Peak)

Node	Location	Delay (s/veh)	LOS	Approach	Delay (s/veh)	LOS	Movement	Delay (s/veh)	LOS	50th %ile Queue (ft)	95th %ile Queue (ft)
P 1200‡	MD 187 (Old Georgetown Rd) at Lone Oak Dr/Manor Oak Way	23.3	C	Lone Oak Dr EB	80.7	F	L/T	71.5	E	87	143
							R	83.3	F	271	353
				Manor Oak Way WB	59.3	E	L/T/R	59.3	E	14	40
				MD 187 (Old Georgetown Rd) NB	6.5	A	U/L	35.8	D	59	m117
							T	3.8	A	15	m301
							R	3.2	A	0	m0
				MD 187 (Old Georgetown Rd) SB	24.1	C	L	9.0	A	2	9
							T	24.1	C	797	#1,070
							T/R	-	-	-	-
P 1201‡	MD 187 (Old Georgetown Rd) at I-495 Outer Loop Off-Ramp	88.4	F	I-495 Outer Loop Off-Ramp WB	83.4	E	L	56.9	E	105	173
							L/T	56.9	E	105	173
							R	100.6	F	235	#434
				MD 187 (Old Georgetown Rd) NB	52.2	D	L	192.2	F	~497	#722
							T	2.5	A	46	49
				MD 187 (Old Georgetown Rd) SB	108.2	F	T	108.2	F	~1,386	#1,431
							T/R	-	-	-	-
P 1202‡	MD 187 (Old Georgetown Rd) at I-495 Inner Loop Off-Ramp	8.6	A	I-495 Inner Loop Off-Ramp EB	12.6	B	L	67.1	E	62	106
							L/T	67.2	E	63	107
							R	0.6	A	0	0
				MD 187 (Old Georgetown Rd) NB	15.8	B	T	15.8	B	250	315
							T/R	-	-	-	-
				MD 187 (Old Georgetown Rd) SB	3.0	A	L	20.0	B	207	m150
							T	1.0	A	81	m76
P 1203‡	MD 187 (Old Georgetown Rd) at Ryland Dr/Church Dwy	17.7	B	Ryland Dr EB	85.6	F	L/T/R	85.6	F	303	#481
				Church Dwy WB	42.9	D	L	43.3	D	25	54
							T	42.2	D	4	15
							R	42.8	D	0	35
				MD 187 (Old Georgetown Rd) NB	19.9	B	L	28.6	C	2	7
							T	19.9	B	275	327
							T/R	-	-	-	-
				MD 187 (Old Georgetown Rd) SB	8.4	A	U/L	7.1	A	8	31
							T	8.4	A	172	308
							T/R	-	-	-	-

Note: 95th percentile queuing reported using Synchro software.
- Hyphen denotes that no value was recorded for this metric.
~ Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.
m Volume for the 95th percentile queue is metered by upstream signal.
Volume for the 95th percentile exceeds capacity, queue may be longer. Queue shown is maximum after two

Reporting Source:
‡ HCM 2000 Signalized Intersection Capacity Analysis used for Delay and LOS.

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Table BP1-13B - MD 187 (Old Georgetown Road) Corridor - (PM Peak)

Node	Location	Delay (s/veh)	LOS	Approach	Delay (s/veh)	LOS	Movement	Delay (s/veh)	LOS	50th %ile Queue (ft)	95th %ile Queue (ft)
P 1200‡	MD 187 (Old Georgetown Rd) at Lone Oak Dr/Manor Oak Way	21.0	C	Lone Oak Dr EB	61.4	E	L/T	74.8	E	127	197
							R	44.7	D	62	101
				Manor Oak Way WB	55.6	E	L/T/R	55.6	E	15	41
				MD 187 (Old Georgetown Rd) NB	17.7	B	U/L	43.5	D	129	m195
							T	16.1	B	668	708
							R	4.1	A	0	m0
				MD 187 (Old Georgetown Rd) SB	21.1	C	L	15.7	B	2	13
							T	21.1	C	541	724
							T/R	-	-	-	-
P 1201‡	MD 187 (Old Georgetown Rd) at I-495 Outer Loop Off-Ramp	12.9	B	I-495 Outer Loop Off-Ramp WB	69.6	E	L	56.6	E	71	125
							L/T	56.5	E	70	123
							R	77.7	E	183	285
				MD 187 (Old Georgetown Rd) NB	3.5	A	L	24.8	C	151	m154
							T	1.9	A	189	194
				MD 187 (Old Georgetown Rd) SB	15.8	B	T	15.8	B	165	262
							T/R	-	-	-	-
P 1202‡	MD 187 (Old Georgetown Rd) at I-495 Inner Loop Off-Ramp	24.6	C	I-495 Inner Loop Off-Ramp EB	56.3	E	L	85.9	F	254	#413
							L/T	88.7	F	262	#425
							R	0.2	A	0	0
				MD 187 (Old Georgetown Rd) NB	24.9	C	T	24.9	C	967	#184
							T/R	-	-	-	-
				MD 187 (Old Georgetown Rd) SB	11.2	B	L	73.1	E	169	m#208
							T	3.7	A	63	67
P 1203‡	MD 187 (Old Georgetown Rd) at Ryland Dr/Church Dwy	11.3	B	Ryland Dr EB	66.7	E	L/T/R	66.7	E	68	111
				Church Dwy WB	60.4	E	L	60.8	E	10	28
							T	60.3	E	5	17
							R	60.3	E	0	17
				MD 187 (Old Georgetown Rd) NB	12.8	B	L	5.7	A	2	8
							T	12.8	B	517	826
							T/R	-	-	-	-
				MD 187 (Old Georgetown Rd) SB	5.6	A	U/L	42.8	D	12	55
							T	4.8	A	71	154
							T/R	-	-	-	-

Note: 95th percentile queuing reported using Synchro software.
- Hyphen denotes that no value was recorded for this metric.
m Volume for the 95th percentile queue is metered by upstream signal.
Volume for the 95th percentile exceeds capacity, queue may be longer. Queue shown is maximum after two

Reporting Source:
‡ HCM 2000 Signalized Intersection Capacity Analysis used for Delay and LOS.

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Table BP1-14B - MD 355 (Rockville Pike) / I-270 East Spur Corridor - (AM Peak)												
Node	**Location**	**Delay (s/veh)**	**LOS**	**Approach**	**Delay (s/veh)**	**LOS**	**Move-ment**	**Delay (s/veh)**	**LOS**	**50th %ile Queue (ft**	**95th %ile Queue (ft)**
P 1300‡	MD 355 (Rockville Pike) at Grosvenor Ln	33.8	C	Grosvenor Ln EB	59.5	E	L	61.0	E	58	92
							R	58.7	E	166	265
				Grosvenor Ln WB	45.5	D	L	38.3	D	267	330
							T/R	63.3	E	226	333
				MD 355 (Rockville Pike) NW	25.4	C	T	25.4	C	390	455
				MD 355 (Rockville Pike) SB	29.9	C	T	30.7	C	674	739
							R	16.1	B	7	40
P 1307‡	MD 355 (Rockville Pike) at I-495 Inner Loop Off-Ramp	24.0	C	I-495 Inner Loop Off-Ramp SE	76.3	E	R	76.3	E	299	362
				MD 355 (Rockville Pike) SB	17.2	B	T	17.2	B	747	848
P 1309†	MD 355 (Rockville Pike) at Pooks Hill Rd	36.6	D	Pooks Hill Rd EB	103.3	F	L	103.3	F	340	#463
							R	0.0	A	116	215
				MD 355 (Rockville Pike) NB	10.9	B	L	76.5	E	69	m117
							T	9.1	A	41	64
				MD 355 (Rockville Pike) SB	41.0	D	T	42.2	D	1,312	686
							R	4.3	A	0	m3
P 1310‡	MD 355 (Rockville Pike) at Alta Vista Rd/Bellevue Dr	19.1	B	Alta Vista Rd EB	97.8	F	L/T/R	97.8	F	131	203
				Bellevue Dr WB	72.4	E	L/T/R	72.4	E	11	45
				MD 355 (Rockville Pike) NB	26.0	C	U/L	-	-	-	-
							T	26.0	C	473	555
							T/R	-	-	-	-
				MD 355 (Rockville Pike) SB	13.7	B	U/L	19.3	B	274	m278
							T	13.2	B	287	235
							T/R	-	-	-	-

Note: 95th percentile queuing reported using Synchro software.
- Hyphen denotes that no value was recorded for this metric.
m Volume for the 95th percentile queue is metered by upstream signal.
Volume for the 95th percentile exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

Reporting Source:
† HCM 6th Signalized Intersection Summary used for Delay and LOS.
‡ HCM 2000 Signalized Intersection Capacity Analysis used for Delay and LOS.

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Table BP1-14B - MD 355 (Rockville Pike) / I-270 East Spur Corridor - (PM Peak)

Node	Location	Delay (s/veh)	LOS	Approach	Delay (s/veh)	LOS	Move-ment	Delay (s/veh)	LOS	50th %ile Queue (ft	95th %ile Queue (ft)
P 1300‡	MD 355 (Rockville Pike) at Grosvenor Ln	35.3	D	Grosvenor Ln EB	61.9	E	L	67.6	E	88	126
							R	57.0	E	117	212
				Grosvenor Ln WB	60.3	E	L	37.4	D	97	135
							T/R	80.0	E	270	#469
				MD 355 (Rockville Pike) NW	38.5	D	T	38.5	D	782	#922
				MD 355 (Rockville Pike) SB	19.9	B	T	20.5	C	415	461
							R	13.3	B	0	30
P 1307‡	MD 355 (Rockville Pike) at I-495 Inner Loop Off-Ramp	20.8	C	I-495 Inner Loop Off-Ramp SE	75.2	E	R	75.2	E	277	332
				MD 355 (Rockville Pike) SB	11.7	B	T	11.7	B	384	480
P 1309†	MD 355 (Rockville Pike) at Pooks Hill Rd	17.0	B	Pooks Hill Rd EB	99.4	F	L	99.4	F	164	219
							R	0.0	A	4	62
				MD 355 (Rockville Pike) NB	12.1	B	L	73.3	E	84	m86
							T	10.9	B	121	m105
				MD 355 (Rockville Pike) SB	15.5	B	T	16.7	B	304	306
							R	6.7	A	0	5
P 1310‡	MD 355 (Rockville Pike) at Alta Vista Rd/Bellevue Dr	28.4	C	Alta Vista Rd EB	100.6	F	L/T/R	100.6	F	141	218
				Bellevue Dr WB	71.8	E	L/T/R	71.8	E	17	48
				MD 355 (Rockville Pike) NB	37.9	D	U/L	28.5	C	3	9
							T	38.0	D	1,284	#1,540
							T/R	-	-	-	-
				MD 355 (Rockville Pike) SB	13.2	B	U/L	121.5	F	~291	#498
							T	2.0	A	45	22
							T/R	-	-	-	-

Note: 95th percentile queuing reported using Synchro software.

- Hyphen denotes that no value was recorded for this metric.

~ Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.

m Volume for the 95th percentile queue is metered by upstream signal.

Volume for the 95th percentile exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

Reporting Source:

† HCM 6th Signalized Intersection Summary used for Delay and LOS.

‡ HCM 2000 Signalized Intersection Capacity Analysis used for Delay and LOS.

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SYNCHRO ANALYSIS RESULTS SUMMARY

I-370 (SAM EIG HIGHWAY) RESULTS

Under 2017 Existing Conditions, I-270 at I-370 is a system-to-system interchange with signalized intersections at Washingtonian Boulevard, Fields Road, Diamondback Drive, and MD 119. 2017 Existing Conditions analysis indicated that all intersection along the I-370 corridor operate at LOS D or better during peak hours.

There are no known infrastructure changes between 2017 Existing and 2027 No Build Conditions. 2027 No Build Conditions analysis indicated that all intersections along the I-370 corridor continue to operate at LOS D or better.

Under the 2027 Preferred Alternative, a new Managed Lanes (ML) ramp connection with access to I-270 Southbound and from I-270 Northbound is added along I-370. With this infrastructure in place, 2027 Preferred Alternative analysis indicated that all intersections along the I-370 corridor continue to operate at LOS D or better.

There are no anticipated infrastructure changes between 2027 No Build and 2045 No Build Conditions. 2045 No Build Conditions analysis indicated that all intersections along the I-370 corridor continue to operate at LOS D or better.

Anticipated infrastructure changes between 2045 No Build Conditions and the 2045 Preferred Alternative are the same as those for the 2027 Preferred Alternative. The 2045 Preferred Alternative analysis indicated that all intersections along the I-370 corridor continue to operate at LOS D or better.

Queuing Analysis: Queuing analysis results indicated no spillback queues along the ramp length to the interstate facility.

Table I-1 summarizes the capacity analysis results along I-370.

Table I-1 – I-370 Capacity Analysis Results

Location	2017 Existing Conditions		2027 No Build Conditions		2027 Preferred Alternative		2045 No Build Conditions		2045 Preferred Alternative	
	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
I-370 (Sam Eig Hwy) at Fields Rd	C (24.6)	C (30.2)	C (22.2)	C (28.4)	C (22.2)	C (28.2)	C (23.4)	C (29.6)	C (23.5)	C (29.1)
Washingtonian Blvd at I-370 (Sam Eig Hwy) WB Ramps	B (17.9)	B (19.1)	C (20.5)	C (20.4)	C (20.0)	C (22.9)	C (22.1)	C (20.7)	C (22.2)	C (23.2)
Washingtonian Blvd at I-370 (Sam Eig Hwy) EB Ramps	B (12.3)	C (21.7)	B (10.7)	C (21.7)	B (14.3)	C (26.4)	B (11.5)	C (21.7)	B (14.0)	C (26.9)
I-370 (Sam Eig Hwy) SBR at MD 119 (Great Seneca Hwy)	A (3.1)	C (21.1)	A (4.7)	B (10.9)	A (5.4)	B (10.6)	A (5.0)	B (12.4)	A (4.8)	B (12.2)
I-370 (Sam Eig Hwy) at MD 119 (Great Seneca Hwy)	C (28.6)	D (38.7)	C (33.5)	D (44.9)	C (33.8)	D (44.6)	C (34.7)	D (46.4)	C (34.1)	D (46.4)
I-370 (Sam Eig Hwy) at Diamondback Dr	C (31.3)	D (36.6)	C (29.4)	D (38.5)	C (29.3)	D (38.7)	C (30.6)	D (40.0)	C (30.7)	D (40.1)

Note: Results sourced by HCM methodology and shown as LOS (Delay in sec/vehicle)

SHADY GROVE ROAD RESULTS

Under 2017 Existing Conditions, I-270 at Shady Grove Road is a partial cloverleaf interchange with signalized intersections at Corporate Boulevard and Choke Cherry Road. Additional locations studied as part of this corridor include the signalized intersections of Omega Drive at MD 28, Omega Drive/Fields Road at Washingtonian Boulevard, Redland Boulevard at Piccard Drive and the unsignalized intersection of Omega Drive at I-270 Southbound Off-Ramp. 2017 Existing Conditions analysis indicated that the unsignalized intersection of Omega Drive at I-270 Southbound Off-Ramp approaches capacity limits (LOS E) during the PM peak hour, while all signalized intersections would operate at LOS D or better during peak hours.

There are no known infrastructure changes between 2017 Existing and 2027 No Build Conditions. 2027 No Build Conditions analysis indicated that Omega Drive at I-270 Southbound Off-Ramp continues to approach capacity limits (LOS E) during the PM peak hour. All signalized intersections continue to operate at LOS D or better.

Under the 2027 Preferred Alternative, Shady Grove Road Southbound adds an additional thru lane that that will now feed into an exclusive right-turn lane for the I-270 Northbound on-ramp. The 2027 Preferred Alternative analysis indicated that Omega Drive at I-270 Southbound Off-Ramp continues to approach capacity limits (LOS E) during the PM peak hour. All signalized intersections continue to operate at LOS D or better.

There are no anticipated infrastructure changes between 2027 No Build and 2045 No Build Conditions. 2045 No Build Conditions analysis indicated that Omega Drive at I-270 Southbound Off-Ramp approaches or exceeds capacity limits (LOS E or F) during peak hours, while all signalized intersections continue to operate at LOS D or better.

Anticipated infrastructure changes between 2045 No Build Conditions and the 2045 Preferred Alternative are the same as those for the 2027 Preferred Alternative. The 2045 Preferred Alternative analysis indicated that Omega Drive at I-270 Southbound Off-Ramp improves its operation to a LOS D in the AM peak hour but continues to exceed capacity limits (LOS F) during the PM peak hour. All signalized intersections continue to operate at LOS D or better.

Queuing Analysis: Queuing analysis results indicated no spillback queues along the ramp length to the interstate facility.

Table I-2 summarizes the capacity analysis results along Shady Grove Road.

Table I-2 – Shady Grove Road Capacity Analysis Results

Location	2017 Existing Conditions		2027 No Build Conditions		2027 Preferred Alternative		2045 No Build Conditions		2045 Preferred Alternative	
	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
Omega Dr at MD 28 (Key W Ave)	C (33.6)	D (36.4)	D (35.2)	D (37.8)	D (35.2)	D (37.8)	D (38.8)	D (41.2)	D (38.2)	D (41.2)
Omega Dr at I-270 SB Off-Ramp[§]	C (21.7)	E (37.1)	C (24.9)	E (46.8)	C (24.2)	E (46.8)	E (36.1)	**F (98.8)**	D (32.2)	**F (98.0)**
Omega Dr / Fields Rd at Washingtonian Blvd	A (7.5)	B (11.7)	A (7.6)	B (12.7)	A (7.6)	B (12.7)	A (7.8)	B (15.6)	A (7.8)	B (15.6)
Shady Grove Rd at Corporate Blvd	C (31.2)	D (39.2)	C (22.0)	C (32.3)	C (20.1)	C (31.0)	C (23.1)	C (33.8)	C (20.6)	C (31.8)
Shady Grove Rd at I-270 SB Off-Ramp	C (20.4)	B (16.8)	C (25.3)	B (17.7)	C (24.8)	B (17.0)	C (26.5)	B (18.6)	C (31.1)	B (18.4)
Shady Grove Rd at I-270 NB Off-Ramp	C (28.5)	B (13.0)	C (24.4)	B (12.7)	C (24.2)	A (9.9)	C (21.8)	B (12.5)	B (19.5)	A (8.6)
Shady Grove Rd at Choke Cherry Rd	C (21.1)	C (31.0)	B (19.8)	D (38.7)	B (19.3)	D (37.0)	C (25.0)	D (45.8)	C (24.4)	D (44.5)
Redland Blvd at Piccard Dr	B (12.4)	B (14.7)	B (10.7)	B (13.1)	B (12.5)	B (13.5)	B (10.9)	B (13.8)	B (13.0)	B (15.1)

Note: Results sourced by HCM methodology and shown as LOS (Delay in sec/vehicle)

[§]Unsignalized intersection is stop controlled. LOS and delay listed are for the worst approach.

GUDE DRIVE RESULTS

Under 2017 Existing Conditions, Gude Drive forms an overpass over I-270 with signalized intersections at Research Boulevard and Piccard Drive. 2017 Existing Conditions analysis indicated that Gude Drive at Research Boulevard intersection approaches or exceeds capacity limits (LOS E or F) during peak hours. The Piccard Drive intersection operates at LOS B or better during peak hours.

There are no known infrastructure changes between 2017 Existing and 2027 No Build Conditions. 2027 No Build Conditions analysis indicated that Gude Drive at Research Boulevard continues to approach or exceed capacity limits (LOS E or F) during peak hours, while the Piccard Drive intersection continues to operate at LOS B or better.

Under the 2027 Preferred Alternative, a new signalized Managed Lanes (ML) connection with access to I-270 Northbound and Southbound is added along Gude Drive. With these infrastructure changes in place, 2027 Preferred Alternative analysis indicated that all intersections along the Gude Drive corridor improve operations to LOS C or better.

There are no anticipated infrastructure changes between 2027 No Build and 2045 No Build Conditions. 2045 No Build Conditions analysis indicated that Gude Drive at Research Boulevard continues to approach or exceed capacity limits (LOS E or F) during peak hours, while the Piccard Drive intersection continues to operate at LOS B or better.

Anticipated infrastructure changes between 2045 No Build Conditions and the 2045 Preferred Alternative are the same as those for the 2027 Preferred Alternative. The 2045 Preferred Alternative analysis indicated that all intersections along the Gude Drive corridor operate at LOS D or better.

Queuing Analysis: Queuing analysis results indicated no spillback queues along the ramp length to the interstate facility.

Table I-3 summarizes the capacity analysis results along Gude Drive.

Table I-3 – Gude Drive Capacity Analysis Results

Location	2017 Existing Conditions		2027 No Build Conditions		2027 Preferred Alternative		2045 No Build Conditions		2045 Preferred Alternative	
	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
Gude Dr at Research Blvd	E (61.1)	**F (93.0)**	E (62.2)	**F (104.2)**	C (27.2)	C (22.9)	E (68.7)	**F (121.4)**	C (29.2)	C (28.4)
Gude Dr at Piccard Dr	A (8.9)	B (18.3)	A (9.5)	B (18.4)	A (8.2)	B (18.7)	B (11.5)	B (20.0)	B (14.8)	C (32.3)
Gude Dr at I-270 Managed Lanes Direct Connector	N/A				C (29.5)	C (27.4)	N/A		D (37.0)	C (32.4)

Note: Results sourced by HCM methodology and shown as LOS (Delay in sec/vehicle)

MD 28 (MONTGOMERY AVENUE) RESULTS

Under 2017 Existing Conditions, I-270 at MD 28 is a partial cloverleaf interchange with signalized intersections at Hurley Avenue and Laird Street/Bullard Circle. 2017 Existing Conditions analysis indicated that MD 28 at Hurley Avenue exceeds capacity limits (LOS F) during the PM peak hour. All other intersections along the corridor operate at LOS D or better during peak hours.

Between 2017 Existing and 2027 No Build Conditions at MD 28 and Hurley Avenue signalized intersection, the Southbound approach was restriped to create an exclusive Southbound left-turn lane and a shared through lane with right-turning movements. With these changes in place, 2027 No Build Conditions analysis indicated that all intersections along the MD 28 corridor operate at LOS C or better.

There are no known infrastructure changes between 2027 No Build Conditions and the 2027 Preferred Alternative. The 2027 Preferred Alternative analysis indicated that all intersections along the MD 28 corridor continue to operate at LOS C or better.

There are no anticipated infrastructure changes between 2027 No Build and 2045 No Build Conditions. 2045 No Build Conditions analysis indicated that all intersections along the MD 28 corridor continue to operate at LOS C or better.

There are no anticipated infrastructure changes between 2045 No Build Conditions and the 2045 Preferred Alternative. The 2045 Preferred Alternative analysis indicated that all intersections along the MD 28 corridor continue to operate at LOS C or better.

Queuing Analysis: Queuing analysis results indicated no spillback queues along the ramp length to the interstate facility.

Table I-4 summarizes the capacity analysis results along MD 28.

Table I-4 – MD 28 Capacity Analysis Results

Location	2017 Existing Conditions		2027 No Build Conditions		2027 Preferred Alternative		2045 No Build Conditions		2045 Preferred Alternative	
	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
MD 28 (Montgomery Ave) at Hurley Ave	D (42.3)	**F (135.0)**	B (16.5)	C (22.5)	B (16.4)	C (22.2)	B (16.9)	C (24.2)	B (17.4)	C (24.4)
MD 28 (Montgomery Ave) at I-270 SB Ramps	B (12.4)	B (14.0)	B (14.9)	B (17.3)	B (14.1)	B (19.3)	B (13.0)	B (17.9)	A (7.7)	B (19.7)
MD 28 (Montgomery Ave) at I-270 NB Off-Ramp / Nelson St	C (24.4)	C (31.9)	C (21.9)	C (25.1)	C (21.7)	C (24.8)	C (23.3)	C (26.6)	C (21.1)	C (24.2)
MD 28 (Montgomery Ave) at Laird St / Bullard Cir	B (14.5)	B (16.6)	B (13.7)	B (13.7)	B (12.7)	B (13.9)	B (15.9)	B (16.1)	B (14.0)	B (15.5)

Note: Results sourced by HCM methodology and shown as LOS (Delay in sec/vehicle)

MD 189 (FALLS ROAD) RESULTS

Under 2017 Existing Conditions, I-270 at MD 189 is a single-point urban interchange (SPUI) with signalized intersections at Wootton Parkway and Great Falls Road/Potomac Valley Road. 2017 Existing Conditions analysis indicated that the intersections of MD 189 at Wootton Parkway I-270 Ramps (SPUI) approach capacity limits (LOS E) during at least one peak hour. MD 189 at Great Falls Road/Potomac Valley Road operates at LOS C or better during peak hours.

There are no known infrastructure changes between 2017 Existing and 2027 No Build Conditions. 2027 No Build Conditions analysis indicated that the intersections of MD 189 at Wootton Parkway and I-270 Ramps (SPUI) improve to LOS D during peak hours. MD 189 at Great Falls Road/Potomac Valley Road operates at LOS B or better.

Under the 2027 Preferred Alternative, the I-270 at MD 189 interchange is re-designed to a diverging diamond interchange. With these infrastructure changes in place, 2027 Preferred Alternative analysis indicated that all intersections along the MD 189 corridor operate at LOS D or better.

There are no anticipated infrastructure changes between 2027 No Build and 2045 No Build Conditions. The 2045 No Build Conditions analysis indicated that the intersections of MD 189 at Wootton Parkway and I-270 Ramps (SPUI) continue to approach capacity limits (LOS E) during at least one peak hour. MD 189 at Great Falls Road/Potomac Valley Road operates at LOS B or better.

Anticipated infrastructure changes between 2045 No Build Conditions and the 2045 Preferred Alternative are the same as those for the 2027 Preferred Alternative. The 2045 Preferred Alternative analysis indicated that all intersections along the MD 189 corridor operate at LOS D or better during peak hours.

Queuing Analysis: Queuing analysis results indicated no spillback queues along the ramp length to the interstate facility.

Table I-5 summarizes the capacity analysis results along MD 189.

Table I-5 – MD 189 Capacity Analysis Results

Location	2017 Existing Conditions		2027 No Build Conditions		2027 Preferred Alternative		2045 No Build Conditions		2045 Preferred Alternative	
	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
MD 189 (Falls Rd) at Wootton Pkwy	E (59.6)	D (47.1)	D (53.1)	D (44.2)	D (49.4)	D (43.7)	E (57.9)	D (44.3)	D (48.8)	D (44.5)
MD 189 (Falls Rd) at I-270 Ramps (SPUI)	E (64.9)	E (63.8)	D (37.8)	D (54.4)	N/A		D (38.5)	E (55.1)	N/A	
MD 189 (Falls Rd) Crossover at I-270 SB Ramps	N/A				B (16.4)	C (21.2)	N/A		B (17.3)	C (25.0)
MD 189 (Falls Rd) EB at I-270 SB Ramps	N/A				A (5.5)	A (7.3)	N/A		A (5.1)	A (6.8)
MD 189 (Falls Rd) WB at I-270 NB Ramps	N/A				A (2.0)	A (5.5)	N/A		A (2.9)	A (6.7)
MD 189 (Falls Rd) Crossover at I-270 NB Ramps	N/A				C (21.7)	C (24.3)	N/A		C (24.2)	C (25.0)
MD 189 (Falls Rd) EB at I-270 NB Ramps	N/A				A (8.7)	A (8.4)	N/A		A (7.9)	A (8.1)
MD 189 (Falls Rd / Maryland Ave) at Great Falls Rd / Potomac Valley Rd	C (24.7)	B (14.7)	B (16.8)	B (15.0)	B (18.1)	B (16.8)	B (18.0)	B (15.3)	B (18.8)	C (19.5)

Note: Results sourced by HCM methodology and shown as LOS (Delay in sec/vehicle)

WOOTTON PARKWAY RESULTS

Under 2017 Existing Conditions, Wootton Parkway forms an overpass over I-270 with signalized intersections at Seven Locks Road and Tower Oaks Boulevard. The 2017 Existing Conditions analysis indicated that both intersections along the Wootton Parkway corridor operate at LOS D or better during peak hours of the day.

There are no known infrastructure changes between 2017 Existing and 2027 No Build Conditions. 2027 No Build Conditions analysis indicated that both intersections along the Wootton Parkway corridor operate at LOS C or better.

Under the 2027 Preferred Alternative, a new signalized Managed Lanes (ML) connection with access to I-270 Northbound and Southbound is added along Wootton Parkway. Additionally, a westbound left-turn lane is added at the intersection of Wootton Parkway at Seven Locks Road. With these infrastructure changes in place, 2027 Preferred Alternative analysis indicated that all intersections along the Wootton Parkway corridor operate at LOS C or better.

There are no anticipated roadway infrastructure changes between 2027 No Build and 2045 No Build Conditions. The 2045 No Build Conditions analysis indicated that both intersections along the Wootton Parkway corridor operate at LOS D or better during the peak hours.

Anticipated infrastructure changes between 2045 No Build Conditions and the 2045 Preferred Alternative are the same as those for the 2027 Preferred Alternative. The 2045 Preferred Alternative indicated that all intersections along the corridor continue to operate at LOS D or better.

Queuing Analysis: Queuing analysis results indicated no spillback queues along the ramp length to the interstate facility.

Table I-6 summarizes the capacity analysis results along Wootton Parkway.

Table I-6 – Wootton Parkway Capacity Analysis Results

Location	2017 Existing Conditions		2027 No Build Conditions		2027 Preferred Alternative		2045 No Build Conditions		2045 Preferred Alternative	
	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
Wootton Pkwy at Seven Locks Rd	D (49.6)	C (31.3)	C (33.2)	C (30.0)	C (22.8)	C (32.6)	D (36.2)	C (27.7)	C (25.8)	C (31.9)
Wootton Pkwy at Tower Oaks Blvd	C (21.3)	B (15.2)	C (25.5)	C (24.3)	C (26.0)	C (27.4)	C (25.3)	C (24.0)	C (26.2)	D (36.0)
Wootton Pkwy at I-270 Managed Lanes Direct Connector	N/A				C (24.7)	C (23.2)	N/A		C (26.1)	C (23.9)

Note: Results sourced by HCM methodology and shown as LOS (Delay in sec/vehicle)

MONTROSE ROAD RESULTS

Under 2017 Existing Conditions, I-270 at Montrose Road is a full cloverleaf interchange with signalized intersections at Seven Locks Road, Tower Oaks Boulevard and Hitching Post Lane/Farm Haven Drive. A two-way stopped-controlled intersection at Park Potomac Avenue and a one-way yield-controlled T-intersection at Farm Lane are also located along the corridor. In addition, the intersections along Tower Oaks Boulevard at the I-270 Northbound Ramps/GEICO Entrance and Commercial Drive were also analyzed. The 2017 Existing Conditions analysis indicated that all signalized intersections along the Montrose Road and Tower Oaks Boulevard corridors operate at LOS D or better during the peak hours of the day. The stop-controlled intersection at Park Potomac Avenue approaches or exceeds capacity limits (LOS E or F) during peak hours of the day.

There are no known infrastructure changes between 2017 Existing and 2027 No Build Conditions. 2027 No Build Conditions analysis indicated that all signalized intersections along the Montrose Road and Tower Oaks Boulevard corridors continue to operate at LOS D or better during the peak hours of the day. The stop-controlled intersection at Park Potomac Avenue continues to approach or exceed capacity limits (LOS E or F) during peak hours.

There are no known infrastructure changes between 2027 No Build Conditions and the 2027 Preferred Alternative. The 2027 Preferred Alternative analysis indicated that all signalized intersections along the Montrose Road and Tower Oaks Boulevard corridors improve operations to LOS C or better during peak hours. The stop-controlled intersection at Park Potomac Avenue continues to approach or exceed capacity limits (LOS E or F) during peak hours.

There are no anticipated roadway infrastructure changes between 2027 No Build and 2045 No Build Conditions. The 2045 No Build Conditions analysis indicated that all signalized intersections along the Montrose Road and Tower Oaks Boulevard corridors continue to operate at LOS D or better during the peak hours of the day. The stop-controlled intersection at Park Potomac Avenue continues to approach or exceed capacity limits (LOS E or F) during peak hours.

There are no anticipated roadway infrastructure changes between 2045 No Build Conditions and the 2045 Preferred Alternative. The 2045 Preferred Alternative analysis indicated that all signalized intersections along the Montrose Road and Tower Oaks Boulevard corridors continue to operate at LOS D or better during the peak hours of the day. The stop-controlled intersection at Park Potomac Avenue continues to approach or exceed capacity limits (LOS E or F) during peak hours.

Queuing Analysis: Queuing analysis results indicated no spillback queues along the ramp length to the interstate facility.

Table I-7 summarizes the capacity analysis results along Montrose Road and Tower Oaks Boulevard.

Table I-7 – Montrose Road Capacity Analysis Results

Location	2017 Existing Conditions		2027 No Build Conditions		2027 Preferred Alternative		2045 No Build Conditions		2045 Preferred Alternative	
	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
Montrose Rd at Seven Locks Rd	C (32.7)	D (38.0)	C (29.7)	D (35.3)	C (29.9)	C (34.4)	C (30.0)	D (37.6)	C (29.9)	D (36.7)
Montrose Rd at Park Potomac Ave	E (37.7)	**F (77.7)**	E (42.5)	**F (104.9)**	E (37.7)	**F (104.9)**	E (47.3)	**F (143.3)**	E (35.9)	**F (162.9)**
Montrose Rd at Tower Oaks Blvd	D (42.0)	B (12.4)	B (19.2)	B (10.5)	B (17.5)	B (12.7)	C (20.4)	B (12.0)	B (17.6)	B (15.1)
Montrose Rd at Farm Ln[§]	A (1.6)	A (3.5)	A (1.9)	A (4.4)	A (1.9)	A (4.0)	A (2.0)	A (4.8)	A (2.0)	A (4.3)
Montrose Rd at Hitching Post Ln / Farm Haven Dr	A (8.2)	A (9.1)	B (12.9)	B (10.8)	B (12.9)	B (10.4)	B (14.3)	B (11.7)	B (14.2)	B (11.4)
Tower Oaks Blvd at I-270 NB Ramps/ GEICO Entrance	B (19.8)	B (17.7)	B (18.7)	B (17.6)	B (18.2)	B (17.5)	B (19.1)	B (18.5)	B (17.9)	B (19.0)
Tower Oaks Blvd at Commercial Dr	A (3.4)	A (4.9)	A (3.6)	A (5.0)	A (3.4)	A (4.8)	A (4.0)	A (5.8)	A (3.6)	A (5.1)

Notes: Results sourced by HCM methodology and shown as LOS (Delay in sec/vehicle)

[§]Red light on Montrose Road by Farm Lane is triggered by pedestrian signal call. Farm Lane is yield-controlled.

WESTLAKE TERRACE RESULTS

Under 2017 Existing Conditions, Westlake Terrace provides access at a signalized T-intersection to the I-270 Northbound High Occupancy Vehicle (HOV) lanes and from the I-270 Southbound HOV lanes. Signalized intersections at the Westfield Montgomery Mall Entrance/Motor City Drive and Rockledge Drive are located to the east and west of the HOV lane connection, respectively. The 2017 Existing Conditions analysis indicated that all intersections along the Westlake Terrace corridor operate at LOS D or better during peak hours of the day.

There are no known infrastructure changes between 2017 Existing and 2027 No Build Conditions. 2027 No Build Conditions analysis indicated that all intersections along the Westlake Terrace corridor continue to operate at LOS D or better.

Under the 2027 Preferred Alternative, the existing HOV lane connection is being converted to a signalized Managed Lanes (ML) connection providing access both to and from the I-270 Northbound and Southbound ML. With these infrastructure changes in place, 2027 Preferred Alternative analysis indicated that all intersections along the Westlake Terrace corridor continue to operate at LOS D or better.

There are no anticipated roadway infrastructure changes between 2027 No Build and 2045 No Build Conditions. 2045 No Build Conditions analysis indicated that all intersections along the Westlake Terrace corridor continue to operate at LOS D or better.

Anticipated infrastructure changes between 2045 No Build Conditions and the 2045 Preferred Alternative are the same as those for the 2027 Preferred Alternative. The 2045 Preferred Alternative indicated that all intersections along the corridor continue to operate at LOS D or better.

Queuing Analysis: Queuing analysis results indicated no spillback queues along the ramp length to the interstate facility.

Table I-8 summarizes the capacity analysis results along Westlake Terrace.

Table I-8 – Westlake Terrace Capacity Analysis Results

Location	2017 Existing Conditions		2027 No Build Conditions		2027 Preferred Alternative		2045 No Build Conditions		2045 Preferred Alternative	
	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
Westlake Terr at Westfield Montgomery Mall Ent / Motor City Dr	B (13.5)	C (21.5)	B (12.6)	C (23.7)	A (9.6)	B (18.9)	B (13.5)	C (24.1)	A (9.8)	C (20.7)
Westlake Terrace at I-270 Spur Ramps[1]	A (8.8)	B (12.6)	B (12.0)	A (8.8)	C (33.3)	C (31.9)	B (14.1)	B (10.1)	D (37.5)	C (32.2)
Westlake Terrace at Rockledge Dr	C (25.2)	D (42.2)	C (29.4)	D (46.9)	C (30.8)	D (46.9)	C (34.9)	D (54.3)	C (34.8)	D (53.0)

Notes: Results sourced by HCM methodology and shown as LOS (Delay in sec/vehicle)

[1] In 2027/2045 Build, the Spur ramp connection converts to Managed Lanes access.

DEMOCRACY BOULEVARD RESULTS

Under 2017 Existing Conditions, I-270 at Democracy Boulevard is a partial cloverleaf interchange with signalized intersections at Taveshire Way, the I-270 Southbound Off-Ramp, the I-270 Southbound On-Ramp from Democracy Boulevard Westbound, the I-270 Northbound Off-Ramp to Democracy Boulevard Westbound, the I-270 Northbound Off-Ramp to Democracy Boulevard Eastbound, and Fernwood Road. The 2017 Existing Conditions analysis indicated that the Fernwood Drive intersection approaches capacity limits (LOS E) during the AM Peak and the I-270 SB Off-Ramp intersection exceeds capacity limits (LOS F) in the PM Peak. All other intersections along the Democracy Boulevard corridor operate at LOS C or better during the peak hours of the day.

There are no known infrastructure changes between 2017 Existing and 2027 No Build Conditions. 2027 No Build Conditions analysis indicated that all intersections along the Democracy Boulevard corridor improve operations to LOS D or better.

Under the 2027 Preferred Alternative, the geometry of the I-270 Southbound signalized ramp intersections are combined into one signalized intersection. With these changes in place, 2027 Preferred Alternative analysis indicated that all intersections along the Democracy Boulevard corridor continue to operate at LOS D or better.

There are no anticipated roadway infrastructure changes between 2027 No Build and 2045 No Build Conditions. The 2045 No Build Conditions analysis indicated that all intersections along the Democracy Boulevard corridor continue to operate at LOS D or better.

Anticipated infrastructure changes between 2045 No Build Conditions and 2045 Preferred Alternative are the same as those for the 2027 Preferred Alternative. The 2045 Preferred Alternative analysis indicated that all intersections along the Democracy Boulevard continues corridor continue to operate at LOS D or better.

Queuing Analysis: Queuing analysis results indicated no spillback queues along the ramp length to the interstate facility.

Table I-9 summarizes the capacity analysis results along Democracy Boulevard.

Table I-9 – Democracy Boulevard Capacity Analysis Results

Location	2017 Existing Conditions		2027 No Build Conditions		2027 Preferred Alternative		2045 No Build Conditions		2045 Preferred Alternative	
	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
Democracy Blvd at Taveshire Way	B (10.3)	B (12.1)	B (10.5)	B (12.1)	B (10.4)	B (12.0)	B (10.8)	B (11.7)	B (10.8)	B (11.3)
Democracy Blvd at I-270 SB Off-Ramp	C (28.6)	**F (105.5)**	C (32.0)	D (46.7)	C (27.8)	D (47.0)	C (33.0)	D (50.9)	C (28.2)	D (39.5)
Democracy Blvd at I-270 SB On-Ramp from Democracy Blvd WB	A (9.0)	A (9.3)	A (5.5)	B (17.8)			A (5.5)	B (18.6)		
Democracy Blvd at I-270 NB Off-Ramp to Democracy Blvd WB	B (10.6)	A (9.9)	A (7.3)	A (7.2)	B (10.7)	A (8.5)	A (6.8)	A (7.5)	B (12.4)	B (12.3)
Democracy Blvd at I-270 NB Off-Ramp to Democracy Blvd EB	C (33.1)	B (10.2)	B (18.8)	A (8.6)	B (16.8)	A (7.8)	B (20.0)	A (9.7)	B (16.3)	A (8.3)
Democracy Blvd at Fernwood Rd	E (63.1)	C (30.9)	D (41.1)	C (31.3)	D (36.6)	C (30.6)	D (47.3)	D (38.0)	D (41.5)	D (47.1)

Note: Results sourced by HCM methodology and shown as LOS (Delay in sec/vehicle)

ROCKLEDGE DRIVE & MD 187 (OLD GEORGETOWN ROAD) RESULTS

Under 2017 Existing Conditions, I-270 at Rockledge Drive and MD 187 (Old Georgetown Road) are adjacent diamond interchanges with overpasses over I-270 located approximately 1,500 feet apart. Signalized intersections at Rock Forest Drive, the I-270 Southbound Ramps, and the I-270 Northbound Ramps are located along Rockledge Drive. Signalized intersections at Rock Spring Drive, the I-270 Southbound Ramps, the I-270 Northbound Ramps, and Tuckerman Lane are located along MD 187. The 2017 Existing Conditions analysis indicated that the MD 187 at Tuckerman Lane intersection approaches or exceeds capacity limits (LOS E or F) during the peak hours and the MD 187 at Rock Spring Drive intersection approaches capacity limits (LOS E) during the AM peak. All other intersections along the Rockledge Drive and MD 187 corridors operate at LOS D or better during the peak hours of the day.

There are no known infrastructure changes between 2017 Existing and 2027 No Build Conditions. 2027 No Build Conditions analysis indicated that the MD 187 at Tuckerman Lane intersection continues to approach or exceed capacity limits (LOS E or F) during the peak hours and the MD 187 at Rock Spring Drive intersection approaches capacity limits (LOS E) during the PM peak hour. All other intersections along the Rockledge Drive and MD 187 corridors operate at LOS D or better.

There are no known infrastructure changes between 2027 No Build Conditions and the 2027 Preferred Alternative. The I-270 Managed Lanes (ML) tie into the general-purpose lanes east of the MD 187 interchange. The 2027 Preferred Alternative analysis indicated that the MD 187 at Tuckerman Lane intersection continues to approach or exceed capacity limits (LOS E or F) during the peak hours and the MD 187 at Rock Spring Drive intersection continues to approach capacity limits (LOS E) during the PM peak hour. All other intersections along the Rockledge Drive and MD 187 corridors continue to operate at LOS D or better.

There are no anticipated roadway infrastructure changes between 2027 No Build and 2045 No Build Conditions. 2045 No Build Conditions analysis indicated that the MD 187 at Tuckerman Lane intersection exceeds capacity limits (LOS F) during peak hours and the MD 187 at Rock Spring Drive intersection exceeds capacity limits (LOS F) during the PM peak hour. All other intersections along the Rockledge Drive and MD 187 corridors operate at LOS D or better.

There are no anticipated roadway infrastructure changes between 2045 No Build Conditions and the 2045 Preferred Alternative. Similar to the 2027 Preferred Alternative, the I-270 MLs tie into the general-purpose lanes east of the MD 187 interchange. The 2045 Preferred Alternative analysis indicated that the MD 187 at Tuckerman Lane intersection continues to exceed capacity limits (LOS F) during peak hours and the MD 187 at Rock Spring Drive intersection continues to exceed capacity limits (LOS F) during the PM peak hour. All other intersections along the Rockledge Drive and MD 187 corridors operate at LOS D or better.

Queuing Analysis: Queuing analysis results indicated no spillback queues along the ramp length to the interstate facility.

Table I-10 summarizes the capacity analysis results along Rockledge Drive and MD 187.

Table I-10 – Rockledge Drive and MD 187 Capacity Analysis Results

Location	2017 Existing Conditions		2027 No Build Conditions		2027 Preferred Alternative		2045 No Build Conditions		2045 Preferred Alternative	
	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
Rockledge Dr at Rock Forest Dr	C (23.1)	C (33.8)	C (24.3)	C (34.8)	C (24.7)	C (34.5)	C (26.8)	D (40.6)	C (27.0)	D (41.1)
Rockledge Dr at I-270 SB Off Ramp / I-270 SB Ramp Connector	C (24.8)	D (40.4)	B (19.0)	C (34.0)	B (19.2)	C (32.1)	C (20.1)	D (40.6)	C (22.0)	C (34.8)
Rockledge Dr at I-270 NB On Ramp / I-270 NB Ramp Connector	C (25.9)	B (18.5)	D (39.0)	C (25.0)	D (39.6)	C (28.5)	D (43.4)	C (32.9)	D (39.2)	C (33.4)
MD 187 (Old Georgetown Rd) at Rock Spring Dr	E (64.2)	D (50.8)	D (40.5)	E (61.5)	D (39.3)	E (58.4)	D (46.6)	**F (98.7)**	D (48.7)	**F (96.8)**
MD 187 (Old Georgetown Rd) at I-270 SB Ramp Connector / I-270 SB On-Ramp	D (41.7)	D (46.2)	C (23.4)	C (22.2)	C (22.8)	C (24.5)	C (25.8)	C (31.7)	C (25.9)	C (27.2)
MD 187 (Old Georgetown Rd) at I-270 NB Ramp Connector / I-270 NB Off-Ramp	B (11.9)	B (14.5)	A (9.6)	B (14.6)	A (9.6)	B (15.8)	B (11.1)	B (15.6)	B (12.7)	B (14.8)
MD 187 (Old Georgetown Rd) at Tuckerman Ln	**F (133.8)**	E (70.4)	**F (139.6)**	E (76.7)	**F (148.8)**	E (73.6)	**F (156.7)**	**F (92.3)**	**F (157.7)**	**F (94.2)**

Note: Results sourced by HCM methodology and shown as LOS (Delay in sec/vehicle)

MD 190 (RIVER ROAD) RESULTS

Under 2017 Existing Conditions, I-495 at MD 190 is a partial cloverleaf interchange with signalized intersections at Seven Locks Road and Burdette Road. 2017 Existing Conditions analysis indicated that all intersections along the MD 190 corridor operate at LOS D or better during the peak hours of the day.

There are no known infrastructure changes between 2017 Existing and 2027 No Build Conditions. 2027 No Build Conditions analysis indicated that all intersections along the MD 190 corridor continue to operate at LOS D or better.

Under the 2027 Preferred Alternative, a new signalized Managed Lanes (ML) connection with access to I-495 Inner and Outer Loops is added along MD 190. The interchange is redesigned to remove looping off-ramps and function as a traditional diamond interchange for I-495 general purpose traffic. With these infrastructure changes in place, 2027 Preferred Alternative analysis indicated that all intersections along the corridor continue to operate at LOS D or better.

There are no anticipated infrastructure changes between the 2027 No Build and 2045 No Build Conditions. 2045 No Build Conditions analysis indicates that all intersections along the MD 190 corridor continue to operate at LOS D or better.

Anticipated infrastructure changes between 2045 No Build Conditions and the 2045 Preferred Alternative are the same as those for the 2027 Preferred Alternative. The 2045 Preferred Alternative indicated that the intersections of MD 190 at Seven Locks Road and Burdette Rd approach capacity limits (LOS E) during the PM peak hour. All other intersections along the corridor continuing to operate at LOS D or better.

Queuing Analysis: Queuing analysis results indicated no spillback queues along the ramp length to the interstate facility.

Table I-11 summarizes the capacity analysis results along MD 190.

Table I-11 – MD 190 Capacity Analysis Results

Location	2017 Existing Conditions		2027 No Build Conditions		2027 Preferred Alternative		2045 No Build Conditions		2045 Preferred Alternative	
	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
MD 190 (River Rd) at Seven Locks Rd	D (36.1)	D (39.1)	D (37.4)	D (45.0)	C (34.4)	D (51.9)	D (41.6)	D (49.3)	D (38.0)	E (58.3)
MD 190 (River Rd) at I-495 Outer Loop Off-Ramp[1]	B (11.5)	B (12.0)	B (12.1)	A (9.4)	C (20.8)	B (17.6)	B (13.5)	B (10.7)	C (21.6)	B (17.9)
MD 190 (River Rd) at I-495 Inner Loop On-Ramp[2]	A (1.9)	A (7.8)	A (0.7)	A (7.0)	B (18.3)	B (19.8)	A (0.5)	A (3.7)	B (19.1)	C (21.6)
MD 190 (River Rd) at Burdette Rd	B (16.9)	C (31.7)	B (18.1)	D (40.9)	C (20.7)	D (44.7)	C (21.5)	D (49.9)	C (24.8)	E (79.9)
MD 190 (River Rd) at I-495 Managed Lanes Direct Connector	N/A				B (13.8)	C (22.0)	N/A		B (13.6)	C (23.0)

Notes: Results sourced by HCM methodology and shown as LOS (Delay in sec/vehicle)

[1] In 2027/2045 Phase 1 Build, the I-495 Outer Loop On-Ramp ties into this location.

[2] In 2027/2045 Phase 1 Build, the I-495 Inner Loop Off-Ramp ties into this location.

MD 187 (OLD GEORGETOWN ROAD) AT I-495 RESULTS

Under 2017 Existing Conditions, I-495 at MD 187 is a traditional diamond interchange with signalized intersections at Lone Oak Drive / Manor Oak Way and Ryland Drive / Church Driveway (St. Jane Frances de Chantal Catholic Church). 2017 Existing Conditions analysis indicated that all intersections along the MD 187 corridor operate at LOS C or better during the peak hours of the day.

There are no known infrastructure changes between 2017 Existing and 2027 No Build Conditions. 2027 No Build Conditions analysis indicated that all intersections along the corridor operate at LOS D or better.

There are no known infrastructure changes between 2027 No Build Conditions and the 2027 Preferred Alternative. The I-495 Managed Lanes (ML) tie back into the general-purpose lanes west of the MD 187 interchange. The 2027 Preferred Alternative analysis indicated that all intersections along the corridor continue to operate at LOS D or better.

There are no anticipated infrastructure changes between 2027 No Build and 2045 No Build Conditions. 2045 No Build Conditions analysis indicated that MD 187 at I-495 Outer Loop Off-/On-Ramp intersection exceeds capacity limits (LOS F) during the AM peak hour. All other intersections along the corridor operate at LOS C or better.

The are no anticipated infrastructure changes between 2045 No Build Conditions and the 2045 Preferred Alternative. Similar to the 2027 Preferred Alternative, I-495 Managed Lanes (ML) tie back into the general-purpose lanes west of the MD 187 interchange. The 2045 Preferred Alternative analysis indicated that MD 187 at I-495 Outer Loop Off-/On-Ramp intersection continues to exceed capacity limits (LOS F) during the AM peak hour. All other intersections along the corridor continue to operate at LOS C or better.

Queuing Analysis: Queuing analysis results indicated no spillback queues along the ramp length to the interstate facility.

Table I-12 summarizes the capacity analysis results along MD 187.

Table I-12 – MD 187 Capacity Analysis Results

Location	2017 Existing Conditions		2027 No Build Conditions		2027 Preferred Alternative		2045 No Build Conditions		2045 Preferred Alternative	
	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
MD 187 (Old Georgetown Rd) at Lone Oak Dr/ Manor Oak Way	B (14.6)	B (12.5)	B (15.9)	B (17.4)	B (15.5)	B (17.7)	C (25.1)	C (20.7)	C (23.3)	C (21.0)
MD 187 (Old Georgetown Rd) at I-495 Outer Loop Off-/ On-Ramp	C (29.1)	C (32.8)	D (37.3)	B (14.9)	D (37.3)	B (17.9)	**F (96.0)**	B (11.6)	**F (88.4)**	B (12.9)
MD 187 (Old Georgetown Rd) at I-495 Inner Loop Off-/ On-Ramp	A (6.9)	C (30.0)	A (8.9)	C (21.5)	B (10.6)	C (22.5)	A (9.4)	B (17.2)	A (8.6)	C (24.6)
MD 187 (Old Georgetown Rd) at Ryland Dr	B (16.2)	B (12.0)	B (15.8)	A (7.9)	B (14.5)	A (7.7)	B (16.5)	B (10.4)	B (17.7)	B (11.3)

Note: Results sourced by HCM methodology and shown as LOS (Delay in sec/vehicle)

MD 355 (ROCKVILLE PIKE) RESULTS

Under 2017 Existing Conditions, I-495 / I-270 at MD 355 forms an interchange with signalized intersections at Grosvenor Lane, I-495 Inner Loop Off-Ramp, Pooks Hill Road, and Alta Vista Road / Bellevue Drive. 2017 Existing Conditions analysis indicated that all intersections along the MD 355 corridor operate at LOS D or better during the peak hours of the day.

There are no known infrastructure changes between 2017 Existing and 2027 No Build Conditions. 2027 No Build Conditions analysis indicated that all intersections along the MD 355 corridor operate at LOS C or better.

There are no known infrastructure changes between 2027 No Build Conditions and the 2027 Preferred Alternative. The I-270 Managed Lanes (ML) tie back into the general-purpose lanes west of the MD 355 interchange. The 2027 Preferred Alternative analysis indicated that all intersections along the MD 355 corridor continue to operate at LOS C or better.

There are no anticipated infrastructure changes between 2027 No Build and 2045 No Build Conditions. 2045 No Build Conditions analysis indicated that all intersections along the MD 355 corridor operate at LOS D or better.

The are no anticipated infrastructure changes between 2045 No Build Conditions and the 2045 Preferred Alternative. Similar to the 2027 Preferred Alternative, the I-270 MLs tie back into the general-purpose lanes west of the MD 355 interchange. The 2045 Preferred Alternative analysis indicated that all intersections along the MD 355 corridor continue to operate at LOS D or better.

Queuing Analysis: Queuing analysis results indicated no spillback queues along the ramp length to the interstate facility.

Table I-13 summarizes the capacity analysis results along MD 355.

Table I-13 – MD 355 Capacity Analysis Results

Location	2017 Existing Conditions		2027 No Build Conditions		2027 Preferred Alternative		2045 No Build Conditions		2045 Preferred Alternative	
	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
MD 355 (Rockville Pike) at Grosvenor Ln	D (44.6)	D (36.0)	C (32.6)	C (31.5)	C (32.7)	C (32.3)	C (33.4)	D (36.5)	C (33.8)	D (35.3)
MD 355 (Rockville Pike) at I-495 Inner Loop Off-Ramp	C (25.2)	B (17.6)	C (24.8)	B (17.1)	C (25.1)	B (18.3)	C (25.4)	B (16.5)	C (24.0)	C (20.8)
MD 355 (Rockville Pike) at Pooks Hill Rd	C (31.2)	B (18.3)	C (31.3)	B (15.8)	C (32.8)	B (15.4)	D (35.7)	B (16.5)	D (36.6)	C (17.0)
MD 355 (Rockville Pike) at Alta Vista Rd / Bellevue Dr	B (13.6)	C (23.9)	B (15.2)	C (27.1)	B (16.3)	C (23.5)	B (17.5)	C (29.3)	B (19.1)	C (28.4)

Note: Results sourced by HCM methodology and shown as LOS (Delay in sec/vehicles)

2017 EXISTING CONDITIONS

SYNCHRO ANALYSIS OUTPUTS



Movement	WBL	WBR	WBR2	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SER
Lane Configurations											
Traffic Volume (vph)	145	0	295	0	1560	315	395	1135	0	0	85
Future Volume (vph)	145	0	295	0	1560	315	395	1135	0	0	85
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5		6.5		7.0	7.0	7.0	7.0			7.0
Lane Util. Factor	0.97		0.88		0.91	1.00	0.97	0.91			1.00
Frt	1.00		0.85		1.00	0.85	1.00	1.00			0.86
Flt Protected	0.95		1.00		1.00	1.00	0.95	1.00			1.00
Satd. Flow (prot)	3433		2787		5085	1583	3433	5085			1611
Flt Permitted	0.95		1.00		1.00	1.00	0.95	1.00			1.00
Satd. Flow (perm)	3433		2787		5085	1583	3433	5085			1611
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	158	0	321	0	1696	342	429	1234	0	0	92
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	158	0	321	0	1696	342	429	1234	0	0	92
Turn Type	Prot		pt+ov		NA	Perm	Prot	NA			Prot
Protected Phases	4		4 1		2		1	6!			6!
Permitted Phases						2					
Actuated Green, G (s)	22.1		60.0		106.0	106.0	31.4	144.4			144.4
Effective Green, g (s)	22.1		60.0		106.0	106.0	31.4	144.4			144.4
Actuated g/C Ratio	0.12		0.33		0.59	0.59	0.17	0.80			0.80
Clearance Time (s)	6.5				7.0	7.0	7.0	7.0			7.0
Vehicle Extension (s)	4.0				2.0	2.0	5.0	2.0			2.0
Lane Grp Cap (vph)	421		929		2994	932	598	4079			1292
v/s Ratio Prot	0.05		c0.12		c0.33		c0.12	0.24			0.06
v/s Ratio Perm						0.22					
v/c Ratio	0.38		0.35		0.57	0.37	0.72	0.30			0.07
Uniform Delay, d1	72.6		45.2		22.8	19.4	70.1	4.6			3.7
Progression Factor	1.00		1.00		0.87	0.78	1.00	1.00			1.00
Incremental Delay, d2	0.8		0.3		0.7	0.9	5.1	0.2			0.1
Delay (s)	73.4		45.5		20.5	16.0	75.2	4.8			3.8
Level of Service	E		D		C	B	E	A			A
Approach Delay (s)	54.7				19.8			23.0		3.8	
Approach LOS	D				B			C		A	

Intersection Summary			
HCM 2000 Control Delay	24.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	20.5
Intersection Capacity Utilization	Err%	ICU Level of Service	H
Analysis Period (min)	15		

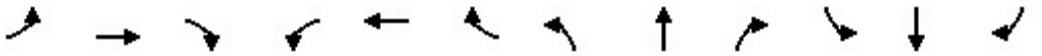
! Phase conflict between lane groups.

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	410	15	30	35	180	0	0	175	35
Future Volume (vph)	0	0	0	410	15	30	35	180	0	0	175	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				5.5	5.5	5.5	5.5	5.5			9.0	
Lane Util. Factor				0.95	0.95	1.00	1.00	1.00			0.95	
Frt				1.00	1.00	0.85	1.00	1.00			0.97	
Flt Protected				0.95	0.96	1.00	0.95	1.00			1.00	
Satd. Flow (prot)				1681	1691	1583	1770	1863			3451	
Flt Permitted				0.95	0.96	1.00	0.61	1.00			1.00	
Satd. Flow (perm)				1681	1691	1583	1135	1863			3451	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	446	16	33	38	196	0	0	190	38
RTOR Reduction (vph)	0	0	0	0	0	24	0	0	0	0	18	0
Lane Group Flow (vph)	0	0	0	232	230	9	38	196	0	0	210	0
Turn Type				Split	NA	Perm	custom	NA			NA	
Protected Phases				3	3		1 4	4 5			2	
Permitted Phases						3	5					
Actuated Green, G (s)				18.8	18.8	18.8	36.6	37.9			10.8	
Effective Green, g (s)				18.8	18.8	18.8	36.6	28.9			10.8	
Actuated g/C Ratio				0.28	0.28	0.28	0.54	0.43			0.16	
Clearance Time (s)				5.5	5.5	5.5					9.0	
Vehicle Extension (s)				5.0	5.0	5.0					2.0	
Lane Grp Cap (vph)				466	469	439	783	795			550	
v/s Ratio Prot				c0.14	0.14		c0.01	c0.11			0.06	
v/s Ratio Perm						0.01	0.01					
v/c Ratio				0.50	0.49	0.02	0.05	0.25			0.38	
Uniform Delay, d1				20.5	20.4	17.8	7.4	12.4			25.5	
Progression Factor				1.00	1.00	1.00	0.09	0.13			1.00	
Incremental Delay, d2				1.7	1.7	0.0	0.1	0.3			0.2	
Delay (s)				22.2	22.1	17.8	0.7	2.0			25.6	
Level of Service				C	C	B	A	A			C	
Approach Delay (s)		0.0			21.9			1.8			25.6	
Approach LOS		A			C			A			C	

Intersection Summary			
HCM 2000 Control Delay	17.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	67.7	Sum of lost time (s)	29.0
Intersection Capacity Utilization	37.7%	ICU Level of Service	A
Analysis Period (min)	15		

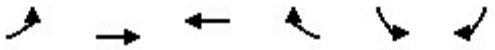
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	5	95	0	0	0	0	180	100	90	495	0
Future Volume (vph)	35	5	95	0	0	0	0	180	100	90	495	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5	5.5					9.0	9.0		9.0	
Lane Util. Factor		1.00	1.00					1.00	1.00		0.95	
Frt		1.00	0.85					1.00	0.85		1.00	
Flt Protected		0.96	1.00					1.00	1.00		0.99	
Satd. Flow (prot)		1784	1583					1863	1583		3512	
Flt Permitted		0.96	1.00					1.00	1.00		0.87	
Satd. Flow (perm)		1784	1583					1863	1583		3067	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	38	5	103	0	0	0	0	196	109	98	538	0
RTOR Reduction (vph)	0	0	87	0	0	0	0	0	79	0	0	0
Lane Group Flow (vph)	0	43	16	0	0	0	0	196	30	0	636	0
Turn Type	Split	NA	Perm					NA	Perm	custom	NA	
Protected Phases	4	4						5		3 6	2 3	
Permitted Phases			4						5	2		
Actuated Green, G (s)		10.4	10.4					18.5	18.5		29.6	
Effective Green, g (s)		10.4	10.4					18.5	18.5		29.6	
Actuated g/C Ratio		0.15	0.15					0.27	0.27		0.44	
Clearance Time (s)		5.5	5.5					9.0	9.0			
Vehicle Extension (s)		5.0	5.0					2.0	2.0			
Lane Grp Cap (vph)		274	243					509	432		1464	
v/s Ratio Prot		c0.02						c0.11			c0.12	
v/s Ratio Perm			0.01						0.02		0.07	
v/c Ratio		0.16	0.07					0.39	0.07		0.43	
Uniform Delay, d1		24.8	24.5					20.0	18.2		13.2	
Progression Factor		1.00	1.00					1.00	1.00		0.44	
Incremental Delay, d2		0.6	0.2					0.2	0.0		0.1	
Delay (s)		25.4	24.7					20.2	18.2		5.9	
Level of Service		C	C					C	B		A	
Approach Delay (s)		24.9			0.0			19.5			5.9	
Approach LOS		C			A			B			A	

Intersection Summary			
HCM 2000 Control Delay	12.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	67.7	Sum of lost time (s)	29.0
Intersection Capacity Utilization	49.5%	ICU Level of Service	A
Analysis Period (min)	15		

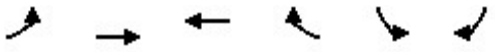
c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	2565	275	0	0	555
Future Volume (vph)	0	2565	275	0	0	555
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5	6.5			6.5
Lane Util. Factor		0.86	0.91			0.88
Frt		1.00	1.00			0.85
Flt Protected		1.00	1.00			1.00
Satd. Flow (prot)		6408	5085			2787
Flt Permitted		1.00	1.00			1.00
Satd. Flow (perm)		6408	5085			2787
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	2788	299	0	0	603
RTOR Reduction (vph)	0	0	0	0	0	59
Lane Group Flow (vph)	0	2788	299	0	0	544
Turn Type		NA	NA			custom
Protected Phases		1 2 4 6	2			1 4
Permitted Phases						
Actuated Green, G (s)		180.0	33.5			133.5
Effective Green, g (s)		180.0	33.5			133.5
Actuated g/C Ratio		1.00	0.19			0.74
Clearance Time (s)			6.5			
Vehicle Extension (s)			2.0			
Lane Grp Cap (vph)		6408	946			2067
v/s Ratio Prot		c0.44	0.06			0.20
v/s Ratio Perm						
v/c Ratio		0.44	0.32			0.26
Uniform Delay, d1		0.0	63.3			7.5
Progression Factor		1.00	0.06			2.13
Incremental Delay, d2		0.1	0.8			0.2
Delay (s)		0.1	4.7			16.1
Level of Service		A	A			B
Approach Delay (s)		0.1	4.7		16.1	
Approach LOS		A	A		B	

Intersection Summary			
HCM 2000 Control Delay	3.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	19.5
Intersection Capacity Utilization	42.6%	ICU Level of Service	A
Analysis Period (min)	15		

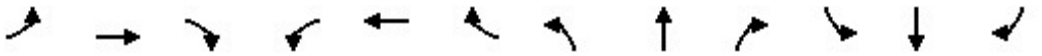
c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	905	1660	275	0	405	0
Future Volume (vph)	905	1660	275	0	405	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5	6.5		6.5	
Lane Util. Factor	0.97	0.95	0.91		0.97	
Frt	1.00	1.00	1.00		1.00	
Flt Protected	0.95	1.00	1.00		0.95	
Satd. Flow (prot)	3433	3539	5085		3433	
Flt Permitted	0.95	1.00	1.00		0.95	
Satd. Flow (perm)	3433	3539	5085		3433	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	984	1804	299	0	440	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	984	1804	299	0	440	0
Turn Type	Prot	NA	NA		Prot	
Protected Phases	1	6	2		4	
Permitted Phases						
Actuated Green, G (s)	93.5	133.5	33.5		33.5	
Effective Green, g (s)	93.5	133.5	33.5		33.5	
Actuated g/C Ratio	0.52	0.74	0.19		0.19	
Clearance Time (s)	6.5	6.5	6.5		6.5	
Vehicle Extension (s)	6.0	2.0	2.0		4.0	
Lane Grp Cap (vph)	1783	2624	946		638	
v/s Ratio Prot	0.29	c0.51	0.06		c0.13	
v/s Ratio Perm						
v/c Ratio	0.55	0.69	0.32		0.69	
Uniform Delay, d1	29.1	12.3	63.3		68.4	
Progression Factor	1.00	1.00	1.00		0.87	
Incremental Delay, d2	0.7	1.4	0.9		3.2	
Delay (s)	29.9	13.6	64.2		63.0	
Level of Service	C	B	E		E	
Approach Delay (s)		19.4	64.2		63.0	
Approach LOS		B	E		E	

Intersection Summary			
HCM 2000 Control Delay	28.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	19.5
Intersection Capacity Utilization	68.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	550	0	25	0	0	160	15	1165	80	90	935	340
Future Volume (vph)	550	0	25	0	0	160	15	1165	80	90	935	340
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0		8.0			5.0	5.0	7.0	4.0	5.0	7.0	4.0
Lane Util. Factor	0.97		1.00			0.88	1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00		0.85			0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95		1.00			1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433		1583			2787	1770	5085	1583	1770	5085	1583
Flt Permitted	0.95		1.00			1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433		1583			2787	1770	5085	1583	1770	5085	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	598	0	27	0	0	174	16	1266	87	98	1016	370
RTOR Reduction (vph)	0	0	22	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	598	0	5	0	0	174	16	1266	87	98	1016	370
Turn Type	Prot		Perm			pt+ov	Prot	NA	Free	Prot	NA	Free
Protected Phases	3					1 4	5	2		1	6	
Permitted Phases			3						Free			Free
Actuated Green, G (s)	36.2		36.2			36.4	4.9	87.4	180.0	15.8	98.3	180.0
Effective Green, g (s)	36.2		36.2			30.9	4.9	87.4	180.0	15.8	98.3	180.0
Actuated g/C Ratio	0.20		0.20			0.17	0.03	0.49	1.00	0.09	0.55	1.00
Clearance Time (s)	8.0		8.0				5.0	7.0		5.0	7.0	
Vehicle Extension (s)	3.0		3.0				3.0	2.0		3.0	2.0	
Lane Grp Cap (vph)	690		318			478	48	2469	1583	155	2776	1583
v/s Ratio Prot	c0.17					c0.06	0.01	c0.25		c0.06	0.20	
v/s Ratio Perm			0.00						0.05			0.23
v/c Ratio	0.87		0.02			0.36	0.33	0.51	0.05	0.63	0.37	0.23
Uniform Delay, d1	69.6		57.6			65.9	85.9	31.7	0.0	79.3	23.2	0.0
Progression Factor	1.00		1.00			1.00	1.39	0.49	1.00	1.05	0.89	1.00
Incremental Delay, d2	11.1		0.0			0.5	3.8	0.7	0.1	7.9	0.4	0.3
Delay (s)	80.7		57.7			66.3	123.3	16.2	0.1	91.4	21.1	0.3
Level of Service	F		E			E	F	B	A	F	C	A
Approach Delay (s)		79.7			66.3			16.4			20.5	
Approach LOS		E			E			B			C	

Intersection Summary			
HCM 2000 Control Delay	31.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	25.5
Intersection Capacity Utilization	57.1%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

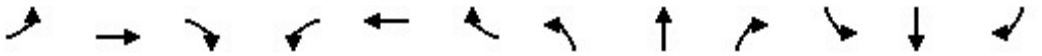


Movement	WBL	WBR	WBR2	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SER
Lane Configurations											
Traffic Volume (vph)	325	0	525	0	1595	250	535	2095	0	0	340
Future Volume (vph)	325	0	525	0	1595	250	535	2095	0	0	340
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5		7.0		7.0	7.0	7.0	7.0			7.0
Lane Util. Factor	0.97		0.88		0.91	1.00	0.97	0.91			1.00
Frt	1.00		0.85		1.00	0.85	1.00	1.00			0.86
Flt Protected	0.95		1.00		1.00	1.00	0.95	1.00			1.00
Satd. Flow (prot)	3433		2787		5085	1583	3433	5085			1611
Flt Permitted	0.95		1.00		1.00	1.00	0.95	1.00			1.00
Satd. Flow (perm)	3433		2787		5085	1583	3433	5085			1611
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	353	0	571	0	1734	272	582	2277	0	0	370
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	353	0	571	0	1734	272	582	2277	0	0	370
Turn Type	Prot		pt+ov		NA	Perm	Prot	NA			Prot
Protected Phases	4		1 4		2		1	6!			6!
Permitted Phases						2					
Actuated Green, G (s)	34.1		82.4		83.6	83.6	41.8	132.4			132.4
Effective Green, g (s)	34.1		75.9		83.6	83.6	41.8	132.4			132.4
Actuated g/C Ratio	0.19		0.42		0.46	0.46	0.23	0.74			0.74
Clearance Time (s)	6.5				7.0	7.0	7.0	7.0			7.0
Vehicle Extension (s)	4.0				2.0	2.0	5.0	2.0			2.0
Lane Grp Cap (vph)	650		1175		2361	735	797	3740			1184
v/s Ratio Prot	c0.10		0.20		c0.34		c0.17	0.45			0.23
v/s Ratio Perm						0.17					
v/c Ratio	0.54		0.49		0.73	0.37	0.73	0.61			0.31
Uniform Delay, d1	65.9		37.9		39.2	31.2	63.9	11.4			8.2
Progression Factor	1.00		1.00		0.88	0.77	1.00	1.00			1.00
Incremental Delay, d2	1.2		0.7		1.8	1.2	4.2	0.7			0.7
Delay (s)	67.1		38.5		36.4	25.3	68.1	12.1			8.9
Level of Service	E		D		D	C	E	B			A
Approach Delay (s)	49.4				34.9			23.5		8.9	
Approach LOS	D				C			C		A	

Intersection Summary			
HCM 2000 Control Delay	30.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	20.5
Intersection Capacity Utilization	Err%	ICU Level of Service	H
Analysis Period (min)	15		

! Phase conflict between lane groups.

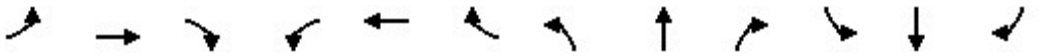
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	245	65	95	195	285	0	0	300	80
Future Volume (vph)	0	0	0	245	65	95	195	285	0	0	300	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				5.5	5.5	5.5	5.5	5.5			9.0	
Lane Util. Factor				0.95	0.95	1.00	1.00	1.00			0.95	
Frt				1.00	1.00	0.85	1.00	1.00			0.97	
Flt Protected				0.95	0.97	1.00	0.95	1.00			1.00	
Satd. Flow (prot)				1681	1720	1583	1770	1863			3427	
Flt Permitted				0.95	0.97	1.00	0.50	1.00			1.00	
Satd. Flow (perm)				1681	1720	1583	937	1863			3427	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	266	71	103	212	310	0	0	326	87
RTOR Reduction (vph)	0	0	0	0	0	80	0	0	0	0	25	0
Lane Group Flow (vph)	0	0	0	168	169	23	212	310	0	0	388	0
Turn Type				Split	NA	Perm	custom	NA			NA	
Protected Phases				3	3		1 4	4 5			2	
Permitted Phases						3	5					
Actuated Green, G (s)				18.6	18.6	18.6	55.1	55.1			16.7	
Effective Green, g (s)				18.6	18.6	18.6	55.1	46.1			16.7	
Actuated g/C Ratio				0.22	0.22	0.22	0.65	0.54			0.20	
Clearance Time (s)				5.5	5.5	5.5					9.0	
Vehicle Extension (s)				5.0	5.0	5.0					2.0	
Lane Grp Cap (vph)				369	377	347	898	1013			675	
v/s Ratio Prot				c0.10	0.10		c0.08	c0.17			c0.11	
v/s Ratio Perm						0.01	0.07					
v/c Ratio				0.46	0.45	0.07	0.24	0.31			0.57	
Uniform Delay, d1				28.7	28.6	26.2	6.8	10.6			30.8	
Progression Factor				1.00	1.00	1.00	0.02	0.02			1.00	
Incremental Delay, d2				1.9	1.8	0.2	0.2	0.3			0.7	
Delay (s)				30.5	30.4	26.3	0.3	0.5			31.5	
Level of Service				C	C	C	A	A			C	
Approach Delay (s)		0.0			29.5			0.4			31.5	
Approach LOS		A			C			A			C	

Intersection Summary			
HCM 2000 Control Delay	19.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	84.7	Sum of lost time (s)	29.0
Intersection Capacity Utilization	46.8%	ICU Level of Service	A
Analysis Period (min)	15		

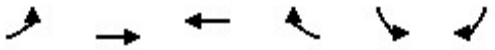
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	5	170	0	0	0	0	455	725	110	435	0
Future Volume (vph)	25	5	170	0	0	0	0	455	725	110	435	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5	5.5					9.0	9.0		9.0	
Lane Util. Factor		1.00	1.00					1.00	1.00		0.95	
Frt		1.00	0.85					1.00	0.85		1.00	
Flt Protected		0.96	1.00					1.00	1.00		0.99	
Satd. Flow (prot)		1787	1583					1863	1583		3504	
Flt Permitted		0.96	1.00					1.00	1.00		0.56	
Satd. Flow (perm)		1787	1583					1863	1583		1975	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	27	5	185	0	0	0	0	495	788	120	473	0
RTOR Reduction (vph)	0	0	151	0	0	0	0	0	456	0	0	0
Lane Group Flow (vph)	0	32	34	0	0	0	0	495	332	0	593	0
Turn Type	Split	NA	Perm					NA	Perm	custom	NA	
Protected Phases	4	4						5		3 6	2 3	
Permitted Phases			4						5	2		
Actuated Green, G (s)		15.4	15.4					30.7	30.7		35.3	
Effective Green, g (s)		15.4	15.4					30.7	30.7		35.3	
Actuated g/C Ratio		0.18	0.18					0.36	0.36		0.42	
Clearance Time (s)		5.5	5.5					9.0	9.0			
Vehicle Extension (s)		5.0	5.0					2.0	2.0			
Lane Grp Cap (vph)		324	287					675	573		1158	
v/s Ratio Prot		0.02						c0.27			c0.11	
v/s Ratio Perm			c0.02						0.21		0.10	
v/c Ratio		0.10	0.12					0.73	0.58		0.51	
Uniform Delay, d1		28.9	29.0					23.4	21.8		18.3	
Progression Factor		1.00	1.00					1.00	1.00		0.72	
Incremental Delay, d2		0.3	0.4					3.6	0.9		0.2	
Delay (s)		29.1	29.3					27.0	22.7		13.3	
Level of Service		C	C					C	C		B	
Approach Delay (s)		29.3			0.0			24.3			13.3	
Approach LOS		C			A			C			B	

Intersection Summary			
HCM 2000 Control Delay	21.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	84.7	Sum of lost time (s)	29.0
Intersection Capacity Utilization	83.9%	ICU Level of Service	E
Analysis Period (min)	15		

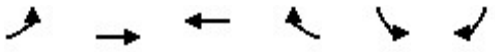
c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	1170	1290	0	0	1225
Future Volume (vph)	0	1170	1290	0	0	1225
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5	6.5			6.5
Lane Util. Factor		0.86	0.91			0.88
Frt		1.00	1.00			0.85
Flt Protected		1.00	1.00			1.00
Satd. Flow (prot)		6408	5085			2787
Flt Permitted		1.00	1.00			1.00
Satd. Flow (perm)		6408	5085			2787
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1272	1402	0	0	1332
RTOR Reduction (vph)	0	0	0	0	0	15
Lane Group Flow (vph)	0	1272	1402	0	0	1317
Turn Type		NA	NA			custom
Protected Phases		1 2 4 6	2			1 4
Permitted Phases						
Actuated Green, G (s)		180.0	81.5			85.5
Effective Green, g (s)		180.0	81.5			85.5
Actuated g/C Ratio		1.00	0.45			0.48
Clearance Time (s)			6.5			
Vehicle Extension (s)			2.0			
Lane Grp Cap (vph)		6408	2302			1323
v/s Ratio Prot		0.20	c0.28			c0.47
v/s Ratio Perm						
v/c Ratio		0.20	0.61			1.00
Uniform Delay, d1		0.0	37.2			47.1
Progression Factor		1.00	0.07			0.82
Incremental Delay, d2		0.0	1.0			20.8
Delay (s)		0.0	3.5			59.6
Level of Service		A	A			E
Approach Delay (s)		0.0	3.5		59.6	
Approach LOS		A	A		E	

Intersection Summary			
HCM 2000 Control Delay	21.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	19.5
Intersection Capacity Utilization	78.6%	ICU Level of Service	D
Analysis Period (min)	15		

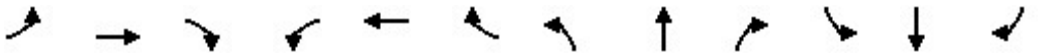
c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	690	480	1290	0	275	0
Future Volume (vph)	690	480	1290	0	275	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5	6.5		6.5	
Lane Util. Factor	0.97	0.95	0.91		0.97	
Frt	1.00	1.00	1.00		1.00	
Flt Protected	0.95	1.00	1.00		0.95	
Satd. Flow (prot)	3433	3539	5085		3433	
Flt Permitted	0.95	1.00	1.00		0.95	
Satd. Flow (perm)	3433	3539	5085		3433	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	750	522	1402	0	299	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	750	522	1402	0	299	0
Turn Type	Prot	NA	NA		Prot	
Protected Phases	1	6	2		4	
Permitted Phases						
Actuated Green, G (s)	58.5	146.5	81.5		20.5	
Effective Green, g (s)	58.5	146.5	81.5		20.5	
Actuated g/C Ratio	0.32	0.81	0.45		0.11	
Clearance Time (s)	6.5	6.5	6.5		6.5	
Vehicle Extension (s)	6.0	2.0	2.0		4.0	
Lane Grp Cap (vph)	1115	2880	2302		390	
v/s Ratio Prot	c0.22	0.15	c0.28		c0.09	
v/s Ratio Perm						
v/c Ratio	0.67	0.18	0.61		0.77	
Uniform Delay, d1	52.5	3.7	37.2		77.4	
Progression Factor	1.00	1.00	1.00		0.68	
Incremental Delay, d2	2.5	0.1	1.2		7.4	
Delay (s)	54.9	3.8	38.4		60.2	
Level of Service	D	A	D		E	
Approach Delay (s)		34.0	38.4		60.2	
Approach LOS		C	D		E	

Intersection Summary			
HCM 2000 Control Delay	38.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	19.5
Intersection Capacity Utilization	68.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	395	0	20	0	0	295	80	1155	155	145	1480	1135
Future Volume (vph)	395	0	20	0	0	295	80	1155	155	145	1480	1135
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0		8.0			5.0	5.0	7.0	4.0	5.0	7.0	4.0
Lane Util. Factor	0.97		1.00			0.88	1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00		0.85			0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95		1.00			1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433		1583			2787	1770	5085	1583	1770	5085	1583
Flt Permitted	0.95		1.00			1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433		1583			2787	1770	5085	1583	1770	5085	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	429	0	22	0	0	321	87	1255	168	158	1609	1234
RTOR Reduction (vph)	0	0	19	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	429	0	3	0	0	321	87	1255	168	158	1609	1234
Turn Type	Prot		Perm			pt+ov	Prot	NA	Free	Prot	NA	Free
Protected Phases	3					1 4	5	2		1	6	
Permitted Phases			3						Free			Free
Actuated Green, G (s)	27.3		27.3			48.9	14.2	83.8	180.0	20.7	90.3	180.0
Effective Green, g (s)	27.3		27.3			43.4	14.2	83.8	180.0	20.7	90.3	180.0
Actuated g/C Ratio	0.15		0.15			0.24	0.08	0.47	1.00	0.11	0.50	1.00
Clearance Time (s)	8.0		8.0				5.0	7.0		5.0	7.0	
Vehicle Extension (s)	3.0		3.0				3.0	2.0		3.0	2.0	
Lane Grp Cap (vph)	520		240			671	139	2367	1583	203	2550	1583
v/s Ratio Prot	0.12					0.12	0.05	0.25		0.09	0.32	
v/s Ratio Perm			0.00						0.11			c0.78
v/c Ratio	0.82		0.01			0.48	0.63	0.53	0.11	0.78	0.63	0.78
Uniform Delay, d1	74.0		64.9			58.6	80.3	34.1	0.0	77.4	32.7	0.0
Progression Factor	1.00		1.00			1.00	0.71	1.50	1.00	0.99	0.87	1.00
Incremental Delay, d2	10.3		0.0			0.5	8.2	0.8	0.1	14.7	1.0	3.3
Delay (s)	84.3		64.9			59.1	65.4	51.9	0.1	91.6	29.5	3.3
Level of Service	F		E			E	E	D	A	F	C	A
Approach Delay (s)		83.4			59.1			46.9			22.0	
Approach LOS		F			E			D			C	

Intersection Summary			
HCM 2000 Control Delay	36.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	25.5
Intersection Capacity Utilization	57.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	75	1765	175	15	220	465	90	10	55	50	110	225
Future Volume (vph)	75	1765	175	15	220	465	90	10	55	50	110	225
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	6.0	6.0		4.5	6.0	6.0	5.0	6.5	6.5	5.0	6.5
Lane Util. Factor	1.00	0.91	1.00		0.97	0.91	1.00	1.00	0.95	1.00	0.97	1.00
Frt	1.00	1.00	0.85		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	5085	1583		3433	5085	1583	1770	3539	1583	3433	1863
Flt Permitted	0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	5085	1583		3433	5085	1583	1770	3539	1583	3433	1863
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	82	1918	190	16	239	505	98	11	60	54	120	245
RTOR Reduction (vph)	0	0	86	0	0	0	41	0	0	47	0	0
Lane Group Flow (vph)	82	1918	105	0	255	505	57	11	60	7	120	245
Turn Type	Prot	NA	Perm	Prot	Prot	NA	Perm	Prot	NA	Perm	Prot	NA
Protected Phases	5	2		1	1	6		3	8		7	4
Permitted Phases			2				6			8		
Actuated Green, G (s)	12.3	82.5	82.5		16.4	86.6	86.6	3.0	18.6	18.6	10.5	26.1
Effective Green, g (s)	12.3	82.5	82.5		16.4	86.6	86.6	3.0	18.6	18.6	10.5	26.1
Actuated g/C Ratio	0.08	0.55	0.55		0.11	0.58	0.58	0.02	0.12	0.12	0.07	0.17
Clearance Time (s)	4.5	6.0	6.0		4.5	6.0	6.0	5.0	6.5	6.5	5.0	6.5
Vehicle Extension (s)	3.0	2.0	2.0		3.0	2.0	2.0	3.0	4.0	4.0	3.0	4.0
Lane Grp Cap (vph)	145	2796	870		375	2935	913	35	438	196	240	324
v/s Ratio Prot	0.05	c0.38			c0.07	c0.10		0.01	0.02		c0.03	c0.13
v/s Ratio Perm			0.07				0.04			0.00		
v/c Ratio	0.57	0.69	0.12		0.68	0.17	0.06	0.31	0.14	0.03	0.50	0.76
Uniform Delay, d1	66.3	24.4	16.3		64.3	14.9	13.9	72.5	58.5	57.8	67.2	58.9
Progression Factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	5.0	1.4	0.3		5.0	0.1	0.1	5.1	0.2	0.1	1.6	10.2
Delay (s)	71.3	25.8	16.5		69.3	15.0	14.0	77.6	58.7	57.9	68.9	69.2
Level of Service	E	C	B		E	B	B	E	E	E	E	E
Approach Delay (s)		26.7				31.0			60.0			66.6
Approach LOS		C				C			E			E

Intersection Summary			
HCM 2000 Control Delay	33.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	66.8%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	SBR
Lane Configurations	
Traffic Volume (vph)	55
Future Volume (vph)	55
Ideal Flow (vphpl)	1900
Total Lost time (s)	6.5
Lane Util. Factor	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1583
Flt Permitted	1.00
Satd. Flow (perm)	1583
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	60
RTOR Reduction (vph)	50
Lane Group Flow (vph)	10
Turn Type	Perm
Protected Phases	
Permitted Phases	4
Actuated Green, G (s)	26.1
Effective Green, g (s)	26.1
Actuated g/C Ratio	0.17
Clearance Time (s)	6.5
Vehicle Extension (s)	4.0
Lane Grp Cap (vph)	275
v/s Ratio Prot	
v/s Ratio Perm	0.01
v/c Ratio	0.04
Uniform Delay, d1	51.5
Progression Factor	1.00
Incremental Delay, d2	0.1
Delay (s)	51.6
Level of Service	D
Approach Delay (s)	
Approach LOS	

Intersection Summary

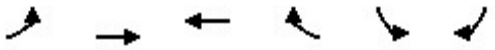
Intersection	
Int Delay, s/veh	5.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	200	125	155	0	0	755
Future Vol, veh/h	200	125	155	0	0	755
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	217	136	168	0	0	821

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	579	84	0	-	-	-
Stage 1	168	-	-	-	-	-
Stage 2	411	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	-	-
Pot Cap-1 Maneuver	446	958	-	0	0	-
Stage 1	844	-	-	0	0	-
Stage 2	638	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	446	958	-	-	-	-
Mov Cap-2 Maneuver	446	-	-	-	-	-
Stage 1	844	-	-	-	-	-
Stage 2	638	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	21.7	0	0
HCM LOS	C		

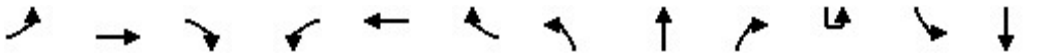
Minor Lane/Major Mvmt	NBT	WBLn1	SBT
Capacity (veh/h)	-	561	-
HCM Lane V/C Ratio	-	0.63	-
HCM Control Delay (s)	-	21.7	-
HCM Lane LOS	-	C	-
HCM 95th %tile Q(veh)	-	4.4	-



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	45	610	105	175	145	15
Future Volume (veh/h)	45	610	105	175	145	15
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	49	663	114	190	158	16
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	98	1850	551	492	423	281
Arrive On Green	0.06	0.52	0.31	0.31	0.12	0.12
Sat Flow, veh/h	1781	3647	1870	1585	3456	1585
Grp Volume(v), veh/h	49	663	114	190	158	16
Grp Sat Flow(s),veh/h/ln	1781	1777	1777	1585	1728	1585
Q Serve(g_s), s	0.9	3.5	1.5	3.0	1.4	0.3
Cycle Q Clear(g_c), s	0.9	3.5	1.5	3.0	1.4	0.3
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	98	1850	551	492	423	281
V/C Ratio(X)	0.50	0.36	0.21	0.39	0.37	0.06
Avail Cap(c_a), veh/h	608	6011	2123	1894	2574	1268
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	14.8	4.6	8.2	8.7	13.0	11.0
Incr Delay (d2), s/veh	3.9	0.0	0.1	0.2	0.5	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.5	0.4	0.7	0.5	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	18.7	4.6	8.3	8.9	13.5	11.1
LnGrp LOS	B	A	A	A	B	B
Approach Vol, veh/h		712	304		174	
Approach Delay, s/veh		5.6	8.7		13.3	
Approach LOS		A	A		B	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	6.8	15.5		9.9		22.3
Change Period (Y+Rc), s	5.0	5.5		6.0		5.5
Max Green Setting (Gmax), s	11.0	38.5		24.0		54.5
Max Q Clear Time (g_c+I1), s	2.9	5.0		3.4		5.5
Green Ext Time (p_c), s	0.0	1.2		0.5		3.2

Intersection Summary	
HCM 6th Ctrl Delay	7.5
HCM 6th LOS	A



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	90	10	10	20	5	45	5	1110	20	115	315	1790
Future Volume (vph)	90	10	10	20	5	45	5	1110	20	115	315	1790
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	11	10	12	11	11	11	11	12	12	10	11
Grade (%)		5%			0%			3%				1%
Total Lost time (s)	6.5	6.5	6.5		6.5	6.5	6.0	6.0			4.5	6.0
Lane Util. Factor	0.95	0.95	1.00		1.00	1.00	1.00	0.91			1.00	0.91
Frt	1.00	1.00	0.85		1.00	0.85	1.00	1.00			1.00	0.99
Flt Protected	0.95	0.96	1.00		0.96	1.00	0.95	1.00			0.95	1.00
Satd. Flow (prot)	1584	1604	1441		1730	1531	1685	4829			1643	4826
Flt Permitted	0.95	0.96	1.00		0.96	1.00	0.08	1.00			0.18	1.00
Satd. Flow (perm)	1584	1604	1441		1730	1531	144	4829			315	4826
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	98	11	11	22	5	49	5	1207	22	125	342	1946
RTOR Reduction (vph)	0	0	10	0	0	47	0	1	0	0	0	7
Lane Group Flow (vph)	54	55	1	0	27	2	5	1228	0	0	467	2129
Turn Type	Split	NA	Perm	Split	NA	Perm	Perm	NA		pm+pt	pm+pt	NA
Protected Phases	4	4		8	8			6		5	5	2
Permitted Phases			4			8	6			2	2	
Actuated Green, G (s)	8.1	8.1	8.1		6.3	6.3	97.7	97.7			116.6	116.6
Effective Green, g (s)	8.1	8.1	8.1		6.3	6.3	97.7	97.7			116.6	116.6
Actuated g/C Ratio	0.05	0.05	0.05		0.04	0.04	0.65	0.65			0.78	0.78
Clearance Time (s)	6.5	6.5	6.5		6.5	6.5	6.0	6.0			4.5	6.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	85	86	77		72	64	93	3145			372	3751
v/s Ratio Prot	0.03	c0.03			c0.02			0.25			c0.12	0.44
v/s Ratio Perm			0.00			0.00	0.03				c0.85	
v/c Ratio	0.64	0.64	0.01		0.38	0.03	0.05	0.39			1.26	0.57
Uniform Delay, d1	69.5	69.5	67.1		69.9	68.9	9.4	12.2			19.4	6.7
Progression Factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00			2.28	0.87
Incremental Delay, d2	14.5	14.6	0.0		3.3	0.2	1.1	0.4			130.3	0.5
Delay (s)	84.0	84.1	67.2		73.2	69.1	10.5	12.6			174.6	6.3
Level of Service	F	F	E		E	E	B	B			F	A
Approach Delay (s)		82.5			70.6			12.6				36.5
Approach LOS		F			E			B				D

Intersection Summary			
HCM 2000 Control Delay	31.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	1.20		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	23.5
Intersection Capacity Utilization	73.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	SBR
Lane Configurations	
Traffic Volume (vph)	175
Future Volume (vph)	175
Ideal Flow (vphpl)	1900
Lane Width	12
Grade (%)	
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	190
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	410	815	0	940	1580	515
Future Volume (veh/h)	410	815	0	940	1580	515
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1817	1817	0	1847	1817	1817
Adj Flow Rate, veh/h	446	886	0	1022	1717	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	0	2	2	2
Cap, veh/h	1215	981	0	2864	2818	
Arrive On Green	0.36	0.36	0.00	0.57	1.00	0.00
Sat Flow, veh/h	3358	2711	0	5374	5125	1540
Grp Volume(v), veh/h	446	886	0	1022	1717	0
Grp Sat Flow(s),veh/h/ln	1679	1355	0	1681	1654	1540
Q Serve(g_s), s	14.7	46.5	0.0	16.5	0.0	0.0
Cycle Q Clear(g_c), s	14.7	46.5	0.0	16.5	0.0	0.0
Prop In Lane	1.00	1.00	0.00			1.00
Lane Grp Cap(c), veh/h	1215	981	0	2864	2818	
V/C Ratio(X)	0.37	0.90	0.00	0.36	0.61	
Avail Cap(c_a), veh/h	1500	1211	0	2864	2818	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.75	0.00
Uniform Delay (d), s/veh	35.2	45.4	0.0	17.6	0.0	0.0
Incr Delay (d2), s/veh	0.2	8.3	0.0	0.3	0.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.2	16.9	0.0	6.4	0.2	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	35.4	53.7	0.0	17.9	0.7	0.0
LnGrp LOS	D	D	A	B	A	
Approach Vol, veh/h	1332			1022	1717	A
Approach Delay, s/veh	47.6			17.9	0.7	
Approach LOS	D			B	A	

Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		90.7		59.3		90.7
Change Period (Y+Rc), s		5.5		5.0		5.5
Max Green Setting (Gmax), s		72.5		67.0		72.5
Max Q Clear Time (g_c+I1), s		2.0		48.5		18.5
Green Ext Time (p_c), s		20.7		5.8		8.6

Intersection Summary	
HCM 6th Ctrl Delay	20.4
HCM 6th LOS	C

Notes

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	845	280	1010	340	0	1250
Future Volume (veh/h)	845	280	1010	340	0	1250
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1864	1939	1847	1847	0	1847
Adj Flow Rate, veh/h	918	0	1098	0	0	1359
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	0	2
Cap, veh/h	907		3344		0	4214
Arrive On Green	0.26	0.00	1.00	0.00	0.00	0.66
Sat Flow, veh/h	3445	1643	5208	1565	0	6870
Grp Volume(v), veh/h	918	0	1098	0	0	1359
Grp Sat Flow(s),veh/h/ln	1722	1643	1681	1565	0	1588
Q Serve(g_s), s	39.5	0.0	0.0	0.0	0.0	13.7
Cycle Q Clear(g_c), s	39.5	0.0	0.0	0.0	0.0	13.7
Prop In Lane	1.00	1.00		1.00	0.00	
Lane Grp Cap(c), veh/h	907		3344		0	4214
V/C Ratio(X)	1.01		0.33		0.00	0.32
Avail Cap(c_a), veh/h	907		3344		0	4214
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.94	0.00	0.00	1.00
Uniform Delay (d), s/veh	55.2	0.0	0.0	0.0	0.0	10.8
Incr Delay (d2), s/veh	32.9	0.0	0.2	0.0	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	21.3	0.0	0.1	0.0	0.0	4.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	88.1	0.0	0.2	0.0	0.0	11.0
LnGrp LOS	F		A		A	B
Approach Vol, veh/h	918	A	1098	A		1359
Approach Delay, s/veh	88.1		0.2			11.0
Approach LOS	F		A			B

Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		105.0		45.0		105.0
Change Period (Y+Rc), s		5.5		5.5		5.5
Max Green Setting (Gmax), s		99.5		39.5		99.5
Max Q Clear Time (g_c+I1), s		15.7		41.5		2.0
Green Ext Time (p_c), s		13.6		0.0		9.7

Intersection Summary	
HCM 6th Ctrl Delay	28.5
HCM 6th LOS	C

Notes

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	20	5	40	115	5	30	5	120	915	250	125	1430
Future Volume (vph)	20	5	40	115	5	30	5	120	915	250	125	1430
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	9	9	10	11	9	12	11	11	10	10	12
Grade (%)		3%			1%				1%			4%
Total Lost time (s)		6.5	5.0	6.5	6.5	6.5		5.0	6.0	6.0	5.0	6.0
Lane Util. Factor		0.95	0.95	0.95	0.95	1.00		1.00	0.91	1.00	1.00	0.91
Frt		0.96	0.85	1.00	1.00	0.85		1.00	1.00	0.85	1.00	1.00
Flt Protected		0.97	1.00	0.95	0.96	1.00		0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)		1465	1333	1561	1627	1418		1702	4891	1470	1619	4978
Flt Permitted		0.97	1.00	0.95	0.96	1.00		0.12	1.00	1.00	0.26	1.00
Satd. Flow (perm)		1465	1333	1561	1627	1418		220	4891	1470	438	4978
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	22	5	43	125	5	33	5	130	995	272	136	1554
RTOR Reduction (vph)	0	8	30	0	0	31	0	0	0	93	0	0
Lane Group Flow (vph)	0	28	4	65	65	2	0	135	995	179	136	1565
Turn Type	Split	NA	pm+ov	Split	NA	Perm	custom	pm+pt	NA	Perm	pm+pt	NA
Protected Phases	8	8	1!	4	4			1	6		5	2
Permitted Phases			8			4	1!	6		6	2	
Actuated Green, G (s)		7.5	16.9	11.0	11.0	11.0		107.9	98.5	98.5	107.1	98.1
Effective Green, g (s)		7.5	16.9	11.0	11.0	11.0		107.9	98.5	98.5	107.1	98.1
Actuated g/C Ratio		0.05	0.11	0.07	0.07	0.07		0.72	0.66	0.66	0.71	0.65
Clearance Time (s)		6.5	5.0	6.5	6.5	6.5		5.0	6.0	6.0	5.0	6.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		73	150	114	119	103		251	3211	965	383	3255
v/s Ratio Prot		c0.02	0.00	c0.04	0.04			c0.03	0.20		0.02	0.31
v/s Ratio Perm			0.00			0.00		c0.35		0.12	0.23	
v/c Ratio		0.39	0.03	0.57	0.55	0.02		0.54	0.31	0.19	0.36	0.48
Uniform Delay, d1		69.0	59.2	67.2	67.1	64.5		8.7	11.1	10.1	6.9	13.1
Progression Factor		1.00	1.00	1.00	1.00	1.00		1.20	1.24	5.81	1.00	1.00
Incremental Delay, d2		3.4	0.1	6.7	5.0	0.1		2.1	0.2	0.4	0.6	0.5
Delay (s)		72.4	59.3	73.9	72.1	64.6		12.6	14.0	58.9	7.5	13.6
Level of Service		E	E	E	E	E		B	B	E	A	B
Approach Delay (s)		66.1			71.3				22.6			13.1
Approach LOS		E			E				C			B

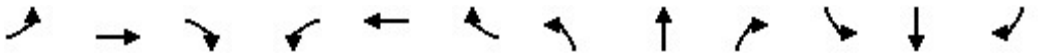
Intersection Summary			
HCM 2000 Control Delay	21.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	61.9%	ICU Level of Service	B
Analysis Period (min)	15		

! Phase conflict between lane groups.

c Critical Lane Group



Movement	SBR
Lane Configurations	
Traffic Volume (vph)	10
Future Volume (vph)	10
Ideal Flow (vphpl)	1900
Lane Width	12
Grade (%)	
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	11
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	110	415	165	150	0	20	0	45	55	65	305	0
Future Volume (veh/h)	110	415	165	150	0	20	0	45	55	65	305	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	0	1870	0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	120	451	179	163	0	22	0	49	60	71	332	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	0	2	0	2	2	2	2	0
Cap, veh/h	1117	1562	615	0	0	0	0	340	288	165	520	0
Arrive On Green	0.63	0.63	0.63	0.00	0.00	0.00	0.00	0.18	0.18	0.18	0.18	0.00
Sat Flow, veh/h	1781	2491	980		0		0	1870	1585	429	2947	0
Grp Volume(v), veh/h	120	321	309		0.0		0	49	60	217	186	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1694				0	1870	1585	1674	1617	0
Q Serve(g_s), s	1.5	4.5	4.6				0.0	1.2	1.8	4.7	5.8	0.0
Cycle Q Clear(g_c), s	1.5	4.5	4.6				0.0	1.2	1.8	6.6	5.8	0.0
Prop In Lane	1.00		0.58				0.00		1.00	0.33		0.00
Lane Grp Cap(c), veh/h	1117	1115	1063				0	340	288	391	294	0
V/C Ratio(X)	0.11	0.29	0.29				0.00	0.14	0.21	0.56	0.63	0.00
Avail Cap(c_a), veh/h	1117	1115	1063				0	340	288	391	294	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	4.1	4.7	4.7				0.0	18.9	19.1	21.0	20.8	0.0
Incr Delay (d2), s/veh	0.2	0.7	0.7				0.0	0.2	0.4	1.7	4.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	1.4	1.3				0.0	0.5	0.6	2.6	2.4	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	4.3	5.3	5.4				0.0	19.1	19.5	22.7	25.1	0.0
LnGrp LOS	A	A	A				A	B	B	C	C	A
Approach Vol, veh/h		750						109			403	
Approach Delay, s/veh		5.2						19.3			23.8	
Approach LOS		A						B			C	

Timer - Assigned Phs				4		6		8				
Phs Duration (G+Y+Rc), s				15.0		40.0		15.0				
Change Period (Y+Rc), s				5.0		5.5		5.0				
Max Green Setting (Gmax), s				10.0		34.5		10.0				
Max Q Clear Time (g_c+I1), s				8.6		6.6		3.8				
Green Ext Time (p_c), s				0.4		4.9		0.2				

Intersection Summary												
HCM 6th Ctrl Delay			12.4									
HCM 6th LOS			B									

Notes

User approved pedestrian interval to be less than phase max green.



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	75	680	25	15	65	1810	185	140	310	285	95	95
Future Volume (vph)	75	680	25	15	65	1810	185	140	310	285	95	95
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	6.0	6.0		4.5	6.0	6.0	5.0	6.5	6.5	5.0	6.5
Lane Util. Factor	1.00	0.91	1.00		0.97	0.91	1.00	1.00	0.95	1.00	0.97	1.00
Frt	1.00	1.00	0.85		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	5085	1583		3433	5085	1583	1770	3539	1583	3433	1863
Flt Permitted	0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	5085	1583		3433	5085	1583	1770	3539	1583	3433	1863
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	82	739	27	16	71	1967	201	152	337	310	103	103
RTOR Reduction (vph)	0	0	12	0	0	0	87	0	0	255	0	0
Lane Group Flow (vph)	82	739	15	0	87	1967	114	152	337	55	103	103
Turn Type	Prot	NA	Perm	Prot	Prot	NA	Perm	Prot	NA	Perm	Prot	NA
Protected Phases	5	2		1	1	6		3	8		7	4
Permitted Phases			2				6			8		
Actuated Green, G (s)	12.3	85.9	85.9		9.2	82.8	82.8	15.3	23.0	23.0	9.9	17.6
Effective Green, g (s)	12.3	85.9	85.9		9.2	82.8	82.8	15.3	23.0	23.0	9.9	17.6
Actuated g/C Ratio	0.08	0.57	0.57		0.06	0.55	0.55	0.10	0.15	0.15	0.07	0.12
Clearance Time (s)	4.5	6.0	6.0		4.5	6.0	6.0	5.0	6.5	6.5	5.0	6.5
Vehicle Extension (s)	3.0	2.0	2.0		3.0	2.0	2.0	3.0	4.0	4.0	3.0	4.0
Lane Grp Cap (vph)	145	2912	906		210	2806	873	180	542	242	226	218
v/s Ratio Prot	c0.05	c0.15			0.03	c0.39		c0.09	c0.10		0.03	0.06
v/s Ratio Perm			0.01				0.07			0.03		
v/c Ratio	0.57	0.25	0.02		0.41	0.70	0.13	0.84	0.62	0.23	0.46	0.47
Uniform Delay, d1	66.3	16.0	13.8		67.8	24.6	16.2	66.2	59.4	55.7	67.5	61.9
Progression Factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	5.0	0.2	0.0		1.3	1.5	0.3	28.7	2.5	0.7	1.5	2.2
Delay (s)	71.3	16.2	13.9		69.1	26.0	16.5	94.8	61.9	56.4	68.9	64.1
Level of Service	E	B	B		E	C	B	F	E	E	E	E
Approach Delay (s)		21.5				26.9			66.0			63.2
Approach LOS		C				C			E			E

Intersection Summary			
HCM 2000 Control Delay	36.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	70.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	SBR
Lane Configurations	
Traffic Volume (vph)	175
Future Volume (vph)	175
Ideal Flow (vphpl)	1900
Total Lost time (s)	6.5
Lane Util. Factor	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1583
Flt Permitted	1.00
Satd. Flow (perm)	1583
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	190
RTOR Reduction (vph)	168
Lane Group Flow (vph)	22
Turn Type	Perm
Protected Phases	
Permitted Phases	4
Actuated Green, G (s)	17.6
Effective Green, g (s)	17.6
Actuated g/C Ratio	0.12
Clearance Time (s)	6.5
Vehicle Extension (s)	4.0
Lane Grp Cap (vph)	185
v/s Ratio Prot	
v/s Ratio Perm	0.01
v/c Ratio	0.12
Uniform Delay, d1	59.3
Progression Factor	1.00
Incremental Delay, d2	0.4
Delay (s)	59.7
Level of Service	E
Approach Delay (s)	
Approach LOS	

Intersection Summary

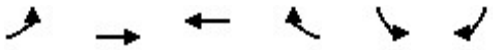
Intersection	
Int Delay, s/veh	2.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	20	100	1345	0	0	375
Future Vol, veh/h	20	100	1345	0	0	375
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	22	109	1462	0	0	408

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1666	731	0	-	-	-
Stage 1	1462	-	-	-	-	-
Stage 2	204	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	-	-
Pot Cap-1 Maneuver	87	364	-	0	0	-
Stage 1	179	-	-	0	0	-
Stage 2	810	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	87	364	-	-	-	-
Mov Cap-2 Maneuver	87	-	-	-	-	-
Stage 1	179	-	-	-	-	-
Stage 2	810	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	37.1	0	0
HCM LOS	E		

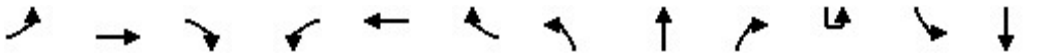
Minor Lane/Major Mvmt	NBT	WBLn1	SBT
Capacity (veh/h)	-	238	-
HCM Lane V/C Ratio	-	0.548	-
HCM Control Delay (s)	-	37.1	-
HCM Lane LOS	-	E	-
HCM 95th %tile Q(veh)	-	3	-



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	15	165	1005	440	210	75
Future Volume (veh/h)	15	165	1005	440	210	75
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	16	179	1092	478	228	82
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	35	2422	1391	592	393	211
Arrive On Green	0.02	0.68	0.57	0.57	0.11	0.11
Sat Flow, veh/h	1781	3647	2521	1034	3456	1585
Grp Volume(v), veh/h	16	179	791	779	228	82
Grp Sat Flow(s),veh/h/ln	1781	1777	1777	1684	1728	1585
Q Serve(g_s), s	0.5	0.9	19.2	20.6	3.5	2.7
Cycle Q Clear(g_c), s	0.5	0.9	19.2	20.6	3.5	2.7
Prop In Lane	1.00			0.61	1.00	1.00
Lane Grp Cap(c), veh/h	35	2422	1018	965	393	211
V/C Ratio(X)	0.46	0.07	0.78	0.81	0.58	0.39
Avail Cap(c_a), veh/h	159	4334	1850	1754	1230	596
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.2	3.0	9.2	9.5	23.6	22.2
Incr Delay (d2), s/veh	9.0	0.0	0.5	0.6	1.4	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.2	5.2	5.3	1.4	2.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	36.2	3.0	9.7	10.2	25.0	23.4
LnGrp LOS	D	A	A	B	C	C
Approach Vol, veh/h		195	1570		310	
Approach Delay, s/veh		5.7	9.9		24.6	
Approach LOS		A	A		C	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	6.1	37.7		12.4		43.8
Change Period (Y+Rc), s	5.0	5.5		6.0		5.5
Max Green Setting (Gmax), s	5.0	58.5		20.0		68.5
Max Q Clear Time (g_c+I1), s	2.5	22.6		5.5		2.9
Green Ext Time (p_c), s	0.0	9.5		0.9		0.8

Intersection Summary	
HCM 6th Ctrl Delay	11.7
HCM 6th LOS	B



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	155	5	20	55	5	300	15	1630	30	20	90	775
Future Volume (vph)	155	5	20	55	5	300	15	1630	30	20	90	775
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	11	10	12	11	11	11	11	12	12	10	11
Grade (%)		5%			0%			3%				1%
Total Lost time (s)	6.0	6.0	6.0		5.5	5.5	6.0	6.0			4.5	6.0
Lane Util. Factor	0.95	0.95	1.00		1.00	1.00	1.00	0.91			1.00	0.91
Frt	1.00	1.00	0.85		1.00	0.85	1.00	1.00			1.00	0.98
Flt Protected	0.95	0.95	1.00		0.96	1.00	0.95	1.00			0.95	1.00
Satd. Flow (prot)	1584	1593	1441		1721	1531	1685	4829			1643	4804
Flt Permitted	0.95	0.95	1.00		0.96	1.00	0.29	1.00			0.07	1.00
Satd. Flow (perm)	1584	1593	1441		1721	1531	509	4829			121	4804
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	168	5	22	60	5	326	16	1772	33	22	98	842
RTOR Reduction (vph)	0	0	20	0	0	91	0	1	0	0	0	12
Lane Group Flow (vph)	86	87	2	0	65	235	16	1804	0	0	120	944
Turn Type	Split	NA	Perm	Split	NA	Perm	Perm	NA		pm+pt	pm+pt	NA
Protected Phases	4	4		8	8			6		5	5	2
Permitted Phases			4			8	6			2	2	
Actuated Green, G (s)	12.2	12.2	12.2		21.3	21.3	85.3	85.3			99.0	99.0
Effective Green, g (s)	12.2	12.2	12.2		21.3	21.3	85.3	85.3			99.0	99.0
Actuated g/C Ratio	0.08	0.08	0.08		0.14	0.14	0.57	0.57			0.66	0.66
Clearance Time (s)	6.0	6.0	6.0		5.5	5.5	6.0	6.0			4.5	6.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	128	129	117		244	217	289	2746			173	3170
v/s Ratio Prot	0.05	c0.05			0.04			0.37			c0.04	0.20
v/s Ratio Perm			0.00			c0.15	0.03				c0.41	
v/c Ratio	0.67	0.67	0.02		0.27	1.08	0.06	0.66			0.69	0.30
Uniform Delay, d1	67.0	67.0	63.4		57.4	64.3	14.4	22.3			20.0	10.8
Progression Factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00			1.72	1.98
Incremental Delay, d2	13.0	13.1	0.1		0.6	85.0	0.4	1.2			11.1	0.2
Delay (s)	80.0	80.0	63.4		58.0	149.4	14.8	23.5			45.6	21.6
Level of Service	E	F	E		E	F	B	C			D	C
Approach Delay (s)		78.1			134.2			23.4				24.3
Approach LOS		E			F			C				C

Intersection Summary			
HCM 2000 Control Delay	39.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	79.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	SBR
Lane Configurations	
Traffic Volume (vph)	105
Future Volume (vph)	105
Ideal Flow (vphpl)	1900
Lane Width	12
Grade (%)	
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	114
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	245	310	0	1255	680	830
Future Volume (veh/h)	245	310	0	1255	680	830
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1817	1817	0	1847	1817	1817
Adj Flow Rate, veh/h	266	337	0	1364	739	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	0	2	2	2
Cap, veh/h	500	404	0	3938	3875	
Arrive On Green	0.15	0.15	0.00	0.78	1.00	0.00
Sat Flow, veh/h	3358	2711	0	5374	5125	1540
Grp Volume(v), veh/h	266	337	0	1364	739	0
Grp Sat Flow(s),veh/h/ln	1679	1355	0	1681	1654	1540
Q Serve(g_s), s	11.0	18.1	0.0	12.2	0.0	0.0
Cycle Q Clear(g_c), s	11.0	18.1	0.0	12.2	0.0	0.0
Prop In Lane	1.00	1.00	0.00			1.00
Lane Grp Cap(c), veh/h	500	404	0	3938	3875	
V/C Ratio(X)	0.53	0.83	0.00	0.35	0.19	
Avail Cap(c_a), veh/h	828	669	0	3938	3875	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.67	1.67
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.93	0.00
Uniform Delay (d), s/veh	59.0	62.0	0.0	4.9	0.0	0.0
Incr Delay (d2), s/veh	0.9	4.7	0.0	0.2	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.8	6.6	0.0	3.7	0.0	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	59.9	66.7	0.0	5.2	0.1	0.0
LnGrp LOS	E	E	A	A	A	
Approach Vol, veh/h	603			1364	739	A
Approach Delay, s/veh	63.7			5.2	0.1	
Approach LOS	E			A	A	

Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		122.7		27.3		122.7
Change Period (Y+Rc), s		5.5		5.0		5.5
Max Green Setting (Gmax), s		102.5		37.0		102.5
Max Q Clear Time (g_c+I1), s		2.0		20.1		14.2
Green Ext Time (p_c), s		5.7		2.2		13.8

Intersection Summary	
HCM 6th Ctrl Delay	16.8
HCM 6th LOS	B

Notes

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	375	650	820	680	0	1135
Future Volume (veh/h)	375	650	820	680	0	1135
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1864	1939	1847	1847	0	1847
Adj Flow Rate, veh/h	408	0	891	0	0	1234
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	0	2
Cap, veh/h	476		3976		0	5010
Arrive On Green	0.14	0.00	1.00	0.00	0.00	0.79
Sat Flow, veh/h	3445	1643	5208	1565	0	6870
Grp Volume(v), veh/h	408	0	891	0	0	1234
Grp Sat Flow(s),veh/h/ln	1722	1643	1681	1565	0	1588
Q Serve(g_s), s	17.4	0.0	0.0	0.0	0.0	7.6
Cycle Q Clear(g_c), s	17.4	0.0	0.0	0.0	0.0	7.6
Prop In Lane	1.00	1.00		1.00	0.00	
Lane Grp Cap(c), veh/h	476		3976		0	5010
V/C Ratio(X)	0.86		0.22		0.00	0.25
Avail Cap(c_a), veh/h	838		3976		0	5010
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.93	0.00	0.00	1.00
Uniform Delay (d), s/veh	63.2	0.0	0.0	0.0	0.0	4.2
Incr Delay (d2), s/veh	4.6	0.0	0.1	0.0	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.9	0.0	0.0	0.0	0.0	2.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	67.8	0.0	0.1	0.0	0.0	4.3
LnGrp LOS	E		A		A	A
Approach Vol, veh/h	408	A	891	A		1234
Approach Delay, s/veh	67.8		0.1			4.3
Approach LOS	E		A			A

Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		123.8		26.2		123.8
Change Period (Y+Rc), s		5.5		5.5		5.5
Max Green Setting (Gmax), s		102.5		36.5		102.5
Max Q Clear Time (g_c+I1), s		9.6		19.4		2.0
Green Ext Time (p_c), s		11.6		1.4		7.2

Intersection Summary	
HCM 6th Ctrl Delay	13.0
HCM 6th LOS	B

Notes

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	60	15	130	325	10	70	5	155	1100	210	75	1555
Future Volume (vph)	60	15	130	325	10	70	5	155	1100	210	75	1555
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	9	9	10	11	9	12	11	11	10	10	12
Grade (%)		3%			1%				1%			4%
Total Lost time (s)		6.5	5.0	6.5	6.5	6.5		5.0	6.0	6.0	5.0	6.0
Lane Util. Factor		0.95	0.95	0.95	0.95	1.00		1.00	0.91	1.00	1.00	0.91
Frt		0.95	0.85	1.00	1.00	0.85		1.00	1.00	0.85	1.00	1.00
Flt Protected		0.97	1.00	0.95	0.96	1.00		0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)		1457	1333	1561	1626	1418		1702	4891	1470	1619	4979
Flt Permitted		0.97	1.00	0.95	0.96	1.00		0.07	1.00	1.00	0.19	1.00
Satd. Flow (perm)		1457	1333	1561	1626	1418		127	4891	1470	331	4979
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	65	16	141	353	11	76	5	168	1196	228	82	1690
RTOR Reduction (vph)	0	10	57	0	0	65	0	0	0	102	0	0
Lane Group Flow (vph)	0	106	49	180	184	11	0	173	1196	126	82	1701
Turn Type	Split	NA	pm+ov	Split	NA	Perm	custom	pm+pt	NA	Perm	pm+pt	NA
Protected Phases	8	8	1!	4	4			1	6		5	2
Permitted Phases			8			4	1!	6		6	2	
Actuated Green, G (s)		13.2	27.1	21.8	21.8	21.8		96.0	82.7	82.7	85.4	77.1
Effective Green, g (s)		13.2	27.1	21.8	21.8	21.8		96.0	82.7	82.7	85.4	77.1
Actuated g/C Ratio		0.09	0.18	0.15	0.15	0.15		0.64	0.55	0.55	0.57	0.51
Clearance Time (s)		6.5	5.0	6.5	6.5	6.5		5.0	6.0	6.0	5.0	6.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		128	240	226	236	206		227	2696	810	259	2559
v/s Ratio Prot		c0.07	0.02	c0.12	0.11			c0.07	0.24		0.02	0.34
v/s Ratio Perm			0.02			0.01		c0.42		0.09	0.16	
v/c Ratio		0.83	0.21	0.80	0.78	0.05		0.76	0.44	0.16	0.32	0.66
Uniform Delay, d1		67.3	52.3	62.0	61.8	55.2		33.3	20.0	16.5	15.1	26.9
Progression Factor		1.00	1.00	1.00	1.00	1.00		1.39	0.60	0.15	1.00	1.00
Incremental Delay, d2		33.6	0.4	17.4	15.0	0.1		13.6	0.5	0.4	0.7	1.4
Delay (s)		100.9	52.7	79.4	76.7	55.3		59.9	12.4	2.9	15.8	28.3
Level of Service		F	D	E	E	E		E	B	A	B	C
Approach Delay (s)		77.9			74.1				16.2			27.7
Approach LOS		E			E				B			C

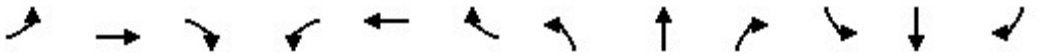
Intersection Summary			
HCM 2000 Control Delay	31.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	72.5%	ICU Level of Service	C
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group



Movement	SBR
Lane Configurations	
Traffic Volume (vph)	10
Future Volume (vph)	10
Ideal Flow (vphpl)	1900
Lane Width	12
Grade (%)	
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	11
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

Intersection Summary



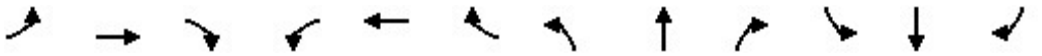
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	305	10	65	0	70	0	220	245	35	95	0
Future Volume (veh/h)	30	305	10	65	0	70	0	220	245	35	95	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	0	1870	0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	33	332	11	71	0	76	0	239	266	38	103	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	0	2	0	2	2	2	2	0
Cap, veh/h	970	1911	63	0	0	0	0	416	352	194	482	0
Arrive On Green	0.54	0.54	0.54	0.00	0.00	0.00	0.00	0.22	0.22	0.22	0.22	0.00
Sat Flow, veh/h	1781	3510	116		0		0	1870	1585	314	2255	0
Grp Volume(v), veh/h	33	168	175		0.0		0	239	266	69	72	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1849				0	1870	1585	867	1617	0
Q Serve(g_s), s	0.4	2.1	2.1				0.0	5.1	7.1	0.2	1.6	0.0
Cycle Q Clear(g_c), s	0.4	2.1	2.1				0.0	5.1	7.1	5.3	1.6	0.0
Prop In Lane	1.00		0.06				0.00		1.00	0.55		0.00
Lane Grp Cap(c), veh/h	970	967	1007				0	416	352	317	359	0
V/C Ratio(X)	0.03	0.17	0.17				0.00	0.58	0.76	0.22	0.20	0.00
Avail Cap(c_a), veh/h	970	967	1007				0	416	352	317	359	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	4.8	5.2	5.2				0.0	15.6	16.4	14.3	14.2	0.0
Incr Delay (d2), s/veh	0.1	0.4	0.4				0.0	1.9	9.0	0.3	0.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.7	0.7				0.0	2.1	3.1	0.5	0.6	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	4.8	5.5	5.5				0.0	17.5	25.3	14.6	14.5	0.0
LnGrp LOS	A	A	A				A	B	C	B	B	A
Approach Vol, veh/h		376						505			141	
Approach Delay, s/veh		5.5						21.7			14.6	
Approach LOS		A						C			B	

Timer - Assigned Phs				4		6		8				
Phs Duration (G+Y+Rc), s				15.0		30.0		15.0				
Change Period (Y+Rc), s				5.0		5.5		5.0				
Max Green Setting (Gmax), s				10.0		24.5		10.0				
Max Q Clear Time (g_c+I1), s				7.3		4.1		9.1				
Green Ext Time (p_c), s				0.2		2.1		0.3				

Intersection Summary												
HCM 6th Ctrl Delay			14.7									
HCM 6th LOS			B									

Notes

User approved pedestrian interval to be less than phase max green.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	835	110	355	565	230	10	245	285	240	425	5
Future Volume (veh/h)	15	835	110	355	565	230	10	245	285	240	425	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	16	908	120	386	614	250	11	266	310	261	462	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	324	1396	623	433	2164	965	164	391	174	332	695	8
Arrive On Green	0.39	0.39	0.39	0.15	0.61	0.61	0.01	0.11	0.11	0.10	0.19	0.19
Sat Flow, veh/h	640	3554	1585	1781	3554	1585	1781	3554	1585	3456	3601	39
Grp Volume(v), veh/h	16	908	120	386	614	250	11	266	310	261	228	239
Grp Sat Flow(s),veh/h/ln	640	1777	1585	1781	1777	1585	1781	1777	1585	1728	1777	1863
Q Serve(g_s), s	1.6	20.8	5.0	12.2	8.2	7.3	0.5	7.2	11.0	7.4	11.9	11.9
Cycle Q Clear(g_c), s	1.6	20.8	5.0	12.2	8.2	7.3	0.5	7.2	11.0	7.4	11.9	11.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.02
Lane Grp Cap(c), veh/h	324	1396	623	433	2164	965	164	391	174	332	343	359
V/C Ratio(X)	0.05	0.65	0.19	0.89	0.28	0.26	0.07	0.68	1.78	0.79	0.66	0.67
Avail Cap(c_a), veh/h	324	1396	623	565	2164	965	310	391	174	639	346	363
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.89	0.89	0.89	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	18.9	24.7	19.9	18.5	9.2	9.1	38.7	42.8	44.5	44.2	37.4	37.4
Incr Delay (d2), s/veh	0.3	2.4	0.7	10.4	0.3	0.6	0.1	4.7	372.3	1.6	4.7	4.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	8.7	1.9	5.7	3.0	2.5	0.2	3.4	22.3	3.2	5.5	5.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	19.2	27.1	20.6	28.9	9.5	9.7	38.8	47.5	416.8	45.8	42.0	41.9
LnGrp LOS	B	C	C	C	A	A	D	D	F	D	D	D
Approach Vol, veh/h		1044			1250			587			728	
Approach Delay, s/veh		26.2			15.5			242.4			43.3	
Approach LOS		C			B			F			D	

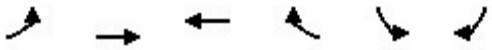
Timer - Assigned Phs	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	67.4	6.8	25.8	21.6	45.8	15.1	17.5
Change Period (Y+Rc), s	6.5	5.5	6.5	7.0	* 6.5	5.5	* 6.5
Max Green Setting (Gmax), s	52.5	9.5	19.5	22.0	* 24	18.5	* 11
Max Q Clear Time (g_c+I1), s	10.2	2.5	13.9	14.2	22.8	9.4	13.0
Green Ext Time (p_c), s	12.0	0.0	1.3	0.4	0.9	0.2	0.0

Intersection Summary	
HCM 6th Ctrl Delay	61.1
HCM 6th LOS	E

Notes

User approved pedestrian interval to be less than phase max green.

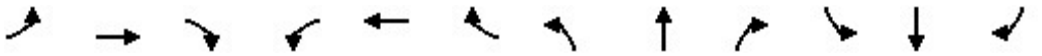
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	195	1165	1005	110	55	145
Future Volume (veh/h)	195	1165	1005	110	55	145
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	212	1266	1092	120	60	158
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	413	2750	2369	1057	207	275
Arrive On Green	0.06	0.77	0.67	0.67	0.12	0.12
Sat Flow, veh/h	1781	3647	3647	1585	1781	1585
Grp Volume(v), veh/h	212	1266	1092	120	60	158
Grp Sat Flow(s),veh/h/ln	1781	1777	1777	1585	1781	1585
Q Serve(g_s), s	3.5	12.5	14.8	2.7	3.1	9.2
Cycle Q Clear(g_c), s	3.5	12.5	14.8	2.7	3.1	9.2
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	413	2750	2369	1057	207	275
V/C Ratio(X)	0.51	0.46	0.46	0.11	0.29	0.57
Avail Cap(c_a), veh/h	792	2750	2369	1057	410	455
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.58	0.58	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	6.3	4.0	8.0	6.0	40.4	37.9
Incr Delay (d2), s/veh	0.2	0.3	0.6	0.2	0.8	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	3.3	4.9	0.8	1.4	8.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	6.6	4.3	8.7	6.2	41.2	39.8
LnGrp LOS	A	A	A	A	D	D
Approach Vol, veh/h		1478	1212		218	
Approach Delay, s/veh		4.6	8.4		40.2	
Approach LOS		A	A		D	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	10.7	72.7		16.6		83.4
Change Period (Y+Rc), s	5.0	6.0		5.0		6.0
Max Green Setting (Gmax), s	27.0	34.0		23.0		66.0
Max Q Clear Time (g_c+I1), s	5.5	16.8		11.2		14.5
Green Ext Time (p_c), s	0.3	5.0		0.5		7.6

Intersection Summary	
HCM 6th Ctrl Delay	8.9
HCM 6th LOS	A



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	595	10	410	865	145	155	275	405	295	160	25
Future Volume (veh/h)	5	595	10	410	865	145	155	275	405	295	160	25
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	5	647	11	446	940	158	168	299	440	321	174	27
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	236	1135	506	526	2030	905	359	462	206	393	444	68
Arrive On Green	0.32	0.32	0.32	0.18	0.57	0.57	0.10	0.13	0.13	0.11	0.14	0.14
Sat Flow, veh/h	514	3554	1585	1781	3554	1585	1781	3554	1585	3456	3091	472
Grp Volume(v), veh/h	5	647	11	446	940	158	168	299	440	321	99	102
Grp Sat Flow(s),veh/h/ln	514	1777	1585	1781	1777	1585	1781	1777	1585	1728	1777	1785
Q Serve(g_s), s	0.7	15.2	0.5	16.0	15.4	4.7	8.0	8.0	13.0	9.1	5.0	5.2
Cycle Q Clear(g_c), s	0.7	15.2	0.5	16.0	15.4	4.7	8.0	8.0	13.0	9.1	5.0	5.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.26
Lane Grp Cap(c), veh/h	236	1135	506	526	2030	905	359	462	206	393	255	257
V/C Ratio(X)	0.02	0.57	0.02	0.85	0.46	0.17	0.47	0.65	2.14	0.82	0.39	0.40
Avail Cap(c_a), veh/h	236	1135	506	558	2030	905	439	462	206	743	346	348
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.75	0.75	0.75	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.4	28.3	23.3	18.6	12.5	10.2	32.8	41.3	43.5	43.3	38.8	38.9
Incr Delay (d2), s/veh	0.2	2.1	0.1	8.0	0.6	0.3	0.4	3.1	526.8	1.6	1.0	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	6.5	0.2	7.2	5.8	1.7	3.5	3.7	35.2	3.9	2.2	2.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.6	30.4	23.4	26.6	13.1	10.5	33.2	44.5	570.3	44.9	39.8	39.9
LnGrp LOS	C	C	C	C	B	B	C	D	F	D	D	D
Approach Vol, veh/h		663			1544			907			522	
Approach Delay, s/veh		30.2			16.7			297.5			42.9	
Approach LOS		C			B			F			D	

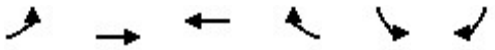
Timer - Assigned Phs	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	63.6	15.5	20.9	25.2	38.4	16.9	19.5
Change Period (Y+Rc), s	6.5	5.5	6.5	7.0	* 6.5	5.5	* 6.5
Max Green Setting (Gmax), s	47.5	14.5	19.5	20.0	* 21	21.5	* 13
Max Q Clear Time (g_c+I1), s	17.4	10.0	7.2	18.0	17.2	11.1	15.0
Green Ext Time (p_c), s	15.1	0.1	0.8	0.2	2.1	0.3	0.0

Intersection Summary	
HCM 6th Ctrl Delay	93.0
HCM 6th LOS	F

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	105	1190	1065	40	165	355
Future Volume (veh/h)	105	1190	1065	40	165	355
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	114	1293	1158	43	179	386
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	321	2345	1998	891	410	440
Arrive On Green	0.05	0.66	0.56	0.56	0.23	0.23
Sat Flow, veh/h	1781	3647	3647	1585	1781	1585
Grp Volume(v), veh/h	114	1293	1158	43	179	386
Grp Sat Flow(s),veh/h/ln	1781	1777	1777	1585	1781	1585
Q Serve(g_s), s	2.5	19.4	21.2	1.2	8.6	23.0
Cycle Q Clear(g_c), s	2.5	19.4	21.2	1.2	8.6	23.0
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	321	2345	1998	891	410	440
V/C Ratio(X)	0.36	0.55	0.58	0.05	0.44	0.88
Avail Cap(c_a), veh/h	538	2345	1998	891	410	440
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.56	0.56	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	10.9	9.1	14.2	9.9	33.0	34.5
Incr Delay (d2), s/veh	0.1	0.5	1.2	0.1	0.7	17.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	6.6	7.9	0.4	3.8	20.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	11.0	9.6	15.5	10.0	33.7	52.2
LnGrp LOS	B	A	B	A	C	D
Approach Vol, veh/h		1407	1201		565	
Approach Delay, s/veh		9.7	15.3		46.3	
Approach LOS		A	B		D	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	9.8	62.2		28.0		72.0
Change Period (Y+Rc), s	5.0	6.0		5.0		6.0
Max Green Setting (Gmax), s	17.0	44.0		23.0		66.0
Max Q Clear Time (g_c+I1), s	4.5	23.2		25.0		21.4
Green Ext Time (p_c), s	0.1	5.5		0.0		7.8

Intersection Summary	
HCM 6th Ctrl Delay	18.3
HCM 6th LOS	B



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	5	1790	290	15	110	1730	40	60	5	165	15	5
Future Volume (vph)	5	1790	290	15	110	1730	40	60	5	165	15	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	14	13	13	12	9	12	12	10	10	10	11	11
Grade (%)		-2%				1%			0%			-7%
Total Lost time (s)	6.0	6.0			6.5	6.0			6.5	6.5		6.5
Lane Util. Factor	1.00	0.91			1.00	0.91			1.00	1.00		1.00
Frt	1.00	0.98			1.00	1.00			1.00	0.85		1.00
Flt Protected	0.95	1.00			0.95	1.00			0.96	1.00		0.96
Satd. Flow (prot)	1906	5196			1585	5043			1661	1478		1795
Flt Permitted	0.10	1.00			0.13	1.00			0.73	1.00		0.73
Satd. Flow (perm)	207	5196			209	5043			1262	1478		1363
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	1946	315	16	120	1880	43	65	5	179	16	5
RTOR Reduction (vph)	0	19	0	0	0	1	0	0	0	17	0	0
Lane Group Flow (vph)	5	2242	0	0	136	1922	0	0	70	162	0	21
Turn Type	Perm	NA		custom	Prot	NA		Perm	NA	pm+ov	Perm	NA
Protected Phases		6			5	2			4	5!		8
Permitted Phases	6			5!				4		4	8	
Actuated Green, G (s)	57.7	57.7			31.9	96.1			11.4	43.3		11.4
Effective Green, g (s)	57.7	57.7			31.9	96.1			11.4	43.3		11.4
Actuated g/C Ratio	0.48	0.48			0.27	0.80			0.10	0.36		0.10
Clearance Time (s)	6.0	6.0			6.5	6.0			6.5	6.5		6.5
Vehicle Extension (s)	0.2	0.2			5.0	0.2			4.0	5.0		4.0
Lane Grp Cap (vph)	99	2498			55	4038			119	613		129
v/s Ratio Prot		c0.43				0.38				0.07		
v/s Ratio Perm	0.02				c0.65				c0.06	0.04		0.02
v/c Ratio	0.05	0.90			2.47	0.48			0.59	0.26		0.16
Uniform Delay, d1	16.6	28.5			44.0	3.8			52.1	27.1		49.9
Progression Factor	1.00	1.00			1.21	0.38			1.00	1.00		1.00
Incremental Delay, d2	1.0	5.6			706.4	0.3			8.5	0.5		0.8
Delay (s)	17.5	34.1			759.6	1.8			60.6	27.6		50.7
Level of Service	B	C			F	A			E	C		D
Approach Delay (s)		34.0				51.9			36.8			50.4
Approach LOS		C				D			D			D

Intersection Summary			
HCM 2000 Control Delay	42.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.35		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	82.8%	ICU Level of Service	E
Analysis Period (min)	15		

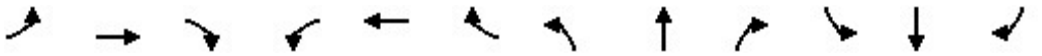
! Phase conflict between lane groups.

c Critical Lane Group



Movement	SBR
Lane Configurations	
Traffic Volume (vph)	5
Future Volume (vph)	5
Ideal Flow (vphpl)	1900
Lane Width	11
Grade (%)	
Total Lost time (s)	6.5
Lane Util. Factor	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1584
Flt Permitted	1.00
Satd. Flow (perm)	1584
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	5
RTOR Reduction (vph)	5
Lane Group Flow (vph)	0
Turn Type	Perm
Protected Phases	
Permitted Phases	8
Actuated Green, G (s)	11.4
Effective Green, g (s)	11.4
Actuated g/C Ratio	0.10
Clearance Time (s)	6.5
Vehicle Extension (s)	4.0
Lane Grp Cap (vph)	150
v/s Ratio Prot	
v/s Ratio Perm	0.00
v/c Ratio	0.00
Uniform Delay, d1	49.2
Progression Factor	1.00
Incremental Delay, d2	0.0
Delay (s)	49.2
Level of Service	D
Approach Delay (s)	
Approach LOS	

Intersection Summary



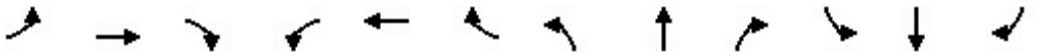
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↱		↑↑↑					↰↰		↱
Traffic Volume (veh/h)	0	925	1060	0	1800	0	0	0	0	460	0	95
Future Volume (veh/h)	0	925	1060	0	1800	0	0	0	0	460	0	95
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1847	1921	0	1817	0				1939	0	1790
Adj Flow Rate, veh/h	0	1005	0	0	1957	0				500	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				0.92	0.92	0.92
Percent Heavy Veh, %	0	2	2	0	2	0				2	0	2
Cap, veh/h	0	2606		0	3685	0				578	0	
Arrive On Green	0.00	1.00	0.00	0.00	0.74	0.00				0.16	0.00	0.00
Sat Flow, veh/h	0	3601	1628	0	5288	0				3583	0	1517
Grp Volume(v), veh/h	0	1005	0	0	1957	0				500	0	0
Grp Sat Flow(s),veh/h/ln	0	1754	1628	0	1654	0				1791	0	1517
Q Serve(g_s), s	0.0	0.0	0.0	0.0	20.1	0.0				16.3	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	20.1	0.0				16.3	0.0	0.0
Prop In Lane	0.00		1.00	0.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	2606		0	3685	0				578	0	
V/C Ratio(X)	0.00	0.39		0.00	0.53	0.00				0.86	0.00	
Avail Cap(c_a), veh/h	0	2606		0	3685	0				731	0	
HCM Platoon Ratio	1.00	1.67	1.67	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.44	0.00	0.00	1.00	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	6.6	0.0				49.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.2	0.0	0.0	0.6	0.0				8.8	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.1	0.0	0.0	5.6	0.0				8.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.2	0.0	0.0	7.1	0.0				57.8	0.0	0.0
LnGrp LOS	A	A		A	A	A				E	A	
Approach Vol, veh/h		1005	A		1957						500	A
Approach Delay, s/veh		0.2			7.1						57.8	
Approach LOS		A			A						E	

Timer - Assigned Phs		2		4		6						
Phs Duration (G+Y+Rc), s		95.1		24.9		95.1						
Change Period (Y+Rc), s		6.0		5.5		6.0						
Max Green Setting (Gmax), s		84.0		24.5		84.0						
Max Q Clear Time (g_c+I1), s		22.1		18.3		2.0						
Green Ext Time (p_c), s		2.9		1.0		1.1						

Intersection Summary		
HCM 6th Ctrl Delay		12.4
HCM 6th LOS		B

Notes

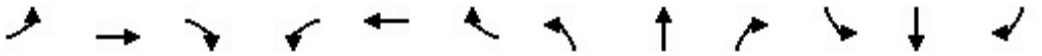
Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	315	960	0	0	765	15	0	150	195	20	0	285
Future Volume (vph)	315	960	0	0	765	15	0	150	195	20	0	285
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	12	12	12	12	12	13	13	13	13	13	13
Grade (%)		2%			-3%			6%			5%	
Total Lost time (s)	4.5	6.5			6.5			6.0	6.0	6.0		4.5
Lane Util. Factor	1.00	0.95			0.91			1.00	1.00	1.00		1.00
Frt	1.00	1.00			1.00			1.00	0.85	1.00		0.85
Flt Protected	0.95	1.00			1.00			1.00	1.00	0.95		1.00
Satd. Flow (prot)	1694	3504			5147			1867	1587	1783		1595
Flt Permitted	0.24	1.00			1.00			1.00	1.00	0.95		1.00
Satd. Flow (perm)	429	3504			5147			1867	1587	1783		1595
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	342	1043	0	0	832	16	0	163	212	22	0	310
RTOR Reduction (vph)	0	0	0	0	2	0	0	0	174	0	0	34
Lane Group Flow (vph)	342	1043	0	0	846	0	0	163	38	22	0	276
Turn Type	pm+pt	NA			NA			NA	Perm	Prot		custom
Protected Phases	1	6			2			4		3		1 3 4
Permitted Phases	6								4			
Actuated Green, G (s)	69.5	69.5			47.6			21.5	21.5	10.5		61.4
Effective Green, g (s)	69.5	69.5			47.6			21.5	21.5	10.5		49.4
Actuated g/C Ratio	0.58	0.58			0.40			0.18	0.18	0.09		0.41
Clearance Time (s)	4.5	6.5			6.5			6.0	6.0	6.0		
Vehicle Extension (s)	5.0	0.2			0.2			6.0	6.0	6.0		
Lane Grp Cap (vph)	431	2029			2041			334	284	156		656
v/s Ratio Prot	c0.11	0.30			0.16			c0.09		0.01		c0.17
v/s Ratio Perm	c0.34								0.02			
v/c Ratio	0.79	0.51			0.41			0.49	0.13	0.14		0.42
Uniform Delay, d1	15.1	15.1			26.1			44.3	41.4	50.6		25.1
Progression Factor	0.91	0.44			1.34			1.00	1.00	1.00		1.00
Incremental Delay, d2	9.9	0.8			0.5			3.1	0.6	1.2		0.9
Delay (s)	23.6	7.5			35.5			47.4	42.0	51.8		26.0
Level of Service	C	A			D			D	D	D		C
Approach Delay (s)		11.5			35.5			44.4			27.7	
Approach LOS		B			D			D			C	

Intersection Summary			
HCM 2000 Control Delay	24.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	23.0
Intersection Capacity Utilization	61.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	1165	5	5	745	10	10	5	10	70	5	25
Future Volume (vph)	5	1165	5	5	745	10	10	5	10	70	5	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	12	12	12	11	11	12	12	11	10	10	10
Grade (%)		1%			-2%			0%			-3%	
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0	4.0		4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00	1.00		1.00	
Frt	1.00	1.00		1.00	1.00			1.00	0.85		0.97	
Flt Protected	0.95	1.00		0.95	1.00			0.97	1.00		0.97	
Satd. Flow (prot)	1702	1852		1787	1815			1801	1531		1647	
Flt Permitted	0.30	1.00		0.12	1.00			0.86	1.00		0.78	
Satd. Flow (perm)	545	1852		221	1815			1596	1531		1331	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	1266	5	5	810	11	11	5	11	76	5	27
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	10	0	11	0
Lane Group Flow (vph)	5	1271	0	5	821	0	0	16	1	0	97	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		6			2			4			8	
Permitted Phases	6			2			4		4	8		
Actuated Green, G (s)	98.1	98.1		98.1	98.1			13.9	13.9		13.9	
Effective Green, g (s)	98.1	98.1		98.1	98.1			13.9	13.9		13.9	
Actuated g/C Ratio	0.82	0.82		0.82	0.82			0.12	0.12		0.12	
Clearance Time (s)	4.0	4.0		4.0	4.0			4.0	4.0		4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0		3.0	
Lane Grp Cap (vph)	445	1514		180	1483			184	177		154	
v/s Ratio Prot		c0.69			0.45							
v/s Ratio Perm	0.01			0.02				0.01	0.00		c0.07	
v/c Ratio	0.01	0.84		0.03	0.55			0.09	0.01		0.63	
Uniform Delay, d1	2.0	6.4		2.0	3.6			47.4	46.9		50.6	
Progression Factor	0.81	1.94		1.00	1.00			1.00	1.00		1.00	
Incremental Delay, d2	0.0	3.8		0.3	1.5			0.2	0.0		8.2	
Delay (s)	1.6	16.1		2.3	5.1			47.6	47.0		58.8	
Level of Service	A	B		A	A			D	D		E	
Approach Delay (s)		16.1			5.1			47.3			58.8	
Approach LOS		B			A			D			E	

Intersection Summary			
HCM 2000 Control Delay	14.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	80.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	5	1985	65	15	255	2055	15	80	5	140	35	5
Future Volume (vph)	5	1985	65	15	255	2055	15	80	5	140	35	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	14	13	13	12	9	12	12	10	10	10	11	11
Grade (%)		-2%				1%			0%			-7%
Total Lost time (s)	6.0	6.0			6.5	6.0			6.5	6.5		6.5
Lane Util. Factor	1.00	0.91			1.00	0.91			1.00	1.00		1.00
Frt	1.00	1.00			1.00	1.00			1.00	0.85		1.00
Flt Protected	0.95	1.00			0.95	1.00			0.95	1.00		0.96
Satd. Flow (prot)	1906	5282			1585	5054			1660	1478		1785
Flt Permitted	0.07	1.00			0.14	1.00			0.71	1.00		0.69
Satd. Flow (perm)	145	5282			240	5054			1228	1478		1279
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	2158	71	16	277	2234	16	87	5	152	38	5
RTOR Reduction (vph)	0	3	0	0	0	0	0	0	0	17	0	0
Lane Group Flow (vph)	5	2226	0	0	293	2250	0	0	92	135	0	43
Turn Type	Perm	NA		custom	Prot	NA		Perm	NA	pm+ov	Perm	NA
Protected Phases		6			5	2			4	5!		8
Permitted Phases	6			5!				4		4	8	
Actuated Green, G (s)	58.0	58.0			27.8	92.3			15.2	43.0		15.2
Effective Green, g (s)	58.0	58.0			27.8	92.3			15.2	43.0		15.2
Actuated g/C Ratio	0.48	0.48			0.23	0.77			0.13	0.36		0.13
Clearance Time (s)	6.0	6.0			6.5	6.0			6.5	6.5		6.5
Vehicle Extension (s)	0.2	0.2			5.0	0.2			4.0	5.0		4.0
Lane Grp Cap (vph)	70	2552			55	3887			155	609		162
v/s Ratio Prot		c0.42				0.45				0.05		
v/s Ratio Perm	0.03				c1.22				c0.07	0.04		0.03
v/c Ratio	0.07	0.87			5.33	0.58			0.59	0.22		0.27
Uniform Delay, d1	16.6	27.7			46.1	5.8			49.5	26.8		47.4
Progression Factor	1.00	1.00			1.24	0.38			1.00	1.00		1.00
Incremental Delay, d2	2.0	4.5			1975.8	0.5			7.0	0.4		1.2
Delay (s)	18.6	32.2			2033.1	2.6			56.4	27.2		48.6
Level of Service	B	C			F	A			E	C		D
Approach Delay (s)		32.1				236.6			38.2			48.0
Approach LOS		C				F			D			D

Intersection Summary			
HCM 2000 Control Delay	135.0	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	2.04		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	88.0%	ICU Level of Service	E
Analysis Period (min)	15		

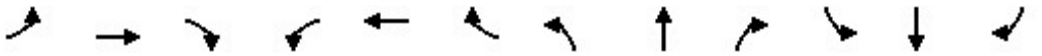
! Phase conflict between lane groups.

c Critical Lane Group



Movement	SBR
Lane Configurations	
Traffic Volume (vph)	10
Future Volume (vph)	10
Ideal Flow (vphpl)	1900
Lane Width	11
Grade (%)	
Total Lost time (s)	6.5
Lane Util. Factor	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1584
Flt Permitted	1.00
Satd. Flow (perm)	1584
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	11
RTOR Reduction (vph)	10
Lane Group Flow (vph)	1
Turn Type	Perm
Protected Phases	
Permitted Phases	8
Actuated Green, G (s)	15.2
Effective Green, g (s)	15.2
Actuated g/C Ratio	0.13
Clearance Time (s)	6.5
Vehicle Extension (s)	4.0
Lane Grp Cap (vph)	200
v/s Ratio Prot	
v/s Ratio Perm	0.00
v/c Ratio	0.01
Uniform Delay, d1	45.8
Progression Factor	1.00
Incremental Delay, d2	0.0
Delay (s)	45.8
Level of Service	D
Approach Delay (s)	
Approach LOS	

Intersection Summary



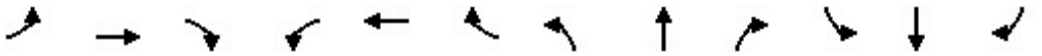
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	935	1240	0	2235	0	0	0	0	505	0	105
Future Volume (veh/h)	0	935	1240	0	2235	0	0	0	0	505	0	105
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1847	1921	0	1817	0				1939	0	1790
Adj Flow Rate, veh/h	0	1016	0	0	2429	0				549	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				0.92	0.92	0.92
Percent Heavy Veh, %	0	2	2	0	2	0				2	0	2
Cap, veh/h	0	2562		0	3622	0				624	0	
Arrive On Green	0.00	1.00	0.00	0.00	0.73	0.00				0.17	0.00	0.00
Sat Flow, veh/h	0	3601	1628	0	5288	0				3583	0	1517
Grp Volume(v), veh/h	0	1016	0	0	2429	0				549	0	0
Grp Sat Flow(s),veh/h/ln	0	1754	1628	0	1654	0				1791	0	1517
Q Serve(g_s), s	0.0	0.0	0.0	0.0	31.1	0.0				17.9	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	31.1	0.0				17.9	0.0	0.0
Prop In Lane	0.00		1.00	0.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	2562		0	3622	0				624	0	
V/C Ratio(X)	0.00	0.40		0.00	0.67	0.00				0.88	0.00	
Avail Cap(c_a), veh/h	0	2562		0	3622	0				731	0	
HCM Platoon Ratio	1.00	1.67	1.67	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.44	0.00	0.00	1.00	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	8.6	0.0				48.3	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.2	0.0	0.0	1.0	0.0				10.8	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.1	0.0	0.0	9.0	0.0				8.9	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.2	0.0	0.0	9.6	0.0				59.1	0.0	0.0
LnGrp LOS	A	A		A	A	A				E	A	
Approach Vol, veh/h		1016	A		2429						549	A
Approach Delay, s/veh		0.2			9.6						59.1	
Approach LOS		A			A						E	

Timer - Assigned Phs		2		4		6						
Phs Duration (G+Y+Rc), s		93.6		26.4		93.6						
Change Period (Y+Rc), s		6.0		5.5		6.0						
Max Green Setting (Gmax), s		84.0		24.5		84.0						
Max Q Clear Time (g_c+I1), s		33.1		19.9		2.0						
Green Ext Time (p_c), s		4.1		0.9		1.1						

Intersection Summary		
HCM 6th Ctrl Delay		14.0
HCM 6th LOS		B

Notes

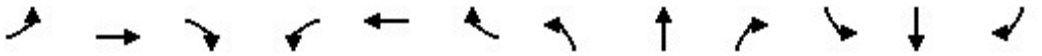
Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	260	1100	0	0	1125	35	0	250	180	30	0	405
Future Volume (vph)	260	1100	0	0	1125	35	0	250	180	30	0	405
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	12	12	12	12	12	13	13	13	13	13	13
Grade (%)		2%			-3%			6%			5%	
Total Lost time (s)	4.5	6.5			6.5			6.0	6.0	6.0		4.5
Lane Util. Factor	1.00	0.95			0.91			1.00	1.00	1.00		1.00
Frt	1.00	1.00			1.00			1.00	0.85	1.00		0.85
Flt Protected	0.95	1.00			1.00			1.00	1.00	0.95		1.00
Satd. Flow (prot)	1694	3504			5138			1867	1587	1783		1595
Flt Permitted	0.12	1.00			1.00			1.00	1.00	0.95		1.00
Satd. Flow (perm)	207	3504			5138			1867	1587	1783		1595
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	283	1196	0	0	1223	38	0	272	196	33	0	440
RTOR Reduction (vph)	0	0	0	0	2	0	0	0	112	0	0	19
Lane Group Flow (vph)	283	1196	0	0	1259	0	0	272	84	33	0	421
Turn Type	pm+pt	NA			NA			NA	Perm	Prot		custom
Protected Phases	1	6			2			4		3		1 3 4
Permitted Phases	6								4			
Actuated Green, G (s)	66.2	66.2			47.5			25.4	25.4	9.9		61.5
Effective Green, g (s)	66.2	66.2			47.5			25.4	25.4	9.9		49.5
Actuated g/C Ratio	0.55	0.55			0.40			0.21	0.21	0.08		0.41
Clearance Time (s)	4.5	6.5			6.5			6.0	6.0	6.0		
Vehicle Extension (s)	5.0	0.2			0.2			6.0	6.0	6.0		
Lane Grp Cap (vph)	290	1933			2033			395	335	147		657
v/s Ratio Prot	c0.12	0.34			0.24			c0.15		0.02		c0.26
v/s Ratio Perm	c0.42								0.05			
v/c Ratio	0.98	0.62			0.62			0.69	0.25	0.22		0.64
Uniform Delay, d1	28.8	18.3			29.0			43.7	39.4	51.5		28.2
Progression Factor	1.11	0.53			1.22			1.00	1.00	1.00		1.00
Incremental Delay, d2	42.5	1.3			0.9			7.4	1.1	2.2		2.9
Delay (s)	74.4	11.0			36.3			51.1	40.5	53.6		31.1
Level of Service	E	B			D			D	D	D		C
Approach Delay (s)		23.1			36.3			46.6			32.7	
Approach LOS		C			D			D			C	

Intersection Summary			
HCM 2000 Control Delay	31.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	23.0
Intersection Capacity Utilization	70.9%	ICU Level of Service	C
Analysis Period (min)	15		

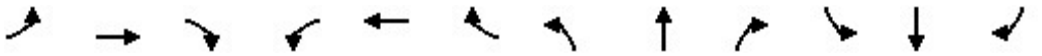
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	1265	15	5	1090	10	5	5	10	20	5	65
Future Volume (vph)	30	1265	15	5	1090	10	5	5	10	20	5	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	12	12	12	11	11	12	12	11	10	10	10
Grade (%)		1%			-2%			0%			-3%	
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0	4.0		4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00	1.00		1.00	
Frt	1.00	1.00		1.00	1.00			1.00	0.85		0.90	
Flt Protected	0.95	1.00		0.95	1.00			0.98	1.00		0.99	
Satd. Flow (prot)	1702	1850		1787	1816			1817	1531		1574	
Flt Permitted	0.17	1.00		0.09	1.00			0.84	1.00		0.93	
Satd. Flow (perm)	312	1850		176	1816			1570	1531		1474	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	33	1375	16	5	1185	11	5	5	11	22	5	71
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	10	0	65	0
Lane Group Flow (vph)	33	1391	0	5	1196	0	0	10	1	0	33	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		6			2			4			8	
Permitted Phases	6			2			4		4	8		
Actuated Green, G (s)	102.3	102.3		102.3	102.3			9.7	9.7		9.7	
Effective Green, g (s)	102.3	102.3		102.3	102.3			9.7	9.7		9.7	
Actuated g/C Ratio	0.85	0.85		0.85	0.85			0.08	0.08		0.08	
Clearance Time (s)	4.0	4.0		4.0	4.0			4.0	4.0		4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0		3.0	
Lane Grp Cap (vph)	265	1577		150	1548			126	123		119	
v/s Ratio Prot		c0.75			0.66							
v/s Ratio Perm	0.11			0.03				0.01	0.00		c0.02	
v/c Ratio	0.12	0.88		0.03	0.77			0.08	0.01		0.28	
Uniform Delay, d1	1.5	5.3		1.3	3.8			51.0	50.7		51.8	
Progression Factor	0.66	3.13		1.00	1.00			1.00	1.00		1.00	
Incremental Delay, d2	0.2	5.1		0.4	3.8			0.3	0.0		1.3	
Delay (s)	1.1	21.6		1.8	7.6			51.3	50.7		53.1	
Level of Service	A	C		A	A			D	D		D	
Approach Delay (s)		21.1			7.6			51.0			53.1	
Approach LOS		C			A			D			D	

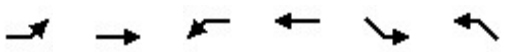
Intersection Summary			
HCM 2000 Control Delay	16.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	86.2%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	120	815	130	495	425	105	145	125	140	410	745	235
Future Volume (vph)	120	815	130	495	425	105	145	125	140	410	745	235
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		4%			-4%			-3%			-2%	
Total Lost time (s)	6.5	7.5	6.5	7.0	7.5	7.0	6.5	4.5	7.0	7.0	4.5	4.0
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1734	3468	1552	3502	3610	1615	1796	3592	1607	1787	3575	1599
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.18	1.00	1.00	0.49	1.00	1.00
Satd. Flow (perm)	1734	3468	1552	3502	3610	1615	344	3592	1607	918	3575	1599
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	130	886	141	538	462	114	158	136	152	446	810	255
RTOR Reduction (vph)	0	0	75	0	0	49	0	0	83	0	0	0
Lane Group Flow (vph)	130	886	66	538	462	65	158	136	69	446	810	255
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	pm+pt	NA	custom	pm+pt	NA	Free
Protected Phases	1	6	3	5	2	7	3	8	5	7	4	
Permitted Phases			6			2	8		6	4		Free
Actuated Green, G (s)	16.5	35.1	50.2	33.3	52.4	85.8	37.3	22.2	68.4	62.6	41.0	150.0
Effective Green, g (s)	16.5	35.1	50.2	33.3	52.4	85.8	37.3	22.2	68.4	62.6	41.0	150.0
Actuated g/C Ratio	0.11	0.23	0.33	0.22	0.35	0.57	0.25	0.15	0.46	0.42	0.27	1.00
Clearance Time (s)	6.5	7.5	6.5	7.0	7.5	7.0	6.5	4.5	7.0	7.0	4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	190	811	519	777	1261	923	231	531	807	576	977	1599
v/s Ratio Prot	0.07	c0.26	0.01	c0.15	0.13	0.02	0.07	0.04	0.02	c0.17	c0.23	
v/s Ratio Perm			0.03			0.02	0.10		0.02	0.15		0.16
v/c Ratio	0.68	1.09	0.13	0.69	0.37	0.07	0.68	0.26	0.09	0.77	0.83	0.16
Uniform Delay, d1	64.2	57.5	34.7	53.6	36.4	14.3	46.9	56.6	23.1	34.2	51.2	0.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	9.8	59.8	0.1	2.7	0.8	0.0	8.1	0.3	0.0	6.4	5.9	0.2
Delay (s)	74.0	117.3	34.8	56.3	37.2	14.3	55.0	56.8	23.1	40.7	57.1	0.2
Level of Service	E	F	C	E	D	B	E	E	C	D	E	A
Approach Delay (s)		102.4			44.1			44.7			42.7	
Approach LOS		F			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	59.6	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	26.0
Intersection Capacity Utilization	86.5%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBL	WBT	SEL	NWL
Lane Configurations						
Traffic Volume (vph)	500	350	550	280	180	80
Future Volume (vph)	500	350	550	280	180	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	9.0	7.5	9.0	7.5	7.0	7.0
Lane Util. Factor	1.00	0.95	0.97	0.95	1.00	0.97
Frt	1.00	1.00	1.00	1.00	1.00	1.00
Flt Protected	0.95	1.00	0.95	1.00	0.95	0.95
Satd. Flow (prot)	1770	3539	3433	3539	1770	3433
Flt Permitted	0.95	1.00	0.95	1.00	0.95	0.95
Satd. Flow (perm)	1770	3539	3433	3539	1770	3433
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	543	380	598	304	196	87
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	543	380	598	304	196	87
Turn Type	Prot	NA	Prot	NA	Prot	Prot
Protected Phases	1	5	6	2	4	8
Permitted Phases						
Actuated Green, G (s)	31.0	32.5	41.0	42.5	23.0	23.0
Effective Green, g (s)	31.0	32.5	41.0	42.5	23.0	23.0
Actuated g/C Ratio	0.26	0.27	0.34	0.35	0.19	0.19
Clearance Time (s)	9.0	7.5	9.0	7.5	7.0	7.0
Lane Grp Cap (vph)	457	958	1172	1253	339	657
v/s Ratio Prot	c0.31	0.11	c0.17	0.09	c0.11	0.03
v/s Ratio Perm						
v/c Ratio	1.19	0.40	0.51	0.24	0.58	0.13
Uniform Delay, d1	44.5	35.7	31.5	27.4	44.1	40.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	104.8	1.2	1.6	0.5	7.0	0.4
Delay (s)	149.3	37.0	33.1	27.8	51.1	40.6
Level of Service	F	D	C	C	D	D
Approach Delay (s)		103.0		31.3		
Approach LOS		F		C		

Intersection Summary			
HCM 2000 Control Delay	64.9	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	23.5
Intersection Capacity Utilization	72.7%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	5	320	855	35	10	510	70	50	5	10	35	5
Future Volume (vph)	5	320	855	35	10	510	70	50	5	10	35	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	11	11	11	11	11
Grade (%)			0%			-4%			-3%			0%
Total Lost time (s)		6.0	6.0		6.0	6.0		6.5	6.5			6.5
Lane Util. Factor		1.00	0.95		1.00	0.95		1.00	1.00			1.00
Frt		1.00	0.99		1.00	0.98		1.00	0.90			1.00
Flt Protected		0.95	1.00		0.95	1.00		0.95	1.00			0.96
Satd. Flow (prot)		1770	3518		1805	3545		1736	1639			1724
Flt Permitted		0.34	1.00		0.30	1.00		0.73	1.00			0.74
Satd. Flow (perm)		631	3518		563	3545		1332	1639			1331
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	348	929	38	11	554	76	54	5	11	38	5
RTOR Reduction (vph)	0	0	1	0	0	8	0	0	10	0	0	0
Lane Group Flow (vph)	0	353	966	0	11	622	0	54	6	0	0	43
Turn Type	pm+pt	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA
Protected Phases	1!	1	6			2			8			4
Permitted Phases	6!	6			2			8			4	
Actuated Green, G (s)		64.5	64.5		44.4	44.4		7.4	7.4			7.4
Effective Green, g (s)		64.5	64.5		44.4	44.4		7.4	7.4			7.4
Actuated g/C Ratio		0.76	0.76		0.53	0.53		0.09	0.09			0.09
Clearance Time (s)		6.0	6.0		6.0	6.0		6.5	6.5			6.5
Vehicle Extension (s)		3.0	3.0		3.0	3.0		3.0	3.0			3.0
Lane Grp Cap (vph)		672	2688		296	1864		116	143			116
v/s Ratio Prot		0.09	0.27			0.18			0.00			
v/s Ratio Perm		c0.31			0.02			0.04				0.03
v/c Ratio		0.53	0.36		0.04	0.33		0.47	0.04			0.37
Uniform Delay, d1		3.8	3.2		9.7	11.5		36.6	35.3			36.3
Progression Factor		1.00	1.00		1.00	1.00		1.00	1.00			1.00
Incremental Delay, d2		0.7	0.1		0.2	0.5		2.9	0.1			2.0
Delay (s)		4.6	3.3		9.9	12.0		39.6	35.4			38.3
Level of Service		A	A		A	B		D	D			D
Approach Delay (s)			3.7			11.9			38.6			85.0
Approach LOS			A			B			D			F

Intersection Summary			
HCM 2000 Control Delay	24.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	84.4	Sum of lost time (s)	18.5
Intersection Capacity Utilization	88.7%	ICU Level of Service	E
Analysis Period (min)	15		

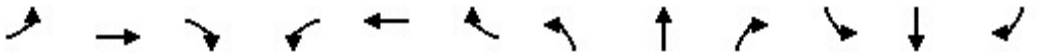
! Phase conflict between lane groups.

c Critical Lane Group



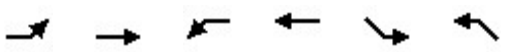
Movement	SBR
Lane Configurations	
Traffic Volume (vph)	495
Future Volume (vph)	495
Ideal Flow (vphpl)	1900
Lane Width	11
Grade (%)	
Total Lost time (s)	6.0
Lane Util. Factor	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1531
Flt Permitted	1.00
Satd. Flow (perm)	1531
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	538
RTOR Reduction (vph)	131
Lane Group Flow (vph)	407
Turn Type	pm+ov
Protected Phases	1!
Permitted Phases	4
Actuated Green, G (s)	21.5
Effective Green, g (s)	21.5
Actuated g/C Ratio	0.25
Clearance Time (s)	6.0
Vehicle Extension (s)	3.0
Lane Grp Cap (vph)	390
v/s Ratio Prot	c0.17
v/s Ratio Perm	0.09
v/c Ratio	1.04
Uniform Delay, d1	31.5
Progression Factor	1.00
Incremental Delay, d2	57.3
Delay (s)	88.7
Level of Service	F
Approach Delay (s)	
Approach LOS	

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	150	450	190	265	750	230	155	885	445	120	170	125
Future Volume (vph)	150	450	190	265	750	230	155	885	445	120	170	125
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		4%			-4%			-3%			-2%	
Total Lost time (s)	6.5	7.5	6.5	7.0	7.5	7.0	6.5	4.5	7.0	7.0	4.5	4.0
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1734	3468	1552	3502	3610	1615	1796	3592	1607	1787	3575	1599
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.61	1.00	1.00	0.10	1.00	1.00
Satd. Flow (perm)	1734	3468	1552	3502	3610	1615	1155	3592	1607	180	3575	1599
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	163	489	207	288	815	250	168	962	484	130	185	136
RTOR Reduction (vph)	0	0	118	0	0	96	0	0	258	0	0	0
Lane Group Flow (vph)	163	489	89	288	815	154	168	962	226	130	185	136
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	pm+pt	NA	custom	pm+pt	NA	Free
Protected Phases	1	6	3	5	2	7	3	8	5	7	4	
Permitted Phases			6			2	8		6	4		Free
Actuated Green, G (s)	19.4	51.6	64.3	18.4	51.1	63.4	54.4	41.7	70.0	54.1	41.8	150.0
Effective Green, g (s)	19.4	51.6	64.3	18.4	51.1	63.4	54.4	41.7	70.0	54.1	41.8	150.0
Actuated g/C Ratio	0.13	0.34	0.43	0.12	0.34	0.42	0.36	0.28	0.47	0.36	0.28	1.00
Clearance Time (s)	6.5	7.5	6.5	7.0	7.5	7.0	6.5	4.5	7.0	7.0	4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	224	1192	665	429	1229	682	473	998	824	196	996	1599
v/s Ratio Prot	c0.09	0.14	0.01	0.08	c0.23	0.02	0.03	c0.27	c0.03	c0.05	0.05	
v/s Ratio Perm			0.05			0.08	0.10		0.11	0.18		c0.09
v/c Ratio	0.73	0.41	0.13	0.67	0.66	0.23	0.36	0.96	0.27	0.66	0.19	0.09
Uniform Delay, d1	62.8	37.6	26.0	62.9	42.1	27.6	33.6	53.4	24.5	38.2	41.2	0.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	11.2	1.0	0.1	4.1	2.8	0.2	0.5	20.1	0.2	8.2	0.1	0.1
Delay (s)	73.9	38.6	26.1	67.0	44.9	27.8	34.1	73.5	24.6	46.3	41.2	0.1
Level of Service	E	D	C	E	D	C	C	E	C	D	D	A
Approach Delay (s)		42.3			46.5			54.8			30.3	
Approach LOS		D			D			D			C	

Intersection Summary			
HCM 2000 Control Delay	47.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	26.0
Intersection Capacity Utilization	79.3%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBL	WBT	SEL	NWL
Lane Configurations						
Traffic Volume (vph)	490	405	510	310	340	270
Future Volume (vph)	490	405	510	310	340	270
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	9.0	7.5	9.0	7.5	7.0	7.0
Lane Util. Factor	1.00	0.95	0.97	0.95	1.00	0.97
Frt	1.00	1.00	1.00	1.00	1.00	1.00
Flt Protected	0.95	1.00	0.95	1.00	0.95	0.95
Satd. Flow (prot)	1770	3539	3433	3539	1770	3433
Flt Permitted	0.95	1.00	0.95	1.00	0.95	0.95
Satd. Flow (perm)	1770	3539	3433	3539	1770	3433
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	533	440	554	337	370	293
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	533	440	554	337	370	293
Turn Type	Prot	NA	Prot	NA	Prot	Prot
Protected Phases	1	5	6	2	4	8
Permitted Phases						
Actuated Green, G (s)	51.0	52.5	41.0	42.5	53.0	53.0
Effective Green, g (s)	51.0	52.5	41.0	42.5	53.0	53.0
Actuated g/C Ratio	0.30	0.31	0.24	0.25	0.31	0.31
Clearance Time (s)	9.0	7.5	9.0	7.5	7.0	7.0
Lane Grp Cap (vph)	531	1092	827	884	551	1070
v/s Ratio Prot	c0.30	0.12	c0.16	0.10	c0.21	0.09
v/s Ratio Perm						
v/c Ratio	1.00	0.40	0.67	0.38	0.67	0.27
Uniform Delay, d1	59.5	46.4	58.4	52.8	50.9	44.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	40.0	1.1	4.3	1.2	6.4	0.6
Delay (s)	99.5	47.5	62.7	54.1	57.3	44.7
Level of Service	F	D	E	D	E	D
Approach Delay (s)		76.0		59.4		
Approach LOS		E		E		

Intersection Summary			
HCM 2000 Control Delay	63.8	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	170.0	Sum of lost time (s)	23.5
Intersection Capacity Utilization	81.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	10	330	850	50	5	705	20	45	5	5	10	10
Future Volume (vph)	10	330	850	50	5	705	20	45	5	5	10	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	11	11	11	11	11
Grade (%)			0%			-4%			-3%			0%
Total Lost time (s)		6.0	6.0		6.0	6.0		6.5	6.5			6.5
Lane Util. Factor		1.00	0.95		1.00	0.95		1.00	1.00			1.00
Frt		1.00	0.99		1.00	1.00		1.00	0.93			1.00
Flt Protected		0.95	1.00		0.95	1.00		0.95	1.00			0.98
Satd. Flow (prot)		1770	3510		1805	3595		1736	1691			1757
Flt Permitted		0.27	1.00		0.29	1.00		0.74	1.00			0.84
Satd. Flow (perm)		499	3510		557	3595		1358	1691			1507
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	11	359	924	54	5	766	22	49	5	5	11	11
RTOR Reduction (vph)	0	0	2	0	0	1	0	0	5	0	0	0
Lane Group Flow (vph)	0	370	976	0	5	787	0	49	5	0	0	22
Turn Type	pm+pt	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA
Protected Phases	1!	1	6			2			8			4
Permitted Phases	6!	6			2			8			4	
Actuated Green, G (s)		68.4	68.4		45.1	45.1		5.6	5.6			5.6
Effective Green, g (s)		68.4	68.4		45.1	45.1		5.6	5.6			5.6
Actuated g/C Ratio		0.79	0.79		0.52	0.52		0.06	0.06			0.06
Clearance Time (s)		6.0	6.0		6.0	6.0		6.5	6.5			6.5
Vehicle Extension (s)		3.0	3.0		3.0	3.0		3.0	3.0			3.0
Lane Grp Cap (vph)		648	2775		290	1874		87	109			97
v/s Ratio Prot		0.11	0.28			0.22			0.00			
v/s Ratio Perm		c0.34			0.01			0.04				0.01
v/c Ratio		0.57	0.35		0.02	0.42		0.56	0.05			0.23
Uniform Delay, d1		4.4	2.6		10.0	12.7		39.3	38.0			38.4
Progression Factor		1.00	1.00		1.00	1.00		1.00	1.00			1.00
Incremental Delay, d2		1.2	0.1		0.1	0.7		8.1	0.2			1.2
Delay (s)		5.6	2.7		10.1	13.4		47.4	38.1			39.6
Level of Service		A	A		B	B		D	D			D
Approach Delay (s)			3.5			13.4			45.8			48.2
Approach LOS			A			B			D			D

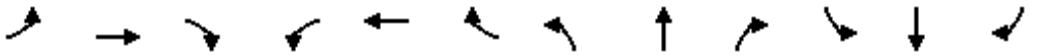
Intersection Summary			
HCM 2000 Control Delay	14.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	86.5	Sum of lost time (s)	18.5
Intersection Capacity Utilization	85.6%	ICU Level of Service	E
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group



Movement	SBR
Lane Configurations	
Traffic Volume (vph)	370
Future Volume (vph)	370
Ideal Flow (vphpl)	1900
Lane Width	11
Grade (%)	
Total Lost time (s)	6.0
Lane Util. Factor	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1531
Flt Permitted	1.00
Satd. Flow (perm)	1531
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	402
RTOR Reduction (vph)	49
Lane Group Flow (vph)	353
Turn Type	pm+ov
Protected Phases	1!
Permitted Phases	4
Actuated Green, G (s)	22.9
Effective Green, g (s)	22.9
Actuated g/C Ratio	0.26
Clearance Time (s)	6.0
Vehicle Extension (s)	3.0
Lane Grp Cap (vph)	405
v/s Ratio Prot	c0.17
v/s Ratio Perm	0.06
v/c Ratio	0.87
Uniform Delay, d1	30.4
Progression Factor	1.00
Incremental Delay, d2	18.3
Delay (s)	48.7
Level of Service	D
Approach Delay (s)	
Approach LOS	

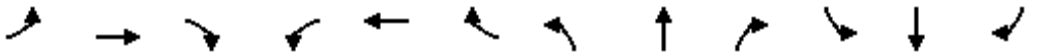
Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	690	660	445	260	30	140	10	215	5	25	10
Future Volume (vph)	20	690	660	445	260	30	140	10	215	5	25	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.5	6.0	6.0		6.5	6.5	4.0		6.5	6.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		0.95	0.95	1.00		1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.98		1.00	1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	0.96	1.00		0.99	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3484		1681	1696	1583		1848	1583
Flt Permitted	0.56	1.00	1.00	0.17	1.00		0.95	0.96	1.00		0.99	1.00
Satd. Flow (perm)	1043	3539	1583	321	3484		1681	1696	1583		1848	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	22	750	717	484	283	33	152	11	234	5	27	11
RTOR Reduction (vph)	0	0	157	0	8	0	0	0	0	0	0	11
Lane Group Flow (vph)	22	750	560	484	308	0	81	82	234	0	32	0
Turn Type	Perm	NA	pm+ov	pm+pt	NA		Split	NA	Free	Split	NA	Perm
Protected Phases		6	3	5	2		3	3		4	4	
Permitted Phases	6		6	2					Free			4
Actuated Green, G (s)	17.2	17.2	35.8	48.4	48.4		18.6	18.6	90.0		4.0	4.0
Effective Green, g (s)	17.2	17.2	35.8	48.4	48.4		18.6	18.6	90.0		4.0	4.0
Actuated g/C Ratio	0.19	0.19	0.40	0.54	0.54		0.21	0.21	1.00		0.04	0.04
Clearance Time (s)	6.0	6.0	6.5	6.0	6.0		6.5	6.5			6.5	6.5
Vehicle Extension (s)	3.0	3.0	4.0	2.0	3.0		4.0	4.0			2.0	2.0
Lane Grp Cap (vph)	199	676	629	578	1873		347	350	1583		82	70
v/s Ratio Prot		c0.21	c0.18	c0.23	0.09		0.05	0.05			c0.02	
v/s Ratio Perm	0.02		0.17	0.22					0.15			0.00
v/c Ratio	0.11	1.11	0.89	0.84	0.16		0.23	0.23	0.15		0.39	0.01
Uniform Delay, d1	30.1	36.4	25.3	21.0	10.5		29.8	29.8	0.0		41.8	41.1
Progression Factor	1.00	1.00	1.00	1.17	1.10		1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	1.1	68.6	15.0	9.6	0.2		0.5	0.5	0.2		1.1	0.0
Delay (s)	31.2	105.0	40.3	34.1	11.7		30.2	30.2	0.2		42.9	41.1
Level of Service	C	F	D	C	B		C	C	A		D	D
Approach Delay (s)		72.8			25.3			12.5			42.5	
Approach LOS		E			C			B			D	

Intersection Summary			
HCM 2000 Control Delay	49.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	25.0
Intersection Capacity Utilization	85.5%	ICU Level of Service	E
Analysis Period (min)	15		

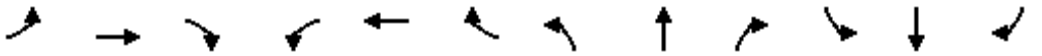
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	660	225	565	680	25	50	15	405	10	20	5
Future Volume (vph)	25	660	225	565	680	25	50	15	405	10	20	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.5	6.5	4.0	7.0	5.5	5.5	5.5	6.0	4.0	6.0	6.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.37	1.00	1.00	0.15	1.00	1.00	0.43	1.00	1.00	0.89	1.00	1.00
Satd. Flow (perm)	691	3539	1583	278	3539	1583	793	3539	1583	1656	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	27	717	245	614	739	27	54	16	440	11	22	5
RTOR Reduction (vph)	0	0	0	0	0	11	0	0	0	0	0	0
Lane Group Flow (vph)	27	717	245	614	739	16	54	16	440	11	22	5
Turn Type	pm+pt	NA	Free	pm+pt	NA	Perm	pm+pt	NA	Free	pm+pt	NA	Free
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6		Free	2		2	4		Free	8		Free
Actuated Green, G (s)	24.6	22.4	90.0	61.9	52.2	52.2	16.0	9.4	90.0	5.7	4.5	90.0
Effective Green, g (s)	24.6	22.4	90.0	61.9	52.2	52.2	16.0	9.4	90.0	5.7	4.5	90.0
Actuated g/C Ratio	0.27	0.25	1.00	0.69	0.58	0.58	0.18	0.10	1.00	0.06	0.05	1.00
Clearance Time (s)	7.5	6.5		7.0	5.5	5.5	5.5	6.0		6.0	6.0	
Vehicle Extension (s)	2.0	3.0		3.0	3.0	3.0	2.0	1.0		2.0	3.0	
Lane Grp Cap (vph)	215	880	1583	713	2052	918	212	369	1583	106	176	1583
v/s Ratio Prot	0.00	0.20		c0.30	0.21		0.02	0.00		0.00	0.01	
v/s Ratio Perm	0.03		0.15	c0.29		0.01	0.03		c0.28	0.01		0.00
v/c Ratio	0.13	0.81	0.15	0.86	0.36	0.02	0.25	0.04	0.28	0.10	0.12	0.00
Uniform Delay, d1	24.7	31.8	0.0	19.7	10.0	8.0	31.5	36.3	0.0	39.7	40.9	0.0
Progression Factor	1.35	1.19	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	5.3	0.1	10.4	0.5	0.0	0.2	0.0	0.4	0.2	0.3	0.0
Delay (s)	33.5	43.1	0.1	30.1	10.5	8.1	31.7	36.3	0.4	39.9	41.2	0.0
Level of Service	C	D	A	C	B	A	C	D	A	D	D	A
Approach Delay (s)		32.2			19.2			4.9			35.4	
Approach LOS		C			B			A			D	

Intersection Summary			
HCM 2000 Control Delay	21.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	25.5
Intersection Capacity Utilization	74.1%	ICU Level of Service	D
Analysis Period (min)	15		

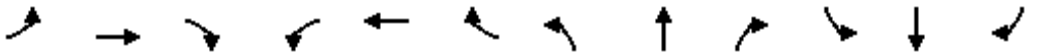
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	390	230	320	600	5	880	10	380	10	10	5
Future Volume (vph)	5	390	230	320	600	5	880	10	380	10	10	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.5	6.0	6.0		6.5	6.5	4.0		6.5	6.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		0.95	0.95	1.00		1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	0.95	1.00		0.98	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3535		1681	1687	1583		1817	1583
Flt Permitted	0.40	1.00	1.00	0.33	1.00		0.95	0.95	1.00		0.98	1.00
Satd. Flow (perm)	749	3539	1583	617	3535		1681	1687	1583		1817	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	424	250	348	652	5	957	11	413	11	11	5
RTOR Reduction (vph)	0	0	114	0	1	0	0	0	0	0	0	5
Lane Group Flow (vph)	5	424	136	348	656	0	488	480	413	0	22	0
Turn Type	Perm	NA	pm+ov	pm+pt	NA		Split	NA	Free	Split	NA	Perm
Protected Phases		6	3	5	2		3	3		4	4	
Permitted Phases	6		6	2					Free			4
Actuated Green, G (s)	22.0	22.0	48.8	41.5	41.5		26.8	26.8	90.0		2.7	2.7
Effective Green, g (s)	22.0	22.0	48.8	41.5	41.5		26.8	26.8	90.0		2.7	2.7
Actuated g/C Ratio	0.24	0.24	0.54	0.46	0.46		0.30	0.30	1.00		0.03	0.03
Clearance Time (s)	6.0	6.0	6.5	6.0	6.0		6.5	6.5			6.5	6.5
Vehicle Extension (s)	3.0	3.0	4.0	2.0	3.0		4.0	4.0			2.0	2.0
Lane Grp Cap (vph)	183	865	858	457	1630		500	502	1583		54	47
v/s Ratio Prot		0.12	0.05	c0.11	0.19		c0.29	0.28			0.01	
v/s Ratio Perm	0.01		0.04	c0.24					c0.26			0.00
v/c Ratio	0.03	0.49	0.16	0.76	0.40		0.98	0.96	0.26		0.41	0.00
Uniform Delay, d1	25.9	29.2	10.3	17.1	16.0		31.3	31.0	0.0		42.9	42.3
Progression Factor	1.00	1.00	1.00	1.18	0.88		1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.3	2.0	0.1	6.0	0.7		33.9	29.3	0.4		1.8	0.0
Delay (s)	26.1	31.2	10.4	26.2	14.7		65.2	60.3	0.4		44.7	42.4
Level of Service	C	C	B	C	B		E	E	A		D	D
Approach Delay (s)		23.5			18.7			44.1			44.3	
Approach LOS		C			B			D			D	

Intersection Summary			
HCM 2000 Control Delay	31.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	25.0
Intersection Capacity Utilization	77.0%	ICU Level of Service	D
Analysis Period (min)	15		

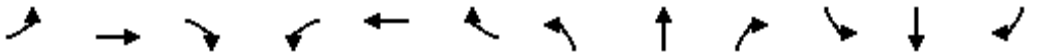
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	725	40	245	725	25	185	15	845	50	25	15
Future Volume (vph)	15	725	40	245	725	25	185	15	845	50	25	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.5	6.5	4.0	7.0	5.5	5.5	5.5	6.0	4.0	6.0	6.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.35	1.00	1.00	0.25	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00
Satd. Flow (perm)	659	3539	1583	459	3539	1583	1863	3539	1583	1693	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	16	788	43	266	788	27	201	16	918	54	27	16
RTOR Reduction (vph)	0	0	0	0	0	11	0	0	0	0	0	0
Lane Group Flow (vph)	16	788	43	266	788	16	201	16	918	54	27	16
Turn Type	pm+pt	NA	Free	pm+pt	NA	Perm	pm+pt	NA	Free	pm+pt	NA	Free
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6		Free	2		2	4		Free	8		Free
Actuated Green, G (s)	42.6	41.5	90.0	60.5	51.9	51.9	11.3	3.2	90.0	13.2	4.4	90.0
Effective Green, g (s)	42.6	41.5	90.0	60.5	51.9	51.9	11.3	3.2	90.0	13.2	4.4	90.0
Actuated g/C Ratio	0.47	0.46	1.00	0.67	0.58	0.58	0.13	0.04	1.00	0.15	0.05	1.00
Clearance Time (s)	7.5	6.5		7.0	5.5	5.5	5.5	6.0		6.0	6.0	
Vehicle Extension (s)	2.0	3.0		3.0	3.0	3.0	2.0	1.0		2.0	3.0	
Lane Grp Cap (vph)	325	1631	1583	468	2040	912	225	125	1583	255	173	1583
v/s Ratio Prot	0.00	0.22		0.07	0.22		0.08	0.00		0.02	0.01	
v/s Ratio Perm	0.02		0.03	0.31		0.01	0.03		c0.58	0.01		0.01
v/c Ratio	0.05	0.48	0.03	0.57	0.39	0.02	0.89	0.13	0.58	0.21	0.16	0.01
Uniform Delay, d1	12.6	16.8	0.0	7.8	10.4	8.1	38.7	42.0	0.0	33.8	41.0	0.0
Progression Factor	0.84	1.25	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.0	1.0	0.0	1.6	0.6	0.0	32.2	0.2	1.6	0.2	0.4	0.0
Delay (s)	10.6	22.0	0.0	9.4	10.9	8.2	70.9	42.2	1.6	34.0	41.4	0.0
Level of Service	B	C	A	A	B	A	E	D	A	C	D	A
Approach Delay (s)		20.7			10.5			14.4			30.4	
Approach LOS		C			B			B			C	

Intersection Summary			
HCM 2000 Control Delay	15.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	25.5
Intersection Capacity Utilization	66.8%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	60	230	50	365	185	110	15	190	600	435	610	60
Future Volume (vph)	60	230	50	365	185	110	15	190	600	435	610	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	11	11	11	12	12	9	11	13	12	11	11
Grade (%)		-4%			2%			-1%			-2%	
Total Lost time (s)	5.5	5.5		6.0	6.0	5.5	5.5	5.5	4.0	5.5	5.5	
Lane Util. Factor	1.00	0.95		0.91	0.91	1.00	1.00	0.95	1.00	*0.99	0.95	
Frt	1.00	0.97		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00		0.95	0.98	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1805	3397		1541	3275	1567	1601	3438	1644	3539	3409	
Flt Permitted	0.95	1.00		0.95	0.98	1.00	0.38	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1805	3397		1541	3275	1567	632	3438	1644	3539	3409	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	65	250	54	397	201	120	16	207	652	473	663	65
RTOR Reduction (vph)	0	15	0	0	0	74	0	0	0	0	6	0
Lane Group Flow (vph)	65	289	0	198	400	46	16	207	652	473	722	0
Turn Type	Split	NA		Split	NA	pt+ov	Perm	NA	Free	Prot	NA	
Protected Phases	3	3		4	4	1 4		2		1	6	
Permitted Phases							2		Free			
Actuated Green, G (s)	23.5	23.5		28.0	28.0	52.2	27.8	27.8	120.0	18.2	51.5	
Effective Green, g (s)	23.5	23.5		28.0	28.0	46.2	27.8	27.8	120.0	18.2	51.5	
Actuated g/C Ratio	0.20	0.20		0.23	0.23	0.39	0.23	0.23	1.00	0.15	0.43	
Clearance Time (s)	5.5	5.5		6.0	6.0		5.5	5.5		5.5	5.5	
Vehicle Extension (s)	4.0	4.0		4.0	4.0		0.2	0.2		3.0	0.2	
Lane Grp Cap (vph)	353	665		359	764	603	146	796	1644	536	1463	
v/s Ratio Prot	0.04	0.09		c0.13	0.12	0.03		0.06		c0.13	c0.21	
v/s Ratio Perm							0.03		c0.40			
v/c Ratio	0.18	0.43		0.55	0.52	0.08	0.11	0.26	0.40	0.88	0.49	
Uniform Delay, d1	40.3	42.4		40.5	40.2	23.4	36.3	37.7	0.0	49.9	24.8	
Progression Factor	1.00	1.00		0.97	0.97	0.91	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.1	2.1		6.0	2.5	0.1	1.5	0.8	0.7	15.7	1.2	
Delay (s)	41.4	44.5		45.3	41.6	21.4	37.9	38.5	0.7	65.6	26.0	
Level of Service	D	D		D	D	C	D	D	A	E	C	
Approach Delay (s)		43.9			39.2			10.3			41.6	
Approach LOS		D			D			B			D	

Intersection Summary			
HCM 2000 Control Delay	32.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	22.5
Intersection Capacity Utilization	61.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	4.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	1255	10	0	505	160	0	0	215	0	0	155
Future Vol, veh/h	0	1255	10	0	505	160	0	0	215	0	0	155
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	2	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	1364	11	0	549	174	0	0	234	0	0	168

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	-	-	0	-	-	688	-	-	362
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	-	-	-	7.14	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	-	-	-	3.92	-	-	3.92
Pot Cap-1 Maneuver	0	-	-	0	-	-	0	0	333	0	0	542
Stage 1	0	-	-	0	-	-	0	0	-	0	0	-
Stage 2	0	-	-	0	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	-	-	-	-	-	-	-	-	333	-	-	542
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	37.7	14.6
HCM LOS			E	B

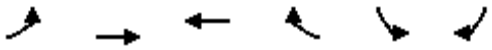
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT	WBR	SBLn1
Capacity (veh/h)	333	-	-	-	-	542
HCM Lane V/C Ratio	0.702	-	-	-	-	0.311
HCM Control Delay (s)	37.7	-	-	-	-	14.6
HCM Lane LOS	E	-	-	-	-	B
HCM 95th %tile Q(veh)	5	-	-	-	-	1.3



Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBR	SBR2	NEL	NER
Lane Configurations											
Traffic Volume (vph)	185	1160	0	0	1375	60	185	0	640	0	610
Future Volume (vph)	185	1160	0	0	1375	60	185	0	640	0	610
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	11	12	12	11	12	12	12	12	12	12
Grade (%)		0%			-3%		-4%			0%	
Total Lost time (s)	4.5	6.5			6.5	6.5	6.0		6.0		4.5
Lane Util. Factor	1.00	0.95			0.91	1.00	0.97		0.88		1.00
Frt	1.00	1.00			1.00	0.85	1.00		0.85		0.86
Flt Protected	0.95	1.00			1.00	1.00	0.95		1.00		1.00
Satd. Flow (prot)	1711	3421			4990	1607	3502		2842		1611
Flt Permitted	0.13	1.00			1.00	1.00	0.95		1.00		1.00
Satd. Flow (perm)	236	3421			4990	1607	3502		2842		1611
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	201	1261	0	0	1495	65	201	0	696	0	663
RTOR Reduction (vph)	0	0	0	0	0	22	0	0	288	0	0
Lane Group Flow (vph)	201	1261	0	0	1495	43	201	0	408	0	663
Turn Type	pm+pt	NA			NA	Perm	Prot		Perm		Perm
Protected Phases	1	6			2		4				
Permitted Phases	6					2			4		1 2 4 6
Actuated Green, G (s)	94.5	94.5			78.5	78.5	13.0		13.0		120.0
Effective Green, g (s)	94.5	94.5			78.5	78.5	13.0		13.0		107.5
Actuated g/C Ratio	0.79	0.79			0.65	0.65	0.11		0.11		0.90
Clearance Time (s)	4.5	6.5			6.5	6.5	6.0		6.0		
Vehicle Extension (s)	6.0	0.2			0.2	0.2	3.0		3.0		
Lane Grp Cap (vph)	327	2694			3264	1051	379		307		1443
v/s Ratio Prot	c0.06	0.37			0.30		0.06				
v/s Ratio Perm	c0.42					0.03			c0.14		0.41
v/c Ratio	0.61	0.47			0.46	0.04	0.53		1.33		0.46
Uniform Delay, d1	6.5	4.3			10.2	7.4	50.6		53.5		1.1
Progression Factor	1.12	1.04			1.00	1.00	1.00		1.00		1.00
Incremental Delay, d2	5.9	0.6			0.5	0.1	5.2		168.8		0.7
Delay (s)	13.2	5.0			10.7	7.4	55.8		222.3		1.8
Level of Service	B	A			B	A	E		F		A
Approach Delay (s)		6.2			10.6		185.0			1.8	
Approach LOS		A			B		F			A	

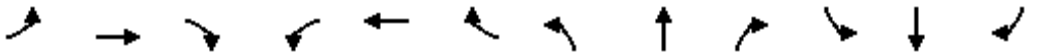
Intersection Summary			
HCM 2000 Control Delay	42.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	Err%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑↱			↱
Traffic Volume (vph)	0	1955	1430	5	0	5
Future Volume (vph)	0	1955	1430	5	0	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)		1%	-3%		0%	
Total Lost time (s)		5.0	5.0			4.0
Lane Util. Factor		0.91	0.91			1.00
Frt		1.00	1.00			0.86
Flt Protected		1.00	1.00			1.00
Satd. Flow (prot)		5060	5159			1611
Flt Permitted		1.00	1.00			1.00
Satd. Flow (perm)		5060	5159			1611
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	2125	1554	5	0	5
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	2125	1559	0	0	5
Turn Type		NA	NA			Free
Protected Phases		2	6			
Permitted Phases						Free
Actuated Green, G (s)		87.3	87.3			100.9
Effective Green, g (s)		87.3	87.3			100.9
Actuated g/C Ratio		0.87	0.87			1.00
Clearance Time (s)		5.0	5.0			
Vehicle Extension (s)		5.0	5.0			
Lane Grp Cap (vph)		4377	4463			1611
v/s Ratio Prot		c0.42	0.30			
v/s Ratio Perm						c0.00
v/c Ratio		0.49	0.35			0.00
Uniform Delay, d1		1.6	1.3			0.0
Progression Factor		1.00	1.00			1.00
Incremental Delay, d2		0.2	0.1			0.0
Delay (s)		1.8	1.4			0.0
Level of Service		A	A			A
Approach Delay (s)		1.8	1.4		0.0	
Approach LOS		A	A		A	

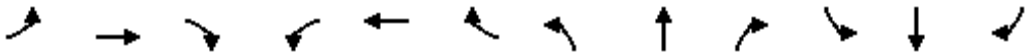
Intersection Summary			
HCM 2000 Control Delay	1.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	100.9	Sum of lost time (s)	9.0
Intersection Capacity Utilization	41.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	1880	70	10	1320	10	75	5	25	30	5	40
Future Volume (veh/h)	5	1880	70	10	1320	10	75	5	25	30	5	40
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1864	1864	1864	1908	1988	1988	1870	1945	1945	1864	1864	1864
Adj Flow Rate, veh/h	5	2043	76	11	1435	11	82	5	27	33	5	43
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	319	3612	134	202	4014	31	155	22	119	170	14	120
Arrive On Green	0.01	0.72	0.72	0.01	0.72	0.72	0.08	0.08	0.08	0.08	0.08	0.08
Sat Flow, veh/h	1776	5037	187	1818	5556	43	1357	264	1425	1373	167	1438
Grp Volume(v), veh/h	5	1375	744	11	935	511	82	0	32	33	0	48
Grp Sat Flow(s),veh/h/ln	1776	1697	1831	1818	1809	1980	1357	0	1689	1373	0	1606
Q Serve(g_s), s	0.1	17.3	17.4	0.1	8.7	8.7	5.0	0.0	1.6	2.1	0.0	2.5
Cycle Q Clear(g_c), s	0.1	17.3	17.4	0.1	8.7	8.7	7.5	0.0	1.6	3.7	0.0	2.5
Prop In Lane	1.00		0.10	1.00		0.02	1.00		0.84	1.00		0.90
Lane Grp Cap(c), veh/h	319	2433	1313	202	2614	1431	155	0	141	170	0	134
V/C Ratio(X)	0.02	0.56	0.57	0.05	0.36	0.36	0.53	0.00	0.23	0.19	0.00	0.36
Avail Cap(c_a), veh/h	418	2433	1313	293	2614	1431	155	0	141	170	0	134
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.89	0.89	0.89	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	3.9	6.1	6.1	5.1	4.7	4.7	42.7	0.0	38.5	40.3	0.0	39.0
Incr Delay (d2), s/veh	0.0	0.9	1.6	0.1	0.4	0.7	3.4	0.0	0.8	0.5	0.0	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	4.6	5.3	0.0	2.4	2.7	2.0	0.0	0.7	0.7	0.0	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	3.9	6.9	7.7	5.3	5.1	5.4	46.1	0.0	39.4	40.8	0.0	40.6
LnGrp LOS	A	A	A	A	A	A	D	A	D	D	A	D
Approach Vol, veh/h		2124			1457			114			81	
Approach Delay, s/veh		7.2			5.2			44.2			40.7	
Approach LOS		A			A			D			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.0	70.0		14.0	6.5	69.5		14.0				
Change Period (Y+Rc), s	5.5	5.0		6.5	5.5	5.0		6.5				
Max Green Setting (Gmax), s	5.5	60.0		7.5	5.5	60.0		7.5				
Max Q Clear Time (g_c+I1), s	2.1	10.7		5.7	2.1	19.4		9.5				
Green Ext Time (p_c), s	0.0	13.1		0.0	0.0	22.9		0.0				

Intersection Summary			
HCM 6th Ctrl Delay		8.2	
HCM 6th LOS		A	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	755	50	10	220	15	635	10	65	5	5	5
Future Volume (vph)	15	755	50	10	220	15	635	10	65	5	5	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			5.5		6.0	6.0	6.0		6.0	
Lane Util. Factor		0.95			0.95		0.95	0.95	1.00		1.00	
Frt		0.99			0.99		1.00	1.00	0.85		0.95	
Flt Protected		1.00			1.00		0.95	0.95	1.00		0.98	
Satd. Flow (prot)		3504			3500		1681	1688	1583		1750	
Flt Permitted		0.95			0.91		0.95	0.95	1.00		0.98	
Satd. Flow (perm)		3320			3199		1681	1688	1583		1750	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	16	821	54	11	239	16	690	11	71	5	5	5
RTOR Reduction (vph)	0	6	0	0	6	0	0	0	49	0	5	0
Lane Group Flow (vph)	0	885	0	0	260	0	352	349	22	0	10	0
Turn Type	Perm	NA		Perm	NA		Split	NA	Perm	Split	NA	
Protected Phases		8			4		2	2		6	6	
Permitted Phases	8			4					2			
Actuated Green, G (s)		23.8			24.3		19.6	19.6	19.6		0.9	
Effective Green, g (s)		23.8			24.3		19.6	19.6	19.6		0.9	
Actuated g/C Ratio		0.38			0.39		0.31	0.31	0.31		0.01	
Clearance Time (s)		6.0			5.5		6.0	6.0	6.0		6.0	
Vehicle Extension (s)		4.0			4.0		2.0	2.0	2.0		2.0	
Lane Grp Cap (vph)		1268			1247		528	531	498		25	
v/s Ratio Prot							c0.21	0.21			c0.01	
v/s Ratio Perm		c0.27			0.08				0.01			
v/c Ratio		0.70			0.21		0.67	0.66	0.04		0.40	
Uniform Delay, d1		16.2			12.6		18.5	18.4	14.8		30.4	
Progression Factor		1.00			1.00		1.00	1.00	1.00		1.00	
Incremental Delay, d2		1.8			0.1		6.5	6.2	0.2		3.8	
Delay (s)		18.1			12.7		25.1	24.7	15.0		34.3	
Level of Service		B			B		C	C	B		C	
Approach Delay (s)		18.1			12.7			24.0			34.3	
Approach LOS		B			B			C			C	

Intersection Summary			
HCM 2000 Control Delay	19.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	62.3	Sum of lost time (s)	18.0
Intersection Capacity Utilization	67.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	5	5	790	70	40	815
Future Volume (vph)	5	5	790	70	40	815
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0		6.0	6.0	6.0	6.0
Lane Util. Factor	0.97		0.95	1.00	1.00	0.91
Frt	0.93		1.00	0.85	1.00	1.00
Flt Protected	0.98		1.00	1.00	0.95	1.00
Satd. Flow (prot)	3261		3539	1583	1770	5085
Flt Permitted	0.98		1.00	1.00	0.32	1.00
Satd. Flow (perm)	3261		3539	1583	601	5085
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	5	859	76	43	886
RTOR Reduction (vph)	5	0	0	24	0	0
Lane Group Flow (vph)	5	0	859	52	43	886
Turn Type	Prot		NA	Perm	pm+pt	NA
Protected Phases	4		2		1	6
Permitted Phases				2	6	
Actuated Green, G (s)	1.0		45.3	45.3	53.5	53.5
Effective Green, g (s)	1.0		45.3	45.3	53.5	53.5
Actuated g/C Ratio	0.02		0.68	0.68	0.80	0.80
Clearance Time (s)	6.0		6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	49		2410	1078	522	4090
v/s Ratio Prot	c0.00		c0.24		0.00	c0.17
v/s Ratio Perm				0.03	0.06	
v/c Ratio	0.10		0.36	0.05	0.08	0.22
Uniform Delay, d1	32.3		4.5	3.5	1.6	1.5
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	0.9		0.4	0.1	0.1	0.1
Delay (s)	33.2		4.9	3.6	1.7	1.7
Level of Service	C		A	A	A	A
Approach Delay (s)	33.2		4.8			1.7
Approach LOS	C		A			A

Intersection Summary			
HCM 2000 Control Delay	3.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	66.5	Sum of lost time (s)	18.0
Intersection Capacity Utilization	45.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	60	325	35	670	570	490	65	560	505	165	365	80
Future Volume (vph)	60	325	35	670	570	490	65	560	505	165	365	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	11	11	11	12	12	9	11	13	12	11	11
Grade (%)		-4%			2%			-1%			-2%	
Total Lost time (s)	5.5	5.5		6.0	6.0	5.5	5.5	5.5	4.0	5.5	5.5	
Lane Util. Factor	1.00	0.95		0.91	0.91	1.00	1.00	0.95	1.00	*0.99	0.95	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.97	
Flt Protected	0.95	1.00		0.95	0.98	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1805	3439		1541	3304	1567	1601	3438	1644	3539	3362	
Flt Permitted	0.95	1.00		0.95	0.98	1.00	0.48	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1805	3439		1541	3304	1567	802	3438	1644	3539	3362	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	65	353	38	728	620	533	71	609	549	179	397	87
RTOR Reduction (vph)	0	7	0	0	0	193	0	0	0	0	15	0
Lane Group Flow (vph)	65	384	0	437	911	340	71	609	549	179	469	0
Turn Type	Split	NA		Split	NA	pt+ov	Perm	NA	Free	Prot	NA	
Protected Phases	3	3		4	4	1 4		2		1	6	
Permitted Phases							2		Free			
Actuated Green, G (s)	21.5	21.5		35.0	35.0	51.6	30.4	30.4	120.0	10.6	46.5	
Effective Green, g (s)	21.5	21.5		35.0	35.0	45.6	30.4	30.4	120.0	10.6	46.5	
Actuated g/C Ratio	0.18	0.18		0.29	0.29	0.38	0.25	0.25	1.00	0.09	0.39	
Clearance Time (s)	5.5	5.5		6.0	6.0		5.5	5.5		5.5	5.5	
Vehicle Extension (s)	4.0	4.0		4.0	4.0		0.2	0.2		3.0	0.2	
Lane Grp Cap (vph)	323	616		449	963	595	203	870	1644	312	1302	
v/s Ratio Prot	0.04	c0.11		c0.28	0.28	0.22		c0.18		c0.05	0.14	
v/s Ratio Perm							0.09		0.33			
v/c Ratio	0.20	0.62		0.97	0.95	0.57	0.35	0.70	0.33	0.57	0.36	
Uniform Delay, d1	41.9	45.5		42.0	41.6	29.5	36.7	40.7	0.0	52.5	26.2	
Progression Factor	1.00	1.00		0.87	0.87	0.41	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.4	4.7		34.2	17.3	1.2	0.4	2.0	0.5	2.5	0.8	
Delay (s)	43.3	50.2		70.7	53.3	13.2	37.1	42.7	0.5	55.1	26.9	
Level of Service	D	D		E	D	B	D	D	A	E	C	
Approach Delay (s)		49.3			46.0			23.5			34.5	
Approach LOS		D			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	38.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	22.5
Intersection Capacity Utilization	72.5%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	5.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	985	10	0	1545	180	0	0	120	0	0	185
Future Vol, veh/h	0	985	10	0	1545	180	0	0	120	0	0	185
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	2	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	1071	11	0	1679	196	0	0	130	0	0	201

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	-	-	0	-	-	541	-	-	938
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	-	-	-	7.14	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	-	-	-	3.92	-	-	3.92
Pot Cap-1 Maneuver	0	-	-	0	-	-	0	0	416	0	0	228
Stage 1	0	-	-	0	-	-	0	0	-	0	0	-
Stage 2	0	-	-	0	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	-	-	-	-	-	-	-	-	416	-	-	228
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	17.6	77.7
HCM LOS			C	F

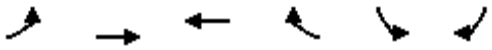
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT	WBR	SBLn1
Capacity (veh/h)	416	-	-	-	-	228
HCM Lane V/C Ratio	0.314	-	-	-	-	0.882
HCM Control Delay (s)	17.6	-	-	-	-	77.7
HCM Lane LOS	C	-	-	-	-	F
HCM 95th %tile Q(veh)	1.3	-	-	-	-	7.2



Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBR	SBR2	NEL	NER
Lane Configurations											
Traffic Volume (vph)	65	1420	0	0	2525	65	65	0	285	0	500
Future Volume (vph)	65	1420	0	0	2525	65	65	0	285	0	500
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	11	12	12	11	12	12	12	12	12	12
Grade (%)		0%			-3%		-4%			0%	
Total Lost time (s)	4.5	6.5			6.5	6.5	6.0		6.0		4.5
Lane Util. Factor	1.00	0.95			0.91	1.00	0.97		0.88		1.00
Frt	1.00	1.00			1.00	0.85	1.00		0.85		0.86
Flt Protected	0.95	1.00			1.00	1.00	0.95		1.00		1.00
Satd. Flow (prot)	1711	3421			4990	1607	3502		2842		1611
Flt Permitted	0.05	1.00			1.00	1.00	0.95		1.00		1.00
Satd. Flow (perm)	86	3421			4990	1607	3502		2842		1611
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	71	1543	0	0	2745	71	71	0	310	0	543
RTOR Reduction (vph)	0	0	0	0	0	24	0	0	204	0	0
Lane Group Flow (vph)	71	1543	0	0	2745	47	71	0	106	0	543
Turn Type	pm+pt	NA			NA	Perm	Prot		Perm		Perm
Protected Phases	1	6			2		4				
Permitted Phases	6					2			4		1 2 4 6
Actuated Green, G (s)	94.5	94.5			79.7	79.7	13.0		13.0		120.0
Effective Green, g (s)	94.5	94.5			79.7	79.7	13.0		13.0		107.5
Actuated g/C Ratio	0.79	0.79			0.66	0.66	0.11		0.11		0.90
Clearance Time (s)	4.5	6.5			6.5	6.5	6.0		6.0		
Vehicle Extension (s)	6.0	0.2			0.2	0.2	3.0		3.0		
Lane Grp Cap (vph)	207	2694			3314	1067	379		307		1443
v/s Ratio Prot	0.03	c0.45			c0.55		0.02				
v/s Ratio Perm	0.24					0.03			0.04		c0.34
v/c Ratio	0.34	0.57			0.83	0.04	0.19		0.34		0.38
Uniform Delay, d1	18.1	4.9			15.0	7.0	48.7		49.6		1.0
Progression Factor	0.85	1.32			0.66	0.07	1.00		1.00		1.00
Incremental Delay, d2	2.8	0.9			2.0	0.1	1.1		3.1		0.5
Delay (s)	18.1	7.4			12.0	0.5	49.8		52.6		1.4
Level of Service	B	A			B	A	D		D		A
Approach Delay (s)		7.9			11.7		52.1			1.4	
Approach LOS		A			B		D			A	

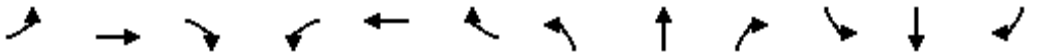
Intersection Summary			
HCM 2000 Control Delay	12.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	Err%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑↱			↱
Traffic Volume (vph)	0	1985	2585	5	0	5
Future Volume (vph)	0	1985	2585	5	0	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)		1%	-3%		0%	
Total Lost time (s)		5.0	5.0			4.0
Lane Util. Factor		0.91	0.91			1.00
Frt		1.00	1.00			0.86
Flt Protected		1.00	1.00			1.00
Satd. Flow (prot)		5060	5160			1611
Flt Permitted		1.00	1.00			1.00
Satd. Flow (perm)		5060	5160			1611
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	2158	2810	5	0	5
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	2158	2815	0	0	5
Turn Type		NA	NA			Free
Protected Phases		2	6			
Permitted Phases						Free
Actuated Green, G (s)		99.8	99.8			120.0
Effective Green, g (s)		99.8	99.8			120.0
Actuated g/C Ratio		0.83	0.83			1.00
Clearance Time (s)		5.0	5.0			
Vehicle Extension (s)		5.0	5.0			
Lane Grp Cap (vph)		4208	4291			1611
v/s Ratio Prot		0.43	c0.55			
v/s Ratio Perm						c0.00
v/c Ratio		0.51	0.66			0.00
Uniform Delay, d1		3.0	3.7			0.0
Progression Factor		0.60	1.00			1.00
Incremental Delay, d2		0.4	0.8			0.0
Delay (s)		2.2	4.5			0.0
Level of Service		A	A			A
Approach Delay (s)		2.2	4.5		0.0	
Approach LOS		A	A		A	

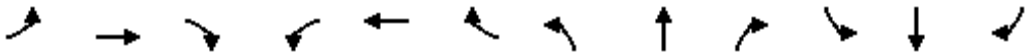
Intersection Summary			
HCM 2000 Control Delay	3.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	54.2%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	1895	80	15	2515	20	60	10	20	20	5	15
Future Volume (veh/h)	10	1895	80	15	2515	20	60	10	20	20	5	15
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1864	1864	1864	1908	1988	1988	1870	1945	1945	1864	1864	1864
Adj Flow Rate, veh/h	11	2060	87	16	2734	22	65	11	22	22	5	16
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	144	3588	151	205	4000	32	175	46	93	165	31	100
Arrive On Green	0.01	0.72	0.72	0.01	0.72	0.72	0.08	0.08	0.08	0.08	0.08	0.08
Sat Flow, veh/h	1776	5009	211	1818	5553	45	1391	579	1158	1372	390	1249
Grp Volume(v), veh/h	11	1394	753	16	1779	977	65	0	33	22	0	21
Grp Sat Flow(s),veh/h/ln	1776	1697	1827	1818	1809	1980	1391	0	1737	1372	0	1640
Q Serve(g_s), s	0.2	17.8	17.9	0.2	24.4	24.5	4.1	0.0	1.6	1.4	0.0	1.1
Cycle Q Clear(g_c), s	0.2	17.8	17.9	0.2	24.4	24.5	5.2	0.0	1.6	3.0	0.0	1.1
Prop In Lane	1.00		0.12	1.00		0.02	1.00		0.67	1.00		0.76
Lane Grp Cap(c), veh/h	144	2431	1308	205	2606	1426	175	0	139	165	0	131
V/C Ratio(X)	0.08	0.57	0.58	0.08	0.68	0.68	0.37	0.00	0.24	0.13	0.00	0.16
Avail Cap(c_a), veh/h	234	2431	1308	289	2606	1426	396	0	415	383	0	392
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.87	0.87	0.87	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	7.0	6.1	6.2	5.2	6.9	6.9	41.0	0.0	38.8	40.2	0.0	38.6
Incr Delay (d2), s/veh	0.2	0.9	1.6	0.2	1.5	2.7	1.3	0.0	0.9	0.4	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	4.7	5.4	0.1	6.9	8.1	1.5	0.0	0.7	0.5	0.0	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	7.2	7.0	7.8	5.4	8.4	9.6	42.3	0.0	39.7	40.6	0.0	39.1
LnGrp LOS	A	A	A	A	A	A	D	A	D	D	A	D
Approach Vol, veh/h		2158			2772			98			43	
Approach Delay, s/veh		7.3			8.8			41.4			39.9	
Approach LOS		A			A			D			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.5	69.8		13.7	6.8	69.5		13.7				
Change Period (Y+Rc), s	5.5	5.0		6.5	5.5	5.0		6.5				
Max Green Setting (Gmax), s	5.5	46.0		21.5	5.5	46.0		21.5				
Max Q Clear Time (g_c+I1), s	2.2	26.5		5.0	2.2	19.9		7.2				
Green Ext Time (p_c), s	0.0	17.1		0.1	0.0	17.7		0.2				

Intersection Summary			
HCM 6th Ctrl Delay		9.1	
HCM 6th LOS		A	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	320	215	45	80	5	515	5	20	10	20	10
Future Volume (vph)	5	320	215	45	80	5	515	5	20	10	20	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			5.5		6.0	6.0	6.0		6.0	
Lane Util. Factor		0.95			0.95		0.95	0.95	1.00		1.00	
Frt		0.94			0.99		1.00	1.00	0.85		0.97	
Flt Protected		1.00			0.98		0.95	0.95	1.00		0.99	
Satd. Flow (prot)		3326			3460		1681	1687	1583		1778	
Flt Permitted		0.95			0.72		0.95	0.95	1.00		0.99	
Satd. Flow (perm)		3170			2521		1681	1687	1583		1778	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	348	234	49	87	5	560	5	22	11	22	11
RTOR Reduction (vph)	0	166	0	0	4	0	0	0	15	0	10	0
Lane Group Flow (vph)	0	421	0	0	137	0	280	285	7	0	34	0
Turn Type	Perm	NA		Perm	NA		Split	NA	Perm	Split	NA	
Protected Phases		8			4		2	2		6	6	
Permitted Phases	8			4					2			
Actuated Green, G (s)		16.6			17.1		19.4	19.4	19.4		3.5	
Effective Green, g (s)		16.6			17.1		19.4	19.4	19.4		3.5	
Actuated g/C Ratio		0.29			0.30		0.34	0.34	0.34		0.06	
Clearance Time (s)		6.0			5.5		6.0	6.0	6.0		6.0	
Vehicle Extension (s)		4.0			4.0		2.0	2.0	2.0		2.0	
Lane Grp Cap (vph)		915			749		567	569	534		108	
v/s Ratio Prot							0.17	c0.17			c0.02	
v/s Ratio Perm		c0.13			0.05				0.00			
v/c Ratio		0.46			0.18		0.49	0.50	0.01		0.31	
Uniform Delay, d1		16.8			15.0		15.1	15.2	12.7		25.8	
Progression Factor		1.00			1.00		1.00	1.00	1.00		1.00	
Incremental Delay, d2		0.5			0.2		3.1	3.1	0.0		0.6	
Delay (s)		17.3			15.2		18.2	18.3	12.7		26.4	
Level of Service		B			B		B	B	B		C	
Approach Delay (s)		17.3			15.2			18.1			26.4	
Approach LOS		B			B			B			C	

Intersection Summary			
HCM 2000 Control Delay	17.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	57.5	Sum of lost time (s)	18.0
Intersection Capacity Utilization	64.0%	ICU Level of Service	C
Analysis Period (min)	15		

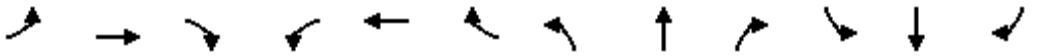
c Critical Lane Group



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	35	25	595	10	20	505
Future Volume (vph)	35	25	595	10	20	505
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0		6.0	6.0	6.0	6.0
Lane Util. Factor	0.97		0.95	1.00	1.00	0.91
Frt	0.94		1.00	0.85	1.00	1.00
Flt Protected	0.97		1.00	1.00	0.95	1.00
Satd. Flow (prot)	3292		3539	1583	1770	5085
Flt Permitted	0.97		1.00	1.00	0.41	1.00
Satd. Flow (perm)	3292		3539	1583	756	5085
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	38	27	647	11	22	549
RTOR Reduction (vph)	26	0	0	4	0	0
Lane Group Flow (vph)	39	0	647	7	22	549
Turn Type	Prot		NA	Perm	pm+pt	NA
Protected Phases	4		2		1	6
Permitted Phases				2	6	
Actuated Green, G (s)	3.0		43.7	43.7	50.9	50.9
Effective Green, g (s)	3.0		43.7	43.7	50.9	50.9
Actuated g/C Ratio	0.05		0.66	0.66	0.77	0.77
Clearance Time (s)	6.0		6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	149		2346	1049	602	3927
v/s Ratio Prot	c0.01		c0.18		0.00	c0.11
v/s Ratio Perm				0.00	0.03	
v/c Ratio	0.26		0.28	0.01	0.04	0.14
Uniform Delay, d1	30.4		4.6	3.8	1.8	1.9
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	0.9		0.3	0.0	0.0	0.1
Delay (s)	31.3		4.9	3.8	1.8	2.0
Level of Service	C		A	A	A	A
Approach Delay (s)	31.3		4.8			2.0
Approach LOS	C		A			A

Intersection Summary			
HCM 2000 Control Delay	4.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.28		
Actuated Cycle Length (s)	65.9	Sum of lost time (s)	18.0
Intersection Capacity Utilization	30.8%	ICU Level of Service	A
Analysis Period (min)	15		

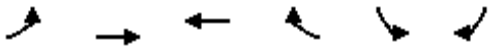
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	75	455	15	90	155	190	5	20	30	80	5	55
Future Volume (veh/h)	75	455	15	90	155	190	5	20	30	80	5	55
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	82	495	16	98	168	207	5	22	33	87	5	60
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	758	2432	79	687	1383	1233	167	79	119	179	15	174
Arrive On Green	0.69	0.69	0.69	0.03	0.78	0.78	0.12	0.12	0.12	0.12	0.12	0.12
Sat Flow, veh/h	1008	3513	113	1781	1777	1585	1337	675	1013	1349	123	1480
Grp Volume(v), veh/h	82	250	261	98	168	207	5	0	55	87	0	65
Grp Sat Flow(s),veh/h/ln	1008	1777	1850	1781	1777	1585	1337	0	1688	1349	0	1604
Q Serve(g_s), s	3.3	6.0	6.1	1.8	2.8	4.0	0.4	0.0	3.6	7.5	0.0	4.5
Cycle Q Clear(g_c), s	3.3	6.0	6.1	1.8	2.8	4.0	4.9	0.0	3.6	11.1	0.0	4.5
Prop In Lane	1.00		0.06	1.00		1.00	1.00		0.60	1.00		0.92
Lane Grp Cap(c), veh/h	758	1230	1281	687	1383	1233	167	0	199	179	0	189
V/C Ratio(X)	0.11	0.20	0.20	0.14	0.12	0.17	0.03	0.00	0.28	0.49	0.00	0.34
Avail Cap(c_a), veh/h	758	1230	1281	831	1383	1233	344	0	422	357	0	401
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.93	0.93	0.93	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	6.2	6.6	6.6	4.6	3.3	3.4	50.9	0.0	48.3	53.4	0.0	48.7
Incr Delay (d2), s/veh	0.3	0.4	0.4	0.1	0.2	0.3	0.2	0.0	1.6	4.3	0.0	2.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	2.3	2.4	0.6	0.9	1.2	0.1	0.0	1.6	2.8	0.0	1.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	6.5	7.0	7.0	4.7	3.4	3.7	51.1	0.0	49.9	57.7	0.0	51.0
LnGrp LOS	A	A	A	A	A	A	D	A	D	E	A	D
Approach Vol, veh/h		593			473			60			152	
Approach Delay, s/veh		6.9			3.8			50.0			54.8	
Approach LOS		A			A			D			D	

Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		99.9		20.1	10.3	89.6		20.1				
Change Period (Y+Rc), s		6.5		6.0	6.5	6.5		6.0				
Max Green Setting (Gmax), s		77.5		30.0	13.5	57.5		30.0				
Max Q Clear Time (g_c+I1), s		6.0		13.1	3.8	8.1		6.9				
Green Ext Time (p_c), s		0.4		1.0	0.1	0.6		0.4				

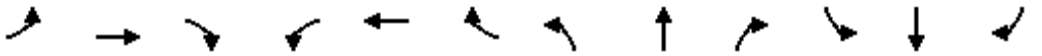
Intersection Summary												
HCM 6th Ctrl Delay			13.5									
HCM 6th LOS			B									



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	85	480	345	45	195	90
Future Volume (veh/h)	85	480	345	45	195	90
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	92	522	375	49	212	98
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	466	991	991	442	322	149
Arrive On Green	0.28	0.28	0.28	0.28	0.28	0.28
Sat Flow, veh/h	963	3647	3647	1585	1169	540
Grp Volume(v), veh/h	92	522	375	49	311	0
Grp Sat Flow(s),veh/h/ln	963	1777	1777	1585	1715	0
Q Serve(g_s), s	2.2	3.2	2.2	0.6	4.1	0.0
Cycle Q Clear(g_c), s	4.4	3.2	2.2	0.6	4.1	0.0
Prop In Lane	1.00			1.00	0.68	0.32
Lane Grp Cap(c), veh/h	466	991	991	442	473	0
V/C Ratio(X)	0.20	0.53	0.38	0.11	0.66	0.00
Avail Cap(c_a), veh/h	2212	7434	7434	3316	1295	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	9.3	7.9	7.5	6.9	8.3	0.0
Incr Delay (d2), s/veh	0.1	0.2	0.1	0.0	3.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.7	0.5	0.1	1.3	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	9.4	8.0	7.6	7.0	11.6	0.0
LnGrp LOS	A	A	A	A	B	A
Approach Vol, veh/h		614	424		311	
Approach Delay, s/veh		8.2	7.5		11.6	
Approach LOS		A	A		B	

Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		13.2		12.6		13.2
Change Period (Y+Rc), s		6.0		5.5		6.0
Max Green Setting (Gmax), s		54.0		19.5		54.0
Max Q Clear Time (g_c+I1), s		4.2		6.1		6.4
Green Ext Time (p_c), s		0.5		1.8		0.8

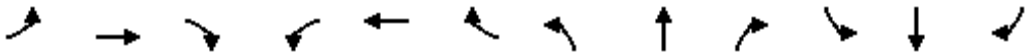
Intersection Summary	
HCM 6th Ctrl Delay	8.8
HCM 6th LOS	A



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	260	265	150	125	175	180	5	5	5	100	310	210
Future Volume (vph)	260	265	150	125	175	180	5	5	5	100	310	210
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.5		5.0	5.5			5.5	5.5	5.5	5.5	5.5
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00	0.95	0.95	1.00
Frt	1.00	0.95		1.00	0.92			1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.98	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3347		1770	3270			1817	1583	1681	1767	1583
Flt Permitted	0.46	1.00		0.47	1.00			0.98	1.00	0.95	1.00	1.00
Satd. Flow (perm)	851	3347		872	3270			1817	1583	1681	1767	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	283	288	163	136	190	196	5	5	5	109	337	228
RTOR Reduction (vph)	0	65	0	0	126	0	0	0	5	0	0	165
Lane Group Flow (vph)	283	386	0	136	260	0	0	10	0	98	348	63
Turn Type	pm+pt	NA		pm+pt	NA		Split	NA	Perm	Split	NA	Perm
Protected Phases	1	6		5	2		3	3		4	4	
Permitted Phases	6			2					3			4
Actuated Green, G (s)	49.7	38.1		45.3	35.9			3.5	3.5	27.5	27.5	27.5
Effective Green, g (s)	49.7	38.1		45.3	35.9			3.5	3.5	27.5	27.5	27.5
Actuated g/C Ratio	0.50	0.38		0.45	0.36			0.04	0.04	0.28	0.28	0.28
Clearance Time (s)	5.0	5.5		5.0	5.5			5.5	5.5	5.5	5.5	5.5
Vehicle Extension (s)	3.0	0.2		3.0	0.2			5.0	5.0	5.0	5.0	5.0
Lane Grp Cap (vph)	529	1275		479	1173			63	55	462	485	435
v/s Ratio Prot	c0.06	0.12		0.03	0.08			c0.01		0.06	c0.20	
v/s Ratio Perm	c0.20			0.10					0.00			0.04
v/c Ratio	0.53	0.30		0.28	0.22			0.16	0.00	0.21	0.72	0.14
Uniform Delay, d1	15.2	21.7		16.2	22.3			46.8	46.6	27.9	32.7	27.4
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.0	0.6		0.3	0.4			2.5	0.0	0.5	6.2	0.3
Delay (s)	16.3	22.3		16.6	22.8			49.3	46.6	28.4	38.9	27.7
Level of Service	B	C		B	C			D	D	C	D	C
Approach Delay (s)		20.0			21.1			48.4			33.6	
Approach LOS		B			C			D			C	

Intersection Summary			
HCM 2000 Control Delay	25.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	21.5
Intersection Capacity Utilization	55.9%	ICU Level of Service	B
Analysis Period (min)	15		

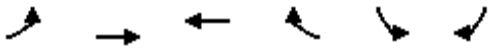
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	380	10	210	490	125	40	10	195	140	15	45
Future Volume (veh/h)	40	380	10	210	490	125	40	10	195	140	15	45
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	43	413	11	228	533	136	43	11	212	152	16	49
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	436	1732	46	611	1753	445	382	21	411	237	110	336
Arrive On Green	0.49	0.49	0.49	0.08	0.62	0.62	0.27	0.27	0.27	0.27	0.27	0.27
Sat Flow, veh/h	768	3536	94	1781	2806	713	1337	79	1518	1158	405	1242
Grp Volume(v), veh/h	43	207	217	228	337	332	43	0	223	152	0	65
Grp Sat Flow(s),veh/h/ln	768	1777	1853	1781	1777	1742	1337	0	1597	1158	0	1647
Q Serve(g_s), s	3.6	8.1	8.1	7.3	10.5	10.6	3.0	0.0	14.2	15.4	0.0	3.6
Cycle Q Clear(g_c), s	3.6	8.1	8.1	7.3	10.5	10.6	6.6	0.0	14.2	29.6	0.0	3.6
Prop In Lane	1.00		0.05	1.00		0.41	1.00		0.95	1.00		0.75
Lane Grp Cap(c), veh/h	436	870	908	611	1110	1089	382	0	433	237	0	446
V/C Ratio(X)	0.10	0.24	0.24	0.37	0.30	0.31	0.11	0.00	0.52	0.64	0.00	0.15
Avail Cap(c_a), veh/h	436	870	908	756	1110	1089	454	0	519	299	0	535
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.93	0.93	0.93	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	16.6	17.7	17.7	12.3	10.4	10.4	35.7	0.0	37.1	49.6	0.0	33.2
Incr Delay (d2), s/veh	0.5	0.6	0.6	0.4	0.7	0.7	0.3	0.0	2.0	6.2	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	3.5	3.6	2.9	4.2	4.2	1.0	0.0	5.8	4.8	0.0	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.0	18.3	18.3	12.6	11.1	11.1	36.0	0.0	39.1	55.8	0.0	33.5
LnGrp LOS	B	B	B	B	B	B	D	A	D	E	A	C
Approach Vol, veh/h		467			897			266			217	
Approach Delay, s/veh		18.2			11.5			38.6			49.1	
Approach LOS		B			B			D			D	

Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		81.5		38.5	16.2	65.3		38.5				
Change Period (Y+Rc), s		6.5		6.0	6.5	6.5		6.0				
Max Green Setting (Gmax), s		68.5		39.0	19.5	42.5		39.0				
Max Q Clear Time (g_c+I1), s		12.6		31.6	9.3	10.1		16.2				
Green Ext Time (p_c), s		0.7		1.0	0.5	0.5		2.8				

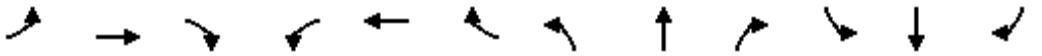
Intersection Summary												
HCM 6th Ctrl Delay			21.5									
HCM 6th LOS			C									



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	245	470	655	520	60	170
Future Volume (veh/h)	245	470	655	520	60	170
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	266	511	712	565	65	185
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	346	2395	2395	1068	77	220
Arrive On Green	0.67	0.67	0.67	0.67	0.18	0.18
Sat Flow, veh/h	433	3647	3647	1585	423	1203
Grp Volume(v), veh/h	266	511	712	565	251	0
Grp Sat Flow(s),veh/h/ln	433	1777	1777	1585	1633	0
Q Serve(g_s), s	47.5	4.4	6.5	14.5	11.9	0.0
Cycle Q Clear(g_c), s	54.0	4.4	6.5	14.5	11.9	0.0
Prop In Lane	1.00			1.00	0.26	0.74
Lane Grp Cap(c), veh/h	346	2395	2395	1068	298	0
V/C Ratio(X)	0.77	0.21	0.30	0.53	0.84	0.00
Avail Cap(c_a), veh/h	346	2395	2395	1068	397	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	17.2	5.0	5.3	6.6	31.6	0.0
Incr Delay (d2), s/veh	9.1	0.0	0.0	0.3	15.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.1	1.3	2.0	3.9	5.9	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	26.3	5.0	5.4	6.9	47.5	0.0
LnGrp LOS	C	A	A	A	D	A
Approach Vol, veh/h		777	1277		251	
Approach Delay, s/veh		12.3	6.0		47.5	
Approach LOS		B	A		D	

Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		60.0		20.1		60.0
Change Period (Y+Rc), s		6.0		5.5		6.0
Max Green Setting (Gmax), s		54.0		19.5		54.0
Max Q Clear Time (g_c+I1), s		16.5		13.9		56.0
Green Ext Time (p_c), s		4.9		0.8		0.0

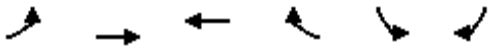
Intersection Summary		
HCM 6th Ctrl Delay	12.6	
HCM 6th LOS	B	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	205	315	10	5	490	30	195	80	190	195	5	490
Future Volume (vph)	205	315	10	5	490	30	195	80	190	195	5	490
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.5		5.0	5.5			5.5	5.5	5.5	5.5	5.5
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00	0.95	0.95	1.00
Frt	1.00	1.00		1.00	0.99			1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.97	1.00	0.95	0.95	1.00
Satd. Flow (prot)	1770	3523		1770	3508			1799	1583	1681	1689	1583
Flt Permitted	0.27	1.00		0.54	1.00			0.97	1.00	0.95	0.95	1.00
Satd. Flow (perm)	509	3523		1007	3508			1799	1583	1681	1689	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	223	342	11	5	533	33	212	87	207	212	5	533
RTOR Reduction (vph)	0	2	0	0	3	0	0	0	165	0	0	275
Lane Group Flow (vph)	223	351	0	5	563	0	0	299	42	108	109	258
Turn Type	pm+pt	NA		pm+pt	NA		Split	NA	Perm	Split	NA	Perm
Protected Phases	1	6		5	2		3	3		4	4	
Permitted Phases	6			2					3			4
Actuated Green, G (s)	54.4	48.1		38.4	37.1			24.2	24.2	24.9	24.9	24.9
Effective Green, g (s)	54.4	48.1		38.4	37.1			24.2	24.2	24.9	24.9	24.9
Actuated g/C Ratio	0.45	0.40		0.32	0.31			0.20	0.20	0.21	0.21	0.21
Clearance Time (s)	5.0	5.5		5.0	5.5			5.5	5.5	5.5	5.5	5.5
Vehicle Extension (s)	3.0	0.2		3.0	0.2			5.0	5.0	5.0	5.0	5.0
Lane Grp Cap (vph)	359	1412		330	1084			362	319	348	350	328
v/s Ratio Prot	c0.06	0.10		0.00	0.16			c0.17		0.06	0.06	
v/s Ratio Perm	c0.22			0.00					0.03			c0.16
v/c Ratio	0.62	0.25		0.02	0.52			0.83	0.13	0.31	0.31	0.79
Uniform Delay, d1	22.0	23.9		27.8	34.1			45.9	39.3	40.3	40.3	45.0
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.3	0.4		0.0	1.8			15.8	0.4	1.1	1.1	13.5
Delay (s)	25.3	24.3		27.8	35.9			61.7	39.7	41.3	41.4	58.5
Level of Service	C	C		C	D			E	D	D	D	E
Approach Delay (s)		24.7			35.8			52.7			53.5	
Approach LOS		C			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	42.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	21.5
Intersection Capacity Utilization	73.6%	ICU Level of Service	D
Analysis Period (min)	15		

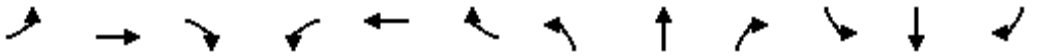
c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑↑		↰↰↰	↱
Traffic Volume (veh/h)	0	1200	815	0	170	115
Future Volume (veh/h)	0	1200	815	0	170	115
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	0	1870	1870	0	1870	1870
Adj Flow Rate, veh/h	0	1304	886	0	185	125
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	2	2	0	2	2
Cap, veh/h	0	3964	4995	0	601	190
Arrive On Green	0.00	0.78	0.78	0.00	0.12	0.12
Sat Flow, veh/h	0	5443	6958	0	5023	1585
Grp Volume(v), veh/h	0	1304	886	0	185	125
Grp Sat Flow(s),veh/h/ln	0	1702	1609	0	1674	1585
Q Serve(g_s), s	0.0	9.2	4.3	0.0	4.0	9.0
Cycle Q Clear(g_c), s	0.0	9.2	4.3	0.0	4.0	9.0
Prop In Lane	0.00			0.00	1.00	1.00
Lane Grp Cap(c), veh/h	0	3964	4995	0	601	190
V/C Ratio(X)	0.00	0.33	0.18	0.00	0.31	0.66
Avail Cap(c_a), veh/h	0	3964	4995	0	1528	482
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.97	0.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	4.0	3.5	0.0	48.3	50.5
Incr Delay (d2), s/veh	0.0	0.2	0.1	0.0	1.0	13.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	2.6	1.1	0.0	1.8	4.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	4.3	3.6	0.0	49.3	63.8
LnGrp LOS	A	A	A	A	D	E
Approach Vol, veh/h		1304	886		310	
Approach Delay, s/veh		4.3	3.6		55.2	
Approach LOS		A	A		E	

Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		99.2		20.8		99.2
Change Period (Y+Rc), s		6.0		6.5		6.0
Max Green Setting (Gmax), s		71.0		36.5		71.0
Max Q Clear Time (g_c+I1), s		11.2		11.0		6.3
Green Ext Time (p_c), s		13.1		3.3		7.5

Intersection Summary		
HCM 6th Ctrl Delay		10.3
HCM 6th LOS		B



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1000	370	0	590	0	0	0	0	380	0	225
Future Volume (vph)	0	1000	370	0	590	0	0	0	0	380	0	225
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0					7.0		7.0
Lane Util. Factor		0.91			0.91					0.97		1.00
Frt		0.96			1.00					1.00		0.85
Flt Protected		1.00			1.00					0.95		1.00
Satd. Flow (prot)		4879			5085					3433		1583
Flt Permitted		1.00			1.00					0.95		1.00
Satd. Flow (perm)		4879			5085					3433		1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1087	402	0	641	0	0	0	0	413	0	245
RTOR Reduction (vph)	0	39	0	0	0	0	0	0	0	0	0	199
Lane Group Flow (vph)	0	1450	0	0	641	0	0	0	0	413	0	46
Turn Type		NA			NA					Prot		Prot
Protected Phases		2			6 1					4		4
Permitted Phases												
Actuated Green, G (s)		74.9			109.0					28.0		28.0
Effective Green, g (s)		74.9			109.0					28.0		28.0
Actuated g/C Ratio		0.50			0.73					0.19		0.19
Clearance Time (s)		6.0								7.0		7.0
Vehicle Extension (s)		0.2								3.0		3.0
Lane Grp Cap (vph)		2436			3695					640		295
v/s Ratio Prot		c0.30			c0.13					c0.12		0.03
v/s Ratio Perm												
v/c Ratio		0.60			0.17					0.65		0.16
Uniform Delay, d1		26.8			6.4					56.4		51.1
Progression Factor		1.00			0.39					1.00		1.00
Incremental Delay, d2		1.1			0.0					2.2		0.2
Delay (s)		27.8			2.5					58.6		51.3
Level of Service		C			A					E		D
Approach Delay (s)		27.8			2.5			0.0			55.9	
Approach LOS		C			A			A			E	

Intersection Summary			
HCM 2000 Control Delay	28.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	19.5
Intersection Capacity Utilization	46.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1380	0	250	590	0	0
Future Volume (vph)	1380	0	250	590	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0		6.5	6.5		
Lane Util. Factor	0.91		0.97	0.91		
Frt	1.00		1.00	1.00		
Flt Protected	1.00		0.95	1.00		
Satd. Flow (prot)	5085		3433	5085		
Flt Permitted	1.00		0.95	1.00		
Satd. Flow (perm)	5085		3433	5085		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1500	0	272	641	0	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	1500	0	272	641	0	0
Turn Type	NA		Prot	NA		
Protected Phases	2 4		1	1 4 6		
Permitted Phases						
Actuated Green, G (s)	108.9		27.6	150.0		
Effective Green, g (s)	108.9		27.6	137.0		
Actuated g/C Ratio	0.73		0.18	0.91		
Clearance Time (s)			6.5			
Vehicle Extension (s)			3.0			
Lane Grp Cap (vph)	3691		631	4644		
v/s Ratio Prot	c0.29		c0.08	0.13		
v/s Ratio Perm						
v/c Ratio	0.41		0.43	0.14		
Uniform Delay, d1	8.0		54.2	0.6		
Progression Factor	0.06		1.37	1.00		
Incremental Delay, d2	0.1		0.5	0.0		
Delay (s)	0.5		75.0	0.7		
Level of Service	A		E	A		
Approach Delay (s)	0.5			22.8	0.0	
Approach LOS	A			C	A	

Intersection Summary			
HCM 2000 Control Delay	9.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	19.5
Intersection Capacity Utilization	44.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1205	175	0	605	235	0
Future Volume (vph)	1205	175	0	605	235	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5			6.5	7.0	
Lane Util. Factor	0.91			0.91	0.97	
Frt	0.98			1.00	1.00	
Flt Protected	1.00			1.00	0.95	
Satd. Flow (prot)	4989			5085	3433	
Flt Permitted	1.00			1.00	0.95	
Satd. Flow (perm)	4989			5085	3433	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1310	190	0	658	255	0
RTOR Reduction (vph)	12	0	0	0	0	0
Lane Group Flow (vph)	1488	0	0	658	255	0
Turn Type	NA			NA	Prot	
Protected Phases	6			2	3	
Permitted Phases						
Actuated Green, G (s)	120.7			120.7	15.8	
Effective Green, g (s)	120.7			120.7	15.8	
Actuated g/C Ratio	0.80			0.80	0.11	
Clearance Time (s)	6.5			6.5	7.0	
Vehicle Extension (s)	3.0			3.0	3.0	
Lane Grp Cap (vph)	4014			4091	361	
v/s Ratio Prot	c0.30			0.13	c0.07	
v/s Ratio Perm						
v/c Ratio	0.37			0.16	0.71	
Uniform Delay, d1	4.1			3.3	64.9	
Progression Factor	0.00			3.21	1.00	
Incremental Delay, d2	0.2			0.1	6.2	
Delay (s)	0.2			10.6	71.0	
Level of Service	A			B	E	
Approach Delay (s)	0.2			10.6	71.0	
Approach LOS	A			B	E	

Intersection Summary			
HCM 2000 Control Delay	10.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	45.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1205	0	0	605	0	930
Future Volume (vph)	1205	0	0	605	0	930
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5			6.0		6.0
Lane Util. Factor	0.91			0.91		0.88
Frt	1.00			1.00		0.85
Flt Protected	1.00			1.00		1.00
Satd. Flow (prot)	5085			5085		2787
Flt Permitted	1.00			1.00		1.00
Satd. Flow (perm)	5085			5085		2787
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1310	0	0	658	0	1011
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	1310	0	0	658	0	1011
Turn Type	NA			NA		Prot
Protected Phases	2			4 6		4
Permitted Phases						
Actuated Green, G (s)	73.6			150.0		64.9
Effective Green, g (s)	73.6			144.5		64.9
Actuated g/C Ratio	0.49			0.96		0.43
Clearance Time (s)	5.5					6.0
Vehicle Extension (s)	3.0					3.0
Lane Grp Cap (vph)	2495			4898		1205
v/s Ratio Prot	c0.26			0.13		c0.36
v/s Ratio Perm						
v/c Ratio	0.53			0.13		0.84
Uniform Delay, d1	26.2			0.1		37.9
Progression Factor	1.57			1.00		1.00
Incremental Delay, d2	0.8			0.0		5.3
Delay (s)	41.8			0.1		43.2
Level of Service	D			A		D
Approach Delay (s)	41.8			0.1	43.2	
Approach LOS	D			A	D	

Intersection Summary			
HCM 2000 Control Delay	33.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	11.5
Intersection Capacity Utilization	65.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	70	730	780	555	205	120	130	615	0	250	90	0
Future Volume (vph)	70	730	780	555	205	120	130	615	0	250	90	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5	6.0	4.0	6.5	6.0	4.0	6.5		4.0	6.5	
Lane Util. Factor		0.97	0.91	1.00	1.00	0.91	1.00	1.00		1.00	0.97	
Frt		1.00	1.00	0.85	1.00	1.00	0.85	1.00		0.85	1.00	
Flt Protected		0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95	
Satd. Flow (prot)		3433	5085	1583	1770	5085	1583	1770		1583	3433	
Flt Permitted		0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95	
Satd. Flow (perm)		3433	5085	1583	1770	5085	1583	1770		1583	3433	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	76	793	848	603	223	130	141	668	0	272	98	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	869	848	603	223	130	141	668	0	272	98	0
Turn Type	Prot	Prot	NA	Free	Prot	NA	Free	Prot		Free	Prot	
Protected Phases	5	5	2		1	6		3			7	
Permitted Phases				Free			Free			Free		
Actuated Green, G (s)		43.7	61.0	150.0	30.5	47.8	150.0	39.5		150.0	39.5	
Effective Green, g (s)		43.7	61.0	150.0	30.5	47.8	150.0	39.5		150.0	39.5	
Actuated g/C Ratio		0.29	0.41	1.00	0.20	0.32	1.00	0.26		1.00	0.26	
Clearance Time (s)		6.5	6.0		6.5	6.0		6.5			6.5	
Vehicle Extension (s)		3.0	3.0		3.0	3.0		3.0			3.0	
Lane Grp Cap (vph)		1000	2067	1583	359	1620	1583	466		1583	904	
v/s Ratio Prot		c0.25	0.17		c0.13	0.03		c0.38			0.03	
v/s Ratio Perm				c0.38			0.09			0.17		
v/c Ratio		0.87	0.41	0.38	0.62	0.08	0.09	1.43		0.17	0.11	
Uniform Delay, d1		50.4	31.7	0.0	54.5	35.7	0.0	55.2		0.0	41.9	
Progression Factor		0.66	0.77	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		6.4	0.5	0.5	3.3	0.1	0.1	207.1		0.2	0.1	
Delay (s)		39.9	24.8	0.5	57.8	35.8	0.1	262.3		0.2	42.0	
Level of Service		D	C	A	E	D	A	F		A	D	
Approach Delay (s)			24.2			35.6			186.5			16.1
Approach LOS			C			D			F			B

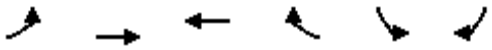
Intersection Summary			
HCM 2000 Control Delay	63.1	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	89.0%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Movement	SBR
Lane Configurations	
Traffic Volume (vph)	145
Future Volume (vph)	145
Ideal Flow (vphpl)	1900
Total Lost time (s)	4.0
Lane Util. Factor	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1583
Flt Permitted	1.00
Satd. Flow (perm)	1583
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	158
RTOR Reduction (vph)	0
Lane Group Flow (vph)	158
Turn Type	Free
Protected Phases	
Permitted Phases	Free
Actuated Green, G (s)	150.0
Effective Green, g (s)	150.0
Actuated g/C Ratio	1.00
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	1583
v/s Ratio Prot	
v/s Ratio Perm	0.10
v/c Ratio	0.10
Uniform Delay, d1	0.0
Progression Factor	1.00
Incremental Delay, d2	0.1
Delay (s)	0.1
Level of Service	A
Approach Delay (s)	
Approach LOS	

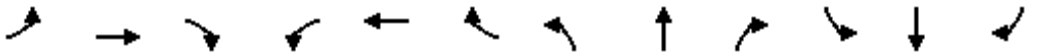
Intersection Summary



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑↑		↰↰↰	↱
Traffic Volume (veh/h)	0	800	1430	0	310	115
Future Volume (veh/h)	0	800	1430	0	310	115
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	0	1870	1870	0	1870	1870
Adj Flow Rate, veh/h	0	870	1554	0	337	125
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	2	2	0	2	2
Cap, veh/h	0	3891	4903	0	672	212
Arrive On Green	0.00	0.76	0.76	0.00	0.13	0.13
Sat Flow, veh/h	0	5443	6958	0	5023	1585
Grp Volume(v), veh/h	0	870	1554	0	337	125
Grp Sat Flow(s),veh/h/ln	0	1702	1609	0	1674	1585
Q Serve(g_s), s	0.0	5.9	9.1	0.0	7.5	8.9
Cycle Q Clear(g_c), s	0.0	5.9	9.1	0.0	7.5	8.9
Prop In Lane	0.00			0.00	1.00	1.00
Lane Grp Cap(c), veh/h	0	3891	4903	0	672	212
V/C Ratio(X)	0.00	0.22	0.32	0.00	0.50	0.59
Avail Cap(c_a), veh/h	0	3891	4903	0	1528	482
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.56	0.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	4.1	4.5	0.0	48.3	48.9
Incr Delay (d2), s/veh	0.0	0.1	0.1	0.0	2.1	9.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	1.7	2.5	0.0	3.3	4.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	4.2	4.6	0.0	50.4	58.0
LnGrp LOS	A	A	A	A	D	E
Approach Vol, veh/h		870	1554		462	
Approach Delay, s/veh		4.2	4.6		52.4	
Approach LOS		A	A		D	

Timer - Assigned Phs	2	4	6
Phs Duration (G+Y+Rc), s	97.5	22.5	97.5
Change Period (Y+Rc), s	6.0	6.5	6.0
Max Green Setting (Gmax), s	71.0	36.5	71.0
Max Q Clear Time (g_c+I1), s	7.9	10.9	11.1
Green Ext Time (p_c), s	7.3	5.1	17.7

Intersection Summary	
HCM 6th Ctrl Delay	12.1
HCM 6th LOS	B



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	950	160	0	800	0	0	0	0	385	0	630
Future Volume (vph)	0	950	160	0	800	0	0	0	0	385	0	630
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.5					7.0		7.0
Lane Util. Factor		0.91			0.91					0.97		1.00
Frt		0.98			1.00					1.00		0.85
Flt Protected		1.00			1.00					0.95		1.00
Satd. Flow (prot)		4975			5085					3433		1583
Flt Permitted		1.00			1.00					0.95		1.00
Satd. Flow (perm)		4975			5085					3433		1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1033	174	0	870	0	0	0	0	418	0	685
RTOR Reduction (vph)	0	15	0	0	0	0	0	0	0	0	0	185
Lane Group Flow (vph)	0	1192	0	0	870	0	0	0	0	418	0	500
Turn Type		NA			NA					Prot		Prot
Protected Phases		2			1 6					4		4
Permitted Phases												
Actuated Green, G (s)		64.0			109.0					28.0		28.0
Effective Green, g (s)		64.0			109.0					28.0		28.0
Actuated g/C Ratio		0.43			0.73					0.19		0.19
Clearance Time (s)		6.0								7.0		7.0
Vehicle Extension (s)		0.2								3.0		3.0
Lane Grp Cap (vph)		2122			3695					640		295
v/s Ratio Prot		c0.24			c0.17					0.12		c0.32
v/s Ratio Perm												
v/c Ratio		0.56			0.24					0.65		1.70
Uniform Delay, d1		32.4			6.8					56.5		61.0
Progression Factor		1.00			0.72					1.00		1.00
Incremental Delay, d2		1.1			0.0					2.4		327.5
Delay (s)		33.5			4.9					58.9		388.5
Level of Service		C			A					E		F
Approach Delay (s)		33.5			4.9			0.0			263.6	
Approach LOS		C			A			A			F	

Intersection Summary			
HCM 2000 Control Delay	105.5	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	19.5
Intersection Capacity Utilization	65.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1335	0	465	800	0	0
Future Volume (vph)	1335	0	465	800	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0		6.5	6.5		
Lane Util. Factor	0.91		0.97	0.91		
Frt	1.00		1.00	1.00		
Flt Protected	1.00		0.95	1.00		
Satd. Flow (prot)	5085		3433	5085		
Flt Permitted	1.00		0.95	1.00		
Satd. Flow (perm)	5085		3433	5085		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1451	0	505	870	0	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	1451	0	505	870	0	0
Turn Type	NA		Prot	NA		
Protected Phases	2 4		1	1 4 6		
Permitted Phases						
Actuated Green, G (s)	99.0		38.5	150.0		
Effective Green, g (s)	92.0		38.5	137.0		
Actuated g/C Ratio	0.61		0.26	0.91		
Clearance Time (s)			6.5			
Vehicle Extension (s)			3.0			
Lane Grp Cap (vph)	3118		881	4644		
v/s Ratio Prot	c0.29		c0.15	0.17		
v/s Ratio Perm						
v/c Ratio	0.47		0.57	0.19		
Uniform Delay, d1	15.7		48.6	0.7		
Progression Factor	0.10		0.93	1.00		
Incremental Delay, d2	0.1		0.9	0.0		
Delay (s)	1.7		46.1	0.7		
Level of Service	A		D	A		
Approach Delay (s)	1.7			17.4	0.0	
Approach LOS	A			B	A	

Intersection Summary			
HCM 2000 Control Delay	9.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	19.5
Intersection Capacity Utilization	49.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1080	255	0	1085	180	0
Future Volume (vph)	1080	255	0	1085	180	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5			6.5	7.0	
Lane Util. Factor	0.91			0.91	0.97	
Frt	0.97			1.00	1.00	
Flt Protected	1.00			1.00	0.95	
Satd. Flow (prot)	4940			5085	3433	
Flt Permitted	1.00			1.00	0.95	
Satd. Flow (perm)	4940			5085	3433	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1174	277	0	1179	196	0
RTOR Reduction (vph)	13	0	0	0	0	0
Lane Group Flow (vph)	1438	0	0	1179	196	0
Turn Type	NA			NA	Prot	
Protected Phases	6			2	3	
Permitted Phases						
Actuated Green, G (s)	122.5			122.5	14.0	
Effective Green, g (s)	122.5			122.5	14.0	
Actuated g/C Ratio	0.82			0.82	0.09	
Clearance Time (s)	6.5			6.5	7.0	
Vehicle Extension (s)	3.0			3.0	3.0	
Lane Grp Cap (vph)	4034			4152	320	
v/s Ratio Prot	c0.29			0.23	c0.06	
v/s Ratio Perm						
v/c Ratio	0.36			0.28	0.61	
Uniform Delay, d1	3.6			3.3	65.4	
Progression Factor	1.95			1.00	1.00	
Incremental Delay, d2	0.2			0.2	3.5	
Delay (s)	7.2			3.5	68.8	
Level of Service	A			A	E	
Approach Delay (s)	7.2			3.5	68.8	
Approach LOS	A			A	E	

Intersection Summary			
HCM 2000 Control Delay	9.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	42.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1080	0	0	1085	0	335
Future Volume (vph)	1080	0	0	1085	0	335
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5			6.0		6.0
Lane Util. Factor	0.91			0.91		0.88
Frt	1.00			1.00		0.85
Flt Protected	1.00			1.00		1.00
Satd. Flow (prot)	5085			5085		2787
Flt Permitted	1.00			1.00		1.00
Satd. Flow (perm)	5085			5085		2787
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1174	0	0	1179	0	364
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	1174	0	0	1179	0	364
Turn Type	NA			NA		Prot
Protected Phases	2			4 6		4
Permitted Phases						
Actuated Green, G (s)	104.6			150.0		33.9
Effective Green, g (s)	104.6			144.5		33.9
Actuated g/C Ratio	0.70			0.96		0.23
Clearance Time (s)	5.5					6.0
Vehicle Extension (s)	3.0					3.0
Lane Grp Cap (vph)	3545			4898		629
v/s Ratio Prot	c0.23			0.23		c0.13
v/s Ratio Perm						
v/c Ratio	0.33			0.24		0.58
Uniform Delay, d1	8.9			0.1		51.7
Progression Factor	0.75			1.00		1.00
Incremental Delay, d2	0.2			0.0		1.3
Delay (s)	7.0			0.2		53.0
Level of Service	A			A		D
Approach Delay (s)	7.0			0.2	53.0	
Approach LOS	A			A	D	

Intersection Summary			
HCM 2000 Control Delay	10.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	11.5
Intersection Capacity Utilization	42.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	35	100	830	450	285	815	120	505	0	185	235	0
Future Volume (vph)	35	100	830	450	285	815	120	505	0	185	235	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5	6.0	4.0	6.5	6.0	4.0	6.5		4.0	6.5	
Lane Util. Factor		0.97	0.91	1.00	1.00	0.91	1.00	1.00		1.00	0.97	
Frt		1.00	1.00	0.85	1.00	1.00	0.85	1.00		0.85	1.00	
Flt Protected		0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95	
Satd. Flow (prot)		3433	5085	1583	1770	5085	1583	1770		1583	3433	
Flt Permitted		0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95	
Satd. Flow (perm)		3433	5085	1583	1770	5085	1583	1770		1583	3433	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	38	109	902	489	310	886	130	549	0	201	255	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	147	902	489	310	886	130	549	0	201	255	0
Turn Type	Prot	Prot	NA	Free	Prot	NA	Free	Prot		Free	Prot	
Protected Phases	5	5	2		1	6		8			4	
Permitted Phases				Free			Free			Free		
Actuated Green, G (s)		11.1	46.5	135.0	26.5	61.9	135.0	43.0		135.0	43.0	
Effective Green, g (s)		11.1	46.5	135.0	26.5	61.9	135.0	43.0		135.0	43.0	
Actuated g/C Ratio		0.08	0.34	1.00	0.20	0.46	1.00	0.32		1.00	0.32	
Clearance Time (s)		6.5	6.0		6.5	6.0		6.5			6.5	
Vehicle Extension (s)		3.0	3.0		3.0	3.0		3.0			3.0	
Lane Grp Cap (vph)		282	1751	1583	347	2331	1583	563		1583	1093	
v/s Ratio Prot		0.04	c0.18		c0.18	0.17		c0.31			0.07	
v/s Ratio Perm				0.31			0.08			0.13		
v/c Ratio		0.52	0.52	0.31	0.89	0.38	0.08	0.98		0.13	0.23	
Uniform Delay, d1		59.4	35.3	0.0	52.9	24.0	0.0	45.5		0.0	33.9	
Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		1.7	1.1	0.5	23.9	0.5	0.1	31.4		0.2	0.1	
Delay (s)		61.1	36.4	0.5	76.8	24.4	0.1	76.8		0.2	34.0	
Level of Service		E	D	A	E	C	A	E		A	C	
Approach Delay (s)			27.3			34.3			56.3			10.4
Approach LOS			C			C			E			B

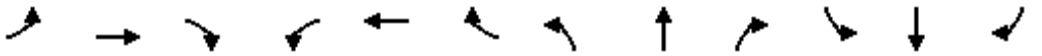
Intersection Summary			
HCM 2000 Control Delay	30.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	76.3%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	SBR
Lane Configurations	
Traffic Volume (vph)	570
Future Volume (vph)	570
Ideal Flow (vphpl)	1900
Total Lost time (s)	4.0
Lane Util. Factor	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1583
Flt Permitted	1.00
Satd. Flow (perm)	1583
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	620
RTOR Reduction (vph)	0
Lane Group Flow (vph)	620
Turn Type	Free
Protected Phases	
Permitted Phases	Free
Actuated Green, G (s)	135.0
Effective Green, g (s)	135.0
Actuated g/C Ratio	1.00
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	1583
v/s Ratio Prot	
v/s Ratio Perm	0.39
v/c Ratio	0.39
Uniform Delay, d1	0.0
Progression Factor	1.00
Incremental Delay, d2	0.7
Delay (s)	0.7
Level of Service	A
Approach Delay (s)	
Approach LOS	

Intersection Summary



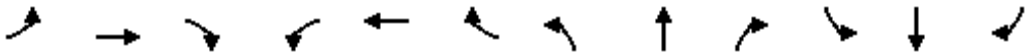
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	190	10	50	35	15	65	100	200	15	25	840	1145
Future Volume (veh/h)	190	10	50	35	15	65	100	200	15	25	840	1145
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1847	1847	1847	1864	1864	1864	1864	1864	1864	1776	1776	1776
Adj Flow Rate, veh/h	207	11	54	38	16	71	109	217	16	27	913	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	267	205	174	53	117	99	423	2123	155	765	2087	
Arrive On Green	0.08	0.11	0.11	0.03	0.06	0.06	0.04	0.63	0.63	0.02	0.62	0.00
Sat Flow, veh/h	3412	1847	1565	1776	1864	1580	1776	3347	245	1692	3375	1505
Grp Volume(v), veh/h	207	11	54	38	16	71	109	114	119	27	913	0
Grp Sat Flow(s),veh/h/ln	1706	1847	1565	1776	1864	1580	1776	1771	1820	1692	1687	1505
Q Serve(g_s), s	7.1	0.6	3.8	2.5	1.0	5.3	2.7	3.0	3.1	0.7	17.0	0.0
Cycle Q Clear(g_c), s	7.1	0.6	3.8	2.5	1.0	5.3	2.7	3.0	3.1	0.7	17.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.13	1.00		1.00
Lane Grp Cap(c), veh/h	267	205	174	53	117	99	423	1124	1155	765	2087	
V/C Ratio(X)	0.78	0.05	0.31	0.72	0.14	0.72	0.26	0.10	0.10	0.04	0.44	
Avail Cap(c_a), veh/h	384	423	359	200	427	362	521	1124	1155	886	2087	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.90	0.90	0.00
Uniform Delay (d), s/veh	54.3	47.7	49.1	57.7	53.2	55.2	8.9	8.6	8.6	7.8	12.0	0.0
Incr Delay (d2), s/veh	6.1	0.1	1.0	16.3	0.5	9.3	0.3	0.2	0.2	0.0	0.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.3	0.3	1.5	1.4	0.5	2.4	1.0	1.2	1.2	0.2	6.3	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	60.4	47.8	50.1	74.0	53.7	64.5	9.2	8.8	8.8	7.8	12.6	0.0
LnGrp LOS	E	D	D	E	D	E	A	A	A	A	B	
Approach Vol, veh/h		272			125			342			940	A
Approach Delay, s/veh		57.8			66.0			8.9			12.4	
Approach LOS		E			E			A			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.5	82.6	14.9	14.0	10.4	80.7	9.1	19.8
Change Period (Y+Rc), s	5.5	6.5	5.5	6.5	5.5	6.5	5.5	6.5
Max Green Setting (Gmax), s	11.5	43.5	13.5	27.5	11.5	43.5	13.5	27.5
Max Q Clear Time (g_c+I1), s	2.7	5.1	9.1	7.3	4.7	19.0	4.5	5.8
Green Ext Time (p_c), s	0.0	0.2	0.3	0.2	0.1	1.4	0.0	0.2

Intersection Summary	
HCM 6th Ctrl Delay	23.1
HCM 6th LOS	C

Notes

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	560	770	0	0	0	0	115	340	0	1240	0
Future Volume (vph)	5	560	770	0	0	0	0	115	340	0	1240	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	10	10	11	12	12	12
Grade (%)		5%			0%			4%			0%	
Total Lost time (s)		7.0	4.0					8.0	6.0		8.0	
Lane Util. Factor		0.95	1.00					0.95	0.88		0.91	
Frt		1.00	0.85					1.00	0.85		1.00	
Flt Protected		1.00	1.00					1.00	1.00		1.00	
Satd. Flow (prot)		3449	1544					3237	2640		5085	
Flt Permitted		1.00	1.00					1.00	1.00		1.00	
Satd. Flow (perm)		3449	1544					3237	2640		5085	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	609	837	0	0	0	0	125	370	0	1348	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	614	837	0	0	0	0	125	370	0	1348	0
Turn Type	Perm	NA	Free					NA	custom		NA	
Protected Phases		3						6	5 6		2 4	
Permitted Phases	3		Free									
Actuated Green, G (s)		28.0	160.0					19.7	92.0		117.0	
Effective Green, g (s)		28.0	160.0					19.7	92.0		112.5	
Actuated g/C Ratio		0.18	1.00					0.12	0.58		0.70	
Clearance Time (s)		7.0						8.0				
Vehicle Extension (s)		3.0						3.0				
Lane Grp Cap (vph)		603	1544					398	1518		3575	
v/s Ratio Prot								0.04	0.14		0.27	
v/s Ratio Perm		0.18	c0.54									
v/c Ratio		1.02	0.54					0.31	0.24		0.38	
Uniform Delay, d1		66.0	0.0					64.0	16.8		9.6	
Progression Factor		1.00	1.00					1.00	1.00		0.00	
Incremental Delay, d2		41.3	1.4					2.1	0.1		0.0	
Delay (s)		107.3	1.4					66.0	16.9		0.0	
Level of Service		F	A					E	B		A	
Approach Delay (s)		46.2			0.0			29.3			0.0	
Approach LOS		D			A			C			A	

Intersection Summary			
HCM 2000 Control Delay	24.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	25.5
Intersection Capacity Utilization	68.3%	ICU Level of Service	C
Analysis Period (min)	15		

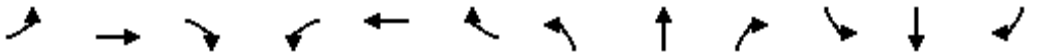
c Critical Lane Group



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	0	1240	570	120	0
Future Volume (vph)	0	0	1240	570	120	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	11	11	12	12
Grade (%)	0%			1%	0%	
Total Lost time (s)			4.5	4.5	7.0	
Lane Util. Factor			0.91	0.91	0.97	
Frt			1.00	1.00	1.00	
Flt Protected			0.95	0.97	0.95	
Satd. Flow (prot)			1549	3178	3433	
Flt Permitted			0.95	0.97	0.95	
Satd. Flow (perm)			1549	3178	3433	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	1348	620	130	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	674	1294	130	0
Turn Type			Split	NA	Prot	
Protected Phases			4 5	4 5	3 6	
Permitted Phases						
Actuated Green, G (s)			91.3	91.3	55.7	
Effective Green, g (s)			91.3	91.3	47.7	
Actuated g/C Ratio			0.57	0.57	0.30	
Clearance Time (s)						
Vehicle Extension (s)						
Lane Grp Cap (vph)			883	1813	1023	
v/s Ratio Prot			c0.44	0.41	c0.04	
v/s Ratio Perm						
v/c Ratio			0.76	0.71	0.13	
Uniform Delay, d1			26.1	24.9	41.0	
Progression Factor			1.00	1.00	0.00	
Incremental Delay, d2			4.0	1.4	0.1	
Delay (s)			30.1	26.2	0.1	
Level of Service			C	C	A	
Approach Delay (s)	0.0			27.6	0.1	
Approach LOS	A			C	A	

Intersection Summary			
HCM 2000 Control Delay	25.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	25.5
Intersection Capacity Utilization	76.6%	ICU Level of Service	D
Analysis Period (min)	15		

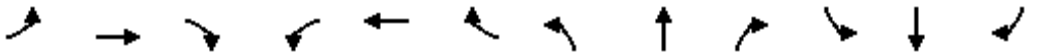
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	440	25	255	5	5	15	155	970	5	35	1835	435
Future Volume (vph)	440	25	255	5	5	15	155	970	5	35	1835	435
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	12	12	16	12	11	11	12	11	11	14
Grade (%)		1%			0%			2%			0%	
Total Lost time (s)	6.5	6.5	6.5		7.0		6.5	6.5		6.5	6.5	6.5
Lane Util. Factor	0.95	0.95	1.00		1.00		0.97	0.91		1.00	0.91	1.00
Frt	1.00	1.00	0.85		0.92		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	0.96	1.00		0.99		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1561	1573	1575		1917		3285	4863		1711	4916	1689
Flt Permitted	0.95	0.96	1.00		0.99		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1561	1573	1575		1917		3285	4863		1711	4916	1689
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	478	27	277	5	5	16	168	1054	5	38	1995	473
RTOR Reduction (vph)	0	0	76	0	16	0	0	0	0	0	0	174
Lane Group Flow (vph)	253	252	201	0	10	0	168	1059	0	38	1995	299
Turn Type	Split	NA	pm+ov	Split	NA		Prot	NA		Prot	NA	Perm
Protected Phases	4	4	6	3	3		6	2		1	5	
Permitted Phases			4									5
Actuated Green, G (s)	27.8	27.8	62.6		4.3		34.8	83.8		7.6	56.6	56.6
Effective Green, g (s)	27.8	27.8	62.6		4.3		34.8	83.8		7.6	56.6	56.6
Actuated g/C Ratio	0.19	0.19	0.42		0.03		0.23	0.56		0.05	0.38	0.38
Clearance Time (s)	6.5	6.5	6.5		7.0		6.5	6.5		6.5	6.5	6.5
Vehicle Extension (s)	3.0	3.0	3.0		3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	289	291	657		54		762	2716		86	1854	637
v/s Ratio Prot	c0.16	0.16	0.07		c0.01		0.05	c0.22		0.02	c0.41	
v/s Ratio Perm			0.06									0.18
v/c Ratio	0.88	0.87	0.31		0.19		0.22	0.39		0.44	1.08	0.47
Uniform Delay, d1	59.4	59.3	29.2		71.2		46.6	18.7		69.1	46.7	35.3
Progression Factor	1.00	1.00	1.00		1.00		1.00	1.00		1.09	1.09	1.34
Incremental Delay, d2	24.2	22.6	0.3		1.8		0.1	0.4		2.7	42.4	1.8
Delay (s)	83.6	81.9	29.5		72.9		46.8	19.1		77.7	93.1	49.0
Level of Service	F	F	C		E		D	B		E	F	D
Approach Delay (s)		63.9			72.9			22.9			84.5	
Approach LOS		E			E			C			F	

Intersection Summary			
HCM 2000 Control Delay	64.2	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	26.5
Intersection Capacity Utilization	75.6%	ICU Level of Service	D
Analysis Period (min)	15		

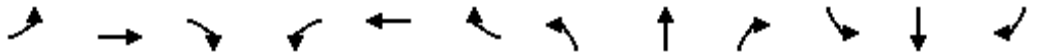
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	130	5	570	0	0	0	0	1270	155	220	1735	0
Future Volume (vph)	130	5	570	0	0	0	0	1270	155	220	1735	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	12	11	12	12	12	12	11	16	11	11	12
Grade (%)		3%			0%			1%			0%	
Total Lost time (s)	8.0	8.0	8.0					6.5		5.5	5.5	
Lane Util. Factor	0.95	0.95	*0.80					0.76		0.97	0.91	
Frt	1.00	1.00	0.85					0.98		1.00	1.00	
Flt Protected	0.95	0.96	1.00					1.00		0.95	1.00	
Satd. Flow (prot)	1601	1665	2412					8037		3319	4916	
Flt Permitted	0.95	0.96	1.00					1.00		0.95	1.00	
Satd. Flow (perm)	1601	1665	2412					8037		3319	4916	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	141	5	620	0	0	0	0	1380	168	239	1886	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	14	0	0	0	0
Lane Group Flow (vph)	73	73	620	0	0	0	0	1534	0	239	1886	0
Turn Type	Split	NA	Prot					NA		Prot	NA	
Protected Phases	4	4	4					6		5	2	
Permitted Phases												
Actuated Green, G (s)	43.3	43.3	43.3					57.2		29.5	93.2	
Effective Green, g (s)	43.3	43.3	43.3					57.2		29.5	93.2	
Actuated g/C Ratio	0.29	0.29	0.29					0.38		0.20	0.62	
Clearance Time (s)	8.0	8.0	8.0					6.5		5.5	5.5	
Vehicle Extension (s)	3.0	3.0	3.0					3.0		3.0	3.0	
Lane Grp Cap (vph)	462	480	696					3064		652	3054	
v/s Ratio Prot	0.05	0.04	c0.26					0.19		0.07	c0.38	
v/s Ratio Perm												
v/c Ratio	0.16	0.15	0.89					0.50		0.37	0.62	
Uniform Delay, d1	39.8	39.7	51.1					35.5		52.2	17.4	
Progression Factor	1.00	1.00	1.00					1.21		1.20	1.68	
Incremental Delay, d2	0.2	0.1	13.6					0.5		1.5	0.9	
Delay (s)	39.9	39.8	64.7					43.3		64.2	30.2	
Level of Service	D	D	E					D		E	C	
Approach Delay (s)		60.0			0.0			43.3			34.1	
Approach LOS		E			A			D			C	

Intersection Summary			
HCM 2000 Control Delay	41.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	64.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	135	10	395	225	1175	0	0	1820	815
Future Volume (vph)	0	0	0	135	10	395	225	1175	0	0	1820	815
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	13	16	10	11	12	12	11	12
Grade (%)		0%			5%			0%			-1%	
Total Lost time (s)				8.0	8.0	4.0	6.5	6.0			6.0	4.0
Lane Util. Factor				0.95	0.95	1.00	0.97	0.86			0.81	1.00
Frt				1.00	1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	0.96	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				1639	1709	1750	3204	6194			7329	1591
Flt Permitted				0.95	0.96	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				1639	1709	1750	3204	6194			7329	1591
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	147	11	429	245	1277	0	0	1978	886
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	79	79	429	245	1277	0	0	1978	886
Turn Type				Split	NA	Free	Prot	NA			NA	Free
Protected Phases				4	4		1	6			2	
Permitted Phases						Free						Free
Actuated Green, G (s)				13.2	13.2	150.0	17.7	122.8			98.6	150.0
Effective Green, g (s)				13.2	13.2	150.0	17.7	122.8			98.6	150.0
Actuated g/C Ratio				0.09	0.09	1.00	0.12	0.82			0.66	1.00
Clearance Time (s)				8.0	8.0		6.5	6.0			6.0	
Vehicle Extension (s)				4.0	4.0		4.0	4.0			4.0	
Lane Grp Cap (vph)				144	150	1750	378	5070			4817	1591
v/s Ratio Prot				0.05	0.05		0.08	0.21			0.27	
v/s Ratio Perm						0.25						c0.56
v/c Ratio				0.55	0.53	0.25	0.65	0.25			0.41	0.56
Uniform Delay, d1				65.5	65.4	0.0	63.2	3.1			12.1	0.0
Progression Factor				1.00	1.00	1.00	0.41	5.42			0.79	1.00
Incremental Delay, d2				5.3	4.3	0.3	3.7	0.1			0.0	0.1
Delay (s)				70.8	69.7	0.3	29.4	16.9			9.5	0.1
Level of Service				E	E	A	C	B			A	A
Approach Delay (s)		0.0			19.2			18.9			6.6	
Approach LOS		A			B			B			A	

Intersection Summary			
HCM 2000 Control Delay	11.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	20.5
Intersection Capacity Utilization	64.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



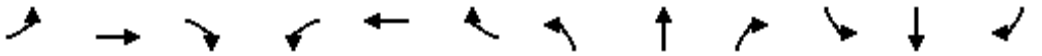
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	105	415	205	660	180	70	5	205	940	420	30	1765
Future Volume (vph)	105	415	205	660	180	70	5	205	940	420	30	1765
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	12	12	10	12	12	12	10	11	11	11	11
Grade (%)		3%			2%				0%			-1%
Total Lost time (s)	6.5	6.5		6.5	6.5	6.5		6.5	6.5	6.5	6.5	6.5
Lane Util. Factor	0.97	0.95		0.97	0.95	1.00		1.00	0.91	1.00	1.00	*0.80
Frt	1.00	0.95		1.00	1.00	0.85		1.00	1.00	0.85	1.00	0.99
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3156	3313		3172	3504	1567		1652	4916	1531	1719	4308
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.09	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3156	3313		3172	3504	1567		152	4916	1531	1719	4308
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	114	451	223	717	196	76	5	223	1022	457	33	1918
RTOR Reduction (vph)	0	0	0	0	0	55	0	0	0	291	0	4
Lane Group Flow (vph)	114	674	0	717	196	21	0	228	1022	166	33	2023
Turn Type	Split	NA		Split	NA	pt+ov	pm+pt	pm+pt	NA	Perm	Prot	NA
Protected Phases	4	4		3	3	3 5	1	1	6		5	2
Permitted Phases							6	6		6		
Actuated Green, G (s)	28.5	28.5		33.5	33.5	41.1		54.4	54.4	54.4	7.6	53.5
Effective Green, g (s)	28.5	28.5		33.5	33.5	41.1		54.4	54.4	54.4	7.6	53.5
Actuated g/C Ratio	0.19	0.19		0.22	0.22	0.27		0.36	0.36	0.36	0.05	0.36
Clearance Time (s)	6.5	6.5		6.5	6.5			6.5	6.5	6.5	6.5	6.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	599	629		708	782	429		140	1782	555	87	1536
v/s Ratio Prot	0.04	c0.20		c0.23	0.06	0.01		c0.09	0.21		0.02	c0.47
v/s Ratio Perm								c0.50		0.11		
v/c Ratio	0.19	1.07		1.01	0.25	0.05		1.63	0.57	0.30	0.38	1.32
Uniform Delay, d1	51.1	60.8		58.2	47.9	40.1		66.3	38.5	34.2	68.9	48.2
Progression Factor	1.00	1.00		1.00	1.00	1.00		0.93	0.84	3.61	1.00	1.00
Incremental Delay, d2	0.2	56.6		37.0	0.8	0.0		312.4	1.3	1.3	2.8	147.4
Delay (s)	51.2	117.3		95.3	48.7	40.1		374.0	33.7	124.8	71.7	195.7
Level of Service	D	F		F	D	D		F	C	F	E	F
Approach Delay (s)		107.8			81.8				103.6			193.7
Approach LOS		F			F				F			F

Intersection Summary			
HCM 2000 Control Delay	133.8	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.33		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	26.0
Intersection Capacity Utilization	106.5%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group



Movement	SBR
Lane Configurations	
Traffic Volume (vph)	100
Future Volume (vph)	100
Ideal Flow (vphpl)	1900
Lane Width	12
Grade (%)	
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	109
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	



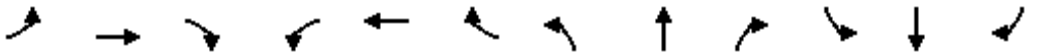
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	415	35	215	35	10	40	35	720	20	70	245	355
Future Volume (veh/h)	415	35	215	35	10	40	35	720	20	70	245	355
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1847	1847	1847	1864	1864	1864	1864	1864	1864	1776	1776	1776
Adj Flow Rate, veh/h	451	38	234	38	11	43	38	783	22	76	266	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	523	310	263	53	83	70	708	1985	56	407	1932	
Arrive On Green	0.15	0.17	0.17	0.03	0.04	0.04	0.03	0.56	0.56	0.04	0.57	0.00
Sat Flow, veh/h	3412	1847	1565	1776	1864	1580	1776	3519	99	1692	3375	1505
Grp Volume(v), veh/h	451	38	234	38	11	43	38	394	411	76	266	0
Grp Sat Flow(s),veh/h/ln	1706	1847	1565	1776	1864	1580	1776	1771	1847	1692	1687	1505
Q Serve(g_s), s	15.5	2.1	17.6	2.5	0.7	3.2	1.1	15.0	15.0	2.2	4.4	0.0
Cycle Q Clear(g_c), s	15.5	2.1	17.6	2.5	0.7	3.2	1.1	15.0	15.0	2.2	4.4	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.05	1.00		1.00
Lane Grp Cap(c), veh/h	523	310	263	53	83	70	708	999	1042	407	1932	
V/C Ratio(X)	0.86	0.12	0.89	0.72	0.13	0.61	0.05	0.39	0.39	0.19	0.14	
Avail Cap(c_a), veh/h	668	408	346	348	412	349	854	999	1042	532	1932	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.99	0.99	0.00
Uniform Delay (d), s/veh	49.6	42.4	48.9	57.7	55.1	56.3	10.2	14.7	14.7	11.0	11.9	0.0
Incr Delay (d2), s/veh	9.2	0.2	19.8	16.3	0.7	8.3	0.0	1.2	1.1	0.2	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.3	1.0	8.3	1.4	0.3	1.4	0.4	6.2	6.5	0.8	1.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	58.8	42.6	68.6	74.0	55.8	64.7	10.2	15.8	15.8	11.2	12.1	0.0
LnGrp LOS	E	D	E	E	E	E	B	B	B	B	B	
Approach Vol, veh/h		723			92			843			342	A
Approach Delay, s/veh		61.1			67.5			15.6			11.9	
Approach LOS		E			E			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.1	74.2	23.9	11.8	9.1	75.2	9.1	26.6
Change Period (Y+Rc), s	5.5	6.5	5.5	6.5	5.5	6.5	5.5	6.5
Max Green Setting (Gmax), s	13.5	32.5	23.5	26.5	13.5	32.5	23.5	26.5
Max Q Clear Time (g_c+I1), s	4.2	17.0	17.5	5.2	3.1	6.4	4.5	19.6
Green Ext Time (p_c), s	0.1	0.8	0.9	0.1	0.0	0.4	0.1	0.5

Intersection Summary	
HCM 6th Ctrl Delay	33.8
HCM 6th LOS	C

Notes

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	495	305	0	0	0	0	375	800	0	365	0
Future Volume (vph)	5	495	305	0	0	0	0	375	800	0	365	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	10	10	11	12	12	12
Grade (%)		5%			0%			4%			0%	
Total Lost time (s)		7.0	4.0					8.0	6.0		8.0	
Lane Util. Factor		0.95	1.00					0.95	0.88		0.91	
Frt		1.00	0.85					1.00	0.85		1.00	
Flt Protected		1.00	1.00					1.00	1.00		1.00	
Satd. Flow (prot)		3449	1544					3237	2640		5085	
Flt Permitted		1.00	1.00					1.00	1.00		1.00	
Satd. Flow (perm)		3449	1544					3237	2640		5085	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	538	332	0	0	0	0	408	870	0	397	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	543	332	0	0	0	0	408	870	0	397	0
Turn Type	Perm	NA	Free					NA	custom		NA	
Protected Phases		3						6	5 6		2 4	
Permitted Phases	3		Free									
Actuated Green, G (s)		27.7	160.0					20.9	99.9		117.3	
Effective Green, g (s)		27.7	160.0					20.9	99.9		110.3	
Actuated g/C Ratio		0.17	1.00					0.13	0.62		0.69	
Clearance Time (s)		7.0						8.0				
Vehicle Extension (s)		3.0						3.0				
Lane Grp Cap (vph)		597	1544					422	1648		3505	
v/s Ratio Prot								c0.13	c0.33		0.08	
v/s Ratio Perm		0.16	c0.22									
v/c Ratio		0.91	0.22					0.97	0.53		0.11	
Uniform Delay, d1		64.9	0.0					69.2	16.8		8.4	
Progression Factor		1.00	1.00					1.00	1.00		0.00	
Incremental Delay, d2		17.7	0.3					36.3	0.3		0.0	
Delay (s)		82.7	0.3					105.5	17.1		0.0	
Level of Service		F	A					F	B		A	
Approach Delay (s)		51.4			0.0			45.3			0.0	
Approach LOS		D			A			D			A	

Intersection Summary			
HCM 2000 Control Delay	40.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	28.0
Intersection Capacity Utilization	52.6%	ICU Level of Service	A
Analysis Period (min)	15		

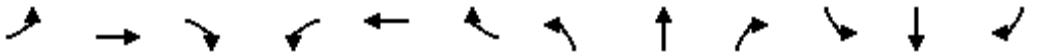
c Critical Lane Group



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	0	365	1020	380	0
Future Volume (vph)	0	0	365	1020	380	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	11	11	12	12
Grade (%)	0%			1%	0%	
Total Lost time (s)			7.0	7.0	7.0	
Lane Util. Factor			0.91	0.91	0.97	
Frt			1.00	1.00	1.00	
Flt Protected			0.95	1.00	0.95	
Satd. Flow (prot)			1549	3255	3433	
Flt Permitted			0.95	1.00	0.95	
Satd. Flow (perm)			1549	3255	3433	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	397	1109	413	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	357	1149	413	0
Turn Type			Split	NA	Prot	
Protected Phases			4 5	4 5	3 6	
Permitted Phases						
Actuated Green, G (s)			90.4	90.4	56.6	
Effective Green, g (s)			90.4	90.4	48.6	
Actuated g/C Ratio			0.57	0.57	0.30	
Clearance Time (s)						
Vehicle Extension (s)						
Lane Grp Cap (vph)			875	1839	1042	
v/s Ratio Prot			0.23	c0.35	c0.12	
v/s Ratio Perm						
v/c Ratio			0.41	0.62	0.40	
Uniform Delay, d1			19.7	23.4	44.1	
Progression Factor			1.01	0.99	0.04	
Incremental Delay, d2			0.3	0.7	0.1	
Delay (s)			20.2	23.9	2.0	
Level of Service			C	C	A	
Approach Delay (s)	0.0			23.0	2.0	
Approach LOS	A			C	A	

Intersection Summary			
HCM 2000 Control Delay	18.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	28.0
Intersection Capacity Utilization	52.6%	ICU Level of Service	A
Analysis Period (min)	15		

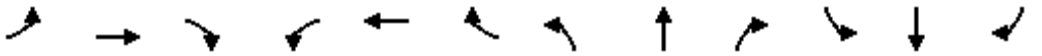
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	495	45	135	5	20	110	170	2145	10	90	1330	190
Future Volume (vph)	495	45	135	5	20	110	170	2145	10	90	1330	190
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	12	12	16	12	11	11	12	11	11	14
Grade (%)		1%			0%			2%			0%	
Total Lost time (s)	6.5	6.5	6.5		7.0		6.5	6.5		6.5	6.5	6.5
Lane Util. Factor	0.95	0.95	1.00		1.00		0.97	0.91		1.00	0.91	1.00
Frt	1.00	1.00	0.85		0.89		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	0.96	1.00		1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1561	1578	1575		1875		3285	4863		1711	4916	1689
Flt Permitted	0.95	0.96	1.00		1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1561	1578	1575		1875		3285	4863		1711	4916	1689
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	538	49	147	5	22	120	185	2332	11	98	1446	207
RTOR Reduction (vph)	0	0	93	0	108	0	0	1	0	0	0	98
Lane Group Flow (vph)	291	296	54	0	39	0	185	2342	0	98	1446	109
Turn Type	Split	NA	pm+ov	Split	NA		Prot	NA		Prot	NA	Perm
Protected Phases	4	4	6	3	3		6	2		1	5	
Permitted Phases			4									5
Actuated Green, G (s)	31.5	31.5	55.0		7.9		23.5	73.2		10.9	60.6	60.6
Effective Green, g (s)	31.5	31.5	55.0		7.9		23.5	73.2		10.9	60.6	60.6
Actuated g/C Ratio	0.21	0.21	0.37		0.05		0.16	0.49		0.07	0.40	0.40
Clearance Time (s)	6.5	6.5	6.5		7.0		6.5	6.5		6.5	6.5	6.5
Vehicle Extension (s)	3.0	3.0	3.0		3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	327	331	577		98		514	2373		124	1986	682
v/s Ratio Prot	0.19	c0.19	0.01		c0.02		0.06	c0.48		0.06	c0.29	
v/s Ratio Perm			0.02									0.06
v/c Ratio	0.89	0.89	0.09		0.40		0.36	0.99		0.79	0.73	0.16
Uniform Delay, d1	57.6	57.6	31.2		68.7		56.5	37.9		68.4	37.7	28.5
Progression Factor	1.00	1.00	1.00		1.00		1.00	1.00		0.63	0.87	0.93
Incremental Delay, d2	24.2	24.9	0.1		2.6		0.4	15.7		26.0	2.2	0.5
Delay (s)	81.7	82.5	31.2		71.4		57.0	53.6		68.7	34.9	27.0
Level of Service	F	F	C		E		E	D		E	C	C
Approach Delay (s)		71.9			71.4			53.9			35.9	
Approach LOS		E			E			D			D	

Intersection Summary			
HCM 2000 Control Delay	50.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	26.5
Intersection Capacity Utilization	91.7%	ICU Level of Service	F
Analysis Period (min)	15		

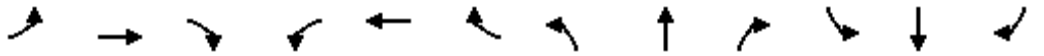
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	575	5	195	0	0	0	0	2505	245	130	1415	0
Future Volume (vph)	575	5	195	0	0	0	0	2505	245	130	1415	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	12	11	12	12	12	12	11	16	11	11	12
Grade (%)		3%			0%			1%			0%	
Total Lost time (s)	8.0	8.0	8.0					6.5		5.5	5.5	
Lane Util. Factor	0.95	0.95	*0.80					0.76		0.97	0.91	
Frt	1.00	1.00	0.85					0.99		1.00	1.00	
Flt Protected	0.95	0.95	1.00					1.00		0.95	1.00	
Satd. Flow (prot)	1601	1661	2412					8061		3319	4916	
Flt Permitted	0.95	0.95	1.00					1.00		0.95	1.00	
Satd. Flow (perm)	1601	1661	2412					8061		3319	4916	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	625	5	212	0	0	0	0	2723	266	141	1538	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	11	0	0	0	0
Lane Group Flow (vph)	312	318	212	0	0	0	0	2978	0	141	1538	0
Turn Type	Split	NA	Prot					NA		Prot	NA	
Protected Phases	4	4	4					6		5	2	
Permitted Phases												
Actuated Green, G (s)	36.5	36.5	36.5					76.0		17.5	100.0	
Effective Green, g (s)	36.5	36.5	36.5					76.0		17.5	100.0	
Actuated g/C Ratio	0.24	0.24	0.24					0.51		0.12	0.67	
Clearance Time (s)	8.0	8.0	8.0					6.5		5.5	5.5	
Vehicle Extension (s)	4.0	4.0	4.0					4.0		0.2	0.2	
Lane Grp Cap (vph)	389	404	586					4084		387	3277	
v/s Ratio Prot	c0.19	0.19	0.09					c0.37		0.04	c0.31	
v/s Ratio Perm												
v/c Ratio	0.80	0.79	0.36					0.73		0.36	0.47	
Uniform Delay, d1	53.4	53.1	47.1					28.9		61.1	12.1	
Progression Factor	1.00	1.00	1.00					1.52		1.64	3.03	
Incremental Delay, d2	11.9	10.3	0.5					0.4		2.5	0.5	
Delay (s)	65.3	63.4	47.6					44.3		102.7	37.2	
Level of Service	E	E	D					D		F	D	
Approach Delay (s)		60.1			0.0			44.3			42.7	
Approach LOS		E			A			D			D	

Intersection Summary			
HCM 2000 Control Delay	46.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	68.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	50	60	230	520	2560	0	0	1495	550
Future Volume (vph)	0	0	0	50	60	230	520	2560	0	0	1495	550
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	13	16	10	11	12	12	11	12
Grade (%)		0%			5%			0%			-1%	
Total Lost time (s)				8.0	8.0	4.0	6.5	6.0			6.0	4.0
Lane Util. Factor				0.95	0.95	1.00	0.97	0.86			0.81	1.00
Frt				1.00	1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				1639	1777	1750	3204	6194			7329	1591
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				1639	1777	1750	3204	6194			7329	1591
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	54	65	250	565	2783	0	0	1625	598
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	49	70	250	565	2783	0	0	1625	598
Turn Type				Split	NA	Free	Prot	NA			NA	Free
Protected Phases				4	4		1	6			2	
Permitted Phases						Free						Free
Actuated Green, G (s)				12.2	12.2	150.0	32.9	123.8			84.4	150.0
Effective Green, g (s)				12.2	12.2	150.0	32.9	123.8			84.4	150.0
Actuated g/C Ratio				0.08	0.08	1.00	0.22	0.83			0.56	1.00
Clearance Time (s)				8.0	8.0		6.5	6.0			6.0	
Vehicle Extension (s)				4.0	4.0		4.0	0.2			0.2	
Lane Grp Cap (vph)				133	144	1750	702	5112			4123	1591
v/s Ratio Prot				0.03	0.04		c0.18	c0.45			0.22	
v/s Ratio Perm						0.14						c0.38
v/c Ratio				0.37	0.49	0.14	0.80	0.54			0.39	0.38
Uniform Delay, d1				65.3	65.9	0.0	55.5	4.2			18.4	0.0
Progression Factor				1.00	1.00	1.00	0.77	2.00			0.89	1.00
Incremental Delay, d2				2.3	3.5	0.2	4.8	0.3			0.1	0.2
Delay (s)				67.6	69.4	0.2	47.6	8.6			16.5	0.2
Level of Service				E	E	A	D	A			B	A
Approach Delay (s)		0.0			22.3			15.2			12.1	
Approach LOS		A			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	14.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	20.5
Intersection Capacity Utilization	68.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	285	245	135	440	290	95	15	230	1940	605	60	1455
Future Volume (vph)	285	245	135	440	290	95	15	230	1940	605	60	1455
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	12	12	10	12	12	12	10	11	11	11	11
Grade (%)		3%			2%				0%			-1%
Total Lost time (s)	6.5	6.5		6.5	6.5	6.5		6.5	6.5	6.5	6.5	6.5
Lane Util. Factor	0.97	0.95		0.97	0.95	1.00		1.00	0.91	1.00	1.00	*0.80
Frt	1.00	0.95		1.00	1.00	0.85		1.00	1.00	0.85	1.00	0.98
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3156	3300		3172	3504	1567		1652	4916	1531	1719	4244
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.07	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3156	3300		3172	3504	1567		124	4916	1531	1719	4244
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	310	266	147	478	315	103	16	250	2109	658	65	1582
RTOR Reduction (vph)	0	0	0	0	0	82	0	0	0	209	0	13
Lane Group Flow (vph)	310	413	0	478	315	21	0	266	2109	449	65	1852
Turn Type	Split	NA		Split	NA	pt+ov	pm+pt	pm+pt	NA	Perm	Prot	NA
Protected Phases	4	4		3	3	3 5	1	1	6		5	2
Permitted Phases							6	6		6		
Actuated Green, G (s)	24.3	24.3		19.5	19.5	30.2		69.5	69.5	69.5	10.7	66.7
Effective Green, g (s)	24.3	24.3		19.5	19.5	30.2		69.5	69.5	69.5	10.7	66.7
Actuated g/C Ratio	0.16	0.16		0.13	0.13	0.20		0.46	0.46	0.46	0.07	0.44
Clearance Time (s)	6.5	6.5		6.5	6.5			6.5	6.5	6.5	6.5	6.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	511	534		412	455	315		194	2277	709	122	1887
v/s Ratio Prot	0.10	c0.13		c0.15	0.09	0.01		c0.12	0.43		0.04	c0.44
v/s Ratio Perm								c0.51		0.29		
v/c Ratio	0.61	0.77		1.16	0.69	0.07		1.37	0.93	0.63	0.53	0.98
Uniform Delay, d1	58.4	60.2		65.2	62.4	48.5		59.2	37.8	30.6	67.2	41.0
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.07	1.10	1.40	1.00	1.00
Incremental Delay, d2	2.0	6.9		95.9	4.5	0.1		192.9	7.1	3.7	4.4	16.7
Delay (s)	60.4	67.1		161.1	66.9	48.6		255.9	48.6	46.6	71.7	57.8
Level of Service	E	E		F	E	D		F	D	D	E	E
Approach Delay (s)		64.2			115.1				66.4			58.2
Approach LOS		E			F				E			E

Intersection Summary			
HCM 2000 Control Delay	70.4	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.19		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	26.0
Intersection Capacity Utilization	92.8%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



Movement	SBR
Lane Configurations	
Traffic Volume (vph)	260
Future Volume (vph)	260
Ideal Flow (vphpl)	1900
Lane Width	12
Grade (%)	
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	283
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	20	1055	30	10	105	600	125	20	40	260	470	125
Future Volume (vph)	20	1055	30	10	105	600	125	20	40	260	470	125
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	12	12	12	12	12	11	11	11	16	9	10
Grade (%)		0%				-1%			2%			-3%
Total Lost time (s)	6.0	6.0			4.5	6.0	6.0	7.5	7.5	4.0	7.0	7.0
Lane Util. Factor	1.00	0.95			1.00	0.95	1.00	1.00	1.00	1.00	0.95	0.95
Frt	1.00	1.00			1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00			0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.97
Satd. Flow (prot)	1711	3524			1778	3557	1538	1694	1783	1776	1536	1623
Flt Permitted	0.40	1.00			0.09	1.00	1.00	0.95	1.00	1.00	0.95	0.97
Satd. Flow (perm)	728	3524			170	3557	1538	1694	1783	1776	1536	1623
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	22	1147	33	11	114	652	136	22	43	283	511	136
RTOR Reduction (vph)	0	1	0	0	0	0	63	0	0	0	0	1
Lane Group Flow (vph)	22	1179	0	0	125	652	73	22	43	283	322	335
Turn Type	Perm	NA		pm+pt	pm+pt	NA	Perm	Split	NA	Free	Split	NA
Protected Phases		6		5	5	2		3	3		4	4
Permitted Phases	6			2	2		2			Free		
Actuated Green, G (s)	65.1	65.1			81.0	81.0	81.0	9.4	9.4	150.0	39.1	39.1
Effective Green, g (s)	65.1	65.1			81.0	81.0	81.0	9.4	9.4	150.0	39.1	39.1
Actuated g/C Ratio	0.43	0.43			0.54	0.54	0.54	0.06	0.06	1.00	0.26	0.26
Clearance Time (s)	6.0	6.0			4.5	6.0	6.0	7.5	7.5		7.0	7.0
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	5.0	5.0		5.0	5.0
Lane Grp Cap (vph)	315	1529			214	1920	830	106	111	1776	400	423
v/s Ratio Prot		c0.33			c0.04	0.18		0.01	c0.02		c0.21	0.21
v/s Ratio Perm	0.03				0.27		0.05			0.16		
v/c Ratio	0.07	0.77			0.58	0.34	0.09	0.21	0.39	0.16	0.81	0.79
Uniform Delay, d1	24.8	36.1			25.7	19.4	16.7	66.8	67.5	0.0	51.9	51.7
Progression Factor	1.00	1.00			0.82	0.96	1.19	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.4	3.8			3.9	0.5	0.2	2.0	4.6	0.2	12.7	11.2
Delay (s)	25.2	39.9			25.0	19.1	20.0	68.8	72.2	0.2	64.5	62.9
Level of Service	C	D			C	B	B	E	E	A	E	E
Approach Delay (s)		39.7				20.1			13.4			63.7
Approach LOS		D				C			B			E

Intersection Summary			
HCM 2000 Control Delay	36.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	25.0
Intersection Capacity Utilization	74.3%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

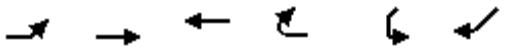


Movement	SBR
Lane Configurations	
Traffic Volume (vph)	10
Future Volume (vph)	10
Ideal Flow (vphpl)	1900
Lane Width	12
Grade (%)	
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	11
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1045	0	0	590	250	0
Future Volume (vph)	1045	0	0	590	250	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	13	12
Total Lost time (s)	6.0			6.0	5.0	
Lane Util. Factor	0.95			0.95	0.97	
Frt	1.00			1.00	1.00	
Flt Protected	1.00			1.00	0.95	
Satd. Flow (prot)	3539			3539	3547	
Flt Permitted	1.00			1.00	0.95	
Satd. Flow (perm)	3539			3539	3547	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1136	0	0	641	272	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	1136	0	0	641	272	0
Turn Type	NA			NA	Prot	
Protected Phases	6			2	4	
Permitted Phases						
Actuated Green, G (s)	120.4			120.4	18.6	
Effective Green, g (s)	120.4			120.4	18.6	
Actuated g/C Ratio	0.80			0.80	0.12	
Clearance Time (s)	6.0			6.0	5.0	
Vehicle Extension (s)	0.2			0.2	5.0	
Lane Grp Cap (vph)	2840			2840	439	
v/s Ratio Prot	c0.32			0.18	c0.08	
v/s Ratio Perm						
v/c Ratio	0.40			0.23	0.62	
Uniform Delay, d1	4.3			3.6	62.3	
Progression Factor	0.56			1.00	1.00	
Incremental Delay, d2	0.3			0.2	3.7	
Delay (s)	2.7			3.8	66.1	
Level of Service	A			A	E	
Approach Delay (s)	2.7			3.8	66.1	
Approach LOS	A			A	E	

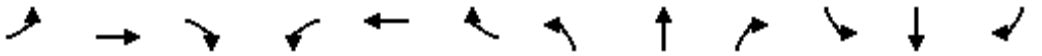
Intersection Summary			
HCM 2000 Control Delay	11.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	56.3%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	395	1260	910	0	0	0
Future Volume (vph)	395	1260	910	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	4.0	6.0			
Lane Util. Factor	1.00	0.91	0.95			
Frt	1.00	1.00	1.00			
Flt Protected	0.95	1.00	1.00			
Satd. Flow (prot)	1770	5085	3539			
Flt Permitted	0.29	1.00	1.00			
Satd. Flow (perm)	540	5085	3539			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	429	1370	989	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	429	1370	989	0	0	0
Turn Type	D.Pm	NA	NA			
Protected Phases		Free	2			
Permitted Phases	2					
Actuated Green, G (s)	150.0	150.0	150.0			
Effective Green, g (s)	150.0	150.0	150.0			
Actuated g/C Ratio	1.00	1.00	1.00			
Clearance Time (s)	6.0		6.0			
Vehicle Extension (s)	0.2		0.2			
Lane Grp Cap (vph)	540	5085	3539			
v/s Ratio Prot		0.27	0.28			
v/s Ratio Perm	c0.79					
v/c Ratio	0.79	0.27	0.28			
Uniform Delay, d1	0.0	0.0	0.0			
Progression Factor	1.00	1.00	1.00			
Incremental Delay, d2	11.3	0.1	0.2			
Delay (s)	11.3	0.1	0.2			
Level of Service	B	A	A			
Approach Delay (s)		2.8	0.2		0.0	
Approach LOS		A	A		A	

Intersection Summary			
HCM 2000 Control Delay	1.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	57.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	85	1865	25	5	1510	25	25	5	5	55	15	165
Future Volume (veh/h)	85	1865	25	5	1510	25	25	5	5	55	15	165
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1847	1921	1847	1817	1817	1817	1949	1949	1949	2067	2149	2149
Adj Flow Rate, veh/h	92	2027	27	5	1641	27	27	5	5	60	16	179
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	241	2840	1218	146	2616	1167	113	21	15	187	46	210
Arrive On Green	0.02	0.78	0.78	0.00	0.76	0.76	0.13	0.12	0.12	0.13	0.12	0.12
Sat Flow, veh/h	1759	3649	1565	1731	3453	1540	679	178	134	1312	399	1821
Grp Volume(v), veh/h	92	2027	27	5	1641	27	37	0	0	76	0	179
Grp Sat Flow(s),veh/h/ln	1759	1825	1565	1731	1726	1540	991	0	0	1711	0	1821
Q Serve(g_s), s	2.2	49.9	0.7	0.1	39.5	0.8	3.6	0.0	0.0	0.0	0.0	17.4
Cycle Q Clear(g_c), s	2.2	49.9	0.7	0.1	39.5	0.8	10.8	0.0	0.0	7.2	0.0	17.4
Prop In Lane	1.00		1.00	1.00		1.00	0.73		0.14	0.79		1.00
Lane Grp Cap(c), veh/h	241	2840	1218	146	2616	1167	163	0	0	257	0	210
V/C Ratio(X)	0.38	0.71	0.02	0.03	0.63	0.02	0.23	0.00	0.00	0.30	0.00	0.85
Avail Cap(c_a), veh/h	325	2840	1218	264	2616	1167	228	0	0	340	0	299
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	10.8	10.0	4.5	11.2	10.1	5.4	75.9	0.0	0.0	72.7	0.0	78.1
Incr Delay (d2), s/veh	2.1	1.6	0.0	0.2	1.2	0.0	1.5	0.0	0.0	1.4	0.0	21.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	18.8	0.2	0.1	14.5	0.3	1.7	0.0	0.0	3.3	0.0	9.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	12.9	11.5	4.5	11.4	11.2	5.4	77.4	0.0	0.0	74.0	0.0	99.5
LnGrp LOS	B	B	A	B	B	A	E	A	A	E	A	F
Approach Vol, veh/h		2146			1673			37			255	
Approach Delay, s/veh		11.5			11.1			77.4			91.9	
Approach LOS		B			B			E			F	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.4	142.4		27.2	6.7	146.1		27.2				
Change Period (Y+Rc), s	6.0	6.0		6.5	6.0	6.0		6.5				
Max Green Setting (Gmax), s	13.0	119.0		29.5	13.0	119.0		29.5				
Max Q Clear Time (g_c+I1), s	4.2	41.5		12.8	2.1	51.9		19.4				
Green Ext Time (p_c), s	0.3	2.7		0.2	0.0	3.9		1.4				

Intersection Summary												
HCM 6th Ctrl Delay			16.9									
HCM 6th LOS			B									



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	25	635	25	10	240	1175	695	25	195	350	440	185
Future Volume (vph)	25	635	25	10	240	1175	695	25	195	350	440	185
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	12	12	12	12	12	11	11	11	16	9	10
Grade (%)		0%				-1%			2%			-3%
Total Lost time (s)	6.0	6.0			4.5	6.0	6.0	7.5	7.5	4.0	7.0	7.0
Lane Util. Factor	1.00	0.95			1.00	0.95	1.00	1.00	1.00	1.00	0.95	0.95
Frt	1.00	0.99			1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99
Flt Protected	0.95	1.00			0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.98
Satd. Flow (prot)	1711	3519			1778	3557	1538	1694	1783	1776	1536	1621
Flt Permitted	0.12	1.00			0.19	1.00	1.00	0.95	1.00	1.00	0.95	0.98
Satd. Flow (perm)	208	3519			356	3557	1538	1694	1783	1776	1536	1621
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	27	690	27	11	261	1277	755	27	212	380	478	201
RTOR Reduction (vph)	0	2	0	0	0	0	397	0	0	0	0	2
Lane Group Flow (vph)	27	715	0	0	272	1277	358	27	212	380	301	409
Turn Type	Perm	NA		pm+pt	pm+pt	NA	Perm	Split	NA	Free	Split	NA
Protected Phases		6		5	5	2		3	3		4	4
Permitted Phases	6			2	2		2			Free		
Actuated Green, G (s)	47.2	47.2			68.0	68.0	68.0	22.9	22.9	150.0	38.6	38.6
Effective Green, g (s)	47.2	47.2			68.0	68.0	68.0	22.9	22.9	150.0	38.6	38.6
Actuated g/C Ratio	0.31	0.31			0.45	0.45	0.45	0.15	0.15	1.00	0.26	0.26
Clearance Time (s)	6.0	6.0			4.5	6.0	6.0	7.5	7.5		7.0	7.0
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	5.0	5.0		5.0	5.0
Lane Grp Cap (vph)	65	1107			315	1612	697	258	272	1776	395	417
v/s Ratio Prot		0.20			0.09	c0.36		0.02	c0.12		0.20	c0.25
v/s Ratio Perm	0.13				c0.30		0.23			0.21		
v/c Ratio	0.42	0.65			0.86	0.79	0.51	0.10	0.78	0.21	0.76	0.98
Uniform Delay, d1	40.5	44.2			30.0	35.0	29.2	54.7	61.1	0.0	51.5	55.3
Progression Factor	1.00	1.00			0.93	0.74	0.45	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	18.4	2.9			16.7	3.1	2.0	0.4	15.2	0.3	9.9	39.0
Delay (s)	58.9	47.1			44.7	29.0	15.2	55.1	76.3	0.3	61.3	94.3
Level of Service	E	D			D	C	B	E	E	A	E	F
Approach Delay (s)		47.6				26.3			28.7			80.4
Approach LOS		D				C			C			F

Intersection Summary			
HCM 2000 Control Delay	39.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	25.0
Intersection Capacity Utilization	88.6%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

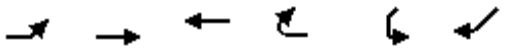


Movement	SBR
Lane Configurations	
Traffic Volume (vph)	30
Future Volume (vph)	30
Ideal Flow (vphpl)	1900
Lane Width	12
Grade (%)	
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	33
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1065	0	0	1845	275	0
Future Volume (vph)	1065	0	0	1845	275	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	13	12
Total Lost time (s)	6.0			6.0	5.0	
Lane Util. Factor	0.95			0.95	0.97	
Frt	1.00			1.00	1.00	
Flt Protected	1.00			1.00	0.95	
Satd. Flow (prot)	3539			3539	3547	
Flt Permitted	1.00			1.00	0.95	
Satd. Flow (perm)	3539			3539	3547	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1158	0	0	2005	299	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	1158	0	0	2005	299	0
Turn Type	NA			NA	Prot	
Protected Phases	6			2	4	
Permitted Phases						
Actuated Green, G (s)	120.9			120.9	18.1	
Effective Green, g (s)	120.9			120.9	18.1	
Actuated g/C Ratio	0.81			0.81	0.12	
Clearance Time (s)	6.0			6.0	5.0	
Vehicle Extension (s)	5.0			5.0	3.0	
Lane Grp Cap (vph)	2852			2852	428	
v/s Ratio Prot	0.33			c0.57	c0.08	
v/s Ratio Perm						
v/c Ratio	0.41			0.70	0.70	
Uniform Delay, d1	4.2			6.5	63.3	
Progression Factor	0.40			1.21	1.00	
Incremental Delay, d2	0.3			1.4	4.9	
Delay (s)	2.0			9.3	68.3	
Level of Service	A			A	E	
Approach Delay (s)	2.0			9.3	68.3	
Approach LOS	A			A	E	

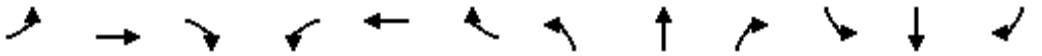
Intersection Summary			
HCM 2000 Control Delay	12.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	68.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	320	1345	1480	0	0	0
Future Volume (vph)	320	1345	1480	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	4.0	6.0			
Lane Util. Factor	1.00	0.91	0.95			
Frt	1.00	1.00	1.00			
Flt Protected	0.95	1.00	1.00			
Satd. Flow (prot)	1770	5085	3539			
Flt Permitted	0.11	1.00	1.00			
Satd. Flow (perm)	206	5085	3539			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	348	1462	1609	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	348	1462	1609	0	0	0
Turn Type	D.P+P	NA	NA			
Protected Phases	1	Free	2			
Permitted Phases	2					
Actuated Green, G (s)	139.0	150.0	108.3			
Effective Green, g (s)	139.0	150.0	108.3			
Actuated g/C Ratio	0.93	1.00	0.72			
Clearance Time (s)	5.0		6.0			
Vehicle Extension (s)	3.0		0.2			
Lane Grp Cap (vph)	510	5085	2555			
v/s Ratio Prot	c0.14	0.29	0.45			
v/s Ratio Perm	c0.49					
v/c Ratio	0.68	0.29	0.63			
Uniform Delay, d1	28.7	0.0	10.6			
Progression Factor	0.60	1.00	1.00			
Incremental Delay, d2	3.7	0.1	1.2			
Delay (s)	20.9	0.1	11.8			
Level of Service	C	A	B			
Approach Delay (s)		4.1	11.8		0.0	
Approach LOS		A	B		A	

Intersection Summary			
HCM 2000 Control Delay	7.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	103.6%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	220	1460	50	5	2170	55	20	5	5	40	10	120
Future Volume (veh/h)	220	1460	50	5	2170	55	20	5	5	40	10	120
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1847	1921	1847	1817	1817	1817	1949	1949	1949	2067	2149	2149
Adj Flow Rate, veh/h	239	1587	54	5	2359	60	22	5	5	43	11	130
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	200	2955	1267	243	2540	1133	92	20	14	147	34	153
Arrive On Green	0.08	0.81	0.81	0.00	0.74	0.74	0.10	0.08	0.08	0.10	0.08	0.08
Sat Flow, veh/h	1759	3649	1565	1731	3453	1540	691	240	172	1320	400	1821
Grp Volume(v), veh/h	239	1587	54	5	2359	60	32	0	0	54	0	130
Grp Sat Flow(s),veh/h/ln	1759	1825	1565	1731	1726	1540	1103	0	0	1721	0	1821
Q Serve(g_s), s	14.0	26.4	1.2	0.1	102.6	1.9	2.6	0.0	0.0	0.0	0.0	12.7
Cycle Q Clear(g_c), s	14.0	26.4	1.2	0.1	102.6	1.9	7.8	0.0	0.0	5.2	0.0	12.7
Prop In Lane	1.00		1.00	1.00		1.00	0.69		0.16	0.80		1.00
Lane Grp Cap(c), veh/h	200	2955	1267	243	2540	1133	142	0	0	204	0	153
V/C Ratio(X)	1.19	0.54	0.04	0.02	0.93	0.05	0.23	0.00	0.00	0.26	0.00	0.85
Avail Cap(c_a), veh/h	200	2955	1267	371	2540	1133	168	0	0	236	0	187
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	69.1	5.8	3.4	6.6	19.9	6.5	78.9	0.0	0.0	76.9	0.0	81.3
Incr Delay (d2), s/veh	126.0	0.7	0.1	0.1	7.5	0.1	1.7	0.0	0.0	1.5	0.0	30.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	16.3	9.3	0.4	0.1	40.3	0.7	1.5	0.0	0.0	2.4	0.0	7.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	195.1	6.5	3.4	6.7	27.4	6.6	80.6	0.0	0.0	78.4	0.0	112.3
LnGrp LOS	F	A	A	A	C	A	F	A	A	E	A	F
Approach Vol, veh/h		1880			2424			32			184	
Approach Delay, s/veh		30.4			26.8			80.6			102.3	
Approach LOS		C			C			F			F	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	20.0	138.4		21.6	6.7	151.7		21.6				
Change Period (Y+Rc), s	6.0	6.0		6.5	6.0	6.0		6.5				
Max Green Setting (Gmax), s	14.0	129.0		18.5	14.0	129.0		18.5				
Max Q Clear Time (g_c+I1), s	16.0	104.6		9.8	2.1	28.4		14.7				
Green Ext Time (p_c), s	0.0	5.1		0.1	0.0	2.6		0.4				

Intersection Summary												
HCM 6th Ctrl Delay			31.7									
HCM 6th LOS			C									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	55	5	175	5	5	5	5	105	1180	5	5	2090
Future Volume (vph)	55	5	175	5	5	5	5	105	1180	5	5	2090
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.5	5.5		7.0			5.5	6.0	6.0	6.0	6.0
Lane Util. Factor		1.00	1.00		1.00			1.00	0.91	1.00	1.00	0.91
Frt		1.00	0.85		0.95			1.00	1.00	0.85	1.00	1.00
Flt Protected		0.96	1.00		0.98			0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)		1781	1583		1750			1770	5085	1583	1770	5066
Flt Permitted		0.73	1.00		0.89			0.04	1.00	1.00	0.20	1.00
Satd. Flow (perm)		1363	1583		1583			80	5085	1583	380	5066
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	60	5	190	5	5	5	5	114	1283	5	5	2272
RTOR Reduction (vph)	0	0	18	0	5	0	0	0	0	1	0	1
Lane Group Flow (vph)	0	65	172	0	10	0	0	119	1283	4	5	2331
Turn Type	Perm	NA	pm+ov	Perm	NA		custom	pm+pt	NA	Perm	Perm	NA
Protected Phases		4	1!		8			1	6			2
Permitted Phases	4		4	8			1!	6		6	2	
Actuated Green, G (s)		12.6	24.7		13.1			123.9	123.9	123.9	106.3	106.3
Effective Green, g (s)		12.6	24.7		13.1			123.9	123.9	123.9	106.3	106.3
Actuated g/C Ratio		0.08	0.16		0.09			0.83	0.83	0.83	0.71	0.71
Clearance Time (s)		7.5	5.5		7.0			5.5	6.0	6.0	6.0	6.0
Vehicle Extension (s)		5.0	3.0		5.0			3.0	0.2	0.2	0.2	0.2
Lane Grp Cap (vph)		114	260		138			202	4200	1307	269	3590
v/s Ratio Prot			c0.05					0.05	0.25			c0.46
v/s Ratio Perm		0.05	0.06		0.01			0.44		0.00	0.01	
v/c Ratio		0.57	0.66		0.08			0.59	0.31	0.00	0.02	0.65
Uniform Delay, d1		66.1	58.7		62.9			33.0	3.0	2.3	6.5	11.8
Progression Factor		1.00	1.00		1.00			0.70	1.85	1.00	1.00	1.00
Incremental Delay, d2		10.5	6.2		0.5			4.0	0.2	0.0	0.1	0.9
Delay (s)		76.6	64.9		63.4			27.2	5.8	2.3	6.6	12.7
Level of Service		E	E		E			C	A	A	A	B
Approach Delay (s)		67.9			63.4				7.6			12.7
Approach LOS		E			E				A			B

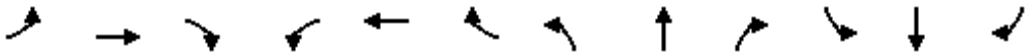
Intersection Summary			
HCM 2000 Control Delay	14.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	82.7%	ICU Level of Service	E
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group



Movement	SBR
Lane Configurations	
Traffic Volume (vph)	55
Future Volume (vph)	55
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	60
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

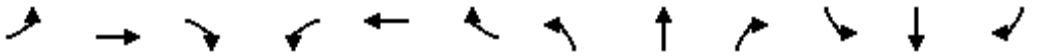
Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	170	5	325	285	970	0	0	1840	435
Future Volume (vph)	0	0	0	170	5	325	285	970	0	0	1840	435
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.5	6.5	6.5	6.0	5.5			6.0	
Lane Util. Factor				0.95	0.95	1.00	1.00	0.91			0.91	
Frt				1.00	1.00	0.85	1.00	1.00			0.97	
Flt Protected				0.95	0.95	1.00	0.95	1.00			1.00	
Satd. Flow (prot)				1681	1690	1583	1770	5085			4939	
Flt Permitted				0.95	0.95	1.00	0.04	1.00			1.00	
Satd. Flow (perm)				1681	1690	1583	84	5085			4939	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	185	5	353	310	1054	0	0	2000	473
RTOR Reduction (vph)	0	0	0	0	0	134	0	0	0	0	25	0
Lane Group Flow (vph)	0	0	0	94	96	219	310	1054	0	0	2448	0
Turn Type				Perm	NA	Perm	pm+pt	NA			NA	
Protected Phases					4		6	2			5	
Permitted Phases				4		4	2					
Actuated Green, G (s)				25.1	25.1	25.1	112.9	112.9			82.4	
Effective Green, g (s)				25.1	25.1	25.1	112.9	112.9			82.4	
Actuated g/C Ratio				0.17	0.17	0.17	0.75	0.75			0.55	
Clearance Time (s)				6.5	6.5	6.5	6.0	5.5			6.0	
Vehicle Extension (s)				4.0	4.0	4.0	3.0	0.2			0.2	
Lane Grp Cap (vph)				281	282	264	332	3827			2713	
v/s Ratio Prot							c0.15	0.21			0.50	
v/s Ratio Perm				0.06	0.06	c0.14	c0.55					
v/c Ratio				0.33	0.34	0.83	0.93	0.28			0.90	
Uniform Delay, d1				55.1	55.1	60.4	49.3	5.8			30.2	
Progression Factor				1.00	1.00	1.00	0.86	0.14			0.73	
Incremental Delay, d2				1.0	1.0	19.7	30.6	0.2			4.4	
Delay (s)				56.0	56.1	80.1	73.1	1.0			26.3	
Level of Service				E	E	F	E	A			C	
Approach Delay (s)		0.0			71.7			17.4			26.3	
Approach LOS		A			E			B			C	

Intersection Summary			
HCM 2000 Control Delay	29.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	18.5
Intersection Capacity Utilization	81.3%	ICU Level of Service	D
Analysis Period (min)	15		

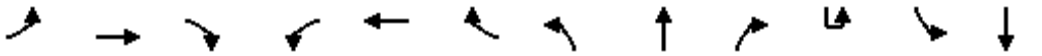
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	85	5	550	0	0	0	0	1170	150	210	1800	0
Future Volume (vph)	85	5	550	0	0	0	0	1170	150	210	1800	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5	4.0					6.0		6.0	5.5	
Lane Util. Factor	0.95	0.95	1.00					0.91		1.00	0.91	
Frt	1.00	1.00	0.85					0.98		1.00	1.00	
Flt Protected	0.95	0.96	1.00					1.00		0.95	1.00	
Satd. Flow (prot)	1681	1694	1583					4999		1770	5085	
Flt Permitted	0.95	0.96	1.00					1.00		0.15	1.00	
Satd. Flow (perm)	1681	1694	1583					4999		272	5085	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	92	5	598	0	0	0	0	1272	163	228	1957	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	8	0	0	0	0
Lane Group Flow (vph)	49	48	598	0	0	0	0	1427	0	228	1957	0
Turn Type	Split	NA	Free					NA		pm+pt	NA	
Protected Phases	4	4						5		6	2	
Permitted Phases			Free							2		
Actuated Green, G (s)	11.8	11.8	150.0					95.7		126.2	126.2	
Effective Green, g (s)	11.8	11.8	150.0					95.7		126.2	126.2	
Actuated g/C Ratio	0.08	0.08	1.00					0.64		0.84	0.84	
Clearance Time (s)	6.5	6.5						6.0		6.0	5.5	
Vehicle Extension (s)	5.0	5.0						0.2		3.0	0.2	
Lane Grp Cap (vph)	132	133	1583					3189		468	4278	
v/s Ratio Prot	0.03	0.03						0.29		0.08	c0.38	
v/s Ratio Perm			c0.38							c0.33		
v/c Ratio	0.37	0.36	0.38					0.45		0.49	0.46	
Uniform Delay, d1	65.6	65.5	0.0					13.8		17.2	3.1	
Progression Factor	1.00	1.00	1.00					0.70		1.21	0.51	
Incremental Delay, d2	3.7	3.5	0.7					0.4		0.3	0.2	
Delay (s)	69.2	69.0	0.7					10.1		21.1	1.7	
Level of Service	E	E	A					B		C	A	
Approach Delay (s)		10.2			0.0			10.1			3.7	
Approach LOS		B			A			B			A	

Intersection Summary			
HCM 2000 Control Delay	6.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	18.5
Intersection Capacity Utilization	81.3%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	225	25	10	35	5	65	5	1020	20	10	95	2210
Future Volume (vph)	225	25	10	35	5	65	5	1020	20	10	95	2210
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5		6.5	6.5	6.5	5.5	6.5			5.5	6.5
Lane Util. Factor		1.00		1.00	1.00	1.00	1.00	0.91			1.00	0.91
Frt		0.99		1.00	1.00	0.85	1.00	1.00			1.00	1.00
Flt Protected		0.96		0.95	1.00	1.00	0.95	1.00			0.95	1.00
Satd. Flow (prot)		1776		1770	1863	1583	1770	5070			1770	5073
Flt Permitted		0.75		0.77	1.00	1.00	0.04	1.00			0.20	1.00
Satd. Flow (perm)		1392		1430	1863	1583	80	5070			375	5073
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	245	27	11	38	5	71	5	1109	22	11	103	2402
RTOR Reduction (vph)	0	1	0	0	0	57	0	1	0	0	0	1
Lane Group Flow (vph)	0	282	0	38	5	14	5	1130	0	0	114	2439
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA		custom	pm+pt	NA
Protected Phases		4			8		1	6			5	2
Permitted Phases	4			8		8	6			5	2	
Actuated Green, G (s)		29.5		29.5	29.5	29.5	94.9	93.7			107.5	100.8
Effective Green, g (s)		29.5		29.5	29.5	29.5	94.9	93.7			107.5	100.8
Actuated g/C Ratio		0.20		0.20	0.20	0.20	0.63	0.62			0.72	0.67
Clearance Time (s)		6.5		6.5	6.5	6.5	5.5	6.5			5.5	6.5
Vehicle Extension (s)		4.0		4.0	4.0	4.0	3.0	0.2			3.0	0.2
Lane Grp Cap (vph)		273		281	366	311	64	3167			345	3409
v/s Ratio Prot					0.00		0.00	0.22			c0.02	c0.48
v/s Ratio Perm		c0.20		0.03		0.01	0.05				0.22	
v/c Ratio		1.03		0.14	0.01	0.04	0.08	0.36			0.33	0.72
Uniform Delay, d1		60.2		49.7	48.5	48.8	14.4	13.6			7.6	15.5
Progression Factor		1.00		1.00	1.00	1.00	1.00	1.00			0.24	0.17
Incremental Delay, d2		63.5		0.3	0.0	0.1	0.5	0.3			0.5	1.2
Delay (s)		123.7		50.0	48.6	48.9	14.9	13.9			2.3	3.8
Level of Service		F		D	D	D	B	B			A	A
Approach Delay (s)		123.7			49.3			13.9				3.8
Approach LOS		F			D			B				A

Intersection Summary			
HCM 2000 Control Delay	16.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	18.5
Intersection Capacity Utilization	83.3%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Movement	SBR
Lane Configurations	
Traffic Volume (vph)	35
Future Volume (vph)	35
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	38
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

Intersection Summary



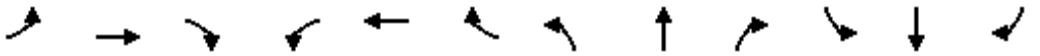
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	90	5	65	5	5	5	5	150	2360	5	5	1815
Future Volume (vph)	90	5	65	5	5	5	5	150	2360	5	5	1815
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.5	5.5		7.0			5.5	6.0	6.0	6.0	6.0
Lane Util. Factor		1.00	1.00		1.00			1.00	0.91	1.00	1.00	0.91
Frt		1.00	0.85		0.95			1.00	1.00	0.85	1.00	0.99
Flt Protected		0.95	1.00		0.98			0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)		1778	1583		1750			1770	5085	1583	1770	5049
Flt Permitted		0.73	1.00		0.90			0.06	1.00	1.00	0.05	1.00
Satd. Flow (perm)		1352	1583		1609			105	5085	1583	85	5049
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	98	5	71	5	5	5	5	163	2565	5	5	1973
RTOR Reduction (vph)	0	0	17	0	4	0	0	0	0	1	0	3
Lane Group Flow (vph)	0	103	54	0	11	0	0	168	2565	4	5	2068
Turn Type	Perm	NA	pm+ov	Perm	NA		custom	pm+pt	NA	Perm	Perm	NA
Protected Phases		4	1!		8			1	6			2
Permitted Phases	4		4	8			1!	6		6	2	
Actuated Green, G (s)		19.0	32.9		19.5			117.5	117.5	117.5	98.1	98.1
Effective Green, g (s)		19.0	32.9		19.5			117.5	117.5	117.5	98.1	98.1
Actuated g/C Ratio		0.13	0.22		0.13			0.78	0.78	0.78	0.65	0.65
Clearance Time (s)		7.5	5.5		7.0			5.5	6.0	6.0	6.0	6.0
Vehicle Extension (s)		5.0	3.0		5.0			3.0	0.2	0.2	0.2	0.2
Lane Grp Cap (vph)		171	347		209			236	3983	1240	55	3302
v/s Ratio Prot			0.01					0.07	c0.50			0.41
v/s Ratio Perm		c0.08	0.02		0.01			c0.49		0.00	0.06	
v/c Ratio		0.60	0.16		0.05			0.71	0.64	0.00	0.09	0.63
Uniform Delay, d1		61.9	47.3		57.1			35.3	7.1	3.5	9.5	15.2
Progression Factor		1.00	1.00		1.00			1.73	0.25	1.00	1.00	1.00
Incremental Delay, d2		8.5	0.2		0.2			6.8	0.6	0.0	3.2	0.9
Delay (s)		70.5	47.5		57.4			67.8	2.3	3.5	12.8	16.1
Level of Service		E	D		E			E	A	A	B	B
Approach Delay (s)		61.1			57.4				6.4			16.1
Approach LOS		E			E				A			B

Intersection Summary			
HCM 2000 Control Delay	12.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	90.4%	ICU Level of Service	E
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group



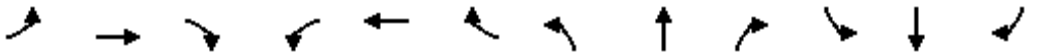
Movement	SBR
Lane Configurations	
Traffic Volume (vph)	90
Future Volume (vph)	90
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	98
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	160	5	380	210	2140	0	0	1405	485
Future Volume (vph)	0	0	0	160	5	380	210	2140	0	0	1405	485
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.5	6.5	6.5	6.0	5.5			6.0	
Lane Util. Factor				0.95	0.95	1.00	1.00	0.91			0.91	
Frt				1.00	1.00	0.85	1.00	1.00			0.96	
Flt Protected				0.95	0.95	1.00	0.95	1.00			1.00	
Satd. Flow (prot)				1681	1690	1583	1770	5085			4890	
Flt Permitted				0.95	0.95	1.00	0.05	1.00			1.00	
Satd. Flow (perm)				1681	1690	1583	90	5085			4890	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	174	5	413	228	2326	0	0	1527	527
RTOR Reduction (vph)	0	0	0	0	0	51	0	0	0	0	41	0
Lane Group Flow (vph)	0	0	0	89	90	362	228	2326	0	0	2013	0
Turn Type				Perm	NA	Perm	pm+pt	NA			NA	
Protected Phases					4		6	2			5	
Permitted Phases				4		4	2					
Actuated Green, G (s)				32.5	32.5	32.5	105.5	105.5			84.0	
Effective Green, g (s)				32.5	32.5	32.5	105.5	105.5			84.0	
Actuated g/C Ratio				0.22	0.22	0.22	0.70	0.70			0.56	
Clearance Time (s)				6.5	6.5	6.5	6.0	5.5			6.0	
Vehicle Extension (s)				4.0	4.0	4.0	3.0	0.2			0.2	
Lane Grp Cap (vph)				364	366	342	231	3576			2738	
v/s Ratio Prot							c0.10	0.46			0.41	
v/s Ratio Perm				0.05	0.05	c0.23	c0.59					
v/c Ratio				0.24	0.25	1.06	0.99	0.65			0.74	
Uniform Delay, d1				48.6	48.6	58.8	43.7	12.2			24.7	
Progression Factor				1.00	1.00	1.00	0.81	0.44			1.52	
Incremental Delay, d2				0.5	0.5	65.0	39.3	0.5			1.4	
Delay (s)				49.1	49.1	123.8	74.4	5.9			38.9	
Level of Service				D	D	F	E	A			D	
Approach Delay (s)		0.0			101.2			12.0			38.9	
Approach LOS		A			F			B			D	

Intersection Summary			
HCM 2000 Control Delay	32.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	1.03		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	18.5
Intersection Capacity Utilization	77.6%	ICU Level of Service	D
Analysis Period (min)	15		

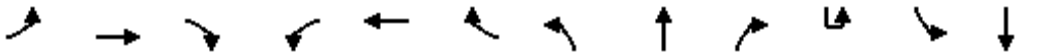
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	395	5	185	0	0	0	0	1955	165	175	1390	0
Future Volume (vph)	395	5	185	0	0	0	0	1955	165	175	1390	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5	4.0					6.0		6.0	5.5	
Lane Util. Factor	0.95	0.95	1.00					0.91		1.00	0.91	
Frt	1.00	1.00	0.85					0.99		1.00	1.00	
Flt Protected	0.95	0.95	1.00					1.00		0.95	1.00	
Satd. Flow (prot)	1681	1687	1583					5026		1770	5085	
Flt Permitted	0.95	0.95	1.00					1.00		0.05	1.00	
Satd. Flow (perm)	1681	1687	1583					5026		85	5085	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	429	5	201	0	0	0	0	2125	179	190	1511	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	6	0	0	0	0
Lane Group Flow (vph)	219	215	201	0	0	0	0	2298	0	190	1511	0
Turn Type	Split	NA	Free					NA		pm+pt	NA	
Protected Phases	4	4						5		6	2	
Permitted Phases			Free							2		
Actuated Green, G (s)	25.9	25.9	150.0					81.6		112.1	112.1	
Effective Green, g (s)	25.9	25.9	150.0					81.6		112.1	112.1	
Actuated g/C Ratio	0.17	0.17	1.00					0.54		0.75	0.75	
Clearance Time (s)	6.5	6.5						6.0		6.0	5.5	
Vehicle Extension (s)	5.0	5.0						0.2		3.0	0.2	
Lane Grp Cap (vph)	290	291	1583					2734		333	3800	
v/s Ratio Prot	c0.13	0.13						c0.46		c0.09	0.30	
v/s Ratio Perm			0.13							0.34		
v/c Ratio	0.76	0.74	0.13					0.84		0.57	0.40	
Uniform Delay, d1	59.0	58.8	0.0					28.7		41.9	6.8	
Progression Factor	1.00	1.00	1.00					1.38		0.74	0.41	
Incremental Delay, d2	12.5	11.3	0.2					2.8		1.6	0.2	
Delay (s)	71.6	70.2	0.2					42.4		32.5	3.0	
Level of Service	E	E	A					D		C	A	
Approach Delay (s)		48.5			0.0			42.4			6.3	
Approach LOS		D			A			D			A	

Intersection Summary			
HCM 2000 Control Delay	30.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	18.5
Intersection Capacity Utilization	77.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	45	5	10	10	5	30	10	2040	5	5	30	1465
Future Volume (vph)	45	5	10	10	5	30	10	2040	5	5	30	1465
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5		6.5	6.5	6.5	5.5	6.5			5.5	6.5
Lane Util. Factor		1.00		1.00	1.00	1.00	1.00	0.91			1.00	0.91
Frt		0.98		1.00	1.00	0.85	1.00	1.00			1.00	0.99
Flt Protected		0.96		0.95	1.00	1.00	0.95	1.00			0.95	1.00
Satd. Flow (prot)		1754		1770	1863	1583	1770	5084			1770	5048
Flt Permitted		0.78		0.75	1.00	1.00	0.12	1.00			0.06	1.00
Satd. Flow (perm)		1413		1391	1863	1583	232	5084			107	5048
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	49	5	11	11	5	33	11	2217	5	5	33	1592
RTOR Reduction (vph)	0	5	0	0	0	30	0	0	0	0	0	2
Lane Group Flow (vph)	0	60	0	11	5	3	11	2222	0	0	38	1672
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA		custom	pm+pt	NA
Protected Phases		4			8		1	6			5	2
Permitted Phases	4			8		8	6			5	2	
Actuated Green, G (s)		13.3		13.3	13.3	13.3	115.5	113.1			120.9	115.8
Effective Green, g (s)		13.3		13.3	13.3	13.3	115.5	113.1			120.9	115.8
Actuated g/C Ratio		0.09		0.09	0.09	0.09	0.77	0.75			0.81	0.77
Clearance Time (s)		6.5		6.5	6.5	6.5	5.5	6.5			5.5	6.5
Vehicle Extension (s)		4.0		4.0	4.0	4.0	3.0	0.2			3.0	0.2
Lane Grp Cap (vph)		125		123	165	140	203	3833			142	3897
v/s Ratio Prot					0.00		0.00	c0.44			c0.01	c0.33
v/s Ratio Perm		c0.04		0.01		0.00	0.04				0.21	
v/c Ratio		0.48		0.09	0.03	0.02	0.05	0.58			0.27	0.43
Uniform Delay, d1		65.0		62.8	62.5	62.4	4.2	8.1			6.1	5.8
Progression Factor		1.00		1.00	1.00	1.00	1.00	1.00			2.29	2.13
Incremental Delay, d2		3.9		0.4	0.1	0.1	0.1	0.6			1.0	0.3
Delay (s)		68.9		63.2	62.6	62.5	4.4	8.7			15.1	12.7
Level of Service		E		E	E	E	A	A			B	B
Approach Delay (s)		68.9			62.7			8.7				12.8
Approach LOS		E			E			A				B

Intersection Summary			
HCM 2000 Control Delay	12.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	18.5
Intersection Capacity Utilization	62.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	SBR
Lane Configurations	
Traffic Volume (vph)	75
Future Volume (vph)	75
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	82
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

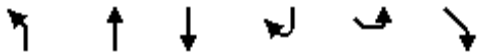
Intersection Summary



Movement	EBL	EBR2	WBL	WBT	WBR	SBT	SBR	NWR
Lane Configurations								
Traffic Volume (vph)	110	215	595	110	105	2085	120	1125
Future Volume (vph)	110	215	595	110	105	2085	120	1125
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	6.5	5.5	6.5		6.0	6.0	6.0
Lane Util. Factor	0.97	1.00	0.97	1.00		0.91	1.00	0.76
Frt	1.00	0.85	1.00	0.93		1.00	0.85	0.85
Flt Protected	0.95	1.00	0.95	1.00		1.00	1.00	1.00
Satd. Flow (prot)	3433	1583	3433	1727		5085	1583	3610
Flt Permitted	0.95	1.00	0.95	1.00		1.00	1.00	1.00
Satd. Flow (perm)	3433	1583	3433	1727		5085	1583	3610
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	120	234	647	120	114	2266	130	1223
RTOR Reduction (vph)	0	53	0	23	0	0	48	0
Lane Group Flow (vph)	120	181	647	211	0	2266	82	1223
Turn Type	Prot	Perm	Prot	NA		NA	Perm	Prot
Protected Phases	3		3 4	4		6		2
Permitted Phases		4					6	
Actuated Green, G (s)	24.9	38.6	69.0	38.6		68.5	68.5	68.5
Effective Green, g (s)	24.9	38.6	69.0	38.6		68.5	68.5	68.5
Actuated g/C Ratio	0.17	0.26	0.46	0.26		0.46	0.46	0.46
Clearance Time (s)	5.5	6.5		6.5		6.0	6.0	6.0
Vehicle Extension (s)	3.0	6.0		6.0		0.2	0.2	0.2
Lane Grp Cap (vph)	569	407	1579	444		2322	722	1648
v/s Ratio Prot	0.03		c0.19	c0.12		c0.45		0.34
v/s Ratio Perm		0.11					0.05	
v/c Ratio	0.21	0.45	0.41	0.48		0.98	0.11	0.74
Uniform Delay, d1	54.1	46.7	26.9	47.1		39.9	23.3	33.5
Progression Factor	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.2	2.2	0.2	2.3		13.8	0.3	3.1
Delay (s)	54.2	48.9	27.1	49.5		53.7	23.7	36.6
Level of Service	D	D	C	D		D	C	D
Approach Delay (s)				33.1		52.1		
Approach LOS				C		D		

Intersection Summary			
HCM 2000 Control Delay	44.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	85.6%	ICU Level of Service	E
Analysis Period (min)	15		

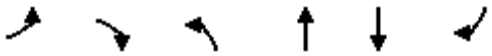
c Critical Lane Group



Movement	NBL	NBT	SBT	SBR	SEL	SER
Lane Configurations						
Traffic Volume (vph)	0	0	3025	0	0	470
Future Volume (vph)	0	0	3025	0	0	470
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)			5.5			6.5
Lane Util. Factor			0.86			0.88
Frt			1.00			0.85
Flt Protected			1.00			1.00
Satd. Flow (prot)			6408			2787
Flt Permitted			1.00			1.00
Satd. Flow (perm)			6408			2787
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	3288	0	0	511
RTOR Reduction (vph)	0	0	0	0	0	1
Lane Group Flow (vph)	0	0	3288	0	0	510
Turn Type			NA			Prot
Protected Phases			2			4
Permitted Phases						
Actuated Green, G (s)			125.7			42.3
Effective Green, g (s)			125.7			42.3
Actuated g/C Ratio			0.70			0.23
Clearance Time (s)			5.5			6.5
Vehicle Extension (s)			0.2			6.0
Lane Grp Cap (vph)			4474			654
v/s Ratio Prot			c0.51			c0.18
v/s Ratio Perm						
v/c Ratio			0.73			0.78
Uniform Delay, d1			16.8			64.5
Progression Factor			1.00			1.00
Incremental Delay, d2			1.1			7.4
Delay (s)			17.9			71.9
Level of Service			B			E
Approach Delay (s)		0.0	17.9		71.9	
Approach LOS		A	B		E	

Intersection Summary			
HCM 2000 Control Delay	25.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	70.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



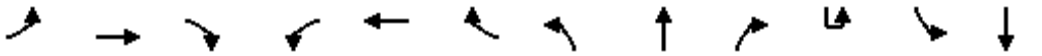
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	235	70	65	3110	2080	285
Future Volume (veh/h)	235	70	65	3110	2080	285
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	255	0	71	3380	2261	310
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	304		382	4302	3807	1077
Arrive On Green	0.09	0.00	0.21	0.84	0.59	0.59
Sat Flow, veh/h	3456	1585	1781	5274	6696	1585
Grp Volume(v), veh/h	255	0	71	3380	2261	310
Grp Sat Flow(s),veh/h/ln	1728	1585	1781	1702	1609	1585
Q Serve(g_s), s	13.1	0.0	5.9	55.5	39.8	14.0
Cycle Q Clear(g_c), s	13.1	0.0	5.9	55.5	39.8	14.0
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	304		382	4302	3807	1077
V/C Ratio(X)	0.84		0.19	0.79	0.59	0.29
Avail Cap(c_a), veh/h	365		382	4302	3807	1077
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	80.8	0.0	57.8	6.6	23.1	11.5
Incr Delay (d2), s/veh	20.8	0.0	0.2	1.5	0.7	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.8	0.0	2.7	16.5	14.8	6.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	101.6	0.0	58.0	8.1	23.8	12.2
LnGrp LOS	F		E	A	C	B
Approach Vol, veh/h	255	A		3451	2571	
Approach Delay, s/veh	101.6			9.1	22.4	
Approach LOS	F			A	C	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		158.2		21.8	45.2	113.0
Change Period (Y+Rc), s		6.5		6.0	6.5	6.5
Max Green Setting (Gmax), s		148.5		19.0	35.5	106.5
Max Q Clear Time (g_c+I1), s		57.5		15.1	7.9	41.8
Green Ext Time (p_c), s		81.6		0.8	0.2	3.4

Intersection Summary	
HCM 6th Ctrl Delay	18.3
HCM 6th LOS	B

Notes

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	60	5	20	5	5	10	0	1300	5	295	5	3155
Future Volume (vph)	60	5	20	5	5	10	0	1300	5	295	5	3155
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0			5.0			4.5	5.0
Lane Util. Factor		1.00			1.00			0.91			1.00	0.91
Frt		0.97			0.93			1.00			1.00	1.00
Flt Protected		0.97			0.99			1.00			0.95	1.00
Satd. Flow (prot)		1741			1711			5083			1770	5064
Flt Permitted		0.78			0.94			1.00			0.14	1.00
Satd. Flow (perm)		1400			1628			5083			266	5064
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	65	5	22	5	5	11	0	1413	5	321	5	3429
RTOR Reduction (vph)	0	3	0	0	10	0	0	0	0	0	0	1
Lane Group Flow (vph)	0	89	0	0	11	0	0	1418	0	0	326	3526
Turn Type	Perm	NA		Perm	NA			NA		custom	pm+pt	NA
Protected Phases		8			4			6			5	2
Permitted Phases	8			4						5	2	
Actuated Green, G (s)		16.8			16.8			112.2			152.7	152.2
Effective Green, g (s)		16.8			16.8			112.2			152.7	152.2
Actuated g/C Ratio		0.09			0.09			0.62			0.85	0.85
Clearance Time (s)		6.0			6.0			5.0			4.5	5.0
Vehicle Extension (s)		3.0			3.0			0.2			3.0	0.2
Lane Grp Cap (vph)		130			151			3168			522	4281
v/s Ratio Prot								0.28			0.12	c0.70
v/s Ratio Perm		c0.06			0.01						0.41	
v/c Ratio		0.69			0.07			0.45			0.62	0.82
Uniform Delay, d1		79.1			74.5			17.7			21.7	7.1
Progression Factor		1.00			1.00			1.00			0.81	1.13
Incremental Delay, d2		14.0			0.2			0.5			1.1	0.9
Delay (s)		93.1			74.7			18.2			18.6	8.9
Level of Service		F			E			B			B	A
Approach Delay (s)		93.1			74.7			18.2				9.7
Approach LOS		F			E			B				A

Intersection Summary			
HCM 2000 Control Delay	13.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	15.5
Intersection Capacity Utilization	83.6%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



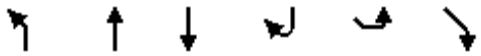
Movement	SBR
Lane Configurations	
Traffic Volume (vph)	90
Future Volume (vph)	90
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	98
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	



Movement	EBL	EBR2	WBL	WBT	WBR	SBT	SBR	NWR
Lane Configurations								
Traffic Volume (vph)	150	170	220	135	135	1570	125	1735
Future Volume (vph)	150	170	220	135	135	1570	125	1735
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	6.5	5.5	6.5		6.0	6.0	6.0
Lane Util. Factor	0.97	1.00	0.97	1.00		0.91	1.00	0.76
Frt	1.00	0.85	1.00	0.93		1.00	0.85	0.85
Flt Protected	0.95	1.00	0.95	1.00		1.00	1.00	1.00
Satd. Flow (prot)	3433	1583	3433	1723		5085	1583	3610
Flt Permitted	0.95	1.00	0.95	1.00		1.00	1.00	1.00
Satd. Flow (perm)	3433	1583	3433	1723		5085	1583	3610
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	163	185	239	147	147	1707	136	1886
RTOR Reduction (vph)	0	107	0	25	0	0	61	0
Lane Group Flow (vph)	163	78	239	269	0	1707	75	1886
Turn Type	Prot	Perm	Prot	NA		NA	Perm	Prot
Protected Phases	3		3 4	4		6		2
Permitted Phases		4					6	
Actuated Green, G (s)	12.9	36.1	54.5	36.1		83.0	83.0	83.0
Effective Green, g (s)	12.9	36.1	54.5	36.1		83.0	83.0	83.0
Actuated g/C Ratio	0.09	0.24	0.36	0.24		0.55	0.55	0.55
Clearance Time (s)	5.5	6.5		6.5		6.0	6.0	6.0
Vehicle Extension (s)	3.0	6.0		6.0		0.2	0.2	0.2
Lane Grp Cap (vph)	295	380	1247	414		2813	875	1997
v/s Ratio Prot	c0.05		0.07	c0.16		0.34		c0.52
v/s Ratio Perm		0.05					0.05	
v/c Ratio	0.55	0.21	0.19	0.65		0.61	0.09	0.94
Uniform Delay, d1	65.8	45.5	32.7	51.3		22.5	15.7	31.3
Progression Factor	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	2.2	0.8	0.1	5.7		1.0	0.2	10.7
Delay (s)	68.0	46.2	32.8	56.9		23.5	15.9	42.1
Level of Service	E	D	C	E		C	B	D
Approach Delay (s)				46.1		22.9		
Approach LOS				D		C		

Intersection Summary			
HCM 2000 Control Delay	36.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	73.9%	ICU Level of Service	D
Analysis Period (min)	15		

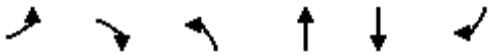
c Critical Lane Group



Movement	NBL	NBT	SBT	SBR	SEL	SER
Lane Configurations			↑↑↑↑			↱↱
Traffic Volume (vph)	0	0	2040	0	0	325
Future Volume (vph)	0	0	2040	0	0	325
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)			5.5			6.5
Lane Util. Factor			0.86			0.88
Frt			1.00			0.85
Flt Protected			1.00			1.00
Satd. Flow (prot)			6408			2787
Flt Permitted			1.00			1.00
Satd. Flow (perm)			6408			2787
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	2217	0	0	353
RTOR Reduction (vph)	0	0	0	0	0	16
Lane Group Flow (vph)	0	0	2217	0	0	337
Turn Type			NA			Prot
Protected Phases			2			4
Permitted Phases						
Actuated Green, G (s)			137.9			30.1
Effective Green, g (s)			137.9			30.1
Actuated g/C Ratio			0.77			0.17
Clearance Time (s)			5.5			6.5
Vehicle Extension (s)			0.2			6.0
Lane Grp Cap (vph)			4909			466
v/s Ratio Prot			c0.35			c0.12
v/s Ratio Perm						
v/c Ratio			0.45			0.72
Uniform Delay, d1			7.5			71.0
Progression Factor			1.00			1.00
Incremental Delay, d2			0.3			7.7
Delay (s)			7.8			78.7
Level of Service			A			E
Approach Delay (s)		0.0	7.8		78.7	
Approach LOS		A	A		E	

Intersection Summary			
HCM 2000 Control Delay	17.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	50.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	235	70	65	3110	2080	285
Future Volume (veh/h)	235	70	65	3110	2080	285
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	255	0	71	3380	2261	310
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	304		382	4302	3807	1077
Arrive On Green	0.09	0.00	0.21	0.84	0.59	0.59
Sat Flow, veh/h	3456	1585	1781	5274	6696	1585
Grp Volume(v), veh/h	255	0	71	3380	2261	310
Grp Sat Flow(s),veh/h/ln	1728	1585	1781	1702	1609	1585
Q Serve(g_s), s	13.1	0.0	5.9	55.5	39.8	14.0
Cycle Q Clear(g_c), s	13.1	0.0	5.9	55.5	39.8	14.0
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	304		382	4302	3807	1077
V/C Ratio(X)	0.84		0.19	0.79	0.59	0.29
Avail Cap(c_a), veh/h	365		382	4302	3807	1077
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	80.8	0.0	57.8	6.6	23.1	11.5
Incr Delay (d2), s/veh	20.8	0.0	0.2	1.5	0.7	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.8	0.0	2.7	16.5	14.8	6.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	101.6	0.0	58.0	8.1	23.8	12.2
LnGrp LOS	F		E	A	C	B
Approach Vol, veh/h	255	A		3451	2571	
Approach Delay, s/veh	101.6			9.1	22.4	
Approach LOS	F			A	C	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		158.2		21.8	45.2	113.0
Change Period (Y+Rc), s		6.5		6.0	6.5	6.5
Max Green Setting (Gmax), s		148.5		19.0	35.5	106.5
Max Q Clear Time (g_c+I1), s		57.5		15.1	7.9	41.8
Green Ext Time (p_c), s		81.6		0.8	0.2	3.4

Intersection Summary	
HCM 6th Ctrl Delay	18.3
HCM 6th LOS	B

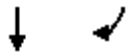
Notes

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	85	5	15	10	5	5	5	10	2855	5	230	5
Future Volume (vph)	85	5	15	10	5	5	5	10	2855	5	230	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0			4.5	5.0			4.5
Lane Util. Factor		1.00			1.00			1.00	0.91			1.00
Frt		0.98			0.97			1.00	1.00			1.00
Flt Protected		0.96			0.97			0.95	1.00			0.95
Satd. Flow (prot)		1756			1757			1770	5084			1770
Flt Permitted		0.75			0.87			0.07	1.00			0.03
Satd. Flow (perm)		1373			1563			131	5084			59
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	92	5	16	11	5	5	5	11	3103	5	250	5
RTOR Reduction (vph)	0	4	0	0	4	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	109	0	0	17	0	0	16	3108	0	0	255
Turn Type	Perm	NA		Perm	NA		pm+pt	pm+pt	NA		custom	pm+pt
Protected Phases		8			4		1	1	6			5
Permitted Phases	8			4			6	6			5	2
Actuated Green, G (s)		19.1			19.1			123.5	120.5			150.4
Effective Green, g (s)		19.1			19.1			123.5	120.5			150.4
Actuated g/C Ratio		0.11			0.11			0.69	0.67			0.84
Clearance Time (s)		6.0			6.0			4.5	5.0			4.5
Vehicle Extension (s)		3.0			3.0			3.0	0.2			3.0
Lane Grp Cap (vph)		145			165			117	3403			285
v/s Ratio Prot								0.00	c0.61			c0.12
v/s Ratio Perm		c0.08			0.01			0.09				0.62
v/c Ratio		0.75			0.10			0.14	0.91			0.89
Uniform Delay, d1		78.2			72.7			19.3	25.3			62.2
Progression Factor		1.00			1.00			1.00	1.00			0.94
Incremental Delay, d2		19.8			0.3			0.5	4.9			23.9
Delay (s)		97.9			73.0			19.8	30.3			82.6
Level of Service		F			E			B	C			F
Approach Delay (s)		97.9			73.0				30.2			
Approach LOS		F			E				C			

Intersection Summary			
HCM 2000 Control Delay	23.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	15.5
Intersection Capacity Utilization	90.4%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	1790	125
Future Volume (vph)	1790	125
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	5.0	
Lane Util. Factor	0.91	
Frt	0.99	
Flt Protected	1.00	
Satd. Flow (prot)	5035	
Flt Permitted	1.00	
Satd. Flow (perm)	5035	
Peak-hour factor, PHF	0.92	0.92
Adj. Flow (vph)	1946	136
RTOR Reduction (vph)	4	0
Lane Group Flow (vph)	2078	0
Turn Type	NA	
Protected Phases	2	
Permitted Phases		
Actuated Green, G (s)	142.4	
Effective Green, g (s)	142.4	
Actuated g/C Ratio	0.79	
Clearance Time (s)	5.0	
Vehicle Extension (s)	0.2	
Lane Grp Cap (vph)	3983	
v/s Ratio Prot	0.41	
v/s Ratio Perm		
v/c Ratio	0.52	
Uniform Delay, d1	6.7	
Progression Factor	0.37	
Incremental Delay, d2	0.4	
Delay (s)	2.9	
Level of Service	A	
Approach Delay (s)	11.6	
Approach LOS	B	

Intersection Summary

2027 NO BUILD CONDITIONS

SYNCHRO ANALYSIS OUTPUTS

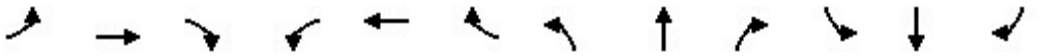


Movement	WBL	WBR	WBR2	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SER
Lane Configurations											
Traffic Volume (vph)	150	0	300	0	1600	330	405	1165	0	0	85
Future Volume (vph)	150	0	300	0	1600	330	405	1165	0	0	85
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5		6.5		7.0	7.0	7.0	7.0			7.0
Lane Util. Factor	0.97		0.88		0.91	1.00	0.97	0.91			1.00
Frt	1.00		0.85		1.00	0.85	1.00	1.00			0.86
Flt Protected	0.95		1.00		1.00	1.00	0.95	1.00			1.00
Satd. Flow (prot)	3433		2787		5085	1583	3433	5085			1611
Flt Permitted	0.95		1.00		1.00	1.00	0.95	1.00			1.00
Satd. Flow (perm)	3433		2787		5085	1583	3433	5085			1611
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	163	0	326	0	1739	359	440	1266	0	0	92
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	163	0	326	0	1739	359	440	1266	0	0	92
Turn Type	Prot		pt+ov		NA	Perm	Prot	NA			Prot
Protected Phases	4		4 1		2		1	6!			6!
Permitted Phases						2					
Actuated Green, G (s)	22.6		61.4		104.6	104.6	32.3	143.9			143.9
Effective Green, g (s)	22.6		61.4		104.6	104.6	32.3	143.9			143.9
Actuated g/C Ratio	0.13		0.34		0.58	0.58	0.18	0.80			0.80
Clearance Time (s)	6.5				7.0	7.0	7.0	7.0			7.0
Vehicle Extension (s)	4.0				2.0	2.0	5.0	2.0			2.0
Lane Grp Cap (vph)	431		950		2954	919	616	4065			1287
v/s Ratio Prot	0.05		c0.12		c0.34		c0.13	0.25			0.06
v/s Ratio Perm						0.23					
v/c Ratio	0.38		0.34		0.59	0.39	0.71	0.31			0.07
Uniform Delay, d1	72.2		44.3		24.0	20.4	69.5	4.8			3.8
Progression Factor	1.00		1.00		0.62	0.57	1.00	1.00			1.00
Incremental Delay, d2	0.8		0.3		0.7	1.0	4.9	0.2			0.1
Delay (s)	73.0		44.5		15.6	12.6	74.4	5.0			3.9
Level of Service	E		D		B	B	E	A			A
Approach Delay (s)	54.0				15.1			22.9		3.9	
Approach LOS	D				B			C		A	

Intersection Summary			
HCM 2000 Control Delay	22.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	20.5
Intersection Capacity Utilization	Err%	ICU Level of Service	H
Analysis Period (min)	15		

! Phase conflict between lane groups.

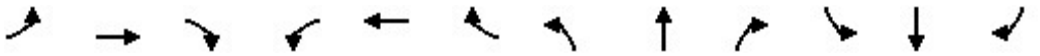
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	325	15	140	35	170	0	0	395	35
Future Volume (vph)	0	0	0	325	15	140	35	170	0	0	395	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				5.5	5.5	5.5	5.5	5.5			9.0	
Lane Util. Factor				0.95	0.95	1.00	1.00	1.00			0.95	
Frt				1.00	1.00	0.85	1.00	1.00			0.99	
Flt Protected				0.95	0.96	1.00	0.95	1.00			1.00	
Satd. Flow (prot)				1681	1692	1583	1770	1863			3496	
Flt Permitted				0.95	0.96	1.00	0.48	1.00			1.00	
Satd. Flow (perm)				1681	1692	1583	898	1863			3496	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	353	16	152	38	185	0	0	429	38
RTOR Reduction (vph)	0	0	0	0	0	113	0	0	0	0	7	0
Lane Group Flow (vph)	0	0	0	184	185	39	38	185	0	0	460	0
Turn Type				Split	NA	Perm	custom	NA			NA	
Protected Phases				3	3		1 4	4 5			2	
Permitted Phases						3	5					
Actuated Green, G (s)				19.6	19.6	19.6	44.8	46.1			19.1	
Effective Green, g (s)				19.6	19.6	19.6	44.8	37.1			19.1	
Actuated g/C Ratio				0.26	0.26	0.26	0.58	0.48			0.25	
Clearance Time (s)				5.5	5.5	5.5					9.0	
Vehicle Extension (s)				5.0	5.0	5.0					2.0	
Lane Grp Cap (vph)				429	432	404	729	901			870	
v/s Ratio Prot				c0.11	0.11		c0.01	c0.10			c0.13	
v/s Ratio Perm						0.02	0.02					
v/c Ratio				0.43	0.43	0.10	0.05	0.21			0.53	
Uniform Delay, d1				23.9	23.9	21.8	7.0	11.3			24.9	
Progression Factor				1.00	1.00	1.00	0.10	0.14			1.00	
Incremental Delay, d2				1.4	1.4	0.2	0.1	0.2			0.3	
Delay (s)				25.3	25.3	22.0	0.7	1.8			25.2	
Level of Service				C	C	C	A	A			C	
Approach Delay (s)		0.0			24.3			1.6			25.2	
Approach LOS		A			C			A			C	

Intersection Summary			
HCM 2000 Control Delay	20.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	76.7	Sum of lost time (s)	29.0
Intersection Capacity Utilization	41.4%	ICU Level of Service	A
Analysis Period (min)	15		

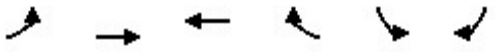
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	5	120	0	0	0	0	180	100	90	630	0
Future Volume (vph)	25	5	120	0	0	0	0	180	100	90	630	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5	5.5					9.0	9.0		9.0	
Lane Util. Factor		1.00	1.00					1.00	1.00		0.95	
Frt		1.00	0.85					1.00	0.85		1.00	
Flt Protected		0.96	1.00					1.00	1.00		0.99	
Satd. Flow (prot)		1787	1583					1863	1583		3517	
Flt Permitted		0.96	1.00					1.00	1.00		0.87	
Satd. Flow (perm)		1787	1583					1863	1583		3094	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	27	5	130	0	0	0	0	196	109	98	685	0
RTOR Reduction (vph)	0	0	113	0	0	0	0	0	71	0	0	0
Lane Group Flow (vph)	0	32	17	0	0	0	0	196	38	0	783	0
Turn Type	Split	NA	Perm					NA	Perm	custom	NA	
Protected Phases	4	4						5		3 6	2 3	
Permitted Phases			4						5	2		
Actuated Green, G (s)		10.3	10.3					26.8	26.8		38.7	
Effective Green, g (s)		10.3	10.3					26.8	26.8		38.7	
Actuated g/C Ratio		0.13	0.13					0.35	0.35		0.50	
Clearance Time (s)		5.5	5.5					9.0	9.0			
Vehicle Extension (s)		5.0	5.0					2.0	2.0			
Lane Grp Cap (vph)		239	212					650	553		1669	
v/s Ratio Prot		c0.02						0.11			c0.12	
v/s Ratio Perm			0.01						0.02		c0.12	
v/c Ratio		0.13	0.08					0.30	0.07		0.47	
Uniform Delay, d1		29.3	29.1					18.1	16.6		12.3	
Progression Factor		1.00	1.00					1.00	1.00		0.33	
Incremental Delay, d2		0.5	0.4					0.1	0.0		0.1	
Delay (s)		29.8	29.4					18.2	16.7		4.1	
Level of Service		C	C					B	B		A	
Approach Delay (s)		29.5			0.0			17.7			4.1	
Approach LOS		C			A			B			A	

Intersection Summary			
HCM 2000 Control Delay	10.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	76.7	Sum of lost time (s)	29.0
Intersection Capacity Utilization	53.3%	ICU Level of Service	A
Analysis Period (min)	15		

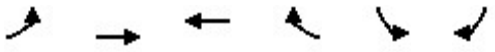
c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	2705	295	0	0	570
Future Volume (vph)	0	2705	295	0	0	570
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5	6.5			6.5
Lane Util. Factor		0.86	0.91			0.88
Frt		1.00	1.00			0.85
Flt Protected		1.00	1.00			1.00
Satd. Flow (prot)		6408	5085			2787
Flt Permitted		1.00	1.00			1.00
Satd. Flow (perm)		6408	5085			2787
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	2940	321	0	0	620
RTOR Reduction (vph)	0	0	0	0	0	145
Lane Group Flow (vph)	0	2940	321	0	0	475
Turn Type		NA	NA			custom
Protected Phases		1 2 4 6	2			1 4
Permitted Phases						
Actuated Green, G (s)		180.0	49.5			117.5
Effective Green, g (s)		180.0	49.5			117.5
Actuated g/C Ratio		1.00	0.28			0.65
Clearance Time (s)			6.5			
Vehicle Extension (s)			2.0			
Lane Grp Cap (vph)		6408	1398			1819
v/s Ratio Prot		c0.46	0.06			0.17
v/s Ratio Perm						
v/c Ratio		0.46	0.23			0.26
Uniform Delay, d1		0.0	50.5			13.1
Progression Factor		1.00	0.07			2.03
Incremental Delay, d2		0.1	0.4			0.2
Delay (s)		0.1	3.8			26.8
Level of Service		A	A			C
Approach Delay (s)		0.1	3.8		26.8	
Approach LOS		A	A		C	

Intersection Summary			
HCM 2000 Control Delay	4.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	19.5
Intersection Capacity Utilization	44.6%	ICU Level of Service	A
Analysis Period (min)	15		

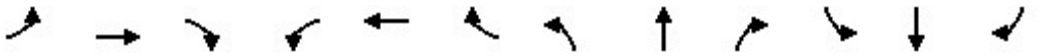
c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	940	1765	295	0	420	0
Future Volume (vph)	940	1765	295	0	420	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5	6.5		6.5	
Lane Util. Factor	0.97	0.95	0.91		0.97	
Frt	1.00	1.00	1.00		1.00	
Flt Protected	0.95	1.00	1.00		0.95	
Satd. Flow (prot)	3433	3539	5085		3433	
Flt Permitted	0.95	1.00	1.00		0.95	
Satd. Flow (perm)	3433	3539	5085		3433	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1022	1918	321	0	457	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	1022	1918	321	0	457	0
Turn Type	Prot	NA	NA		Prot	
Protected Phases	1	6	2		4	
Permitted Phases						
Actuated Green, G (s)	79.5	135.5	49.5		31.5	
Effective Green, g (s)	79.5	135.5	49.5		31.5	
Actuated g/C Ratio	0.44	0.75	0.28		0.18	
Clearance Time (s)	6.5	6.5	6.5		6.5	
Vehicle Extension (s)	6.0	2.0	2.0		4.0	
Lane Grp Cap (vph)	1516	2664	1398		600	
v/s Ratio Prot	0.30	c0.54	0.06		c0.13	
v/s Ratio Perm						
v/c Ratio	0.67	0.72	0.23		0.76	
Uniform Delay, d1	40.0	12.0	50.5		70.7	
Progression Factor	1.00	1.00	1.00		1.15	
Incremental Delay, d2	1.7	1.6	0.4		5.7	
Delay (s)	41.6	13.6	50.9		86.9	
Level of Service	D	B	D		F	
Approach Delay (s)		23.3	50.9		86.9	
Approach LOS		C	D		F	

Intersection Summary			
HCM 2000 Control Delay	33.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	19.5
Intersection Capacity Utilization	71.6%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	565	0	25	0	0	165	20	1200	85	90	965	345
Future Volume (vph)	565	0	25	0	0	165	20	1200	85	90	965	345
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0		8.0			5.0	5.0	7.0	4.0	5.0	7.0	4.0
Lane Util. Factor	0.97		1.00			0.88	1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00		0.85			0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95		1.00			1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433		1583			2787	1770	5085	1583	1770	5085	1583
Flt Permitted	0.95		1.00			1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433		1583			2787	1770	5085	1583	1770	5085	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	614	0	27	0	0	179	22	1304	92	98	1049	375
RTOR Reduction (vph)	0	0	21	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	614	0	6	0	0	179	22	1304	92	98	1049	375
Turn Type	Prot		Perm			pt+ov	Prot	NA	Free	Prot	NA	Free
Protected Phases	3					1 4	5	2		1	6	
Permitted Phases			3						Free			Free
Actuated Green, G (s)	37.7		37.7			36.2	5.4	86.1	180.0	15.3	96.0	180.0
Effective Green, g (s)	37.7		37.7			30.7	5.4	86.1	180.0	15.3	96.0	180.0
Actuated g/C Ratio	0.21		0.21			0.17	0.03	0.48	1.00	0.09	0.53	1.00
Clearance Time (s)	8.0		8.0				5.0	7.0		5.0	7.0	
Vehicle Extension (s)	3.0		3.0				3.0	2.0		3.0	2.0	
Lane Grp Cap (vph)	719		331			475	53	2432	1583	150	2712	1583
v/s Ratio Prot	c0.18					c0.06	0.01	c0.26		c0.06	0.21	
v/s Ratio Perm			0.00						0.06			0.24
v/c Ratio	0.85		0.02			0.38	0.42	0.54	0.06	0.65	0.39	0.24
Uniform Delay, d1	68.5		56.5			66.2	85.7	32.9	0.0	79.8	24.7	0.0
Progression Factor	1.00		1.00			1.00	1.44	0.28	1.00	1.17	0.87	1.00
Incremental Delay, d2	9.7		0.0			0.5	4.6	0.8	0.1	9.5	0.4	0.3
Delay (s)	78.2		56.5			66.7	128.1	10.0	0.1	103.2	21.8	0.3
Level of Service	E		E			E	F	B	A	F	C	A
Approach Delay (s)		77.3			66.7			11.2			21.7	
Approach LOS		E			E			B			C	

Intersection Summary			
HCM 2000 Control Delay	29.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	25.5
Intersection Capacity Utilization	58.4%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

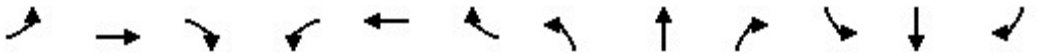


Movement	WBL	WBR	WBR2	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SER
Lane Configurations											
Traffic Volume (vph)	340	0	535	0	1620	265	535	2105	0	0	345
Future Volume (vph)	340	0	535	0	1620	265	535	2105	0	0	345
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5		7.0		7.0	7.0	7.0	7.0			7.0
Lane Util. Factor	0.97		0.88		0.91	1.00	0.97	0.91			1.00
Frt	1.00		0.85		1.00	0.85	1.00	1.00			0.86
Flt Protected	0.95		1.00		1.00	1.00	0.95	1.00			1.00
Satd. Flow (prot)	3433		2787		5085	1583	3433	5085			1611
Flt Permitted	0.95		1.00		1.00	1.00	0.95	1.00			1.00
Satd. Flow (perm)	3433		2787		5085	1583	3433	5085			1611
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	370	0	582	0	1761	288	582	2288	0	0	375
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	370	0	582	0	1761	288	582	2288	0	0	375
Turn Type	Prot		pt+ov		NA	Perm	Prot	NA			Prot
Protected Phases	4		1 4		2		1	6!			6!
Permitted Phases						2					
Actuated Green, G (s)	34.9		82.1		83.9	83.9	40.7	131.6			131.6
Effective Green, g (s)	34.9		75.6		83.9	83.9	40.7	131.6			131.6
Actuated g/C Ratio	0.19		0.42		0.47	0.47	0.23	0.73			0.73
Clearance Time (s)	6.5				7.0	7.0	7.0	7.0			7.0
Vehicle Extension (s)	4.0				2.0	2.0	5.0	2.0			2.0
Lane Grp Cap (vph)	665		1170		2370	737	776	3717			1177
v/s Ratio Prot	c0.11		0.21		c0.35		c0.17	0.45			0.23
v/s Ratio Perm						0.18					
v/c Ratio	0.56		0.50		0.74	0.39	0.75	0.62			0.32
Uniform Delay, d1	65.6		38.3		39.2	31.4	64.9	11.8			8.5
Progression Factor	1.00		1.00		0.69	0.69	1.00	1.00			1.00
Incremental Delay, d2	1.2		0.7		1.8	1.3	4.9	0.8			0.7
Delay (s)	66.8		39.0		28.8	22.9	69.8	12.6			9.2
Level of Service	E		D		C	C	E	B			A
Approach Delay (s)	49.8				28.0			24.2		9.2	
Approach LOS	D				C			C		A	

Intersection Summary			
HCM 2000 Control Delay	28.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	20.5
Intersection Capacity Utilization	Err%	ICU Level of Service	H
Analysis Period (min)	15		

! Phase conflict between lane groups.

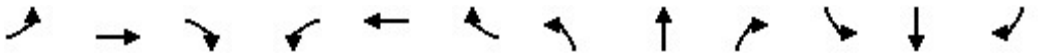
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	295	65	50	200	315	0	0	360	80
Future Volume (vph)	0	0	0	295	65	50	200	315	0	0	360	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				5.5	5.5	5.5	5.5	5.5			9.0	
Lane Util. Factor				0.95	0.95	1.00	1.00	1.00			0.95	
Frt				1.00	1.00	0.85	1.00	1.00			0.97	
Flt Protected				0.95	0.97	1.00	0.95	1.00			1.00	
Satd. Flow (prot)				1681	1715	1583	1770	1863			3443	
Flt Permitted				0.95	0.97	1.00	0.44	1.00			1.00	
Satd. Flow (perm)				1681	1715	1583	825	1863			3443	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	321	71	54	217	342	0	0	391	87
RTOR Reduction (vph)	0	0	0	0	0	42	0	0	0	0	19	0
Lane Group Flow (vph)	0	0	0	196	196	12	217	342	0	0	459	0
Turn Type				Split	NA	Perm	custom	NA			NA	
Protected Phases				3	3		1 4	4 5			2	
Permitted Phases						3	5					
Actuated Green, G (s)				19.3	19.3	19.3	59.2	59.2			20.5	
Effective Green, g (s)				19.3	19.3	19.3	59.2	50.2			20.5	
Actuated g/C Ratio				0.22	0.22	0.22	0.66	0.56			0.23	
Clearance Time (s)				5.5	5.5	5.5					9.0	
Vehicle Extension (s)				5.0	5.0	5.0					2.0	
Lane Grp Cap (vph)				362	369	341	859	1044			788	
v/s Ratio Prot				c0.12	0.11		c0.08	c0.18			c0.13	
v/s Ratio Perm						0.01	0.08					
v/c Ratio				0.54	0.53	0.03	0.25	0.33			0.58	
Uniform Delay, d1				31.2	31.1	27.7	7.8	10.6			30.7	
Progression Factor				1.00	1.00	1.00	0.04	0.05			1.00	
Incremental Delay, d2				2.9	2.7	0.1	0.2	0.3			0.7	
Delay (s)				34.1	33.8	27.8	0.6	0.8			31.4	
Level of Service				C	C	C	A	A			C	
Approach Delay (s)		0.0			33.2			0.7			31.4	
Approach LOS		A			C			A			C	

Intersection Summary			
HCM 2000 Control Delay	20.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	89.5	Sum of lost time (s)	29.0
Intersection Capacity Utilization	50.1%	ICU Level of Service	A
Analysis Period (min)	15		

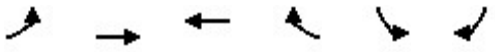
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	60	5	135	0	0	0	0	455	735	110	545	0
Future Volume (vph)	60	5	135	0	0	0	0	455	735	110	545	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5	5.5					9.0	9.0		9.0	
Lane Util. Factor		1.00	1.00					1.00	1.00		0.95	
Frt		1.00	0.85					1.00	0.85		1.00	
Flt Protected		0.96	1.00					1.00	1.00		0.99	
Satd. Flow (prot)		1780	1583					1863	1583		3510	
Flt Permitted		0.96	1.00					1.00	1.00		0.57	
Satd. Flow (perm)		1780	1583					1863	1583		2006	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	65	5	147	0	0	0	0	495	799	120	592	0
RTOR Reduction (vph)	0	0	119	0	0	0	0	0	456	0	0	0
Lane Group Flow (vph)	0	70	28	0	0	0	0	495	343	0	712	0
Turn Type	Split	NA	Perm					NA	Perm	custom	NA	
Protected Phases	4	4						5		3 6	2 3	
Permitted Phases			4						5	2		
Actuated Green, G (s)		16.9	16.9					33.3	33.3		39.8	
Effective Green, g (s)		16.9	16.9					33.3	33.3		39.8	
Actuated g/C Ratio		0.19	0.19					0.37	0.37		0.44	
Clearance Time (s)		5.5	5.5					9.0	9.0			
Vehicle Extension (s)		5.0	5.0					2.0	2.0			
Lane Grp Cap (vph)		336	298					693	588		1216	
v/s Ratio Prot		c0.04						c0.27			c0.13	
v/s Ratio Perm			0.02						0.22		0.13	
v/c Ratio		0.21	0.09					0.71	0.58		0.59	
Uniform Delay, d1		30.7	30.0					24.0	22.5		18.7	
Progression Factor		1.00	1.00					1.00	1.00		0.70	
Incremental Delay, d2		0.6	0.3					2.9	1.0		0.4	
Delay (s)		31.3	30.3					27.0	23.5		13.4	
Level of Service		C	C					C	C		B	
Approach Delay (s)		30.6			0.0			24.8			13.4	
Approach LOS		C			A			C			B	

Intersection Summary			
HCM 2000 Control Delay	21.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	89.5	Sum of lost time (s)	29.0
Intersection Capacity Utilization	87.5%	ICU Level of Service	E
Analysis Period (min)	15		

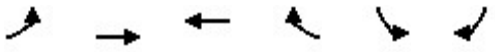
c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	1225	1370	0	0	1235
Future Volume (vph)	0	1225	1370	0	0	1235
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5	6.5			6.5
Lane Util. Factor		0.86	0.91			0.88
Frt		1.00	1.00			0.85
Flt Protected		1.00	1.00			1.00
Satd. Flow (prot)		6408	5085			2787
Flt Permitted		1.00	1.00			1.00
Satd. Flow (perm)		6408	5085			2787
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1332	1489	0	0	1342
RTOR Reduction (vph)	0	0	0	0	0	3
Lane Group Flow (vph)	0	1332	1489	0	0	1339
Turn Type		NA	NA			custom
Protected Phases		1 2 4 6	2			1 4
Permitted Phases						
Actuated Green, G (s)		180.0	64.5			102.5
Effective Green, g (s)		180.0	64.5			102.5
Actuated g/C Ratio		1.00	0.36			0.57
Clearance Time (s)			6.5			
Vehicle Extension (s)			2.0			
Lane Grp Cap (vph)		6408	1822			1587
v/s Ratio Prot		0.21	c0.29			c0.48
v/s Ratio Perm						
v/c Ratio		0.21	0.82			0.84
Uniform Delay, d1		0.0	52.4			32.1
Progression Factor		1.00	0.06			0.74
Incremental Delay, d2		0.0	2.4			3.9
Delay (s)		0.0	5.4			27.7
Level of Service		A	A			C
Approach Delay (s)		0.0	5.4		27.7	
Approach LOS		A	A		C	

Intersection Summary			
HCM 2000 Control Delay	10.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	19.5
Intersection Capacity Utilization	80.5%	ICU Level of Service	D
Analysis Period (min)	15		

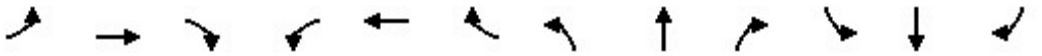
c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	715	510	1370	0	275	0
Future Volume (vph)	715	510	1370	0	275	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5	6.5		6.5	
Lane Util. Factor	0.97	0.95	0.91		0.97	
Frt	1.00	1.00	1.00		1.00	
Flt Protected	0.95	1.00	1.00		0.95	
Satd. Flow (prot)	3433	3539	5085		3433	
Flt Permitted	0.95	1.00	1.00		0.95	
Satd. Flow (perm)	3433	3539	5085		3433	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	777	554	1489	0	299	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	777	554	1489	0	299	0
Turn Type	Prot	NA	NA		Prot	
Protected Phases	1	6	2		4	
Permitted Phases						
Actuated Green, G (s)	73.5	144.5	64.5		22.5	
Effective Green, g (s)	73.5	144.5	64.5		22.5	
Actuated g/C Ratio	0.41	0.80	0.36		0.12	
Clearance Time (s)	6.5	6.5	6.5		6.5	
Vehicle Extension (s)	6.0	2.0	2.0		4.0	
Lane Grp Cap (vph)	1401	2841	1822		429	
v/s Ratio Prot	c0.23	0.16	c0.29		c0.09	
v/s Ratio Perm						
v/c Ratio	0.55	0.20	0.82		0.70	
Uniform Delay, d1	40.7	4.2	52.4		75.5	
Progression Factor	1.00	1.00	1.00		0.87	
Incremental Delay, d2	1.0	0.2	4.2		4.1	
Delay (s)	41.8	4.3	56.6		69.9	
Level of Service	D	A	E		E	
Approach Delay (s)		26.2	56.6		69.9	
Approach LOS		C	E		E	

Intersection Summary			
HCM 2000 Control Delay	44.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	19.5
Intersection Capacity Utilization	71.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	405	0	20	0	0	300	85	1180	170	150	1490	1150
Future Volume (vph)	405	0	20	0	0	300	85	1180	170	150	1490	1150
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0		8.0			5.0	5.0	7.0	4.0	5.0	7.0	4.0
Lane Util. Factor	0.97		1.00			0.88	1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00		0.85			0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95		1.00			1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433		1583			2787	1770	5085	1583	1770	5085	1583
Flt Permitted	0.95		1.00			1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433		1583			2787	1770	5085	1583	1770	5085	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	440	0	22	0	0	326	92	1283	185	163	1620	1250
RTOR Reduction (vph)	0	0	19	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	440	0	3	0	0	326	92	1283	185	163	1620	1250
Turn Type	Prot		Perm			pt+ov	Prot	NA	Free	Prot	NA	Free
Protected Phases	3					1 4	5	2		1	6	
Permitted Phases			3						Free			Free
Actuated Green, G (s)	28.2		28.2			50.1	14.5	81.7	180.0	21.6	88.8	180.0
Effective Green, g (s)	28.2		28.2			44.6	14.5	81.7	180.0	21.6	88.8	180.0
Actuated g/C Ratio	0.16		0.16			0.25	0.08	0.45	1.00	0.12	0.49	1.00
Clearance Time (s)	8.0		8.0				5.0	7.0		5.0	7.0	
Vehicle Extension (s)	3.0		3.0				3.0	2.0		3.0	2.0	
Lane Grp Cap (vph)	537		248			690	142	2308	1583	212	2508	1583
v/s Ratio Prot	0.13					0.12	0.05	0.25		0.09	0.32	
v/s Ratio Perm			0.00						0.12			c0.79
v/c Ratio	0.82		0.01			0.47	0.65	0.56	0.12	0.77	0.65	0.79
Uniform Delay, d1	73.4		64.1			57.7	80.3	35.9	0.0	76.8	33.9	0.0
Progression Factor	1.00		1.00			1.00	0.78	1.60	1.00	0.88	0.91	1.00
Incremental Delay, d2	9.5		0.0			0.5	9.5	0.9	0.1	13.1	1.1	3.4
Delay (s)	82.9		64.2			58.2	72.1	58.3	0.1	80.6	31.8	3.4
Level of Service	F		E			E	E	E	A	F	C	A
Approach Delay (s)		82.0			58.2			52.2			22.7	
Approach LOS		F			E			D			C	

Intersection Summary			
HCM 2000 Control Delay	38.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	25.5
Intersection Capacity Utilization	58.4%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	80	1880	185	20	235	500	95	10	60	55	120	240
Future Volume (vph)	80	1880	185	20	235	500	95	10	60	55	120	240
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	6.0	6.0		4.5	6.0	6.0	5.0	6.5	6.5	5.0	6.5
Lane Util. Factor	1.00	0.91	1.00		0.97	0.91	1.00	1.00	0.95	1.00	0.97	1.00
Frt	1.00	1.00	0.85		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	5085	1583		3433	5085	1583	1770	3539	1583	3433	1863
Flt Permitted	0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	5085	1583		3433	5085	1583	1770	3539	1583	3433	1863
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	87	2043	201	22	255	543	103	11	65	60	130	261
RTOR Reduction (vph)	0	0	91	0	0	0	44	0	0	52	0	0
Lane Group Flow (vph)	87	2043	110	0	277	543	59	11	65	8	130	261
Turn Type	Prot	NA	Perm	Prot	Prot	NA	Perm	Prot	NA	Perm	Prot	NA
Protected Phases	5	2		1	1	6		3	8		7	4
Permitted Phases			2				6			8		
Actuated Green, G (s)	12.7	81.8	81.8		17.0	86.1	86.1	1.6	21.1	21.1	8.1	27.6
Effective Green, g (s)	12.7	81.8	81.8		17.0	86.1	86.1	1.6	21.1	21.1	8.1	27.6
Actuated g/C Ratio	0.08	0.55	0.55		0.11	0.57	0.57	0.01	0.14	0.14	0.05	0.18
Clearance Time (s)	4.5	6.0	6.0		4.5	6.0	6.0	5.0	6.5	6.5	5.0	6.5
Vehicle Extension (s)	3.0	2.0	2.0		3.0	2.0	2.0	3.0	4.0	4.0	3.0	4.0
Lane Grp Cap (vph)	149	2773	863		389	2918	908	18	497	222	185	342
v/s Ratio Prot	0.05	c0.40			c0.08	c0.11		0.01	0.02		c0.04	c0.14
v/s Ratio Perm			0.07				0.04			0.01		
v/c Ratio	0.58	0.74	0.13		0.71	0.19	0.07	0.61	0.13	0.04	0.70	0.76
Uniform Delay, d1	66.1	25.9	16.7		64.1	15.2	14.1	73.9	56.4	55.7	69.8	58.1
Progression Factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	5.7	1.8	0.3		6.1	0.1	0.1	48.7	0.2	0.1	11.4	10.3
Delay (s)	71.8	27.7	17.0		70.2	15.4	14.3	122.6	56.6	55.8	81.2	68.4
Level of Service	E	C	B		E	B	B	F	E	E	F	E
Approach Delay (s)		28.4				31.7			61.6			69.7
Approach LOS		C				C			E			E

Intersection Summary			
HCM 2000 Control Delay	35.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	70.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	SBR
Lane Configurations	
Traffic Volume (vph)	55
Future Volume (vph)	55
Ideal Flow (vphpl)	1900
Total Lost time (s)	6.5
Lane Util. Factor	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1583
Flt Permitted	1.00
Satd. Flow (perm)	1583
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	60
RTOR Reduction (vph)	49
Lane Group Flow (vph)	11
Turn Type	Perm
Protected Phases	
Permitted Phases	4
Actuated Green, G (s)	27.6
Effective Green, g (s)	27.6
Actuated g/C Ratio	0.18
Clearance Time (s)	6.5
Vehicle Extension (s)	4.0
Lane Grp Cap (vph)	291
v/s Ratio Prot	
v/s Ratio Perm	0.01
v/c Ratio	0.04
Uniform Delay, d1	50.3
Progression Factor	1.00
Incremental Delay, d2	0.1
Delay (s)	50.4
Level of Service	D
Approach Delay (s)	
Approach LOS	

Intersection Summary

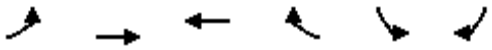
Intersection	
Int Delay, s/veh	6.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	210	135	160	0	0	800
Future Vol, veh/h	210	135	160	0	0	800
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	228	147	174	0	0	870

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	609	87	0	-	-	-
Stage 1	174	-	-	-	-	-
Stage 2	435	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	-	-
Pot Cap-1 Maneuver	427	954	-	0	0	-
Stage 1	839	-	-	0	0	-
Stage 2	620	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	427	954	-	-	-	-
Mov Cap-2 Maneuver	427	-	-	-	-	-
Stage 1	839	-	-	-	-	-
Stage 2	620	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	24.9	0	0
HCM LOS	C		

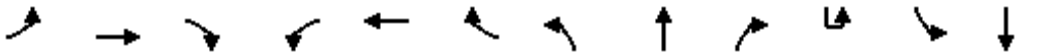
Minor Lane/Major Mvmt	NBT	WBLn1	SBT
Capacity (veh/h)	-	545	-
HCM Lane V/C Ratio	-	0.688	-
HCM Control Delay (s)	-	24.9	-
HCM Lane LOS	-	C	-
HCM 95th %tile Q(veh)	-	5.3	-



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	50	650	110	185	150	15
Future Volume (veh/h)	50	650	110	185	150	15
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	54	707	120	201	163	16
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	106	1855	548	489	427	290
Arrive On Green	0.06	0.52	0.31	0.31	0.12	0.12
Sat Flow, veh/h	1781	3647	1870	1585	3456	1585
Grp Volume(v), veh/h	54	707	120	201	163	16
Grp Sat Flow(s),veh/h/ln	1781	1777	1777	1585	1728	1585
Q Serve(g_s), s	1.0	3.9	1.6	3.3	1.4	0.3
Cycle Q Clear(g_c), s	1.0	3.9	1.6	3.3	1.4	0.3
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	106	1855	548	489	427	290
V/C Ratio(X)	0.51	0.38	0.22	0.41	0.38	0.06
Avail Cap(c_a), veh/h	604	5972	2109	1882	2558	1267
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	14.8	4.6	8.3	8.9	13.1	10.9
Incr Delay (d2), s/veh	3.8	0.0	0.1	0.2	0.6	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.5	0.4	0.7	0.5	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	18.6	4.7	8.4	9.1	13.6	11.0
LnGrp LOS	B	A	A	A	B	B
Approach Vol, veh/h		761	321		179	
Approach Delay, s/veh		5.7	8.8		13.4	
Approach LOS		A	A		B	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	6.9	15.5		10.0		22.4
Change Period (Y+Rc), s	5.0	5.5		6.0		5.5
Max Green Setting (Gmax), s	11.0	38.5		24.0		54.5
Max Q Clear Time (g_c+I1), s	3.0	5.3		3.4		5.9
Green Ext Time (p_c), s	0.0	1.3		0.6		3.4

Intersection Summary	
HCM 6th Ctrl Delay	7.6
HCM 6th LOS	A



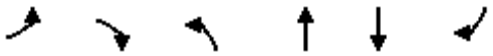
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	95	10	10	20	5	50	5	1170	20	115	320	1815
Future Volume (vph)	95	10	10	20	5	50	5	1170	20	115	320	1815
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	11	10	12	11	11	11	11	12	12	10	11
Grade (%)		5%			0%			3%				1%
Total Lost time (s)	6.5	6.5	6.5		6.5	6.5	6.0	6.0			4.5	6.0
Lane Util. Factor	0.95	0.95	1.00		1.00	1.00	1.00	0.91			1.00	0.91
Frt	1.00	1.00	0.85		1.00	0.85	1.00	1.00			1.00	0.99
Flt Protected	0.95	0.96	1.00		0.96	1.00	0.95	1.00			0.95	1.00
Satd. Flow (prot)	1584	1603	1441		1730	1531	1685	4830			1643	4825
Flt Permitted	0.95	0.96	1.00		0.96	1.00	0.08	1.00			0.13	1.00
Satd. Flow (perm)	1584	1603	1441		1730	1531	140	4830			217	4825
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	103	11	11	22	5	54	5	1272	22	125	348	1973
RTOR Reduction (vph)	0	0	10	0	0	52	0	1	0	0	0	7
Lane Group Flow (vph)	57	57	1	0	27	2	5	1293	0	0	473	2162
Turn Type	Split	NA	Perm	Split	NA	Perm	Perm	NA		pm+pt	pm+pt	NA
Protected Phases	4	4		8	8			6		5	5	2
Permitted Phases			4			8	6			2	2	
Actuated Green, G (s)	10.0	10.0	10.0		5.9	5.9	68.7	68.7			115.1	115.1
Effective Green, g (s)	10.0	10.0	10.0		5.9	5.9	68.7	68.7			115.1	115.1
Actuated g/C Ratio	0.07	0.07	0.07		0.04	0.04	0.46	0.46			0.77	0.77
Clearance Time (s)	6.5	6.5	6.5		6.5	6.5	6.0	6.0			4.5	6.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	105	106	96		68	60	64	2212			564	3702
v/s Ratio Prot	c0.04	0.04			c0.02			0.27			c0.23	0.45
v/s Ratio Perm			0.00			0.00	0.04				c0.41	
v/c Ratio	0.54	0.54	0.01		0.40	0.04	0.08	0.58			0.84	0.58
Uniform Delay, d1	67.8	67.8	65.4		70.3	69.3	22.8	30.1			33.5	7.4
Progression Factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00			1.29	0.66
Incremental Delay, d2	5.6	5.2	0.0		3.8	0.2	2.4	1.1			7.9	0.5
Delay (s)	73.4	72.9	65.4		74.1	69.6	25.2	31.2			51.1	5.3
Level of Service	E	E	E		E	E	C	C			D	A
Approach Delay (s)		72.5			71.1			31.2				13.5
Approach LOS		E			E			C				B

Intersection Summary			
HCM 2000 Control Delay	22.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	23.5
Intersection Capacity Utilization	75.1%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	SBR
Lane Configurations	
Traffic Volume (vph)	180
Future Volume (vph)	180
Ideal Flow (vphpl)	1900
Lane Width	12
Grade (%)	
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	196
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	410	840	0	1005	1590	510
Future Volume (veh/h)	410	840	0	1005	1590	510
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1817	1817	0	1847	1817	1817
Adj Flow Rate, veh/h	446	913	0	1092	1728	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	0	2	2	2
Cap, veh/h	1254	1012	0	2807	2762	
Arrive On Green	0.37	0.37	0.00	0.56	0.74	0.00
Sat Flow, veh/h	3358	2711	0	5374	5125	1540
Grp Volume(v), veh/h	446	913	0	1092	1728	0
Grp Sat Flow(s),veh/h/ln	1679	1355	0	1681	1654	1540
Q Serve(g_s), s	14.4	47.7	0.0	18.4	25.3	0.0
Cycle Q Clear(g_c), s	14.4	47.7	0.0	18.4	25.3	0.0
Prop In Lane	1.00	1.00	0.00			1.00
Lane Grp Cap(c), veh/h	1254	1012	0	2807	2762	
V/C Ratio(X)	0.36	0.90	0.00	0.39	0.63	
Avail Cap(c_a), veh/h	1589	1283	0	2807	2762	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.33	1.33
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.82	0.00
Uniform Delay (d), s/veh	34.0	44.4	0.0	18.8	11.9	0.0
Incr Delay (d2), s/veh	0.2	7.7	0.0	0.4	0.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.1	17.2	0.0	7.1	7.1	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	34.1	52.1	0.0	19.2	12.8	0.0
LnGrp LOS	C	D	A	B	B	
Approach Vol, veh/h	1359			1092	1728	A
Approach Delay, s/veh	46.2			19.2	12.8	
Approach LOS	D			B	B	

Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		89.0		61.0		89.0
Change Period (Y+Rc), s		5.5		5.0		5.5
Max Green Setting (Gmax), s		68.5		71.0		68.5
Max Q Clear Time (g_c+I1), s		27.3		49.7		20.4
Green Ext Time (p_c), s		18.0		6.3		9.3

Intersection Summary	
HCM 6th Ctrl Delay	25.3
HCM 6th LOS	C

Notes

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	845	290	1050	365	0	1255
Future Volume (veh/h)	845	290	1050	365	0	1255
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1864	1939	1847	1847	0	1847
Adj Flow Rate, veh/h	918	0	1141	0	0	1364
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	0	2
Cap, veh/h	1018		3182		0	4009
Arrive On Green	0.30	0.00	0.63	0.00	0.00	0.63
Sat Flow, veh/h	3445	1643	5208	1565	0	6870
Grp Volume(v), veh/h	918	0	1141	0	0	1364
Grp Sat Flow(s),veh/h/ln	1722	1643	1681	1565	0	1588
Q Serve(g_s), s	38.4	0.0	16.2	0.0	0.0	15.1
Cycle Q Clear(g_c), s	38.4	0.0	16.2	0.0	0.0	15.1
Prop In Lane	1.00	1.00		1.00	0.00	
Lane Grp Cap(c), veh/h	1018		3182		0	4009
V/C Ratio(X)	0.90		0.36		0.00	0.34
Avail Cap(c_a), veh/h	1757		3182		0	4009
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.93	0.00	0.00	1.00
Uniform Delay (d), s/veh	50.7	0.0	13.2	0.0	0.0	13.0
Incr Delay (d2), s/veh	3.8	0.0	0.3	0.0	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	17.1	0.0	6.0	0.0	0.0	5.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	54.5	0.0	13.5	0.0	0.0	13.2
LnGrp LOS	D		B		A	B
Approach Vol, veh/h	918	A	1141	A		1364
Approach Delay, s/veh	54.5		13.5			13.2
Approach LOS	D		B			B

Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		100.2		49.8		100.2
Change Period (Y+Rc), s		5.5		5.5		5.5
Max Green Setting (Gmax), s		62.5		76.5		62.5
Max Q Clear Time (g_c+I1), s		17.1		40.4		18.2
Green Ext Time (p_c), s		12.8		3.9		9.8

Intersection Summary	
HCM 6th Ctrl Delay	24.4
HCM 6th LOS	C

Notes

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.



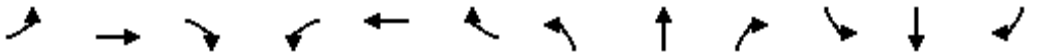
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	25	5	50	130	5	35	5	125	950	260	130	1405
Future Volume (vph)	25	5	50	130	5	35	5	125	950	260	130	1405
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	9	9	10	11	9	12	11	11	10	10	12
Grade (%)		3%			1%				1%			4%
Total Lost time (s)		6.5	5.0	6.5	6.5	6.5		5.0	6.0	6.0	5.0	6.0
Lane Util. Factor		0.95	0.95	0.95	0.95	1.00		1.00	0.91	1.00	1.00	0.91
Frt		0.96	0.85	1.00	1.00	0.85		1.00	1.00	0.85	1.00	1.00
Flt Protected		0.97	1.00	0.95	0.96	1.00		0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)		1457	1333	1561	1626	1418		1702	4891	1470	1619	4978
Flt Permitted		0.97	1.00	0.95	0.96	1.00		0.12	1.00	1.00	0.24	1.00
Satd. Flow (perm)		1457	1333	1561	1626	1418		220	4891	1470	416	4978
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	27	5	54	141	5	38	5	136	1033	283	141	1527
RTOR Reduction (vph)	0	10	36	0	0	35	0	0	0	102	0	0
Lane Group Flow (vph)	0	35	5	73	73	3	0	141	1033	181	141	1538
Turn Type	Split	NA	pm+ov	Split	NA	Perm	custom	pm+pt	NA	Perm	pm+pt	NA
Protected Phases	8	8	1!	4	4			1	6		5	2
Permitted Phases			8			4	1!	6		6	2	
Actuated Green, G (s)		8.7	19.1	12.1	12.1	12.1		106.2	95.8	95.8	104.2	94.8
Effective Green, g (s)		8.7	19.1	12.1	12.1	12.1		106.2	95.8	95.8	104.2	94.8
Actuated g/C Ratio		0.06	0.13	0.08	0.08	0.08		0.71	0.64	0.64	0.69	0.63
Clearance Time (s)		6.5	5.0	6.5	6.5	6.5		5.0	6.0	6.0	5.0	6.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		84	169	125	131	114		258	3123	938	364	3146
v/s Ratio Prot		c0.02	0.00	c0.05	0.04			c0.04	0.21		0.02	0.31
v/s Ratio Perm			0.00			0.00		c0.35		0.12	0.24	
v/c Ratio		0.41	0.03	0.58	0.56	0.03		0.55	0.33	0.19	0.39	0.49
Uniform Delay, d1		68.2	57.3	66.5	66.4	63.5		9.7	12.4	11.2	7.9	14.7
Progression Factor		1.00	1.00	1.00	1.00	1.00		3.11	0.96	2.22	1.00	1.00
Incremental Delay, d2		3.3	0.1	6.8	5.1	0.1		2.3	0.3	0.4	0.7	0.5
Delay (s)		71.5	57.4	73.3	71.4	63.6		32.5	12.2	25.2	8.6	15.2
Level of Service		E	E	E	E	E		C	B	C	A	B
Approach Delay (s)		64.8			70.6				16.7			14.7
Approach LOS		E			E				B			B

Intersection Summary			
HCM 2000 Control Delay	19.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	61.7%	ICU Level of Service	B
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group



Movement	SBR
Lane Configurations	
Traffic Volume (vph)	10
Future Volume (vph)	10
Ideal Flow (vphpl)	1900
Lane Width	12
Grade (%)	
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	11
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	115	430	170	155	0	20	0	45	55	70	325	0
Future Volume (veh/h)	115	430	170	155	0	20	0	45	55	70	325	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	0	1870	0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	125	467	185	168	0	22	0	49	60	76	353	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	0	2	0	2	2	2	2	0
Cap, veh/h	1005	1405	552	0	0	0	0	398	337	191	612	0
Arrive On Green	0.56	0.56	0.56	0.00	0.00	0.00	0.00	0.21	0.21	0.21	0.21	0.00
Sat Flow, veh/h	1781	2491	980		0		0	1870	1585	419	2962	0
Grp Volume(v), veh/h	125	332	320		0.0		0	49	60	231	198	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1694				0	1870	1585	1679	1617	0
Q Serve(g_s), s	1.5	4.7	4.8				0.0	1.0	1.5	3.6	5.2	0.0
Cycle Q Clear(g_c), s	1.5	4.7	4.8				0.0	1.0	1.5	5.8	5.2	0.0
Prop In Lane	1.00		0.58				0.00		1.00	0.33		0.00
Lane Grp Cap(c), veh/h	1005	1002	955				0	398	337	459	344	0
V/C Ratio(X)	0.12	0.33	0.33				0.00	0.12	0.18	0.50	0.58	0.00
Avail Cap(c_a), veh/h	1005	1002	955				0	756	641	771	654	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	4.8	5.5	5.5				0.0	15.0	15.1	16.7	16.6	0.0
Incr Delay (d2), s/veh	0.3	0.9	0.9				0.0	0.1	0.2	0.9	1.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	1.5	1.4				0.0	0.4	0.5	2.1	1.9	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	5.1	6.4	6.5				0.0	15.1	15.4	17.6	18.1	0.0
LnGrp LOS	A	A	A				A	B	B	B	B	A
Approach Vol, veh/h		777						109			429	
Approach Delay, s/veh		6.2						15.3			17.8	
Approach LOS		A						B			B	

Timer - Assigned Phs				4		6		8				
Phs Duration (G+Y+Rc), s				15.0		32.0		15.0				
Change Period (Y+Rc), s				5.0		5.5		5.0				
Max Green Setting (Gmax), s				19.0		26.5		19.0				
Max Q Clear Time (g_c+I1), s				7.8		6.8		3.5				
Green Ext Time (p_c), s				2.0		4.7		0.3				

Intersection Summary			
HCM 6th Ctrl Delay		10.7	
HCM 6th LOS		B	

Notes

User approved pedestrian interval to be less than phase max green.



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	80	730	30	20	70	1930	195	150	330	305	100	100
Future Volume (vph)	80	730	30	20	70	1930	195	150	330	305	100	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	6.0	6.0		4.5	6.0	6.0	5.0	6.5	6.5	5.0	6.5
Lane Util. Factor	1.00	0.91	1.00		0.97	0.91	1.00	1.00	0.95	1.00	0.97	1.00
Frt	1.00	1.00	0.85		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	5085	1583		3433	5085	1583	1770	3539	1583	3433	1863
Flt Permitted	0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	5085	1583		3433	5085	1583	1770	3539	1583	3433	1863
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	87	793	33	22	76	2098	212	163	359	332	109	109
RTOR Reduction (vph)	0	0	14	0	0	0	96	0	0	152	0	0
Lane Group Flow (vph)	87	793	19	0	98	2098	116	163	359	180	109	109
Turn Type	Prot	NA	Perm	Prot	Prot	NA	Perm	Prot	NA	Perm	Prot	NA
Protected Phases	5	2		1	1	6		3	8		7	4
Permitted Phases			2				6			8		
Actuated Green, G (s)	11.7	85.1	85.1		8.9	82.3	82.3	17.6	26.1	26.1	7.9	16.4
Effective Green, g (s)	11.7	85.1	85.1		8.9	82.3	82.3	17.6	26.1	26.1	7.9	16.4
Actuated g/C Ratio	0.08	0.57	0.57		0.06	0.55	0.55	0.12	0.17	0.17	0.05	0.11
Clearance Time (s)	4.5	6.0	6.0		4.5	6.0	6.0	5.0	6.5	6.5	5.0	6.5
Vehicle Extension (s)	3.0	2.0	2.0		3.0	2.0	2.0	3.0	4.0	4.0	3.0	4.0
Lane Grp Cap (vph)	138	2884	898		203	2789	868	207	615	275	180	203
v/s Ratio Prot	c0.05	c0.16			0.03	c0.41		c0.09	0.10		0.03	0.06
v/s Ratio Perm			0.01				0.07			c0.11		
v/c Ratio	0.63	0.27	0.02		0.48	0.75	0.13	0.79	0.58	0.65	0.61	0.54
Uniform Delay, d1	67.1	16.6	14.2		68.3	26.0	16.5	64.4	57.0	57.7	69.5	63.2
Progression Factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	9.0	0.2	0.0		1.8	1.9	0.3	17.7	1.7	6.1	5.7	3.5
Delay (s)	76.1	16.9	14.3		70.1	27.9	16.8	82.1	58.6	63.8	75.2	66.7
Level of Service	E	B	B		E	C	B	F	E	E	E	E
Approach Delay (s)		22.4				28.7			65.1			68.3
Approach LOS		C				C			E			E

Intersection Summary			
HCM 2000 Control Delay	37.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	73.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	SBR
Lane Configurations	
Traffic Volume (vph)	185
Future Volume (vph)	185
Ideal Flow (vphpl)	1900
Total Lost time (s)	6.5
Lane Util. Factor	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1583
Flt Permitted	1.00
Satd. Flow (perm)	1583
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	201
RTOR Reduction (vph)	120
Lane Group Flow (vph)	81
Turn Type	Perm
Protected Phases	
Permitted Phases	4
Actuated Green, G (s)	16.4
Effective Green, g (s)	16.4
Actuated g/C Ratio	0.11
Clearance Time (s)	6.5
Vehicle Extension (s)	4.0
Lane Grp Cap (vph)	173
v/s Ratio Prot	
v/s Ratio Perm	0.05
v/c Ratio	0.47
Uniform Delay, d1	62.7
Progression Factor	1.00
Incremental Delay, d2	2.7
Delay (s)	65.4
Level of Service	E
Approach Delay (s)	
Approach LOS	

Intersection Summary

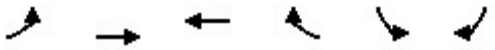
Intersection	
Int Delay, s/veh	3.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	20	115	1420	0	0	395
Future Vol, veh/h	20	115	1420	0	0	395
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	22	125	1543	0	0	429

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1758	772	0	-	-	-
Stage 1	1543	-	-	-	-	-
Stage 2	215	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	-	-
Pot Cap-1 Maneuver	76	342	-	0	0	-
Stage 1	162	-	-	0	0	-
Stage 2	800	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	76	342	-	-	-	-
Mov Cap-2 Maneuver	76	-	-	-	-	-
Stage 1	162	-	-	-	-	-
Stage 2	800	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	46.8	0	0
HCM LOS	E		

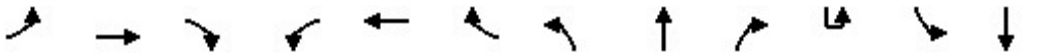
Minor Lane/Major Mvmt	NBT	WBLn1	SBT
Capacity (veh/h)	-	225	-
HCM Lane V/C Ratio	-	0.652	-
HCM Control Delay (s)	-	46.8	-
HCM Lane LOS	-	E	-
HCM 95th %tile Q(veh)	-	4	-



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	20	175	1070	465	220	80
Future Volume (veh/h)	20	175	1070	465	220	80
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	22	190	1163	505	239	87
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	45	2492	1453	608	391	220
Arrive On Green	0.03	0.70	0.60	0.60	0.11	0.11
Sat Flow, veh/h	1781	3647	2535	1022	3456	1585
Grp Volume(v), veh/h	22	190	834	834	239	87
Grp Sat Flow(s),veh/h/ln	1781	1777	1777	1686	1728	1585
Q Serve(g_s), s	0.8	1.0	22.2	24.5	4.1	3.1
Cycle Q Clear(g_c), s	0.8	1.0	22.2	24.5	4.1	3.1
Prop In Lane	1.00			0.61	1.00	1.00
Lane Grp Cap(c), veh/h	45	2492	1058	1004	391	220
V/C Ratio(X)	0.49	0.08	0.79	0.83	0.61	0.40
Avail Cap(c_a), veh/h	144	3926	1676	1591	1115	552
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.8	2.9	9.6	10.0	26.2	24.3
Incr Delay (d2), s/veh	7.8	0.0	0.5	1.1	1.5	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.2	6.2	6.6	1.7	0.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	37.7	2.9	10.1	11.1	27.7	25.5
LnGrp LOS	D	A	B	B	C	C
Approach Vol, veh/h		212	1668		326	
Approach Delay, s/veh		6.5	10.6		27.1	
Approach LOS		A	B		C	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	6.6	42.4		13.0		49.0
Change Period (Y+Rc), s	5.0	5.5		6.0		5.5
Max Green Setting (Gmax), s	5.0	58.5		20.0		68.5
Max Q Clear Time (g_c+I1), s	2.8	26.5		6.1		3.0
Green Ext Time (p_c), s	0.0	10.4		1.0		0.8

Intersection Summary	
HCM 6th Ctrl Delay	12.7
HCM 6th LOS	B



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	160	5	20	60	5	310	15	1665	30	25	95	795
Future Volume (vph)	160	5	20	60	5	310	15	1665	30	25	95	795
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	11	10	12	11	11	11	11	12	12	10	11
Grade (%)		5%			0%			3%				1%
Total Lost time (s)	6.0	6.0	6.0		5.5	5.5	6.0	6.0			4.5	6.0
Lane Util. Factor	0.95	0.95	1.00		1.00	1.00	1.00	0.91			1.00	0.91
Frt	1.00	1.00	0.85		1.00	0.85	1.00	1.00			1.00	0.98
Flt Protected	0.95	0.95	1.00		0.96	1.00	0.95	1.00			0.95	1.00
Satd. Flow (prot)	1584	1593	1441		1721	1531	1685	4829			1643	4806
Flt Permitted	0.95	0.95	1.00		0.96	1.00	0.28	1.00			0.06	1.00
Satd. Flow (perm)	1584	1593	1441		1721	1531	498	4829			99	4806
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	174	5	22	65	5	337	16	1810	33	27	103	864
RTOR Reduction (vph)	0	0	20	0	0	119	0	1	0	0	0	10
Lane Group Flow (vph)	89	90	2	0	70	218	16	1842	0	0	130	968
Turn Type	Split	NA	Perm	Split	NA	Perm	Perm	NA		pm+pt	pm+pt	NA
Protected Phases	4	4		8	8			6		5	5	2
Permitted Phases			4			8	6			2	2	
Actuated Green, G (s)	12.3	12.3	12.3		25.3	25.3	79.0	79.0			94.9	94.9
Effective Green, g (s)	12.3	12.3	12.3		25.3	25.3	79.0	79.0			94.9	94.9
Actuated g/C Ratio	0.08	0.08	0.08		0.17	0.17	0.53	0.53			0.63	0.63
Clearance Time (s)	6.0	6.0	6.0		5.5	5.5	6.0	6.0			4.5	6.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	129	130	118		290	258	262	2543			179	3040
v/s Ratio Prot	0.06	c0.06			0.04			0.38			c0.05	0.20
v/s Ratio Perm			0.00			c0.14	0.03				c0.40	
v/c Ratio	0.69	0.69	0.02		0.24	0.85	0.06	0.72			0.73	0.32
Uniform Delay, d1	67.0	67.0	63.3		54.0	60.5	17.4	27.2			33.4	12.7
Progression Factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00			1.14	0.58
Incremental Delay, d2	14.3	14.8	0.1		0.4	21.7	0.4	1.8			13.2	0.3
Delay (s)	81.3	81.8	63.3		54.5	82.1	17.8	29.0			51.3	7.7
Level of Service	F	F	E		D	F	B	C			D	A
Approach Delay (s)		79.5			77.4			28.9				12.8
Approach LOS		E			E			C				B

Intersection Summary			
HCM 2000 Control Delay	32.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	81.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	SBR
Lane Configurations	
Traffic Volume (vph)	105
Future Volume (vph)	105
Ideal Flow (vphpl)	1900
Lane Width	12
Grade (%)	
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	114
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	260	335	0	1305	685	830
Future Volume (veh/h)	260	335	0	1305	685	830
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1817	1817	0	1847	1817	1817
Adj Flow Rate, veh/h	283	364	0	1418	745	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	0	2	2	2
Cap, veh/h	533	430	0	3889	3827	
Arrive On Green	0.16	0.16	0.00	0.77	1.00	0.00
Sat Flow, veh/h	3358	2711	0	5374	5125	1540
Grp Volume(v), veh/h	283	364	0	1418	745	0
Grp Sat Flow(s),veh/h/ln	1679	1355	0	1681	1654	1540
Q Serve(g_s), s	11.6	19.6	0.0	13.4	0.0	0.0
Cycle Q Clear(g_c), s	11.6	19.6	0.0	13.4	0.0	0.0
Prop In Lane	1.00	1.00	0.00			1.00
Lane Grp Cap(c), veh/h	533	430	0	3889	3827	
V/C Ratio(X)	0.53	0.85	0.00	0.36	0.19	
Avail Cap(c_a), veh/h	783	632	0	3889	3827	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.67	1.67
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.93	0.00
Uniform Delay (d), s/veh	58.0	61.3	0.0	5.5	0.0	0.0
Incr Delay (d2), s/veh	0.8	7.0	0.0	0.3	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.1	7.2	0.0	4.2	0.0	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	58.8	68.3	0.0	5.7	0.1	0.0
LnGrp LOS	E	E	A	A	A	
Approach Vol, veh/h	647			1418	745	A
Approach Delay, s/veh	64.1			5.7	0.1	
Approach LOS	E			A	A	

Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		121.2		28.8		121.2
Change Period (Y+Rc), s		5.5		5.0		5.5
Max Green Setting (Gmax), s		104.5		35.0		104.5
Max Q Clear Time (g_c+I1), s		2.0		21.6		15.4
Green Ext Time (p_c), s		5.7		2.2		14.7

Intersection Summary		
HCM 6th Ctrl Delay		17.7
HCM 6th LOS		B

Notes

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.



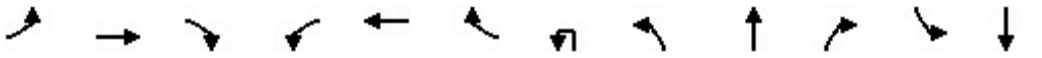
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	370	685	860	705	0	1145
Future Volume (veh/h)	370	685	860	705	0	1145
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1864	1939	1847	1847	0	1847
Adj Flow Rate, veh/h	402	0	935	0	0	1245
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	0	2
Cap, veh/h	469		3985		0	5022
Arrive On Green	0.14	0.00	1.00	0.00	0.00	0.79
Sat Flow, veh/h	3445	1643	5208	1565	0	6870
Grp Volume(v), veh/h	402	0	935	0	0	1245
Grp Sat Flow(s),veh/h/ln	1722	1643	1681	1565	0	1588
Q Serve(g_s), s	17.1	0.0	0.0	0.0	0.0	7.7
Cycle Q Clear(g_c), s	17.1	0.0	0.0	0.0	0.0	7.7
Prop In Lane	1.00	1.00		1.00	0.00	
Lane Grp Cap(c), veh/h	469		3985		0	5022
V/C Ratio(X)	0.86		0.23		0.00	0.25
Avail Cap(c_a), veh/h	815		3985		0	5022
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.93	0.00	0.00	1.00
Uniform Delay (d), s/veh	63.4	0.0	0.0	0.0	0.0	4.1
Incr Delay (d2), s/veh	4.6	0.0	0.1	0.0	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.8	0.0	0.0	0.0	0.0	2.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	68.0	0.0	0.1	0.0	0.0	4.2
LnGrp LOS	E		A		A	A
Approach Vol, veh/h	402	A	935	A		1245
Approach Delay, s/veh	68.0		0.1			4.2
Approach LOS	E		A			A

Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		124.1		25.9		124.1
Change Period (Y+Rc), s		5.5		5.5		5.5
Max Green Setting (Gmax), s		103.5		35.5		103.5
Max Q Clear Time (g_c+I1), s		9.7		19.1		2.0
Green Ext Time (p_c), s		11.8		1.3		7.7

Intersection Summary	
HCM 6th Ctrl Delay	12.7
HCM 6th LOS	B

Notes

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	75	20	150	385	10	85	5	160	1155	225	80	1545
Future Volume (vph)	75	20	150	385	10	85	5	160	1155	225	80	1545
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	9	9	10	11	9	12	11	11	10	10	12
Grade (%)		3%			1%				1%			4%
Total Lost time (s)		6.5	5.0	6.5	6.5	6.5		5.0	6.0	6.0	5.0	6.0
Lane Util. Factor		0.95	0.95	0.95	0.95	1.00		1.00	0.91	1.00	1.00	0.91
Frt		0.96	0.85	1.00	1.00	0.85		1.00	1.00	0.85	1.00	1.00
Flt Protected		0.97	1.00	0.95	0.95	1.00		0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)		1465	1333	1561	1625	1418		1702	4891	1470	1619	4979
Flt Permitted		0.97	1.00	0.95	0.95	1.00		0.06	1.00	1.00	0.17	1.00
Satd. Flow (perm)		1465	1333	1561	1625	1418		105	4891	1470	290	4979
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	82	22	163	418	11	92	5	174	1255	245	87	1679
RTOR Reduction (vph)	0	9	54	0	0	77	0	0	0	121	0	1
Lane Group Flow (vph)	0	131	73	213	216	15	0	179	1255	124	87	1689
Turn Type	Split	NA	pm+ov	Split	NA	Perm	custom	pm+pt	NA	Perm	pm+pt	NA
Protected Phases	8	8	1!	4	4			1	6		5	2
Permitted Phases			8			4	1!	6		6	2	
Actuated Green, G (s)		17.1	32.1	24.6	24.6	24.6		89.3	75.7	75.7	77.9	69.3
Effective Green, g (s)		17.1	32.1	24.6	24.6	24.6		89.3	75.7	75.7	77.9	69.3
Actuated g/C Ratio		0.11	0.21	0.16	0.16	0.16		0.60	0.50	0.50	0.52	0.46
Clearance Time (s)		6.5	5.0	6.5	6.5	6.5		5.0	6.0	6.0	5.0	6.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		167	285	256	266	232		222	2468	741	226	2300
v/s Ratio Prot		c0.09	0.03	c0.14	0.13			c0.08	0.26		0.02	0.34
v/s Ratio Perm			0.03			0.01		c0.40		0.08	0.18	
v/c Ratio		0.79	0.26	0.83	0.81	0.07		0.81	0.51	0.17	0.38	0.73
Uniform Delay, d1		64.7	49.0	60.7	60.5	53.0		41.5	24.8	20.1	19.1	32.9
Progression Factor		1.00	1.00	1.00	1.00	1.00		0.99	0.92	1.27	1.00	1.00
Incremental Delay, d2		21.1	0.5	20.0	16.9	0.1		18.3	0.7	0.5	1.1	2.1
Delay (s)		85.8	49.5	80.7	77.4	53.1		59.4	23.5	25.9	20.2	35.0
Level of Service		F	D	F	E	D		E	C	C	C	C
Approach Delay (s)		68.5			74.5				27.7			34.3
Approach LOS		E			E				C			C

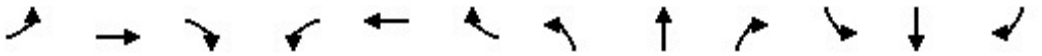
Intersection Summary			
HCM 2000 Control Delay	38.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	75.1%	ICU Level of Service	D
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group



Movement	SBR
Lane Configurations	
Traffic Volume (vph)	10
Future Volume (vph)	10
Ideal Flow (vphpl)	1900
Lane Width	12
Grade (%)	
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	11
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

Intersection Summary



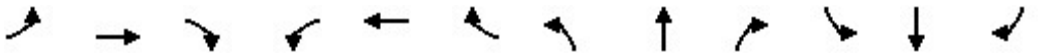
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	35	320	15	65	0	75	0	235	260	40	100	0
Future Volume (veh/h)	35	320	15	65	0	75	0	235	260	40	100	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	0	1870	0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	38	348	16	71	0	82	0	255	283	43	109	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	0	2	0	2	2	2	2	0
Cap, veh/h	929	1805	83	0	0	0	0	439	372	207	494	0
Arrive On Green	0.52	0.52	0.52	0.00	0.00	0.00	0.00	0.23	0.23	0.23	0.23	0.00
Sat Flow, veh/h	1781	3460	159		0		0	1870	1585	317	2187	0
Grp Volume(v), veh/h	38	178	186		0.0		0	255	283	74	78	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1842				0	1870	1585	802	1617	0
Q Serve(g_s), s	0.4	2.3	2.3				0.0	5.2	7.2	0.3	1.7	0.0
Cycle Q Clear(g_c), s	0.4	2.3	2.3				0.0	5.2	7.2	5.5	1.7	0.0
Prop In Lane	1.00		0.09				0.00		1.00	0.58		0.00
Lane Grp Cap(c), veh/h	929	927	961				0	439	372	321	380	0
V/C Ratio(X)	0.04	0.19	0.19				0.00	0.58	0.76	0.23	0.21	0.00
Avail Cap(c_a), veh/h	929	927	961				0	564	478	395	487	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	5.0	5.5	5.5				0.0	14.6	15.4	13.3	13.3	0.0
Incr Delay (d2), s/veh	0.1	0.5	0.4				0.0	1.2	5.3	0.4	0.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.7	0.8				0.0	2.0	2.7	0.5	0.6	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	5.1	5.9	5.9				0.0	15.8	20.6	13.7	13.5	0.0
LnGrp LOS	A	A	A				A	B	C	B	B	A
Approach Vol, veh/h		402						538			152	
Approach Delay, s/veh		5.9						18.4			13.6	
Approach LOS		A						B			B	

Timer - Assigned Phs				4		6		8				
Phs Duration (G+Y+Rc), s				15.1		28.0		15.1				
Change Period (Y+Rc), s				5.0		5.5		5.0				
Max Green Setting (Gmax), s				13.0		22.5		13.0				
Max Q Clear Time (g_c+I1), s				7.5		4.3		9.2				
Green Ext Time (p_c), s				0.4		2.2		1.0				

Intersection Summary			
HCM 6th Ctrl Delay		13.1	
HCM 6th LOS		B	

Notes

User approved pedestrian interval to be less than phase max green.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	820	110	385	585	230	10	245	285	270	425	5
Future Volume (veh/h)	15	820	110	385	585	230	10	245	285	270	425	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	16	891	120	418	636	250	11	266	310	293	462	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	302	1304	582	449	2131	951	174	391	174	364	728	8
Arrive On Green	0.37	0.37	0.37	0.16	0.60	0.60	0.01	0.11	0.11	0.11	0.20	0.20
Sat Flow, veh/h	627	3554	1585	1781	3554	1585	1781	3554	1585	3456	3601	39
Grp Volume(v), veh/h	16	891	120	418	636	250	11	266	310	293	228	239
Grp Sat Flow(s),veh/h/ln	627	1777	1585	1781	1777	1585	1781	1777	1585	1728	1777	1863
Q Serve(g_s), s	1.7	21.2	5.2	14.0	8.7	7.5	0.5	7.2	11.0	8.3	11.7	11.7
Cycle Q Clear(g_c), s	1.7	21.2	5.2	14.0	8.7	7.5	0.5	7.2	11.0	8.3	11.7	11.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.02
Lane Grp Cap(c), veh/h	302	1304	582	449	2131	951	174	391	174	364	359	377
V/C Ratio(X)	0.05	0.68	0.21	0.93	0.30	0.26	0.06	0.68	1.78	0.81	0.63	0.64
Avail Cap(c_a), veh/h	302	1304	582	497	2131	951	239	391	174	622	418	438
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.88	0.88	0.88	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	20.6	26.7	21.7	19.6	9.8	9.5	38.7	42.8	44.5	43.7	36.5	36.5
Incr Delay (d2), s/veh	0.3	2.9	0.8	20.5	0.3	0.6	0.1	4.7	372.3	1.6	2.5	2.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	9.0	2.0	7.8	3.2	2.6	0.2	3.4	22.3	3.6	5.2	5.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	20.9	29.7	22.5	40.1	10.1	10.1	38.8	47.5	416.8	45.3	39.0	38.9
LnGrp LOS	C	C	C	D	B	B	D	D	F	D	D	D
Approach Vol, veh/h		1027			1304			587			760	
Approach Delay, s/veh		28.7			19.7			242.4			41.4	
Approach LOS		C			B			F			D	

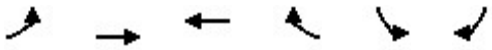
Timer - Assigned Phs	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	66.5	6.8	26.7	23.3	43.2	16.0	17.5
Change Period (Y+Rc), s	6.5	5.5	6.5	7.0	* 6.5	5.5	* 6.5
Max Green Setting (Gmax), s	53.0	5.0	23.5	19.0	* 28	18.0	* 11
Max Q Clear Time (g_c+I1), s	10.7	2.5	13.7	16.0	23.2	10.3	13.0
Green Ext Time (p_c), s	12.5	0.0	1.8	0.2	3.2	0.2	0.0

Intersection Summary	
HCM 6th Ctrl Delay	62.2
HCM 6th LOS	E

Notes

User approved pedestrian interval to be less than phase max green.

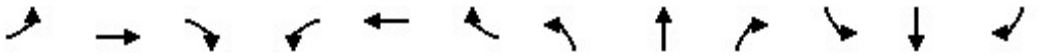
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	210	1165	1040	115	55	160
Future Volume (veh/h)	210	1165	1040	115	55	160
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	228	1266	1130	125	60	174
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	398	2717	2322	1036	223	296
Arrive On Green	0.06	0.76	0.65	0.65	0.13	0.13
Sat Flow, veh/h	1781	3647	3647	1585	1781	1585
Grp Volume(v), veh/h	228	1266	1130	125	60	174
Grp Sat Flow(s),veh/h/ln	1781	1777	1777	1585	1781	1585
Q Serve(g_s), s	3.9	13.0	16.2	3.0	3.0	10.0
Cycle Q Clear(g_c), s	3.9	13.0	16.2	3.0	3.0	10.0
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	398	2717	2322	1036	223	296
V/C Ratio(X)	0.57	0.47	0.49	0.12	0.27	0.59
Avail Cap(c_a), veh/h	557	2717	2322	1036	410	461
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.51	0.51	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	7.4	4.3	8.8	6.5	39.6	37.2
Incr Delay (d2), s/veh	0.2	0.3	0.7	0.2	0.6	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	3.5	5.4	0.9	1.4	8.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	7.7	4.6	9.5	6.8	40.2	39.0
LnGrp LOS	A	A	A	A	D	D
Approach Vol, veh/h		1494	1255		234	
Approach Delay, s/veh		5.1	9.3		39.3	
Approach LOS		A	A		D	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	11.1	71.4		17.5		82.5
Change Period (Y+Rc), s	5.0	6.0		5.0		6.0
Max Green Setting (Gmax), s	15.0	46.0		23.0		66.0
Max Q Clear Time (g_c+I1), s	5.9	18.2		12.0		15.0
Green Ext Time (p_c), s	0.2	5.9		0.5		7.6

Intersection Summary	
HCM 6th Ctrl Delay	9.5
HCM 6th LOS	A



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	630	10	420	865	160	155	275	410	300	160	25
Future Volume (veh/h)	5	630	10	420	865	160	155	275	410	300	160	25
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	5	685	11	457	940	174	168	299	446	326	174	27
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	236	1153	514	525	2062	920	347	426	190	397	420	64
Arrive On Green	0.32	0.32	0.32	0.19	0.58	0.58	0.10	0.12	0.12	0.11	0.14	0.14
Sat Flow, veh/h	506	3554	1585	1781	3554	1585	1781	3554	1585	3456	3091	472
Grp Volume(v), veh/h	5	685	11	457	940	174	168	299	446	326	99	102
Grp Sat Flow(s),veh/h/ln	506	1777	1585	1781	1777	1585	1781	1777	1585	1728	1777	1785
Q Serve(g_s), s	0.7	16.1	0.5	16.2	15.1	5.2	8.1	8.1	12.0	9.2	5.1	5.2
Cycle Q Clear(g_c), s	0.7	16.1	0.5	16.2	15.1	5.2	8.1	8.1	12.0	9.2	5.1	5.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.26
Lane Grp Cap(c), veh/h	236	1153	514	525	2062	920	347	426	190	397	241	242
V/C Ratio(X)	0.02	0.59	0.02	0.87	0.46	0.19	0.48	0.70	2.34	0.82	0.41	0.42
Avail Cap(c_a), veh/h	236	1153	514	604	2062	920	347	426	190	622	348	350
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.72	0.72	0.72	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.1	28.3	23.0	18.6	12.0	9.9	33.8	42.3	44.0	43.3	39.5	39.6
Incr Delay (d2), s/veh	0.2	2.3	0.1	8.0	0.5	0.3	0.4	5.1	621.2	2.5	1.1	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	6.9	0.2	7.3	5.6	1.8	3.5	3.8	37.5	4.0	2.3	2.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.2	30.5	23.1	26.6	12.5	10.2	34.1	47.3	665.2	45.8	40.7	40.8
LnGrp LOS	C	C	C	C	B	B	C	D	F	D	D	D
Approach Vol, veh/h		701			1571			913			527	
Approach Delay, s/veh		30.4			16.4			346.8			43.9	
Approach LOS		C			B			F			D	

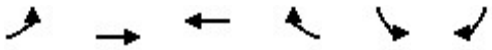
Timer - Assigned Phs	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	64.5	15.4	20.1	25.6	38.9	17.0	18.5
Change Period (Y+Rc), s	6.5	5.5	6.5	7.0	* 6.5	5.5	* 6.5
Max Green Setting (Gmax), s	52.0	9.9	19.6	23.0	* 23	18.0	* 12
Max Q Clear Time (g_c+I1), s	17.1	10.1	7.2	18.2	18.1	11.2	14.0
Green Ext Time (p_c), s	16.5	0.0	0.8	0.4	2.5	0.3	0.0

Intersection Summary	
HCM 6th Ctrl Delay	104.2
HCM 6th LOS	F

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	110	1230	1075	40	175	370
Future Volume (veh/h)	110	1230	1075	40	175	370
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	120	1337	1168	43	190	402
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	291	2200	1849	825	483	507
Arrive On Green	0.05	0.62	0.52	0.52	0.27	0.27
Sat Flow, veh/h	1781	3647	3647	1585	1781	1585
Grp Volume(v), veh/h	120	1337	1168	43	190	402
Grp Sat Flow(s),veh/h/ln	1781	1777	1777	1585	1781	1585
Q Serve(g_s), s	3.0	23.0	23.5	1.3	8.7	23.1
Cycle Q Clear(g_c), s	3.0	23.0	23.5	1.3	8.7	23.1
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	291	2200	1849	825	483	507
V/C Ratio(X)	0.41	0.61	0.63	0.05	0.39	0.79
Avail Cap(c_a), veh/h	453	2200	1849	825	802	791
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.60	0.60	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	13.4	11.6	17.1	11.8	29.7	31.0
Incr Delay (d2), s/veh	0.2	0.8	1.7	0.1	0.5	3.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	8.3	9.1	0.5	3.8	19.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	13.7	12.4	18.8	11.9	30.3	34.0
LnGrp LOS	B	B	B	B	C	C
Approach Vol, veh/h		1457	1211		592	
Approach Delay, s/veh		12.5	18.6		32.8	
Approach LOS		B	B		C	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	9.9	58.0		32.1		67.9
Change Period (Y+Rc), s	5.0	6.0		5.0		6.0
Max Green Setting (Gmax), s	14.0	25.0		45.0		44.0
Max Q Clear Time (g_c+I1), s	5.0	25.5		25.1		25.0
Green Ext Time (p_c), s	0.1	0.0		2.0		6.7

Intersection Summary	
HCM 6th Ctrl Delay	18.4
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	5	1875	305	20	110	1745	40	65	5	170	15	5
Future Volume (vph)	5	1875	305	20	110	1745	40	65	5	170	15	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	14	13	13	12	9	12	12	10	10	10	11	11
Grade (%)		-2%				1%			0%			-7%
Total Lost time (s)	6.0	6.0			6.5	6.0			6.5	6.5	6.5	6.5
Lane Util. Factor	1.00	0.91			1.00	0.91			1.00	1.00	1.00	1.00
Frt	1.00	0.98			1.00	1.00			1.00	0.85	1.00	0.93
Flt Protected	0.95	1.00			0.95	1.00			0.96	1.00	0.95	1.00
Satd. Flow (prot)	1906	5196			1585	5043			1661	1478	1770	1724
Flt Permitted	0.10	1.00			0.95	1.00			0.73	1.00	0.71	1.00
Satd. Flow (perm)	203	5196			1585	5043			1274	1478	1319	1724
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	2038	332	22	120	1897	43	71	5	185	16	5
RTOR Reduction (vph)	0	16	0	0	0	2	0	0	0	165	0	4
Lane Group Flow (vph)	5	2354	0	0	142	1938	0	0	76	20	16	6
Turn Type	Perm	NA		Prot	Prot	NA		Perm	NA	Perm	Perm	NA
Protected Phases		6		5	5	2			4			8
Permitted Phases	6							4		4	8	
Actuated Green, G (s)	71.2	71.2			16.9	94.6			12.9	12.9	12.9	12.9
Effective Green, g (s)	71.2	71.2			16.9	94.6			12.9	12.9	12.9	12.9
Actuated g/C Ratio	0.59	0.59			0.14	0.79			0.11	0.11	0.11	0.11
Clearance Time (s)	6.0	6.0			6.5	6.0			6.5	6.5	6.5	6.5
Vehicle Extension (s)	0.2	0.2			5.0	0.2			4.0	4.0	4.0	4.0
Lane Grp Cap (vph)	120	3082			223	3975			136	158	141	185
v/s Ratio Prot		c0.45			c0.09	0.38						0.00
v/s Ratio Perm	0.02								c0.06	0.01	0.01	
v/c Ratio	0.04	0.76			0.64	0.49			0.56	0.13	0.11	0.03
Uniform Delay, d1	10.2	18.1			48.7	4.4			50.8	48.4	48.4	47.9
Progression Factor	1.00	1.00			1.23	0.70			1.00	1.00	1.00	1.00
Incremental Delay, d2	0.7	1.9			6.9	0.4			6.0	0.5	0.5	0.1
Delay (s)	10.8	20.0			66.8	3.4			56.9	48.9	48.9	48.0
Level of Service	B	B			E	A			E	D	D	D
Approach Delay (s)		20.0				7.7			51.2			48.6
Approach LOS		B				A			D			D

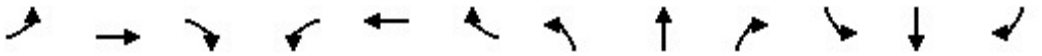
Intersection Summary			
HCM 2000 Control Delay	16.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	85.3%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Movement	SBR
Lane Configurations	
Traffic Volume (vph)	5
Future Volume (vph)	5
Ideal Flow (vphpl)	1900
Lane Width	11
Grade (%)	
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	5
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1010	1070	0	1795	0	0	0	0	425	0	120
Future Volume (veh/h)	0	1010	1070	0	1795	0	0	0	0	425	0	120
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1847	1921	0	1817	0				1939	0	1790
Adj Flow Rate, veh/h	0	1098	0	0	1951	0				462	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				0.92	0.92	0.92
Percent Heavy Veh, %	0	2	2	0	2	0				2	0	2
Cap, veh/h	0	2633		0	3722	0				551	0	
Arrive On Green	0.00	0.50	0.00	0.00	0.75	0.00				0.15	0.00	0.00
Sat Flow, veh/h	0	3601	1628	0	5288	0				3583	0	1517
Grp Volume(v), veh/h	0	1098	0	0	1951	0				462	0	0
Grp Sat Flow(s),veh/h/ln	0	1754	1628	0	1654	0				1791	0	1517
Q Serve(g_s), s	0.0	23.6	0.0	0.0	19.4	0.0				15.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	23.6	0.0	0.0	19.4	0.0				15.0	0.0	0.0
Prop In Lane	0.00		1.00	0.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	2633		0	3722	0				551	0	
V/C Ratio(X)	0.00	0.42		0.00	0.52	0.00				0.84	0.00	
Avail Cap(c_a), veh/h	0	2633		0	3722	0				911	0	
HCM Platoon Ratio	1.00	0.67	0.67	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.58	0.00	0.00	1.00	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	13.3	0.0	0.0	6.2	0.0				49.3	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.3	0.0	0.0	0.5	0.0				3.7	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	10.0	0.0	0.0	5.3	0.0				7.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	13.6	0.0	0.0	6.7	0.0				53.0	0.0	0.0
LnGrp LOS	A	B		A	A	A				D	A	
Approach Vol, veh/h		1098	A		1951						462	A
Approach Delay, s/veh		13.6			6.7						53.0	
Approach LOS		B			A						D	

Timer - Assigned Phs		2		4		6						
Phs Duration (G+Y+Rc), s		96.0		24.0		96.0						
Change Period (Y+Rc), s		6.0		5.5		6.0						
Max Green Setting (Gmax), s		78.0		30.5		78.0						
Max Q Clear Time (g_c+I1), s		21.4		17.0		25.6						
Green Ext Time (p_c), s		2.9		1.4		1.3						

Intersection Summary												
HCM 6th Ctrl Delay			14.9									
HCM 6th LOS			B									

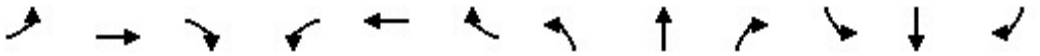
Notes

Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	320	1010	0	0	785	15	0	145	215	25	0	265
Future Volume (vph)	320	1010	0	0	785	15	0	145	215	25	0	265
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	12	12	12	12	12	13	13	13	13	13	13
Grade (%)		2%			-3%			6%			5%	
Total Lost time (s)	4.5	6.5			6.5			6.0	6.0	6.0		4.5
Lane Util. Factor	1.00	0.95			0.91			1.00	1.00	1.00		1.00
Frt	1.00	1.00			1.00			1.00	0.85	1.00		0.85
Flt Protected	0.95	1.00			1.00			1.00	1.00	0.95		1.00
Satd. Flow (prot)	1694	3504			5147			1867	1587	1783		1595
Flt Permitted	0.23	1.00			1.00			1.00	1.00	0.95		1.00
Satd. Flow (perm)	402	3504			5147			1867	1587	1783		1595
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	348	1098	0	0	853	16	0	158	234	27	0	288
RTOR Reduction (vph)	0	0	0	0	1	0	0	0	107	0	0	18
Lane Group Flow (vph)	348	1098	0	0	868	0	0	158	127	27	0	270
Turn Type	pm+pt	NA			NA			NA	Perm	Prot		custom
Protected Phases	1	6			2			4		3		1 3 4
Permitted Phases	6								4			
Actuated Green, G (s)	72.4	72.4			45.2			21.9	21.9	7.2		63.8
Effective Green, g (s)	72.4	72.4			45.2			21.9	21.9	7.2		51.8
Actuated g/C Ratio	0.60	0.60			0.38			0.18	0.18	0.06		0.43
Clearance Time (s)	4.5	6.5			6.5			6.0	6.0	6.0		
Vehicle Extension (s)	5.0	0.2			0.2			6.0	6.0	6.0		
Lane Grp Cap (vph)	486	2114			1938			340	289	106		688
v/s Ratio Prot	c0.14	0.31			0.17			c0.08		0.02		c0.17
v/s Ratio Perm	c0.30								0.08			
v/c Ratio	0.72	0.52			0.45			0.46	0.44	0.25		0.39
Uniform Delay, d1	14.1	13.7			28.0			43.8	43.6	53.8		23.3
Progression Factor	1.09	0.57			0.91			1.00	1.00	1.00		1.00
Incremental Delay, d2	5.6	0.8			0.6			2.8	3.0	3.6		0.8
Delay (s)	20.9	8.7			26.2			46.6	46.6	57.4		24.1
Level of Service	C	A			C			D	D	E		C
Approach Delay (s)		11.6			26.2			46.6			27.0	
Approach LOS		B			C			D			C	

Intersection Summary			
HCM 2000 Control Delay	21.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	23.0
Intersection Capacity Utilization	61.7%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	1240	5	5	765	10	10	5	10	75	5	25
Future Volume (vph)	5	1240	5	5	765	10	10	5	10	75	5	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	12	12	12	11	11	12	12	11	10	10	10
Grade (%)		1%			-2%			0%			-3%	
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0	4.0		4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00	1.00		1.00	
Frt	1.00	1.00		1.00	1.00			1.00	0.85		0.97	
Flt Protected	0.95	1.00		0.95	1.00			0.97	1.00		0.97	
Satd. Flow (prot)	1702	1852		1787	1815			1801	1531		1649	
Flt Permitted	0.29	1.00		0.07	1.00			0.86	1.00		0.78	
Satd. Flow (perm)	525	1852		140	1815			1597	1531		1327	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	1348	5	5	832	11	11	5	11	82	5	27
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	10	0	10	0
Lane Group Flow (vph)	5	1353	0	5	843	0	0	16	1	0	104	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		6			2			4			8	
Permitted Phases	6			2			4		4	8		
Actuated Green, G (s)	97.6	97.6		97.6	97.6			14.4	14.4		14.4	
Effective Green, g (s)	97.6	97.6		97.6	97.6			14.4	14.4		14.4	
Actuated g/C Ratio	0.81	0.81		0.81	0.81			0.12	0.12		0.12	
Clearance Time (s)	4.0	4.0		4.0	4.0			4.0	4.0		4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0		3.0	
Lane Grp Cap (vph)	427	1506		113	1476			191	183		159	
v/s Ratio Prot		c0.73			0.46							
v/s Ratio Perm	0.01			0.04				0.01	0.00		c0.08	
v/c Ratio	0.01	0.90		0.04	0.57			0.08	0.01		0.66	
Uniform Delay, d1	2.1	7.8		2.2	3.9			46.9	46.5		50.4	
Progression Factor	0.44	0.99		1.00	1.00			1.00	1.00		1.00	
Incremental Delay, d2	0.0	6.6		0.7	1.6			0.2	0.0		9.4	
Delay (s)	0.9	14.3		2.9	5.5			47.1	46.5		59.8	
Level of Service	A	B		A	A			D	D		E	
Approach Delay (s)		14.2			5.5			46.9			59.8	
Approach LOS		B			A			D			E	

Intersection Summary			
HCM 2000 Control Delay	13.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	84.8%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



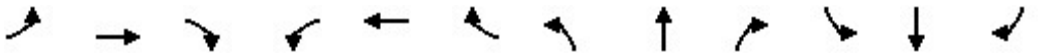
Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	5	2010	70	20	265	2160	15	85	5	140	35	5
Future Volume (vph)	5	2010	70	20	265	2160	15	85	5	140	35	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	14	13	13	12	9	12	12	10	10	10	11	11
Grade (%)		-2%				1%			0%			-7%
Total Lost time (s)	6.0	6.0			6.5	6.0			6.5	6.5	6.5	6.5
Lane Util. Factor	1.00	0.91			1.00	0.91			1.00	1.00	1.00	1.00
Frt	1.00	0.99			1.00	1.00			1.00	0.85	1.00	0.90
Flt Protected	0.95	1.00			0.95	1.00			0.95	1.00	0.95	1.00
Satd. Flow (prot)	1906	5281			1585	5055			1660	1478	1770	1671
Flt Permitted	0.07	1.00			0.95	1.00			0.73	1.00	0.69	1.00
Satd. Flow (perm)	135	5281			1585	5055			1261	1478	1294	1671
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	2185	76	22	288	2348	16	92	5	152	38	5
RTOR Reduction (vph)	0	3	0	0	0	0	0	0	0	134	0	10
Lane Group Flow (vph)	5	2258	0	0	310	2364	0	0	97	18	38	6
Turn Type	Perm	NA		Prot	Prot	NA		Perm	NA	Perm	Perm	NA
Protected Phases		6		5	5	2			4			8
Permitted Phases	6							4		4	8	
Actuated Green, G (s)	59.3	59.3			27.8	93.6			13.9	13.9	13.9	13.9
Effective Green, g (s)	59.3	59.3			27.8	93.6			13.9	13.9	13.9	13.9
Actuated g/C Ratio	0.49	0.49			0.23	0.78			0.12	0.12	0.12	0.12
Clearance Time (s)	6.0	6.0			6.5	6.0			6.5	6.5	6.5	6.5
Vehicle Extension (s)	0.2	0.2			5.0	0.2			4.0	4.0	4.0	4.0
Lane Grp Cap (vph)	66	2609			367	3942			146	171	149	193
v/s Ratio Prot		c0.43			c0.20	0.47						0.00
v/s Ratio Perm	0.04								c0.08	0.01	0.03	
v/c Ratio	0.08	0.87			0.84	0.60			0.66	0.10	0.26	0.03
Uniform Delay, d1	15.9	26.8			44.0	5.5			50.8	47.5	48.3	47.1
Progression Factor	1.00	1.00			1.39	0.62			1.00	1.00	1.00	1.00
Incremental Delay, d2	2.2	4.2			12.7	0.5			11.9	0.4	1.2	0.1
Delay (s)	18.2	31.0			73.7	3.8			62.7	47.8	49.6	47.2
Level of Service	B	C			E	A			E	D	D	D
Approach Delay (s)		30.9				11.9			53.6			48.9
Approach LOS		C				B			D			D

Intersection Summary			
HCM 2000 Control Delay	22.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	89.4%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Movement	SBR
Lane Configurations	
Traffic Volume (vph)	10
Future Volume (vph)	10
Ideal Flow (vphpl)	1900
Lane Width	11
Grade (%)	
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	11
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	940	1265	0	2305	0	0	0	0	505	0	155
Future Volume (veh/h)	0	940	1265	0	2305	0	0	0	0	505	0	155
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1847	1921	0	1817	0				1939	0	1790
Adj Flow Rate, veh/h	0	1022	0	0	2505	0				549	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				0.92	0.92	0.92
Percent Heavy Veh, %	0	2	2	0	2	0				2	0	2
Cap, veh/h	0	2550		0	3605	0				636	0	
Arrive On Green	0.00	0.49	0.00	0.00	0.73	0.00				0.18	0.00	0.00
Sat Flow, veh/h	0	3601	1628	0	5288	0				3583	0	1517
Grp Volume(v), veh/h	0	1022	0	0	2505	0				549	0	0
Grp Sat Flow(s),veh/h/ln	0	1754	1628	0	1654	0				1791	0	1517
Q Serve(g_s), s	0.0	22.3	0.0	0.0	33.4	0.0				17.9	0.0	0.0
Cycle Q Clear(g_c), s	0.0	22.3	0.0	0.0	33.4	0.0				17.9	0.0	0.0
Prop In Lane	0.00		1.00	0.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	2550		0	3605	0				636	0	
V/C Ratio(X)	0.00	0.40		0.00	0.69	0.00				0.86	0.00	
Avail Cap(c_a), veh/h	0	2550		0	3605	0				851	0	
HCM Platoon Ratio	1.00	0.67	0.67	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.44	0.00	0.00	1.00	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	14.1	0.0	0.0	9.1	0.0				47.9	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.2	0.0	0.0	1.1	0.0				7.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	9.4	0.0	0.0	9.7	0.0				8.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	14.3	0.0	0.0	10.2	0.0				55.1	0.0	0.0
LnGrp LOS	A	B		A	B	A				E	A	
Approach Vol, veh/h		1022	A		2505						549	A
Approach Delay, s/veh		14.3			10.2						55.1	
Approach LOS		B			B						E	

Timer - Assigned Phs	2	4	6
Phs Duration (G+Y+Rc), s	93.2	26.8	93.2
Change Period (Y+Rc), s	6.0	5.5	6.0
Max Green Setting (Gmax), s	80.0	28.5	80.0
Max Q Clear Time (g_c+I1), s	35.4	19.9	24.3
Green Ext Time (p_c), s	4.3	1.4	1.2

Intersection Summary	
HCM 6th Ctrl Delay	17.3
HCM 6th LOS	B

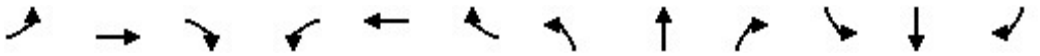
Notes

Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	220	1125	0	0	1145	35	0	275	175	30	0	415
Future Volume (vph)	220	1125	0	0	1145	35	0	275	175	30	0	415
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	12	12	12	12	12	13	13	13	13	13	13
Grade (%)		2%			-3%			6%			5%	
Total Lost time (s)	4.5	6.5			6.5			6.0	6.0	6.0		4.5
Lane Util. Factor	1.00	0.95			0.91			1.00	1.00	1.00		1.00
Frt	1.00	1.00			1.00			1.00	0.85	1.00		0.85
Flt Protected	0.95	1.00			1.00			1.00	1.00	0.95		1.00
Satd. Flow (prot)	1694	3504			5139			1867	1587	1783		1595
Flt Permitted	0.10	1.00			1.00			1.00	1.00	0.95		1.00
Satd. Flow (perm)	175	3504			5139			1867	1587	1783		1595
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	239	1223	0	0	1245	38	0	299	190	33	0	451
RTOR Reduction (vph)	0	0	0	0	3	0	0	0	97	0	0	18
Lane Group Flow (vph)	239	1223	0	0	1280	0	0	299	93	33	0	433
Turn Type	pm+pt	NA			NA			NA	Perm	Prot		custom
Protected Phases	1	6			2			4		3		1 3 4
Permitted Phases	6								4			
Actuated Green, G (s)	67.5	67.5			43.6			28.4	28.4	5.6		65.4
Effective Green, g (s)	67.5	67.5			43.6			28.4	28.4	5.6		53.4
Actuated g/C Ratio	0.56	0.56			0.36			0.24	0.24	0.05		0.44
Clearance Time (s)	4.5	6.5			6.5			6.0	6.0	6.0		
Vehicle Extension (s)	5.0	0.2			0.2			6.0	6.0	6.0		
Lane Grp Cap (vph)	344	1971			1867			441	375	83		709
v/s Ratio Prot	c0.11	0.35			0.25			c0.16		0.02		c0.27
v/s Ratio Perm	c0.28								0.06			
v/c Ratio	0.69	0.62			0.69			0.68	0.25	0.40		0.61
Uniform Delay, d1	26.3	17.6			32.4			41.6	37.1	55.6		25.4
Progression Factor	1.04	0.44			0.87			1.00	1.00	1.00		1.00
Incremental Delay, d2	6.7	1.3			1.3			6.3	1.0	8.6		2.3
Delay (s)	34.1	9.1			29.6			47.9	38.1	64.2		27.6
Level of Service	C	A			C			D	D	E		C
Approach Delay (s)		13.1			29.6			44.1			30.1	
Approach LOS		B			C			D			C	

Intersection Summary			
HCM 2000 Control Delay	25.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	23.0
Intersection Capacity Utilization	70.4%	ICU Level of Service	C
Analysis Period (min)	15		

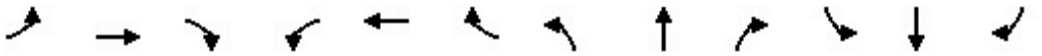
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	1285	15	5	1110	10	5	5	10	20	5	65
Future Volume (vph)	30	1285	15	5	1110	10	5	5	10	20	5	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	12	12	12	11	11	12	12	11	10	10	10
Grade (%)		1%			-2%			0%			-3%	
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0	4.0		4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00	1.00		1.00	
Frt	1.00	1.00		1.00	1.00			1.00	0.85		0.90	
Flt Protected	0.95	1.00		0.95	1.00			0.98	1.00		0.99	
Satd. Flow (prot)	1702	1850		1787	1816			1817	1531		1574	
Flt Permitted	0.17	1.00		0.08	1.00			0.84	1.00		0.93	
Satd. Flow (perm)	297	1850		156	1816			1570	1531		1474	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	33	1397	16	5	1207	11	5	5	11	22	5	71
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	10	0	65	0
Lane Group Flow (vph)	33	1413	0	5	1218	0	0	10	1	0	33	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		6			2			4			8	
Permitted Phases	6			2			4		4	8		
Actuated Green, G (s)	102.3	102.3		102.3	102.3			9.7	9.7		9.7	
Effective Green, g (s)	102.3	102.3		102.3	102.3			9.7	9.7		9.7	
Actuated g/C Ratio	0.85	0.85		0.85	0.85			0.08	0.08		0.08	
Clearance Time (s)	4.0	4.0		4.0	4.0			4.0	4.0		4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0		3.0	
Lane Grp Cap (vph)	253	1577		132	1548			126	123		119	
v/s Ratio Prot		c0.76			0.67							
v/s Ratio Perm	0.11			0.03				0.01	0.00		c0.02	
v/c Ratio	0.13	0.90		0.04	0.79			0.08	0.01		0.28	
Uniform Delay, d1	1.5	5.5		1.3	4.0			51.0	50.7		51.8	
Progression Factor	0.12	1.77		1.00	1.00			1.00	1.00		1.00	
Incremental Delay, d2	0.2	5.9		0.5	4.1			0.3	0.0		1.3	
Delay (s)	0.4	15.7		1.9	8.1			51.3	50.7		53.1	
Level of Service	A	B		A	A			D	D		D	
Approach Delay (s)		15.3			8.1			51.0			53.1	
Approach LOS		B			A			D			D	

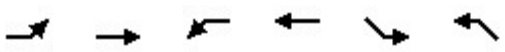
Intersection Summary			
HCM 2000 Control Delay	13.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	87.2%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	115	830	120	500	455	100	145	130	150	440	740	250
Future Volume (vph)	115	830	120	500	455	100	145	130	150	440	740	250
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		4%			-4%			-3%			-2%	
Total Lost time (s)	6.5	7.5	6.5	7.0	7.5	7.0	6.5	4.5	7.0	7.0	4.5	4.0
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1734	3468	1552	3502	3610	1615	1796	3592	1607	1787	3575	1599
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.16	1.00	1.00	0.50	1.00	1.00
Satd. Flow (perm)	1734	3468	1552	3502	3610	1615	298	3592	1607	944	3575	1599
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	125	902	130	543	495	109	158	141	163	478	804	272
RTOR Reduction (vph)	0	0	65	0	0	48	0	0	83	0	0	0
Lane Group Flow (vph)	125	902	65	543	495	61	158	141	80	478	804	272
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	pm+pt	NA	custom	pm+pt	NA	Free
Protected Phases	1	6	3	5	2	7	3	8	5	7	4	
Permitted Phases			6			2	8		6	4		Free
Actuated Green, G (s)	15.5	48.3	61.0	25.3	58.6	83.6	38.1	25.4	73.6	57.4	38.2	150.0
Effective Green, g (s)	15.5	48.3	61.0	25.3	58.6	83.6	38.1	25.4	73.6	57.4	38.2	150.0
Actuated g/C Ratio	0.10	0.32	0.41	0.17	0.39	0.56	0.25	0.17	0.49	0.38	0.25	1.00
Clearance Time (s)	6.5	7.5	6.5	7.0	7.5	7.0	6.5	4.5	7.0	7.0	4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	179	1116	631	590	1410	900	202	608	863	501	910	1599
v/s Ratio Prot	0.07	c0.26	0.01	c0.16	0.14	0.01	0.07	0.04	0.02	c0.16	0.22	
v/s Ratio Perm			0.03			0.03	0.13		0.03	c0.21		0.17
v/c Ratio	0.70	0.81	0.10	0.92	0.35	0.07	0.78	0.23	0.09	0.95	0.88	0.17
Uniform Delay, d1	65.0	46.6	27.6	61.4	32.3	15.3	46.9	53.9	20.4	41.9	53.8	0.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	11.3	6.3	0.1	19.8	0.7	0.0	17.7	0.2	0.0	28.7	10.2	0.2
Delay (s)	76.3	52.9	27.6	81.2	33.0	15.3	64.6	54.1	20.4	70.6	63.9	0.2
Level of Service	E	D	C	F	C	B	E	D	C	E	E	A
Approach Delay (s)		52.6			54.1			45.8			54.8	
Approach LOS		D			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	53.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	26.0
Intersection Capacity Utilization	87.4%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBL	WBT	SEL	NWL
Lane Configurations						
Traffic Volume (vph)	550	345	610	315	185	55
Future Volume (vph)	550	345	610	315	185	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	9.0	7.5	9.0	7.5	7.0	7.0
Lane Util. Factor	1.00	0.95	0.97	0.95	1.00	0.97
Frt	1.00	1.00	1.00	1.00	1.00	1.00
Flt Protected	0.95	1.00	0.95	1.00	0.95	0.95
Satd. Flow (prot)	1770	3539	3433	3539	1770	3433
Flt Permitted	0.95	1.00	0.95	1.00	0.95	0.95
Satd. Flow (perm)	1770	3539	3433	3539	1770	3433
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	598	375	663	342	201	60
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	598	375	663	342	201	60
Turn Type	Prot	NA	Prot	NA	Prot	Prot
Protected Phases	1	5	6	2	4	8
Permitted Phases						
Actuated Green, G (s)	54.0	20.0	55.5	21.5	21.0	21.0
Effective Green, g (s)	54.0	20.0	55.5	21.5	21.0	21.0
Actuated g/C Ratio	0.45	0.17	0.46	0.18	0.18	0.18
Clearance Time (s)	9.0	7.5	9.0	7.5	7.0	7.0
Lane Grp Cap (vph)	796	589	1587	634	309	600
v/s Ratio Prot	c0.34	0.11	0.19	c0.10	c0.11	0.02
v/s Ratio Perm						
v/c Ratio	0.75	0.64	0.42	0.54	0.65	0.10
Uniform Delay, d1	27.4	46.6	21.5	44.8	46.1	41.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	6.5	5.2	0.8	3.3	10.2	0.3
Delay (s)	33.9	51.8	22.3	48.0	56.3	41.9
Level of Service	C	D	C	D	E	D
Approach Delay (s)		40.8		31.1		
Approach LOS		D		C		

Intersection Summary			
HCM 2000 Control Delay	37.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	23.5
Intersection Capacity Utilization	76.5%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	5	325	865	40	10	520	75	50	5	10	35	5
Future Volume (vph)	5	325	865	40	10	520	75	50	5	10	35	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	11	11	11	11	11
Grade (%)			0%			-4%			-3%			0%
Total Lost time (s)		6.0	6.0		6.0	6.0		6.5	6.5			6.5
Lane Util. Factor		1.00	0.95		1.00	0.95		1.00	1.00			1.00
Frt		1.00	0.99		1.00	0.98		1.00	0.90			1.00
Flt Protected		0.95	1.00		0.95	1.00		0.95	1.00			0.96
Satd. Flow (prot)		1770	3516		1805	3541		1736	1639			1724
Flt Permitted		0.29	1.00		0.29	1.00		0.75	1.00			0.74
Satd. Flow (perm)		537	3516		554	3541		1379	1639			1331
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	353	940	43	11	565	82	54	5	11	38	5
RTOR Reduction (vph)	0	0	2	0	0	8	0	0	10	0	0	0
Lane Group Flow (vph)	0	358	981	0	11	639	0	54	6	0	0	43
Turn Type	pm+pt	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA
Protected Phases	1!	1	6			2			8			4
Permitted Phases	6!	6			2			8			4	
Actuated Green, G (s)		61.9	61.9		32.2	32.2		5.3	5.3			5.3
Effective Green, g (s)		61.9	61.9		32.2	32.2		5.3	5.3			5.3
Actuated g/C Ratio		0.78	0.78		0.40	0.40		0.07	0.07			0.07
Clearance Time (s)		6.0	6.0		6.0	6.0		6.5	6.5			6.5
Vehicle Extension (s)		3.0	3.0		3.0	3.0		3.0	3.0			3.0
Lane Grp Cap (vph)		783	2730		223	1430		91	108			88
v/s Ratio Prot		0.14	0.28			0.18			0.00			
v/s Ratio Perm		c0.22			0.02			0.04				0.03
v/c Ratio		0.46	0.36		0.05	0.45		0.59	0.05			0.49
Uniform Delay, d1		4.0	2.8		14.4	17.3		36.2	34.8			35.9
Progression Factor		1.00	1.00		1.00	1.00		1.00	1.00			1.00
Incremental Delay, d2		0.4	0.1		0.4	1.0		10.0	0.2			4.2
Delay (s)		4.4	2.8		14.9	18.3		46.1	35.1			40.1
Level of Service		A	A		B	B		D	D			D
Approach Delay (s)			3.3			18.2			43.6			42.5
Approach LOS			A			B			D			D

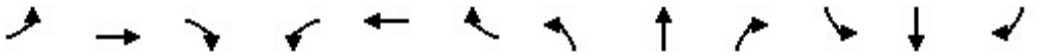
Intersection Summary			
HCM 2000 Control Delay	16.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	79.7	Sum of lost time (s)	18.5
Intersection Capacity Utilization	90.4%	ICU Level of Service	E
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group



Movement	SBR
Lane Configurations	
Traffic Volume (vph)	510
Future Volume (vph)	510
Ideal Flow (vphpl)	1900
Lane Width	11
Grade (%)	
Total Lost time (s)	6.0
Lane Util. Factor	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1531
Flt Permitted	1.00
Satd. Flow (perm)	1531
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	554
RTOR Reduction (vph)	48
Lane Group Flow (vph)	506
Turn Type	pm+ov
Protected Phases	1!
Permitted Phases	4
Actuated Green, G (s)	29.0
Effective Green, g (s)	29.0
Actuated g/C Ratio	0.36
Clearance Time (s)	6.0
Vehicle Extension (s)	3.0
Lane Grp Cap (vph)	557
v/s Ratio Prot	c0.27
v/s Ratio Perm	0.06
v/c Ratio	0.91
Uniform Delay, d1	24.1
Progression Factor	1.00
Incremental Delay, d2	18.6
Delay (s)	42.7
Level of Service	D
Approach Delay (s)	
Approach LOS	

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	155	460	180	260	780	250	140	800	460	120	185	130
Future Volume (vph)	155	460	180	260	780	250	140	800	460	120	185	130
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		4%			-4%			-3%			-2%	
Total Lost time (s)	6.5	7.5	6.5	7.0	7.5	7.0	6.5	4.5	7.0	7.0	4.5	4.0
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1734	3468	1552	3502	3610	1615	1796	3592	1607	1787	3575	1599
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.63	1.00	1.00	0.09	1.00	1.00
Satd. Flow (perm)	1734	3468	1552	3502	3610	1615	1183	3592	1607	169	3575	1599
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	168	500	196	283	848	272	152	870	500	130	201	141
RTOR Reduction (vph)	0	0	114	0	0	46	0	0	267	0	0	0
Lane Group Flow (vph)	168	500	82	283	848	226	152	870	233	130	201	141
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	pm+pt	NA	custom	pm+pt	NA	Free
Protected Phases	1	6	3	5	2	7	3	8	5	7	4	
Permitted Phases			6			2	8		6	4		Free
Actuated Green, G (s)	18.3	52.5	62.5	17.4	52.1	65.1	51.1	41.1	69.9	57.6	44.6	150.0
Effective Green, g (s)	18.3	52.5	62.5	17.4	52.1	65.1	51.1	41.1	69.9	57.6	44.6	150.0
Actuated g/C Ratio	0.12	0.35	0.42	0.12	0.35	0.43	0.34	0.27	0.47	0.38	0.30	1.00
Clearance Time (s)	6.5	7.5	6.5	7.0	7.5	7.0	6.5	4.5	7.0	7.0	4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	211	1213	646	406	1253	700	443	984	823	205	1062	1599
v/s Ratio Prot	c0.10	0.14	0.01	0.08	c0.23	0.03	0.02	c0.24	c0.03	c0.05	0.06	
v/s Ratio Perm			0.04			0.11	0.09		0.11	c0.19		0.09
v/c Ratio	0.80	0.41	0.13	0.70	0.68	0.32	0.34	0.88	0.28	0.63	0.19	0.09
Uniform Delay, d1	64.0	37.0	26.9	63.8	41.8	27.9	35.6	52.2	24.6	35.8	39.2	0.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	18.5	1.0	0.1	5.2	2.9	0.3	0.5	9.5	0.2	6.3	0.1	0.1
Delay (s)	82.5	38.1	27.0	68.9	44.7	28.2	36.1	61.7	24.8	42.1	39.3	0.1
Level of Service	F	D	C	E	D	C	D	E	C	D	D	A
Approach Delay (s)		44.2			46.4			47.0			28.4	
Approach LOS		D			D			D			C	

Intersection Summary			
HCM 2000 Control Delay	44.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	26.0
Intersection Capacity Utilization	78.1%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBL	WBT	SEL	NWL
Lane Configurations						
Traffic Volume (vph)	485	425	540	305	305	290
Future Volume (vph)	485	425	540	305	305	290
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	9.0	7.5	9.0	7.5	7.0	7.0
Lane Util. Factor	1.00	0.95	0.97	0.95	1.00	0.97
Frt	1.00	1.00	1.00	1.00	1.00	1.00
Flt Protected	0.95	1.00	0.95	1.00	0.95	0.95
Satd. Flow (prot)	1770	3539	3433	3539	1770	3433
Flt Permitted	0.95	1.00	0.95	1.00	0.95	0.95
Satd. Flow (perm)	1770	3539	3433	3539	1770	3433
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	527	462	587	332	332	315
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	527	462	587	332	332	315
Turn Type	Prot	NA	Prot	NA	Prot	Prot
Protected Phases	1	5	6	2	4	8
Permitted Phases						
Actuated Green, G (s)	71.0	32.5	66.0	27.5	48.0	48.0
Effective Green, g (s)	71.0	32.5	66.0	27.5	48.0	48.0
Actuated g/C Ratio	0.42	0.19	0.39	0.16	0.28	0.28
Clearance Time (s)	9.0	7.5	9.0	7.5	7.0	7.0
Lane Grp Cap (vph)	739	676	1332	572	499	969
v/s Ratio Prot	c0.30	0.13	0.17	c0.09	c0.19	0.09
v/s Ratio Perm						
v/c Ratio	0.71	0.68	0.44	0.58	0.67	0.33
Uniform Delay, d1	41.1	64.0	38.4	65.9	53.9	48.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	5.8	5.5	1.1	4.3	6.9	0.9
Delay (s)	46.8	69.5	39.4	70.2	60.8	49.1
Level of Service	D	E	D	E	E	D
Approach Delay (s)		57.4		50.5		
Approach LOS		E		D		

Intersection Summary			
HCM 2000 Control Delay	54.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	170.0	Sum of lost time (s)	23.5
Intersection Capacity Utilization	78.8%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	10	335	860	50	5	730	20	45	5	5	10	10
Future Volume (vph)	10	335	860	50	5	730	20	45	5	5	10	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	11	11	11	11	11
Grade (%)			0%			-4%			-3%			0%
Total Lost time (s)		6.0	6.0		6.0	6.0		6.5	6.5			6.5
Lane Util. Factor		1.00	0.95		1.00	0.95		1.00	1.00			1.00
Frt		1.00	0.99		1.00	1.00		1.00	0.93			1.00
Flt Protected		0.95	1.00		0.95	1.00		0.95	1.00			0.98
Satd. Flow (prot)		1770	3510		1805	3595		1736	1691			1757
Flt Permitted		0.25	1.00		0.29	1.00		0.74	1.00			0.84
Satd. Flow (perm)		461	3510		551	3595		1358	1691			1507
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	11	364	935	54	5	793	22	49	5	5	11	11
RTOR Reduction (vph)	0	0	2	0	0	1	0	0	5	0	0	0
Lane Group Flow (vph)	0	375	987	0	5	814	0	49	5	0	0	22
Turn Type	pm+pt	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA
Protected Phases	1!	1	6			2			8			4
Permitted Phases	6!	6			2			8			4	
Actuated Green, G (s)		65.5	65.5		41.1	41.1		5.5	5.5			5.5
Effective Green, g (s)		65.5	65.5		41.1	41.1		5.5	5.5			5.5
Actuated g/C Ratio		0.78	0.78		0.49	0.49		0.07	0.07			0.07
Clearance Time (s)		6.0	6.0		6.0	6.0		6.5	6.5			6.5
Vehicle Extension (s)		3.0	3.0		3.0	3.0		3.0	3.0			3.0
Lane Grp Cap (vph)		650	2753		271	1769		89	111			99
v/s Ratio Prot		0.13	0.28			0.23			0.00			
v/s Ratio Perm		c0.33			0.01			0.04				0.01
v/c Ratio		0.58	0.36		0.02	0.46		0.55	0.05			0.22
Uniform Delay, d1		5.0	2.7		10.9	13.9		37.8	36.5			37.0
Progression Factor		1.00	1.00		1.00	1.00		1.00	1.00			1.00
Incremental Delay, d2		1.2	0.1		0.1	0.9		7.2	0.2			1.1
Delay (s)		6.2	2.8		11.0	14.8		45.0	36.7			38.1
Level of Service		A	A		B	B		D	D			D
Approach Delay (s)			3.7			14.8			43.6			46.5
Approach LOS			A			B			D			D

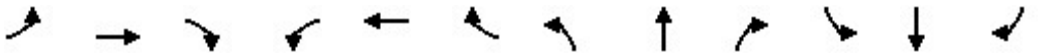
Intersection Summary			
HCM 2000 Control Delay	15.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	83.5	Sum of lost time (s)	18.5
Intersection Capacity Utilization	87.5%	ICU Level of Service	E
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group



Movement	SBR
Lane Configurations	
Traffic Volume (vph)	385
Future Volume (vph)	385
Ideal Flow (vphpl)	1900
Lane Width	11
Grade (%)	
Total Lost time (s)	6.0
Lane Util. Factor	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1531
Flt Permitted	1.00
Satd. Flow (perm)	1531
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	418
RTOR Reduction (vph)	31
Lane Group Flow (vph)	387
Turn Type	pm+ov
Protected Phases	1!
Permitted Phases	4
Actuated Green, G (s)	23.9
Effective Green, g (s)	23.9
Actuated g/C Ratio	0.29
Clearance Time (s)	6.0
Vehicle Extension (s)	3.0
Lane Grp Cap (vph)	438
v/s Ratio Prot	c0.19
v/s Ratio Perm	0.06
v/c Ratio	0.88
Uniform Delay, d1	28.5
Progression Factor	1.00
Incremental Delay, d2	18.5
Delay (s)	47.0
Level of Service	D
Approach Delay (s)	
Approach LOS	

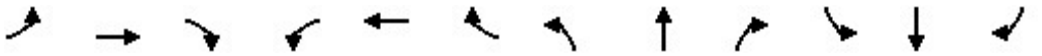
Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	680	660	480	260	30	145	15	220	5	25	10
Future Volume (vph)	20	680	660	480	260	30	145	15	220	5	25	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.5	6.0	6.0		6.5	6.5	4.0		6.5	6.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		0.95	0.95	1.00		1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.98		1.00	1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	0.96	1.00		0.99	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3484		1681	1700	1583		1848	1583
Flt Permitted	0.56	1.00	1.00	0.16	1.00		0.95	0.96	1.00		0.99	1.00
Satd. Flow (perm)	1043	3539	1583	305	3484		1681	1700	1583		1848	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	22	739	717	522	283	33	158	16	239	5	27	11
RTOR Reduction (vph)	0	0	455	0	6	0	0	0	0	0	0	10
Lane Group Flow (vph)	22	739	262	522	310	0	87	87	239	0	32	1
Turn Type	Perm	NA	pm+ov	pm+pt	NA		Split	NA	Free	Split	NA	Perm
Protected Phases		6	3	5	2		3	3		4	4	
Permitted Phases	6		6	2					Free			4
Actuated Green, G (s)	18.4	18.4	32.9	52.3	52.3		14.5	14.5	90.0		4.2	4.2
Effective Green, g (s)	18.4	18.4	32.9	52.3	52.3		14.5	14.5	90.0		4.2	4.2
Actuated g/C Ratio	0.20	0.20	0.37	0.58	0.58		0.16	0.16	1.00		0.05	0.05
Clearance Time (s)	6.0	6.0	6.5	6.0	6.0		6.5	6.5			6.5	6.5
Vehicle Extension (s)	3.0	3.0	4.0	2.0	3.0		4.0	4.0			2.0	2.0
Lane Grp Cap (vph)	213	723	578	631	2024		270	273	1583		86	73
v/s Ratio Prot		c0.21	c0.07	c0.26	0.09		0.05	0.05			0.02	
v/s Ratio Perm	0.02		0.09	0.22					c0.15			0.00
v/c Ratio	0.10	1.02	0.45	0.83	0.15		0.32	0.32	0.15		0.37	0.01
Uniform Delay, d1	29.1	35.8	21.7	20.4	8.7		33.4	33.4	0.0		41.6	40.9
Progression Factor	1.00	1.00	1.00	0.61	0.47		1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	1.0	39.2	0.8	8.1	0.2		0.9	0.9	0.2		1.0	0.0
Delay (s)	30.1	75.0	22.5	20.6	4.2		34.3	34.3	0.2		42.6	40.9
Level of Service	C	E	C	C	A		C	C	A		D	D
Approach Delay (s)		48.8			14.5			14.6			42.2	
Approach LOS		D			B			B			D	

Intersection Summary			
HCM 2000 Control Delay	33.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	25.0
Intersection Capacity Utilization	87.5%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	655	230	565	710	25	55	20	430	10	20	5
Future Volume (veh/h)	20	655	230	565	710	25	55	20	430	10	20	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	22	712	0	614	772	27	60	22	0	11	22	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	42	1468		690	2074	925	241	322		196	236	
Arrive On Green	0.02	0.41	0.00	0.20	0.58	0.58	0.04	0.09	0.00	0.01	0.07	0.00
Sat Flow, veh/h	1781	3554	1585	3456	3554	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	22	712	0	614	772	27	60	22	0	11	22	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1728	1777	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	1.1	13.2	0.0	15.6	10.4	0.6	2.8	0.5	0.0	0.5	0.5	0.0
Cycle Q Clear(g_c), s	1.1	13.2	0.0	15.6	10.4	0.6	2.8	0.5	0.0	0.5	0.5	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	42	1468		690	2074	925	241	322		196	236	
V/C Ratio(X)	0.53	0.49		0.89	0.37	0.03	0.25	0.07		0.06	0.09	
Avail Cap(c_a), veh/h	148	1468		730	2074	925	352	513		350	513	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	43.4	19.4	0.0	35.1	10.0	7.9	36.9	37.4	0.0	38.3	39.5	0.0
Incr Delay (d2), s/veh	3.8	1.1	0.0	12.7	0.5	0.1	0.2	0.0	0.0	0.0	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	5.3	0.0	7.4	3.6	0.2	1.2	0.2	0.0	0.2	0.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.2	20.5	0.0	47.7	10.5	8.0	37.1	37.5	0.0	38.4	39.6	0.0
LnGrp LOS	D	C		D	B	A	D	D		D	D	
Approach Vol, veh/h		734	A		1413			82	A		33	A
Approach Delay, s/veh		21.3			26.6			37.2			39.2	
Approach LOS		C			C			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.6	59.0	7.2	14.2	25.0	43.7	9.4	12.0
Change Period (Y+Rc), s	7.5	* 6.5	6.0	6.0	7.0	6.5	5.5	6.0
Max Green Setting (Gmax), s	7.5	* 36	9.0	13.0	19.0	23.5	9.5	13.0
Max Q Clear Time (g_c+I1), s	3.1	12.4	2.5	2.5	17.6	15.2	4.8	2.5
Green Ext Time (p_c), s	0.0	5.3	0.0	0.0	0.4	2.9	0.0	0.0

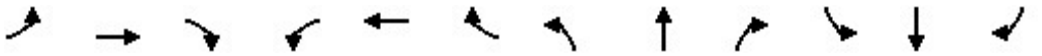
Intersection Summary	
HCM 6th Ctrl Delay	25.5
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

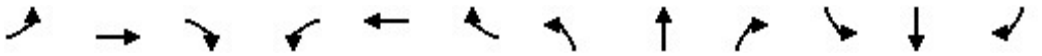
Unsignalized Delay for [NBR, EBR, SBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	380	225	330	570	5	875	10	410	10	10	10
Future Volume (vph)	5	380	225	330	570	5	875	10	410	10	10	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.5	6.0	6.0		6.5	6.5	4.0		6.5	6.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		0.95	0.95	1.00		1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	0.95	1.00		0.98	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3535		1681	1687	1583		1817	1583
Flt Permitted	0.41	1.00	1.00	0.30	1.00		0.95	0.95	1.00		0.98	1.00
Satd. Flow (perm)	773	3539	1583	567	3535		1681	1687	1583		1817	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	413	245	359	620	5	951	11	446	11	11	11
RTOR Reduction (vph)	0	0	120	0	1	0	0	0	0	0	0	11
Lane Group Flow (vph)	5	413	125	359	624	0	485	477	446	0	22	0
Turn Type	Perm	NA	pm+ov	pm+pt	NA		Split	NA	Free	Split	NA	Perm
Protected Phases		6	3	5	2		3	3		4	4	
Permitted Phases	6		6	2					Free			4
Actuated Green, G (s)	18.4	18.4	45.9	39.7	39.7		27.5	27.5	90.0		3.8	3.8
Effective Green, g (s)	18.4	18.4	45.9	39.7	39.7		27.5	27.5	90.0		3.8	3.8
Actuated g/C Ratio	0.20	0.20	0.51	0.44	0.44		0.31	0.31	1.00		0.04	0.04
Clearance Time (s)	6.0	6.0	6.5	6.0	6.0		6.5	6.5			6.5	6.5
Vehicle Extension (s)	3.0	3.0	4.0	2.0	3.0		4.0	4.0			2.0	2.0
Lane Grp Cap (vph)	158	723	807	454	1559		513	515	1583		76	66
v/s Ratio Prot		0.12	0.05	c0.13	0.18		c0.29	0.28			0.01	
v/s Ratio Perm	0.01		0.03	c0.21					c0.28			0.00
v/c Ratio	0.03	0.57	0.15	0.79	0.40		0.95	0.93	0.28		0.29	0.01
Uniform Delay, d1	28.7	32.2	11.7	18.5	17.1		30.5	30.3	0.0		41.8	41.3
Progression Factor	1.00	1.00	1.00	1.00	0.95		1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.4	3.3	0.1	7.8	0.7		26.7	23.0	0.4		0.8	0.0
Delay (s)	29.0	35.5	11.9	26.4	16.9		57.2	53.3	0.4		42.6	41.3
Level of Service	C	D	B	C	B		E	D	A		D	D
Approach Delay (s)		26.7			20.4			37.9			42.1	
Approach LOS		C			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	30.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	25.0
Intersection Capacity Utilization	77.4%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	740	45	245	710	25	180	10	860	50	25	15
Future Volume (veh/h)	15	740	45	245	710	25	180	10	860	50	25	15
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	16	804	0	266	772	27	196	11	0	54	27	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	33	1639		307	1870	834	345	446		266	284	
Arrive On Green	0.02	0.46	0.00	0.09	0.53	0.53	0.09	0.13	0.00	0.04	0.08	0.00
Sat Flow, veh/h	1781	3554	1585	3456	3554	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	16	804	0	266	772	27	196	11	0	54	27	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1728	1777	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	0.8	14.2	0.0	6.8	11.8	0.7	8.3	0.2	0.0	2.5	0.6	0.0
Cycle Q Clear(g_c), s	0.8	14.2	0.0	6.8	11.8	0.7	8.3	0.2	0.0	2.5	0.6	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	33	1639		307	1870	834	345	446		266	284	
V/C Ratio(X)	0.49	0.49		0.87	0.41	0.03	0.57	0.02		0.20	0.09	
Avail Cap(c_a), veh/h	99	1639		307	1870	834	345	1027		351	1035	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	43.8	16.9	0.0	40.5	12.9	10.3	34.2	34.5	0.0	35.8	38.4	0.0
Incr Delay (d2), s/veh	4.2	1.1	0.0	21.9	0.7	0.1	1.4	0.0	0.0	0.1	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	5.5	0.0	3.7	4.4	0.3	4.0	0.1	0.0	1.1	0.3	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.9	17.9	0.0	62.4	13.6	10.4	35.6	34.5	0.0	36.0	38.5	0.0
LnGrp LOS	D	B		E	B	B	D	C		D	D	
Approach Vol, veh/h		820	A		1065			207	A		81	A
Approach Delay, s/veh		18.5			25.7			35.6			36.8	
Approach LOS		B			C			D			D	

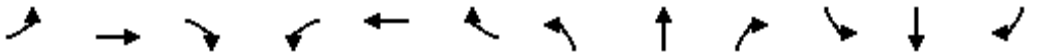
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.1	53.9	9.7	17.3	15.0	48.0	13.8	13.2
Change Period (Y+Rc), s	7.5	* 6.5	6.0	6.0	7.0	6.5	5.5	6.0
Max Green Setting (Gmax), s	5.0	* 26	8.0	26.0	8.0	22.5	8.3	26.2
Max Q Clear Time (g_c+I1), s	2.8	13.8	4.5	2.2	8.8	16.2	10.3	2.6
Green Ext Time (p_c), s	0.0	4.0	0.0	0.0	0.0	2.7	0.0	0.1

Intersection Summary	
HCM 6th Ctrl Delay	24.3
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [NBR, EBR, SBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	65	240	55	395	200	115	15	200	620	450	640	65
Future Volume (vph)	65	240	55	395	200	115	15	200	620	450	640	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	11	11	11	12	12	9	11	13	12	11	11
Grade (%)		-4%			2%			-1%			-2%	
Total Lost time (s)	5.5	5.5		6.0	6.0	5.5	5.5	5.5	4.0	5.5	5.5	
Lane Util. Factor	1.00	0.95		0.91	0.91	1.00	1.00	0.95	1.00	*0.99	0.95	
Frt	1.00	0.97		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00		0.95	0.98	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1805	3392		1541	3275	1567	1601	3438	1644	3539	3407	
Flt Permitted	0.95	1.00		0.95	0.98	1.00	0.36	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1805	3392		1541	3275	1567	608	3438	1644	3539	3407	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	71	261	60	429	217	125	16	217	674	489	696	71
RTOR Reduction (vph)	0	16	0	0	0	72	0	0	0	0	6	0
Lane Group Flow (vph)	71	305	0	214	432	53	16	217	674	489	761	0
Turn Type	Split	NA		Split	NA	pt+ov	Perm	NA	Free	Prot	NA	
Protected Phases	3	3		4	4	1 4		2		1	6	
Permitted Phases							2		Free			
Actuated Green, G (s)	17.5	17.5		29.9	29.9	57.2	28.8	28.8	120.0	21.3	55.6	
Effective Green, g (s)	17.5	17.5		29.9	29.9	51.2	28.8	28.8	120.0	21.3	55.6	
Actuated g/C Ratio	0.15	0.15		0.25	0.25	0.43	0.24	0.24	1.00	0.18	0.46	
Clearance Time (s)	5.5	5.5		6.0	6.0		5.5	5.5		5.5	5.5	
Vehicle Extension (s)	4.0	4.0		4.0	4.0		0.2	0.2		3.0	0.2	
Lane Grp Cap (vph)	263	494		383	816	668	145	825	1644	628	1578	
v/s Ratio Prot	0.04	c0.09		c0.14	0.13	0.03		0.06		c0.14	c0.22	
v/s Ratio Perm							0.03		0.41			
v/c Ratio	0.27	0.62		0.56	0.53	0.08	0.11	0.26	0.41	0.78	0.48	
Uniform Delay, d1	45.6	48.1		39.3	39.0	20.4	35.6	37.0	0.0	47.1	22.2	
Progression Factor	1.00	1.00		0.84	0.84	0.54	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	2.5	5.7		5.5	2.3	0.0	1.5	0.8	0.8	6.1	1.1	
Delay (s)	48.1	53.8		38.6	35.1	11.1	37.1	37.8	0.8	53.2	23.3	
Level of Service	D	D		D	D	B	D	D	A	D	C	
Approach Delay (s)		52.8			32.2			10.3			34.9	
Approach LOS		D			C			B			C	

Intersection Summary			
HCM 2000 Control Delay	29.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	22.5
Intersection Capacity Utilization	63.2%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	4.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	1290	20	0	605	220	0	0	220	0	0	105
Future Vol, veh/h	0	1290	20	0	605	220	0	0	220	0	0	105
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	2	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	1402	22	0	658	239	0	0	239	0	0	114

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	-	-	0	-	-	712	-	-	449
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	-	-	-	7.14	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	-	-	-	3.92	-	-	3.92
Pot Cap-1 Maneuver	0	-	-	0	-	-	0	0	322	0	0	477
Stage 1	0	-	-	0	-	-	0	0	-	0	0	-
Stage 2	0	-	-	0	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	-	-	-	-	-	-	-	-	322	-	-	477
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	42.5	14.9
HCM LOS			E	B

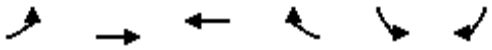
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT	WBR	SBLn1
Capacity (veh/h)	322	-	-	-	-	477
HCM Lane V/C Ratio	0.743	-	-	-	-	0.239
HCM Control Delay (s)	42.5	-	-	-	-	14.9
HCM Lane LOS	E	-	-	-	-	B
HCM 95th %tile Q(veh)	5.6	-	-	-	-	0.9



Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBR	SBR2	NEL	NER
Lane Configurations											
Traffic Volume (vph)	160	1230	0	0	2070	135	230	0	510	0	675
Future Volume (vph)	160	1230	0	0	2070	135	230	0	510	0	675
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	11	12	12	11	12	12	12	12	12	12
Grade (%)		0%			-3%		-4%			0%	
Total Lost time (s)	4.5	6.5			6.5	6.5	6.0		6.0		4.5
Lane Util. Factor	1.00	0.95			0.91	1.00	0.97		0.88		1.00
Frt	1.00	1.00			1.00	0.85	1.00		0.85		0.86
Flt Protected	0.95	1.00			1.00	1.00	0.95		1.00		1.00
Satd. Flow (prot)	1711	3421			4990	1607	3502		2842		1611
Flt Permitted	0.05	1.00			1.00	1.00	0.95		1.00		1.00
Satd. Flow (perm)	95	3421			4990	1607	3502		2842		1611
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	174	1337	0	0	2250	147	250	0	554	0	734
RTOR Reduction (vph)	0	0	0	0	0	60	0	0	415	0	0
Lane Group Flow (vph)	174	1337	0	0	2250	87	250	0	139	0	734
Turn Type	pm+pt	NA			NA	Perm	Prot		Perm		Perm
Protected Phases	1	6			2		4				
Permitted Phases	6					2			4		1 2 4 6
Actuated Green, G (s)	94.5	94.5			71.4	71.4	13.0		13.0		120.0
Effective Green, g (s)	94.5	94.5			71.4	71.4	13.0		13.0		107.5
Actuated g/C Ratio	0.79	0.79			0.60	0.60	0.11		0.11		0.90
Clearance Time (s)	4.5	6.5			6.5	6.5	6.0		6.0		
Vehicle Extension (s)	6.0	0.2			0.2	0.2	3.0		3.0		
Lane Grp Cap (vph)	325	2694			2969	956	379		307		1443
v/s Ratio Prot	0.08	0.39			c0.45		c0.07				
v/s Ratio Perm	0.34					0.05			0.05		c0.46
v/c Ratio	0.54	0.50			0.76	0.09	0.66		0.45		0.51
Uniform Delay, d1	29.4	4.4			17.9	10.4	51.4		50.2		1.2
Progression Factor	0.98	0.82			1.00	1.00	1.00		1.00		1.00
Incremental Delay, d2	4.0	0.7			1.9	0.2	8.7		4.8		0.8
Delay (s)	32.8	4.3			19.8	10.6	60.1		55.0		2.0
Level of Service	C	A			B	B	E		D		A
Approach Delay (s)		7.6			19.2		56.5			2.0	
Approach LOS		A			B		E			A	

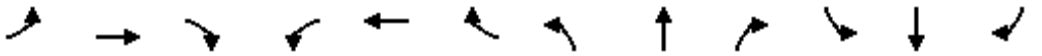
Intersection Summary			
HCM 2000 Control Delay	19.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	Err%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑			↱
Traffic Volume (vph)	0	2135	2200	5	0	5
Future Volume (vph)	0	2135	2200	5	0	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)		1%	-3%		0%	
Total Lost time (s)		5.0	5.0			4.0
Lane Util. Factor		0.91	0.91			1.00
Frt		1.00	1.00			0.86
Flt Protected		1.00	1.00			1.00
Satd. Flow (prot)		5060	5160			1611
Flt Permitted		1.00	1.00			1.00
Satd. Flow (perm)		5060	5160			1611
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	2321	2391	5	0	5
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	2321	2396	0	0	5
Turn Type		NA	NA			Free
Protected Phases		2	6			
Permitted Phases						Free
Actuated Green, G (s)		95.7	95.7			109.7
Effective Green, g (s)		95.7	95.7			109.7
Actuated g/C Ratio		0.87	0.87			1.00
Clearance Time (s)		5.0	5.0			
Vehicle Extension (s)		5.0	5.0			
Lane Grp Cap (vph)		4414	4501			1611
v/s Ratio Prot		0.46	c0.46			
v/s Ratio Perm						c0.00
v/c Ratio		0.53	0.53			0.00
Uniform Delay, d1		1.7	1.7			0.0
Progression Factor		1.00	1.00			1.00
Incremental Delay, d2		0.2	0.2			0.0
Delay (s)		1.9	1.9			0.0
Level of Service		A	A			A
Approach Delay (s)		1.9	1.9		0.0	
Approach LOS		A	A		A	

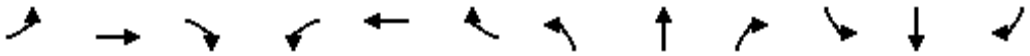
Intersection Summary			
HCM 2000 Control Delay	1.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	109.7	Sum of lost time (s)	9.0
Intersection Capacity Utilization	46.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	2050	80	10	2025	10	120	5	25	30	5	60
Future Volume (veh/h)	5	2050	80	10	2025	10	120	5	25	30	5	60
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1864	1864	1864	1908	1988	1988	1870	1945	1945	1864	1864	1864
Adj Flow Rate, veh/h	5	2228	87	11	2201	11	130	5	27	33	5	65
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	162	3235	126	157	3617	18	237	41	224	273	18	233
Arrive On Green	0.01	0.64	0.64	0.01	0.65	0.65	0.16	0.16	0.16	0.16	0.16	0.16
Sat Flow, veh/h	1776	5027	195	1818	5573	28	1331	264	1425	1373	114	1483
Grp Volume(v), veh/h	5	1501	814	11	1429	783	130	0	32	33	0	70
Grp Sat Flow(s),veh/h/ln	1776	1697	1829	1818	1809	1983	1331	0	1689	1373	0	1597
Q Serve(g_s), s	0.1	25.4	25.7	0.2	20.6	20.6	8.6	0.0	1.5	1.9	0.0	3.5
Cycle Q Clear(g_c), s	0.1	25.4	25.7	0.2	20.6	20.6	12.1	0.0	1.5	3.4	0.0	3.5
Prop In Lane	1.00		0.11	1.00		0.01	1.00		0.84	1.00		0.93
Lane Grp Cap(c), veh/h	162	2184	1177	157	2348	1287	237	0	265	273	0	251
V/C Ratio(X)	0.03	0.69	0.69	0.07	0.61	0.61	0.55	0.00	0.12	0.12	0.00	0.28
Avail Cap(c_a), veh/h	234	2184	1177	220	2348	1287	258	0	291	294	0	275
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.87	0.87	0.87	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	7.9	10.3	10.3	9.4	9.2	9.2	38.8	0.0	32.6	34.1	0.0	33.5
Incr Delay (d2), s/veh	0.1	1.6	2.9	0.2	1.2	2.2	2.0	0.0	0.2	0.2	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	8.0	9.1	0.1	6.8	7.8	2.9	0.0	0.6	0.7	0.0	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	8.0	11.8	13.2	9.6	10.3	11.3	40.8	0.0	32.8	34.2	0.0	34.1
LnGrp LOS	A	B	B	A	B	B	D	A	C	C	A	C
Approach Vol, veh/h		2320			2223			162			103	
Approach Delay, s/veh		12.3			10.7			39.2			34.1	
Approach LOS		B			B			D			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.0	63.4		20.6	6.5	62.9		20.6				
Change Period (Y+Rc), s	5.5	5.0		6.5	5.5	5.0		6.5				
Max Green Setting (Gmax), s	4.1	53.4		15.5	4.1	53.4		15.5				
Max Q Clear Time (g_c+I1), s	2.1	22.6		5.5	2.2	27.7		14.1				
Green Ext Time (p_c), s	0.0	20.4		0.3	0.0	18.9		0.1				

Intersection Summary			
HCM 6th Ctrl Delay		12.9	
HCM 6th LOS		B	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	670	15	30	245	20	645	10	65	5	5	5
Future Volume (vph)	15	670	15	30	245	20	645	10	65	5	5	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			5.5		6.0	6.0	6.0		6.0	
Lane Util. Factor		0.95			0.95		0.95	0.95	1.00		1.00	
Frt		1.00			0.99		1.00	1.00	0.85		0.95	
Flt Protected		1.00			0.99		0.95	0.95	1.00		0.98	
Satd. Flow (prot)		3524			3485		1681	1688	1583		1750	
Flt Permitted		0.94			0.84		0.95	0.95	1.00		0.98	
Satd. Flow (perm)		3328			2934		1681	1688	1583		1750	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	16	728	16	33	266	22	701	11	71	5	5	5
RTOR Reduction (vph)	0	2	0	0	6	0	0	0	47	0	5	0
Lane Group Flow (vph)	0	758	0	0	315	0	358	354	24	0	10	0
Turn Type	Perm	NA		Perm	NA		Split	NA	Perm	Split	NA	
Protected Phases		8			4		2	2		6	6	
Permitted Phases	8			4					2			
Actuated Green, G (s)		19.9			20.4		19.4	19.4	19.4		0.9	
Effective Green, g (s)		19.9			20.4		19.4	19.4	19.4		0.9	
Actuated g/C Ratio		0.34			0.35		0.33	0.33	0.33		0.02	
Clearance Time (s)		6.0			5.5		6.0	6.0	6.0		6.0	
Vehicle Extension (s)		4.0			4.0		2.0	2.0	2.0		2.0	
Lane Grp Cap (vph)		1137			1028		560	562	527		27	
v/s Ratio Prot							c0.21	0.21			c0.01	
v/s Ratio Perm		c0.23			0.11				0.01			
v/c Ratio		0.67			0.31		0.64	0.63	0.04		0.37	
Uniform Delay, d1		16.3			13.7		16.4	16.4	13.1		28.4	
Progression Factor		1.00			1.00		1.00	1.00	1.00		1.00	
Incremental Delay, d2		1.6			0.2		5.5	5.3	0.2		3.1	
Delay (s)		18.0			14.0		21.9	21.7	13.3		31.5	
Level of Service		B			B		C	C	B		C	
Approach Delay (s)		18.0			14.0			21.0			31.5	
Approach LOS		B			B			C			C	

Intersection Summary			
HCM 2000 Control Delay	18.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	58.2	Sum of lost time (s)	18.0
Intersection Capacity Utilization	65.4%	ICU Level of Service	C
Analysis Period (min)	15		

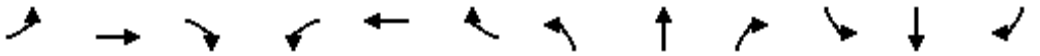
c Critical Lane Group



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	5	5	845	50	40	695
Future Volume (vph)	5	5	845	50	40	695
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0		6.0	6.0	6.0	6.0
Lane Util. Factor	0.97		0.95	1.00	1.00	0.91
Frt	0.93		1.00	0.85	1.00	1.00
Flt Protected	0.98		1.00	1.00	0.95	1.00
Satd. Flow (prot)	3261		3539	1583	1770	5085
Flt Permitted	0.98		1.00	1.00	0.30	1.00
Satd. Flow (perm)	3261		3539	1583	559	5085
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	5	918	54	43	755
RTOR Reduction (vph)	5	0	0	17	0	0
Lane Group Flow (vph)	5	0	918	37	43	755
Turn Type	Prot		NA	Perm	pm+pt	NA
Protected Phases	4		2		1	6
Permitted Phases				2	6	
Actuated Green, G (s)	1.0		45.3	45.3	53.5	53.5
Effective Green, g (s)	1.0		45.3	45.3	53.5	53.5
Actuated g/C Ratio	0.02		0.68	0.68	0.80	0.80
Clearance Time (s)	6.0		6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	49		2410	1078	489	4090
v/s Ratio Prot	c0.00		c0.26		0.00	c0.15
v/s Ratio Perm				0.02	0.07	
v/c Ratio	0.10		0.38	0.03	0.09	0.18
Uniform Delay, d1	32.3		4.6	3.5	1.8	1.5
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	0.9		0.5	0.1	0.1	0.1
Delay (s)	33.2		5.0	3.5	1.9	1.6
Level of Service	C		A	A	A	A
Approach Delay (s)	33.2		4.9			1.6
Approach LOS	C		A			A

Intersection Summary			
HCM 2000 Control Delay	3.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	66.5	Sum of lost time (s)	18.0
Intersection Capacity Utilization	46.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	65	350	35	710	610	515	70	590	535	175	385	85
Future Volume (vph)	65	350	35	710	610	515	70	590	535	175	385	85
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	11	11	11	12	12	9	11	13	12	11	11
Grade (%)		-4%			2%			-1%			-2%	
Total Lost time (s)	5.5	5.5		6.0	6.0	5.5	5.5	5.5	4.0	5.5	5.5	
Lane Util. Factor	1.00	0.95		0.91	0.91	1.00	1.00	0.95	1.00	*0.99	0.95	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.97	
Flt Protected	0.95	1.00		0.95	0.98	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1805	3442		1541	3305	1567	1601	3438	1644	3539	3362	
Flt Permitted	0.95	1.00		0.95	0.98	1.00	0.46	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1805	3442		1541	3305	1567	782	3438	1644	3539	3362	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	71	380	38	772	663	560	76	641	582	190	418	92
RTOR Reduction (vph)	0	6	0	0	0	116	0	0	0	0	16	0
Lane Group Flow (vph)	71	412	0	471	964	444	76	641	582	190	494	0
Turn Type	Split	NA		Split	NA	pt+ov	Perm	NA	Free	Prot	NA	
Protected Phases	3	3		4	4	1 4		2		1	6	
Permitted Phases							2		Free			
Actuated Green, G (s)	15.5	15.5		44.0	44.0	61.3	26.7	26.7	120.0	11.3	43.5	
Effective Green, g (s)	15.5	15.5		44.0	44.0	55.3	26.7	26.7	120.0	11.3	43.5	
Actuated g/C Ratio	0.13	0.13		0.37	0.37	0.46	0.22	0.22	1.00	0.09	0.36	
Clearance Time (s)	5.5	5.5		6.0	6.0		5.5	5.5		5.5	5.5	
Vehicle Extension (s)	4.0	4.0		4.0	4.0		0.2	0.2		3.0	0.2	
Lane Grp Cap (vph)	233	444		565	1211	722	173	764	1644	333	1218	
v/s Ratio Prot	0.04	c0.12		c0.31	0.29	c0.28		c0.19		0.05	0.15	
v/s Ratio Perm							0.10		0.35			
v/c Ratio	0.30	0.93		0.83	0.80	0.62	0.44	0.84	0.35	0.57	0.41	
Uniform Delay, d1	47.4	51.7		34.7	34.0	24.3	40.2	44.6	0.0	52.0	28.6	
Progression Factor	1.00	1.00		0.83	0.83	0.49	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	3.3	28.0		12.4	5.0	1.4	0.7	7.7	0.6	2.4	1.0	
Delay (s)	50.7	79.7		41.3	33.2	13.3	40.9	52.3	0.6	54.4	29.6	
Level of Service	D	E		D	C	B	D	D	A	D	C	
Approach Delay (s)		75.5			29.6			28.5			36.3	
Approach LOS		E			C			C			D	

Intersection Summary			
HCM 2000 Control Delay	35.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	22.5
Intersection Capacity Utilization	75.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	6.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	1040	20	0	1650	195	0	0	125	0	0	185
Future Vol, veh/h	0	1040	20	0	1650	195	0	0	125	0	0	185
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	2	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	1130	22	0	1793	212	0	0	136	0	0	201

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	-	-	0	-	-	576	-	-	1003
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	-	-	-	7.14	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	-	-	-	3.92	-	-	3.92
Pot Cap-1 Maneuver	0	-	-	0	-	-	0	0	394	0	0	206
Stage 1	0	-	-	0	-	-	0	0	-	0	0	-
Stage 2	0	-	-	0	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	-	-	-	-	-	-	-	-	394	-	-	206
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	18.9	104.9
HCM LOS			C	F

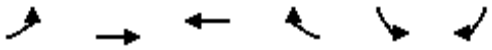
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT	WBR	SBLn1
Capacity (veh/h)	394	-	-	-	-	206
HCM Lane V/C Ratio	0.345	-	-	-	-	0.976
HCM Control Delay (s)	18.9	-	-	-	-	104.9
HCM Lane LOS	C	-	-	-	-	F
HCM 95th %tile Q(veh)	1.5	-	-	-	-	8.4



Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBR	SBR2	NEL	NER
Lane Configurations											
Traffic Volume (vph)	85	1525	0	0	2680	190	130	0	270	0	535
Future Volume (vph)	85	1525	0	0	2680	190	130	0	270	0	535
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	11	12	12	11	12	12	12	12	12	12
Grade (%)		0%			-3%		-4%			0%	
Total Lost time (s)	4.5	6.5			6.5	6.5	6.0		6.0		4.5
Lane Util. Factor	1.00	0.95			0.91	1.00	0.97		0.88		1.00
Frt	1.00	1.00			1.00	0.85	1.00		0.85		0.86
Flt Protected	0.95	1.00			1.00	1.00	0.95		1.00		1.00
Satd. Flow (prot)	1711	3421			4990	1607	3502		2842		1611
Flt Permitted	0.05	1.00			1.00	1.00	0.95		1.00		1.00
Satd. Flow (perm)	81	3421			4990	1607	3502		2842		1611
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	92	1658	0	0	2913	207	141	0	293	0	582
RTOR Reduction (vph)	0	0	0	0	0	62	0	0	221	0	0
Lane Group Flow (vph)	92	1658	0	0	2913	145	141	0	72	0	582
Turn Type	pm+pt	NA			NA	Perm	Prot		Perm		Perm
Protected Phases	1	6			2		4				
Permitted Phases	6					2			4		1 2 4 6
Actuated Green, G (s)	99.5	99.5			83.9	83.9	8.0		8.0		120.0
Effective Green, g (s)	99.5	99.5			83.9	83.9	8.0		8.0		107.5
Actuated g/C Ratio	0.83	0.83			0.70	0.70	0.07		0.07		0.90
Clearance Time (s)	4.5	6.5			6.5	6.5	6.0		6.0		
Vehicle Extension (s)	6.0	0.2			0.2	0.2	3.0		3.0		
Lane Grp Cap (vph)	217	2836			3488	1123	233		189		1443
v/s Ratio Prot	0.04	c0.48			c0.58		c0.04				
v/s Ratio Perm	0.31					0.09			0.03		0.36
v/c Ratio	0.42	0.58			0.84	0.13	0.61		0.38		0.40
Uniform Delay, d1	23.9	3.4			13.1	6.0	54.5		53.6		1.0
Progression Factor	0.84	1.14			0.50	0.00	1.00		1.00		1.00
Incremental Delay, d2	3.7	0.9			1.8	0.2	11.1		5.7		0.5
Delay (s)	23.7	4.7			8.4	0.2	65.6		59.3		1.5
Level of Service	C	A			A	A	E		E		A
Approach Delay (s)		5.7			7.8		61.4			1.5	
Approach LOS		A			A		E			A	

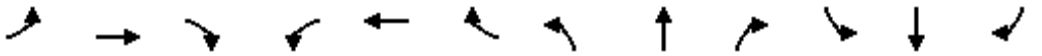
Intersection Summary			
HCM 2000 Control Delay	10.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	Err%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑↱			↱
Traffic Volume (vph)	0	2190	2865	5	0	5
Future Volume (vph)	0	2190	2865	5	0	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)		1%	-3%		0%	
Total Lost time (s)		5.0	5.0			4.0
Lane Util. Factor		0.91	0.91			1.00
Frt		1.00	1.00			0.86
Flt Protected		1.00	1.00			1.00
Satd. Flow (prot)		5060	5160			1611
Flt Permitted		1.00	1.00			1.00
Satd. Flow (perm)		5060	5160			1611
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	2380	3114	5	0	5
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	2380	3119	0	0	5
Turn Type		NA	NA			Free
Protected Phases		2	6			
Permitted Phases						Free
Actuated Green, G (s)		99.8	99.8			120.0
Effective Green, g (s)		99.8	99.8			120.0
Actuated g/C Ratio		0.83	0.83			1.00
Clearance Time (s)		5.0	5.0			
Vehicle Extension (s)		5.0	5.0			
Lane Grp Cap (vph)		4208	4291			1611
v/s Ratio Prot		0.47	c0.60			
v/s Ratio Perm						c0.00
v/c Ratio		0.57	0.73			0.00
Uniform Delay, d1		3.2	4.3			0.0
Progression Factor		0.82	1.00			1.00
Incremental Delay, d2		0.5	1.1			0.0
Delay (s)		3.1	5.4			0.0
Level of Service		A	A			A
Approach Delay (s)		3.1	5.4		0.0	
Approach LOS		A	A		A	

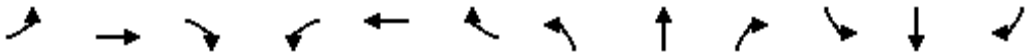
Intersection Summary			
HCM 2000 Control Delay	4.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	59.6%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	2085	90	15	2785	20	65	10	20	20	5	20
Future Volume (veh/h)	15	2085	90	15	2785	20	65	10	20	20	5	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1864	1864	1864	1908	1988	1988	1870	1945	1945	1864	1864	1864
Adj Flow Rate, veh/h	16	2266	98	16	3027	22	71	11	22	22	5	22
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	133	3554	153	178	3947	29	178	50	100	174	26	114
Arrive On Green	0.01	0.71	0.71	0.01	0.71	0.71	0.09	0.09	0.09	0.09	0.09	0.09
Sat Flow, veh/h	1776	5004	215	1818	5559	40	1383	579	1158	1372	301	1325
Grp Volume(v), veh/h	16	1533	831	16	1968	1081	71	0	33	22	0	27
Grp Sat Flow(s),veh/h/ln	1776	1697	1826	1818	1809	1981	1383	0	1737	1372	0	1626
Q Serve(g_s), s	0.2	21.5	21.8	0.2	31.1	31.4	4.5	0.0	1.6	1.4	0.0	1.4
Cycle Q Clear(g_c), s	0.2	21.5	21.8	0.2	31.1	31.4	5.9	0.0	1.6	3.0	0.0	1.4
Prop In Lane	1.00		0.12	1.00		0.02	1.00		0.67	1.00		0.81
Lane Grp Cap(c), veh/h	133	2410	1297	178	2569	1407	178	0	150	174	0	140
V/C Ratio(X)	0.12	0.64	0.64	0.09	0.77	0.77	0.40	0.00	0.22	0.13	0.00	0.19
Avail Cap(c_a), veh/h	188	2410	1297	235	2569	1407	195	0	172	191	0	161
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.83	0.83	0.83	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	10.4	6.9	6.9	6.4	8.3	8.3	41.0	0.0	38.3	39.7	0.0	38.2
Incr Delay (d2), s/veh	0.3	1.1	2.0	0.2	2.2	4.1	1.4	0.0	0.7	0.3	0.0	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	5.8	6.7	0.1	9.2	10.9	1.6	0.0	0.7	0.5	0.0	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	10.7	8.0	9.0	6.6	10.5	12.4	42.4	0.0	39.0	40.0	0.0	38.9
LnGrp LOS	B	A	A	A	B	B	D	A	D	D	A	D
Approach Vol, veh/h		2380			3065			104			49	
Approach Delay, s/veh		8.3			11.2			41.3			39.4	
Approach LOS		A			B			D			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.8	68.9		14.3	6.8	68.9		14.3				
Change Period (Y+Rc), s	5.5	5.0		6.5	5.5	5.0		6.5				
Max Green Setting (Gmax), s	4.1	60.0		8.9	4.1	60.0		8.9				
Max Q Clear Time (g_c+I1), s	2.2	33.4		5.0	2.2	23.8		7.9				
Green Ext Time (p_c), s	0.0	24.1		0.0	0.0	24.7		0.0				

Intersection Summary			
HCM 6th Ctrl Delay		10.8	
HCM 6th LOS		B	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	370	175	95	175	5	525	5	20	10	15	10
Future Volume (vph)	5	370	175	95	175	5	525	5	20	10	15	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			5.5		6.0	6.0	6.0		6.0	
Lane Util. Factor		0.95			0.95		0.95	0.95	1.00		1.00	
Frt		0.95			1.00		1.00	1.00	0.85		0.96	
Flt Protected		1.00			0.98		0.95	0.95	1.00		0.99	
Satd. Flow (prot)		3369			3470		1681	1687	1583		1764	
Flt Permitted		0.95			0.63		0.95	0.95	1.00		0.99	
Satd. Flow (perm)		3207			2208		1681	1687	1583		1764	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	402	190	103	190	5	571	5	22	11	16	11
RTOR Reduction (vph)	0	72	0	0	1	0	0	0	15	0	11	0
Lane Group Flow (vph)	0	525	0	0	297	0	285	291	7	0	27	0
Turn Type	Perm	NA		Perm	NA		Split	NA	Perm	Split	NA	
Protected Phases		8			4		2	2		6	6	
Permitted Phases	8			4					2			
Actuated Green, G (s)		18.0			18.5		19.6	19.6	19.6		2.3	
Effective Green, g (s)		18.0			18.5		19.6	19.6	19.6		2.3	
Actuated g/C Ratio		0.31			0.32		0.34	0.34	0.34		0.04	
Clearance Time (s)		6.0			5.5		6.0	6.0	6.0		6.0	
Vehicle Extension (s)		4.0			4.0		2.0	2.0	2.0		2.0	
Lane Grp Cap (vph)		996			705		569	571	535		70	
v/s Ratio Prot							0.17	c0.17			c0.02	
v/s Ratio Perm		c0.16			0.13				0.00			
v/c Ratio		0.53			0.42		0.50	0.51	0.01		0.39	
Uniform Delay, d1		16.4			15.5		15.3	15.3	12.7		27.1	
Progression Factor		1.00			1.00		1.00	1.00	1.00		1.00	
Incremental Delay, d2		0.7			0.6		3.1	3.2	0.0		1.3	
Delay (s)		17.1			16.0		18.4	18.5	12.8		28.4	
Level of Service		B			B		B	B	B		C	
Approach Delay (s)		17.1			16.0			18.3			28.4	
Approach LOS		B			B			B			C	

Intersection Summary			
HCM 2000 Control Delay	17.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	57.9	Sum of lost time (s)	18.0
Intersection Capacity Utilization	64.4%	ICU Level of Service	C
Analysis Period (min)	15		

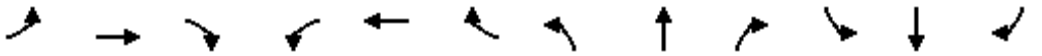
c Critical Lane Group



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	35	25	695	15	25	515
Future Volume (vph)	35	25	695	15	25	515
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0		6.0	6.0	6.0	6.0
Lane Util. Factor	0.97		0.95	1.00	1.00	0.91
Frt	0.94		1.00	0.85	1.00	1.00
Flt Protected	0.97		1.00	1.00	0.95	1.00
Satd. Flow (prot)	3292		3539	1583	1770	5085
Flt Permitted	0.97		1.00	1.00	0.36	1.00
Satd. Flow (perm)	3292		3539	1583	676	5085
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	38	27	755	16	27	560
RTOR Reduction (vph)	26	0	0	5	0	0
Lane Group Flow (vph)	39	0	755	11	27	560
Turn Type	Prot		NA	Perm	pm+pt	NA
Protected Phases	4		2		1	6
Permitted Phases				2	6	
Actuated Green, G (s)	3.0		43.3	43.3	50.5	50.5
Effective Green, g (s)	3.0		43.3	43.3	50.5	50.5
Actuated g/C Ratio	0.05		0.66	0.66	0.77	0.77
Clearance Time (s)	6.0		6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	150		2339	1046	541	3920
v/s Ratio Prot	c0.01		c0.21		0.00	c0.11
v/s Ratio Perm				0.01	0.04	
v/c Ratio	0.26		0.32	0.01	0.05	0.14
Uniform Delay, d1	30.2		4.8	3.8	1.9	1.9
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	0.9		0.4	0.0	0.0	0.1
Delay (s)	31.1		5.1	3.8	1.9	2.0
Level of Service	C		A	A	A	A
Approach Delay (s)	31.1		5.1			2.0
Approach LOS	C		A			A

Intersection Summary			
HCM 2000 Control Delay	5.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.32		
Actuated Cycle Length (s)	65.5	Sum of lost time (s)	18.0
Intersection Capacity Utilization	34.9%	ICU Level of Service	A
Analysis Period (min)	15		

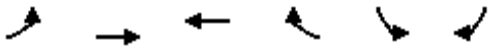
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	80	510	15	135	235	295	5	20	30	90	5	55
Future Volume (veh/h)	80	510	15	135	235	295	5	20	30	90	5	55
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	87	554	16	147	255	321	5	22	33	98	5	60
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	623	2371	68	651	1367	1220	179	85	128	191	16	187
Arrive On Green	0.67	0.67	0.67	0.04	0.77	0.77	0.13	0.13	0.13	0.13	0.13	0.13
Sat Flow, veh/h	837	3527	102	1781	1777	1585	1337	675	1013	1349	123	1480
Grp Volume(v), veh/h	87	279	291	147	255	321	5	0	55	98	0	65
Grp Sat Flow(s),veh/h/ln	837	1777	1852	1781	1777	1585	1337	0	1688	1349	0	1604
Q Serve(g_s), s	4.6	7.3	7.3	2.9	4.6	7.0	0.4	0.0	3.5	8.5	0.0	4.4
Cycle Q Clear(g_c), s	4.6	7.3	7.3	2.9	4.6	7.0	4.8	0.0	3.5	12.0	0.0	4.4
Prop In Lane	1.00		0.05	1.00		1.00	1.00		0.60	1.00		0.92
Lane Grp Cap(c), veh/h	623	1195	1245	651	1367	1220	179	0	213	191	0	203
V/C Ratio(X)	0.14	0.23	0.23	0.23	0.19	0.26	0.03	0.00	0.26	0.51	0.00	0.32
Avail Cap(c_a), veh/h	623	1195	1245	879	1367	1220	367	0	450	380	0	428
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.75	0.75	0.75	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	7.2	7.6	7.6	5.1	3.7	4.0	49.9	0.0	47.3	52.8	0.0	47.7
Incr Delay (d2), s/veh	0.5	0.5	0.4	0.1	0.2	0.4	0.1	0.0	1.4	4.5	0.0	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	2.8	2.9	1.0	1.5	2.1	0.1	0.0	1.6	3.1	0.0	1.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	7.7	8.1	8.1	5.3	3.9	4.4	50.1	0.0	48.7	57.3	0.0	49.7
LnGrp LOS	A	A	A	A	A	A	D	A	D	E	A	D
Approach Vol, veh/h		657			723			60			163	
Approach Delay, s/veh		8.0			4.4			48.8			54.3	
Approach LOS		A			A			D			D	

Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		98.8		21.2	11.7	87.2		21.2				
Change Period (Y+Rc), s		6.5		6.0	6.5	6.5		6.0				
Max Green Setting (Gmax), s		75.5		32.0	20.5	48.5		32.0				
Max Q Clear Time (g_c+I1), s		9.0		14.0	4.9	9.3		6.8				
Green Ext Time (p_c), s		0.7		1.1	0.3	0.7		0.5				

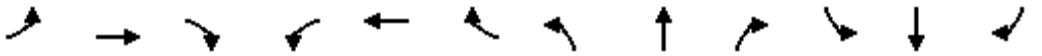
Intersection Summary												
HCM 6th Ctrl Delay			12.6									
HCM 6th LOS			B									



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	90	540	565	50	270	100
Future Volume (vph)	90	540	565	50	270	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	5.5	
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	
Frt	1.00	1.00	1.00	0.85	0.96	
Flt Protected	0.95	1.00	1.00	1.00	0.96	
Satd. Flow (prot)	1770	3539	3539	1583	1731	
Flt Permitted	0.41	1.00	1.00	1.00	0.96	
Satd. Flow (perm)	769	3539	3539	1583	1731	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	98	587	614	54	293	109
RTOR Reduction (vph)	0	0	0	39	17	0
Lane Group Flow (vph)	98	587	614	15	385	0
Turn Type	Perm	NA	NA	Perm	Prot	
Protected Phases		6	2		4	
Permitted Phases	6			2		
Actuated Green, G (s)	11.3	11.3	11.3	11.3	16.7	
Effective Green, g (s)	11.3	11.3	11.3	11.3	16.7	
Actuated g/C Ratio	0.29	0.29	0.29	0.29	0.42	
Clearance Time (s)	6.0	6.0	6.0	6.0	5.5	
Vehicle Extension (s)	0.2	0.2	0.2	0.2	5.0	
Lane Grp Cap (vph)	219	1012	1012	452	731	
v/s Ratio Prot		0.17	c0.17		c0.22	
v/s Ratio Perm	0.13			0.01		
v/c Ratio	0.45	0.58	0.61	0.03	0.53	
Uniform Delay, d1	11.5	12.1	12.2	10.2	8.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.5	0.5	0.7	0.0	1.3	
Delay (s)	12.1	12.6	12.9	10.2	9.8	
Level of Service	B	B	B	B	A	
Approach Delay (s)		12.5	12.7		9.8	
Approach LOS		B	B		A	

Intersection Summary			
HCM 2000 Control Delay	12.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	39.5	Sum of lost time (s)	11.5
Intersection Capacity Utilization	57.1%	ICU Level of Service	B
Analysis Period (min)	15		

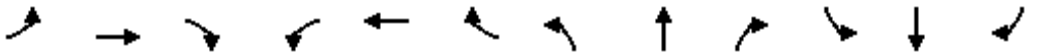
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	315	315	180	135	275	195	5	5	5	110	325	335
Future Volume (vph)	315	315	180	135	275	195	5	5	5	110	325	335
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.5		5.0	5.5			5.5	5.5	5.5	5.5	5.5
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00	0.95	0.95	1.00
Frt	1.00	0.95		1.00	0.94			1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.98	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3346		1770	3319			1817	1583	1681	1767	1583
Flt Permitted	0.21	1.00		0.45	1.00			0.98	1.00	0.95	1.00	1.00
Satd. Flow (perm)	400	3346		841	3319			1817	1583	1681	1767	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	342	342	196	147	299	212	5	5	5	120	353	364
RTOR Reduction (vph)	0	68	0	0	133	0	0	0	5	0	0	248
Lane Group Flow (vph)	342	470	0	147	378	0	0	10	0	108	365	116
Turn Type	pm+pt	NA		pm+pt	NA		Split	NA	Perm	Split	NA	Perm
Protected Phases	1	6		5	2		3	3		4	4	
Permitted Phases	6			2					3			4
Actuated Green, G (s)	48.1	34.9		28.4	20.2			3.5	3.5	31.9	31.9	31.9
Effective Green, g (s)	48.1	34.9		28.4	20.2			3.5	3.5	31.9	31.9	31.9
Actuated g/C Ratio	0.48	0.35		0.28	0.20			0.04	0.04	0.32	0.32	0.32
Clearance Time (s)	5.0	5.5		5.0	5.5			5.5	5.5	5.5	5.5	5.5
Vehicle Extension (s)	3.0	0.2		3.0	0.2			5.0	5.0	5.0	5.0	5.0
Lane Grp Cap (vph)	506	1167		315	670			63	55	536	563	504
v/s Ratio Prot	c0.15	0.14		0.04	0.11			c0.01		0.06	c0.21	
v/s Ratio Perm	c0.17			0.09					0.00			0.07
v/c Ratio	0.68	0.40		0.47	0.56			0.16	0.00	0.20	0.65	0.23
Uniform Delay, d1	18.2	24.7		28.0	35.9			46.8	46.6	24.8	29.2	25.0
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.6	1.0		1.1	3.4			2.5	0.0	0.4	3.5	0.5
Delay (s)	21.8	25.7		29.1	39.3			49.3	46.6	25.2	32.7	25.5
Level of Service	C	C		C	D			D	D	C	C	C
Approach Delay (s)		24.2			37.0			48.4			28.6	
Approach LOS		C			D			D			C	

Intersection Summary			
HCM 2000 Control Delay	29.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	21.5
Intersection Capacity Utilization	62.9%	ICU Level of Service	B
Analysis Period (min)	15		

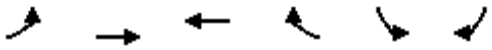
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	330	10	215	510	130	40	10	195	195	15	45
Future Volume (veh/h)	40	330	10	215	510	130	40	10	195	195	15	45
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	43	359	11	234	554	141	43	11	212	212	16	49
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	384	1524	47	594	1621	411	448	25	483	300	129	395
Arrive On Green	0.43	0.43	0.43	0.09	0.58	0.58	0.32	0.32	0.32	0.32	0.32	0.32
Sat Flow, veh/h	750	3520	108	1781	2807	712	1337	79	1518	1158	405	1242
Grp Volume(v), veh/h	43	181	189	234	350	345	43	0	223	212	0	65
Grp Sat Flow(s),veh/h/ln	750	1777	1851	1781	1777	1742	1337	0	1597	1158	0	1647
Q Serve(g_s), s	4.1	7.7	7.7	8.3	12.4	12.5	2.8	0.0	13.3	21.3	0.0	3.4
Cycle Q Clear(g_c), s	4.1	7.7	7.7	8.3	12.4	12.5	6.2	0.0	13.3	34.6	0.0	3.4
Prop In Lane	1.00		0.06	1.00		0.41	1.00		0.95	1.00		0.75
Lane Grp Cap(c), veh/h	384	769	801	594	1026	1006	448	0	508	300	0	524
V/C Ratio(X)	0.11	0.24	0.24	0.39	0.34	0.34	0.10	0.00	0.44	0.71	0.00	0.12
Avail Cap(c_a), veh/h	384	769	801	767	1026	1006	546	0	626	385	0	645
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.93	0.93	0.93	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	20.5	21.5	21.5	15.1	13.3	13.4	31.2	0.0	32.4	46.1	0.0	29.0
Incr Delay (d2), s/veh	0.6	0.7	0.7	0.4	0.8	0.9	0.2	0.0	1.3	7.0	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	3.4	3.5	3.4	5.1	5.1	0.9	0.0	5.3	6.7	0.0	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.1	22.2	22.2	15.5	14.2	14.2	31.4	0.0	33.7	53.1	0.0	29.3
LnGrp LOS	C	C	C	B	B	B	C	A	C	D	A	C
Approach Vol, veh/h		413			929			266			277	
Approach Delay, s/veh		22.1			14.5			33.3			47.5	
Approach LOS		C			B			C			D	

Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		75.8		44.2	17.4	58.4		44.2				
Change Period (Y+Rc), s		6.5		6.0	6.5	6.5		6.0				
Max Green Setting (Gmax), s		60.5		47.0	22.5	31.5		47.0				
Max Q Clear Time (g_c+I1), s		14.5		36.6	10.3	9.7		15.3				
Green Ext Time (p_c), s		0.8		1.6	0.5	0.4		3.2				

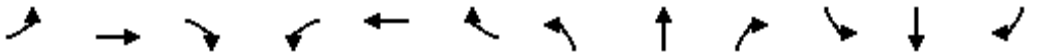
Intersection Summary												
HCM 6th Ctrl Delay			23.7									
HCM 6th LOS			C									



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	250	470	690	540	75	165
Future Volume (vph)	250	470	690	540	75	165
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	5.5	
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	
Frt	1.00	1.00	1.00	0.85	0.91	
Flt Protected	0.95	1.00	1.00	1.00	0.98	
Satd. Flow (prot)	1770	3539	3539	1583	1664	
Flt Permitted	0.36	1.00	1.00	1.00	0.98	
Satd. Flow (perm)	669	3539	3539	1583	1664	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	272	511	750	587	82	179
RTOR Reduction (vph)	0	0	0	254	88	0
Lane Group Flow (vph)	272	511	750	333	173	0
Turn Type	Perm	NA	NA	Perm	Prot	
Protected Phases		6	2		4	
Permitted Phases	6			2		
Actuated Green, G (s)	31.2	31.2	31.2	31.2	12.3	
Effective Green, g (s)	31.2	31.2	31.2	31.2	12.3	
Actuated g/C Ratio	0.57	0.57	0.57	0.57	0.22	
Clearance Time (s)	6.0	6.0	6.0	6.0	5.5	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	5.0	
Lane Grp Cap (vph)	379	2007	2007	897	372	
v/s Ratio Prot		0.14	0.21		c0.10	
v/s Ratio Perm	c0.41			0.21		
v/c Ratio	0.72	0.25	0.37	0.37	0.47	
Uniform Delay, d1	8.7	6.0	6.5	6.5	18.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	5.3	0.0	0.0	0.1	1.9	
Delay (s)	14.0	6.0	6.6	6.6	20.4	
Level of Service	B	A	A	A	C	
Approach Delay (s)		8.8	6.6		20.4	
Approach LOS		A	A		C	

Intersection Summary			
HCM 2000 Control Delay	8.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	55.0	Sum of lost time (s)	11.5
Intersection Capacity Utilization	61.8%	ICU Level of Service	B
Analysis Period (min)	15		

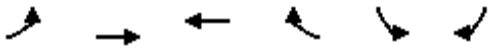
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	210	325	10	5	510	30	205	85	200	205	5	515
Future Volume (vph)	210	325	10	5	510	30	205	85	200	205	5	515
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.5		5.0	5.5			5.5	5.5	5.5	5.5	5.5
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00	0.95	0.95	1.00
Frt	1.00	1.00		1.00	0.99			1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.97	1.00	0.95	0.95	1.00
Satd. Flow (prot)	1770	3523		1770	3509			1799	1583	1681	1689	1583
Flt Permitted	0.21	1.00		0.53	1.00			0.97	1.00	0.95	0.95	1.00
Satd. Flow (perm)	386	3523		996	3509			1799	1583	1681	1689	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	228	353	11	5	554	33	223	92	217	223	5	560
RTOR Reduction (vph)	0	2	0	0	4	0	0	0	173	0	0	196
Lane Group Flow (vph)	228	362	0	5	583	0	0	315	44	114	114	364
Turn Type	pm+pt	NA		pm+pt	NA		Split	NA	Perm	Split	NA	Perm
Protected Phases	1	6		5	2		3	3		4	4	
Permitted Phases	6			2					3			4
Actuated Green, G (s)	47.3	41.3		31.0	30.0			24.5	24.5	31.7	31.7	31.7
Effective Green, g (s)	47.3	41.3		31.0	30.0			24.5	24.5	31.7	31.7	31.7
Actuated g/C Ratio	0.39	0.34		0.26	0.25			0.20	0.20	0.26	0.26	0.26
Clearance Time (s)	5.0	5.5		5.0	5.5			5.5	5.5	5.5	5.5	5.5
Vehicle Extension (s)	3.0	0.2		3.0	0.2			5.0	5.0	5.0	5.0	5.0
Lane Grp Cap (vph)	294	1212		263	877			367	323	444	446	418
v/s Ratio Prot	c0.08	0.10		0.00	0.17			c0.18		0.07	0.07	
v/s Ratio Perm	c0.23			0.00					0.03			c0.23
v/c Ratio	0.78	0.30		0.02	0.67			0.86	0.14	0.26	0.26	0.87
Uniform Delay, d1	27.2	28.8		33.1	40.5			46.1	39.1	34.9	34.8	42.2
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	12.1	0.6		0.0	4.0			19.2	0.4	0.6	0.6	19.0
Delay (s)	39.3	29.4		33.1	44.5			65.3	39.5	35.5	35.5	61.2
Level of Service	D	C		C	D			E	D	D	D	E
Approach Delay (s)		33.2			44.4			54.8			53.8	
Approach LOS		C			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	46.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	21.5
Intersection Capacity Utilization	76.5%	ICU Level of Service	D
Analysis Period (min)	15		

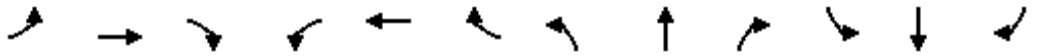
c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑↑		↰↰↰	↱
Traffic Volume (veh/h)	0	1315	835	0	185	120
Future Volume (veh/h)	0	1315	835	0	185	120
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	0	1870	1870	0	1870	1870
Adj Flow Rate, veh/h	0	1429	908	0	201	130
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	2	2	0	2	2
Cap, veh/h	0	3930	4952	0	634	200
Arrive On Green	0.00	0.77	0.77	0.00	0.13	0.13
Sat Flow, veh/h	0	5443	6958	0	5023	1585
Grp Volume(v), veh/h	0	1429	908	0	201	130
Grp Sat Flow(s),veh/h/ln	0	1702	1609	0	1674	1585
Q Serve(g_s), s	0.0	10.7	4.5	0.0	4.4	9.4
Cycle Q Clear(g_c), s	0.0	10.7	4.5	0.0	4.4	9.4
Prop In Lane	0.00			0.00	1.00	1.00
Lane Grp Cap(c), veh/h	0	3930	4952	0	634	200
V/C Ratio(X)	0.00	0.36	0.18	0.00	0.32	0.65
Avail Cap(c_a), veh/h	0	3930	4952	0	1779	561
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.97	0.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	4.4	3.7	0.0	47.7	49.9
Incr Delay (d2), s/veh	0.0	0.3	0.1	0.0	1.0	12.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	3.1	1.2	0.0	1.9	4.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	4.7	3.8	0.0	48.7	62.1
LnGrp LOS	A	A	A	A	D	E
Approach Vol, veh/h		1429	908		331	
Approach Delay, s/veh		4.7	3.8		54.0	
Approach LOS		A	A		D	

Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		98.4		21.6		98.4
Change Period (Y+Rc), s		6.0		6.5		6.0
Max Green Setting (Gmax), s		65.0		42.5		65.0
Max Q Clear Time (g_c+I1), s		12.7		11.4		6.5
Green Ext Time (p_c), s		14.9		3.8		7.7

Intersection Summary		
HCM 6th Ctrl Delay		10.5
HCM 6th LOS		B



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1175	325	0	600	0	0	0	0	405	0	235
Future Volume (vph)	0	1175	325	0	600	0	0	0	0	405	0	235
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0					7.0		7.0
Lane Util. Factor		0.91			0.91					0.97		1.00
Frt		0.97			1.00					1.00		0.85
Flt Protected		1.00			1.00					0.95		1.00
Satd. Flow (prot)		4920			5085					3433		1583
Flt Permitted		1.00			1.00					0.95		1.00
Satd. Flow (perm)		4920			5085					3433		1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1277	353	0	652	0	0	0	0	440	0	255
RTOR Reduction (vph)	0	32	0	0	0	0	0	0	0	0	0	196
Lane Group Flow (vph)	0	1598	0	0	652	0	0	0	0	440	0	60
Turn Type		NA			NA					Prot		Prot
Protected Phases		2			6 1					4		4
Permitted Phases												
Actuated Green, G (s)		69.1			102.0					35.0		35.0
Effective Green, g (s)		69.1			102.0					35.0		35.0
Actuated g/C Ratio		0.46			0.68					0.23		0.23
Clearance Time (s)		6.0								7.0		7.0
Vehicle Extension (s)		0.2								3.0		3.0
Lane Grp Cap (vph)		2266			3457					801		369
v/s Ratio Prot		c0.32			c0.13					c0.13		0.04
v/s Ratio Perm												
v/c Ratio		0.71			0.19					0.55		0.16
Uniform Delay, d1		32.3			8.8					50.6		45.8
Progression Factor		1.00			0.92					1.00		1.00
Incremental Delay, d2		1.9			0.0					0.8		0.2
Delay (s)		34.2			8.1					51.3		46.0
Level of Service		C			A					D		D
Approach Delay (s)		34.2			8.1			0.0			49.4	
Approach LOS		C			A			A			D	

Intersection Summary			
HCM 2000 Control Delay	32.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	19.5
Intersection Capacity Utilization	49.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1580	0	305	600	0	0
Future Volume (vph)	1580	0	305	600	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0		6.5	6.5		
Lane Util. Factor	0.91		0.97	0.91		
Frt	1.00		1.00	1.00		
Flt Protected	1.00		0.95	1.00		
Satd. Flow (prot)	5085		3433	5085		
Flt Permitted	1.00		0.95	1.00		
Satd. Flow (perm)	5085		3433	5085		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1717	0	332	652	0	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	1717	0	332	652	0	0
Turn Type	NA		Prot	NA		
Protected Phases	2 4		1	1 4 6		
Permitted Phases						
Actuated Green, G (s)	110.1		26.4	150.0		
Effective Green, g (s)	110.1		26.4	137.0		
Actuated g/C Ratio	0.73		0.18	0.91		
Clearance Time (s)			6.5			
Vehicle Extension (s)			3.0			
Lane Grp Cap (vph)	3732		604	4644		
v/s Ratio Prot	c0.34		c0.10	0.13		
v/s Ratio Perm						
v/c Ratio	0.46		0.55	0.14		
Uniform Delay, d1	8.0		56.4	0.6		
Progression Factor	0.05		0.71	1.00		
Incremental Delay, d2	0.1		1.0	0.0		
Delay (s)	0.5		41.2	0.7		
Level of Service	A		D	A		
Approach Delay (s)	0.5			14.3	0.0	
Approach LOS	A			B	A	

Intersection Summary			
HCM 2000 Control Delay	5.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	19.5
Intersection Capacity Utilization	49.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1355	225	0	665	240	0
Future Volume (vph)	1355	225	0	665	240	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5			6.5	7.0	
Lane Util. Factor	0.91			0.91	0.97	
Frt	0.98			1.00	1.00	
Flt Protected	1.00			1.00	0.95	
Satd. Flow (prot)	4977			5085	3433	
Flt Permitted	1.00			1.00	0.95	
Satd. Flow (perm)	4977			5085	3433	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1473	245	0	723	261	0
RTOR Reduction (vph)	10	0	0	0	0	0
Lane Group Flow (vph)	1708	0	0	723	261	0
Turn Type	NA			NA	Prot	
Protected Phases	6			2	3	
Permitted Phases						
Actuated Green, G (s)	119.8			119.8	16.7	
Effective Green, g (s)	119.8			119.8	16.7	
Actuated g/C Ratio	0.80			0.80	0.11	
Clearance Time (s)	6.5			6.5	7.0	
Vehicle Extension (s)	3.0			3.0	3.0	
Lane Grp Cap (vph)	3974			4061	382	
v/s Ratio Prot	c0.34			0.14	c0.08	
v/s Ratio Perm						
v/c Ratio	0.43			0.18	0.68	
Uniform Delay, d1	4.6			3.5	64.1	
Progression Factor	0.00			0.38	1.00	
Incremental Delay, d2	0.3			0.1	5.0	
Delay (s)	0.3			1.4	69.1	
Level of Service	A			A	E	
Approach Delay (s)	0.3			1.4	69.1	
Approach LOS	A			A	E	

Intersection Summary			
HCM 2000 Control Delay	7.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	49.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1355	0	0	665	0	890
Future Volume (vph)	1355	0	0	665	0	890
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5			6.0		6.0
Lane Util. Factor	0.91			0.91		0.88
Frt	1.00			1.00		0.85
Flt Protected	1.00			1.00		1.00
Satd. Flow (prot)	5085			5085		2787
Flt Permitted	1.00			1.00		1.00
Satd. Flow (perm)	5085			5085		2787
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1473	0	0	723	0	967
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	1473	0	0	723	0	967
Turn Type	NA			NA		Prot
Protected Phases	2			4 6		4
Permitted Phases						
Actuated Green, G (s)	71.2			150.0		67.3
Effective Green, g (s)	71.2			144.5		67.3
Actuated g/C Ratio	0.47			0.96		0.45
Clearance Time (s)	5.5					6.0
Vehicle Extension (s)	3.0					3.0
Lane Grp Cap (vph)	2413			4898		1250
v/s Ratio Prot	c0.29			0.14		c0.35
v/s Ratio Perm						
v/c Ratio	0.61			0.15		0.77
Uniform Delay, d1	29.1			0.1		34.9
Progression Factor	0.49			1.00		1.00
Incremental Delay, d2	1.1			0.0		3.0
Delay (s)	15.5			0.1		38.0
Level of Service	B			A		D
Approach Delay (s)	15.5			0.1	38.0	
Approach LOS	B			A	D	

Intersection Summary			
HCM 2000 Control Delay	18.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	11.5
Intersection Capacity Utilization	66.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	70	765	830	580	215	115	135	675	0	295	105	0
Future Volume (vph)	70	765	830	580	215	115	135	675	0	295	105	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5	6.0	4.0	6.5	6.0	4.0	6.5		4.0	6.5	
Lane Util. Factor		0.97	0.91	1.00	1.00	0.91	1.00	1.00		1.00	0.97	
Frt		1.00	1.00	0.85	1.00	1.00	0.85	1.00		0.85	1.00	
Flt Protected		0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95	
Satd. Flow (prot)		3433	5085	1583	1770	5085	1583	1770		1583	3433	
Flt Permitted		0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95	
Satd. Flow (perm)		3433	5085	1583	1770	5085	1583	1770		1583	3433	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	76	832	902	630	234	125	147	734	0	321	114	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	908	902	630	234	125	147	734	0	321	114	0
Turn Type	Prot	Prot	NA	Free	Prot	NA	Free	Prot		Free	Prot	
Protected Phases	5	5	2		1	6		3			7	
Permitted Phases				Free			Free			Free		
Actuated Green, G (s)		41.1	39.3	150.0	26.5	24.7	150.0	65.2		150.0	65.2	
Effective Green, g (s)		41.1	39.3	150.0	26.5	24.7	150.0	65.2		150.0	65.2	
Actuated g/C Ratio		0.27	0.26	1.00	0.18	0.16	1.00	0.43		1.00	0.43	
Clearance Time (s)		6.5	6.0		6.5	6.0		6.5			6.5	
Vehicle Extension (s)		3.0	3.0		3.0	3.0		3.0			3.0	
Lane Grp Cap (vph)		940	1332	1583	312	837	1583	769		1583	1492	
v/s Ratio Prot		c0.26	0.18		c0.13	0.02		c0.41			0.03	
v/s Ratio Perm				c0.40			0.09			0.20		
v/c Ratio		0.97	0.68	0.40	0.75	0.15	0.09	0.95		0.20	0.08	
Uniform Delay, d1		53.8	49.7	0.0	58.6	53.7	0.0	41.0		0.0	24.8	
Progression Factor		0.92	0.92	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		18.0	2.1	0.6	9.7	0.4	0.1	21.9		0.3	0.0	
Delay (s)		67.5	47.6	0.6	68.3	54.0	0.1	62.8		0.3	24.8	
Level of Service		E	D	A	E	D	A	E		A	C	
Approach Delay (s)			42.9			45.0			43.8			9.9
Approach LOS			D			D			D			A

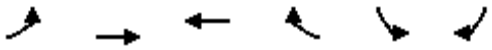
Intersection Summary			
HCM 2000 Control Delay	41.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	93.3%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



Movement	SBR
Lane Configurations	
Traffic Volume (vph)	160
Future Volume (vph)	160
Ideal Flow (vphpl)	1900
Total Lost time (s)	4.0
Lane Util. Factor	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1583
Flt Permitted	1.00
Satd. Flow (perm)	1583
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	174
RTOR Reduction (vph)	0
Lane Group Flow (vph)	174
Turn Type	Free
Protected Phases	
Permitted Phases	Free
Actuated Green, G (s)	150.0
Effective Green, g (s)	150.0
Actuated g/C Ratio	1.00
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	1583
v/s Ratio Prot	
v/s Ratio Perm	0.11
v/c Ratio	0.11
Uniform Delay, d1	0.0
Progression Factor	1.00
Incremental Delay, d2	0.1
Delay (s)	0.1
Level of Service	A
Approach Delay (s)	
Approach LOS	

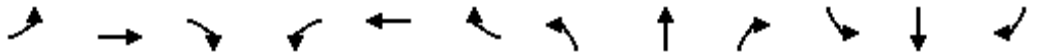
Intersection Summary



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	795	1510	0	310	120
Future Volume (veh/h)	0	795	1510	0	310	120
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	0	1870	1870	0	1870	1870
Adj Flow Rate, veh/h	0	864	1641	0	337	130
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	2	2	0	2	2
Cap, veh/h	0	3859	4862	0	704	222
Arrive On Green	0.00	0.76	0.76	0.00	0.14	0.14
Sat Flow, veh/h	0	5443	6958	0	5023	1585
Grp Volume(v), veh/h	0	864	1641	0	337	130
Grp Sat Flow(s),veh/h/ln	0	1702	1609	0	1674	1585
Q Serve(g_s), s	0.0	6.0	10.0	0.0	7.4	9.2
Cycle Q Clear(g_c), s	0.0	6.0	10.0	0.0	7.4	9.2
Prop In Lane	0.00			0.00	1.00	1.00
Lane Grp Cap(c), veh/h	0	3859	4862	0	704	222
V/C Ratio(X)	0.00	0.22	0.34	0.00	0.48	0.59
Avail Cap(c_a), veh/h	0	3859	4862	0	1821	575
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.72	0.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	4.3	4.8	0.0	47.6	48.3
Incr Delay (d2), s/veh	0.0	0.1	0.1	0.0	1.8	8.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	1.8	2.8	0.0	3.2	4.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	4.4	4.9	0.0	49.4	56.9
LnGrp LOS	A	A	A	A	D	E
Approach Vol, veh/h		864	1641		467	
Approach Delay, s/veh		4.4	4.9		51.5	
Approach LOS		A	A		D	

Timer - Assigned Phs	2	4	6
Phs Duration (G+Y+Rc), s	96.7	23.3	96.7
Change Period (Y+Rc), s	6.0	6.5	6.0
Max Green Setting (Gmax), s	64.0	43.5	64.0
Max Q Clear Time (g_c+I1), s	8.0	11.2	12.0
Green Ext Time (p_c), s	7.2	5.6	18.8

Intersection Summary	
HCM 6th Ctrl Delay	12.1
HCM 6th LOS	B



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	965	140	0	850	0	0	0	0	405	0	660
Future Volume (vph)	0	965	140	0	850	0	0	0	0	405	0	660
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.5					7.0		7.0
Lane Util. Factor		0.91			0.91					0.97		1.00
Frt		0.98			1.00					1.00		0.85
Flt Protected		1.00			1.00					0.95		1.00
Satd. Flow (prot)		4989			5085					3433		1583
Flt Permitted		1.00			1.00					0.95		1.00
Satd. Flow (perm)		4989			5085					3433		1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1049	152	0	924	0	0	0	0	440	0	717
RTOR Reduction (vph)	0	13	0	0	0	0	0	0	0	0	0	45
Lane Group Flow (vph)	0	1188	0	0	924	0	0	0	0	440	0	672
Turn Type		NA			NA					Prot		Prot
Protected Phases		2			1 6					4		4
Permitted Phases												
Actuated Green, G (s)		39.6			71.1					65.9		65.9
Effective Green, g (s)		39.6			71.1					65.9		65.9
Actuated g/C Ratio		0.26			0.47					0.44		0.44
Clearance Time (s)		6.0								7.0		7.0
Vehicle Extension (s)		0.2								3.0		3.0
Lane Grp Cap (vph)		1317			2410					1508		695
v/s Ratio Prot		c0.24			c0.18					0.13		c0.42
v/s Ratio Perm												
v/c Ratio		0.90			0.38					0.29		0.97
Uniform Delay, d1		53.3			25.4					27.0		41.0
Progression Factor		1.00			0.73					1.00		1.00
Incremental Delay, d2		10.2			0.1					0.1		25.9
Delay (s)		63.6			18.5					27.2		66.9
Level of Service		E			B					C		E
Approach Delay (s)		63.6			18.5			0.0			51.8	
Approach LOS		E			B			A			D	

Intersection Summary			
HCM 2000 Control Delay	46.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	19.5
Intersection Capacity Utilization	68.5%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1370	0	510	850	0	0
Future Volume (vph)	1370	0	510	850	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0		6.5	6.5		
Lane Util. Factor	0.91		0.97	0.91		
Frt	1.00		1.00	1.00		
Flt Protected	1.00		0.95	1.00		
Satd. Flow (prot)	5085		3433	5085		
Flt Permitted	1.00		0.95	1.00		
Satd. Flow (perm)	5085		3433	5085		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1489	0	554	924	0	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	1489	0	554	924	0	0
Turn Type	NA		Prot	NA		
Protected Phases	2 4		1	1 4 6		
Permitted Phases						
Actuated Green, G (s)	112.5		25.0	150.0		
Effective Green, g (s)	105.5		25.0	137.0		
Actuated g/C Ratio	0.70		0.17	0.91		
Clearance Time (s)			6.5			
Vehicle Extension (s)			3.0			
Lane Grp Cap (vph)	3576		572	4644		
v/s Ratio Prot	c0.29		c0.16	0.18		
v/s Ratio Perm						
v/c Ratio	0.42		0.97	0.20		
Uniform Delay, d1	9.3		62.1	0.7		
Progression Factor	0.26		0.94	1.00		
Incremental Delay, d2	0.1		28.9	0.0		
Delay (s)	2.5		87.3	0.7		
Level of Service	A		F	A		
Approach Delay (s)	2.5			33.2	0.0	
Approach LOS	A			C	A	

Intersection Summary			
HCM 2000 Control Delay	17.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	19.5
Intersection Capacity Utilization	51.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1115	255	0	1160	200	0
Future Volume (vph)	1115	255	0	1160	200	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5			6.5	7.0	
Lane Util. Factor	0.91			0.91	0.97	
Frt	0.97			1.00	1.00	
Flt Protected	1.00			1.00	0.95	
Satd. Flow (prot)	4943			5085	3433	
Flt Permitted	1.00			1.00	0.95	
Satd. Flow (perm)	4943			5085	3433	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1212	277	0	1261	217	0
RTOR Reduction (vph)	15	0	0	0	0	0
Lane Group Flow (vph)	1474	0	0	1261	217	0
Turn Type	NA			NA	Prot	
Protected Phases	6			2	3	
Permitted Phases						
Actuated Green, G (s)	121.7			121.7	14.8	
Effective Green, g (s)	121.7			121.7	14.8	
Actuated g/C Ratio	0.81			0.81	0.10	
Clearance Time (s)	6.5			6.5	7.0	
Vehicle Extension (s)	3.0			3.0	3.0	
Lane Grp Cap (vph)	4010			4125	338	
v/s Ratio Prot	c0.30			0.25	c0.06	
v/s Ratio Perm						
v/c Ratio	0.37			0.31	0.64	
Uniform Delay, d1	3.8			3.6	65.1	
Progression Factor	0.20			1.00	1.00	
Incremental Delay, d2	0.2			0.2	4.1	
Delay (s)	1.0			3.7	69.2	
Level of Service	A			A	E	
Approach Delay (s)	1.0			3.7	69.2	
Approach LOS	A			A	E	

Intersection Summary			
HCM 2000 Control Delay	7.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	44.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1115	0	0	1160	0	395
Future Volume (vph)	1115	0	0	1160	0	395
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5			6.0		6.0
Lane Util. Factor	0.91			0.91		0.88
Frt	1.00			1.00		0.85
Flt Protected	1.00			1.00		1.00
Satd. Flow (prot)	5085			5085		2787
Flt Permitted	1.00			1.00		1.00
Satd. Flow (perm)	5085			5085		2787
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1212	0	0	1261	0	429
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	1212	0	0	1261	0	429
Turn Type	NA			NA		Prot
Protected Phases	2			4 6		4
Permitted Phases						
Actuated Green, G (s)	98.0			150.0		40.5
Effective Green, g (s)	98.0			144.5		40.5
Actuated g/C Ratio	0.65			0.96		0.27
Clearance Time (s)	5.5					6.0
Vehicle Extension (s)	3.0					3.0
Lane Grp Cap (vph)	3322			4898		752
v/s Ratio Prot	c0.24			0.25		c0.15
v/s Ratio Perm						
v/c Ratio	0.36			0.26		0.57
Uniform Delay, d1	11.8			0.1		47.2
Progression Factor	0.25			1.00		1.00
Incremental Delay, d2	0.3			0.0		1.0
Delay (s)	3.2			0.2		48.3
Level of Service	A			A		D
Approach Delay (s)	3.2			0.2	48.3	
Approach LOS	A			A	D	

Intersection Summary			
HCM 2000 Control Delay	8.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	11.5
Intersection Capacity Utilization	44.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	35	110	885	480	300	810	125	570	0	220	280	0
Future Volume (vph)	35	110	885	480	300	810	125	570	0	220	280	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5	6.0	4.0	6.5	6.0	4.0	6.5		4.0	6.5	
Lane Util. Factor		0.97	0.91	1.00	1.00	0.91	1.00	1.00		1.00	0.97	
Frt		1.00	1.00	0.85	1.00	1.00	0.85	1.00		0.85	1.00	
Flt Protected		0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95	
Satd. Flow (prot)		3433	5085	1583	1770	5085	1583	1770		1583	3433	
Flt Permitted		0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95	
Satd. Flow (perm)		3433	5085	1583	1770	5085	1583	1770		1583	3433	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	38	120	962	522	326	880	136	620	0	239	304	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	158	962	522	326	880	136	620	0	239	304	0
Turn Type	Prot	Prot	NA	Free	Prot	NA	Free	Prot		Free	Prot	
Protected Phases	5	5	2		1	6		8			4	
Permitted Phases				Free			Free			Free		
Actuated Green, G (s)		11.0	36.3	135.0	27.7	53.0	135.0	52.0		135.0	52.0	
Effective Green, g (s)		11.0	36.3	135.0	27.7	53.0	135.0	52.0		135.0	52.0	
Actuated g/C Ratio		0.08	0.27	1.00	0.21	0.39	1.00	0.39		1.00	0.39	
Clearance Time (s)		6.5	6.0		6.5	6.0		6.5			6.5	
Vehicle Extension (s)		3.0	3.0		3.0	3.0		3.0			3.0	
Lane Grp Cap (vph)		279	1367	1583	363	1996	1583	681		1583	1322	
v/s Ratio Prot		0.05	c0.19		c0.18	0.17		c0.35			0.09	
v/s Ratio Perm				0.33			0.09			0.15		
v/c Ratio		0.57	0.70	0.33	0.90	0.44	0.09	0.91		0.15	0.23	
Uniform Delay, d1		59.7	44.5	0.0	52.3	30.1	0.0	39.3		0.0	28.0	
Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		2.6	3.1	0.6	23.7	0.7	0.1	16.4		0.2	0.1	
Delay (s)		62.3	47.6	0.6	76.0	30.8	0.1	55.7		0.2	28.1	
Level of Service		E	D	A	E	C	A	E		A	C	
Approach Delay (s)			34.0			38.7			40.2			9.2
Approach LOS			C			D			D			A

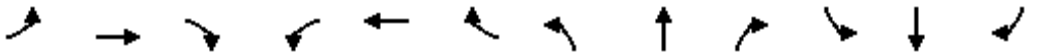
Intersection Summary			
HCM 2000 Control Delay	31.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	80.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	SBR
Lane Configurations	
Traffic Volume (vph)	640
Future Volume (vph)	640
Ideal Flow (vphpl)	1900
Total Lost time (s)	4.0
Lane Util. Factor	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1583
Flt Permitted	1.00
Satd. Flow (perm)	1583
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	696
RTOR Reduction (vph)	0
Lane Group Flow (vph)	696
Turn Type	Free
Protected Phases	
Permitted Phases	Free
Actuated Green, G (s)	135.0
Effective Green, g (s)	135.0
Actuated g/C Ratio	1.00
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	1583
v/s Ratio Prot	
v/s Ratio Perm	0.44
v/c Ratio	0.44
Uniform Delay, d1	0.0
Progression Factor	1.00
Incremental Delay, d2	0.9
Delay (s)	0.9
Level of Service	A
Approach Delay (s)	
Approach LOS	

Intersection Summary



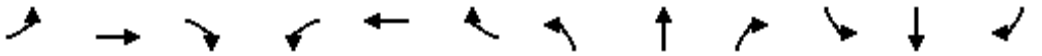
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	210	10	60	40	15	75	115	215	15	30	880	1205
Future Volume (veh/h)	210	10	60	40	15	75	115	215	15	30	880	1205
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1847	1847	1847	1864	1864	1864	1864	1864	1864	1776	1776	1776
Adj Flow Rate, veh/h	228	11	65	43	16	82	125	234	16	33	957	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	291	226	192	56	129	109	398	2080	141	739	2030	
Arrive On Green	0.09	0.12	0.12	0.03	0.07	0.07	0.04	0.62	0.62	0.03	0.60	0.00
Sat Flow, veh/h	3412	1847	1565	1776	1864	1580	1776	3366	229	1692	3375	1505
Grp Volume(v), veh/h	228	11	65	43	16	82	125	122	128	33	957	0
Grp Sat Flow(s),veh/h/ln	1706	1847	1565	1776	1864	1580	1776	1771	1823	1692	1687	1505
Q Serve(g_s), s	7.9	0.6	4.6	2.9	1.0	6.1	3.2	3.4	3.4	0.9	18.9	0.0
Cycle Q Clear(g_c), s	7.9	0.6	4.6	2.9	1.0	6.1	3.2	3.4	3.4	0.9	18.9	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.13	1.00		1.00
Lane Grp Cap(c), veh/h	291	226	192	56	129	109	398	1094	1127	739	2030	
V/C Ratio(X)	0.78	0.05	0.34	0.76	0.12	0.75	0.31	0.11	0.11	0.04	0.47	
Avail Cap(c_a), veh/h	446	400	339	126	292	248	519	1094	1127	764	2030	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.87	0.87	0.00
Uniform Delay (d), s/veh	53.8	46.5	48.2	57.6	52.4	54.8	10.0	9.4	9.4	8.4	13.3	0.0
Incr Delay (d2), s/veh	5.0	0.1	1.0	18.9	0.4	9.9	0.4	0.2	0.2	0.0	0.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.6	0.3	1.8	1.6	0.5	2.7	1.2	1.4	1.4	0.3	7.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	58.8	46.6	49.2	76.5	52.9	64.7	10.4	9.6	9.6	8.4	14.0	0.0
LnGrp LOS	E	D	D	E	D	E	B	A	A	A	B	
Approach Vol, veh/h		304			141			375			990	A
Approach Delay, s/veh		56.3			67.0			9.9			13.8	
Approach LOS		E			E			A			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.8	80.6	15.7	14.8	10.8	78.7	9.3	21.2
Change Period (Y+Rc), s	5.5	6.5	5.5	6.5	5.5	6.5	5.5	6.5
Max Green Setting (Gmax), s	5.1	56.4	15.7	18.8	13.5	48.0	8.5	26.0
Max Q Clear Time (g_c+I1), s	2.9	5.4	9.9	8.1	5.2	20.9	4.9	6.6
Green Ext Time (p_c), s	0.0	0.2	0.4	0.2	0.2	1.5	0.0	0.2

Intersection Summary	
HCM 6th Ctrl Delay	24.3
HCM 6th LOS	C

Notes

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	640	830	0	0	0	0	130	370	0	1285	0
Future Volume (vph)	5	640	830	0	0	0	0	130	370	0	1285	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	10	10	11	12	12	12
Grade (%)		5%			0%			4%			0%	
Total Lost time (s)		7.0	4.0					8.0	6.0		8.0	
Lane Util. Factor		0.95	1.00					0.95	0.88		0.91	
Frt		1.00	0.85					1.00	0.85		1.00	
Flt Protected		1.00	1.00					1.00	1.00		1.00	
Satd. Flow (prot)		3450	1544					3237	2640		5085	
Flt Permitted		1.00	1.00					1.00	1.00		1.00	
Satd. Flow (perm)		3450	1544					3237	2640		5085	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	696	902	0	0	0	0	141	402	0	1397	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	701	902	0	0	0	0	141	402	0	1397	0
Turn Type	Perm	NA	Free					NA	custom		NA	
Protected Phases		3						6	5 6		2 4	
Permitted Phases	3		Free									
Actuated Green, G (s)		37.8	160.0					20.8	81.8		107.2	
Effective Green, g (s)		37.8	160.0					20.8	81.8		102.7	
Actuated g/C Ratio		0.24	1.00					0.13	0.51		0.64	
Clearance Time (s)		7.0						8.0				
Vehicle Extension (s)		3.0						3.0				
Lane Grp Cap (vph)		815	1544					420	1349		3263	
v/s Ratio Prot								0.04	0.15		0.27	
v/s Ratio Perm		0.20	c0.58									
v/c Ratio		0.86	0.58					0.34	0.30		0.43	
Uniform Delay, d1		58.6	0.0					63.3	22.5		14.1	
Progression Factor		1.00	1.00					1.00	1.00		0.00	
Incremental Delay, d2		9.2	1.6					2.2	0.1		0.0	
Delay (s)		67.8	1.6					65.5	22.7		0.0	
Level of Service		E	A					E	C		A	
Approach Delay (s)		30.5			0.0			33.8			0.0	
Approach LOS		C			A			C			A	

Intersection Summary			
HCM 2000 Control Delay	19.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	25.5
Intersection Capacity Utilization	72.7%	ICU Level of Service	C
Analysis Period (min)	15		

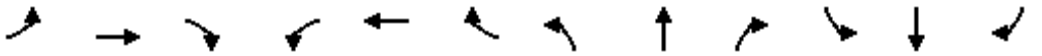
c Critical Lane Group



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	0	1285	585	135	0
Future Volume (vph)	0	0	1285	585	135	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	11	11	12	12
Grade (%)	0%			1%	0%	
Total Lost time (s)			4.5	4.5	7.0	
Lane Util. Factor			0.91	0.91	0.97	
Frt			1.00	1.00	1.00	
Flt Protected			0.95	0.97	0.95	
Satd. Flow (prot)			1549	3178	3433	
Flt Permitted			0.95	0.97	0.95	
Satd. Flow (perm)			1549	3178	3433	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	1397	636	147	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	698	1335	147	0
Turn Type			Split	NA	Prot	
Protected Phases			4 5	4 5	3 6	
Permitted Phases						
Actuated Green, G (s)			80.4	80.4	66.6	
Effective Green, g (s)			80.4	80.4	58.6	
Actuated g/C Ratio			0.50	0.50	0.37	
Clearance Time (s)						
Vehicle Extension (s)						
Lane Grp Cap (vph)			778	1596	1257	
v/s Ratio Prot			c0.45	0.42	c0.04	
v/s Ratio Perm						
v/c Ratio			0.90	0.84	0.12	
Uniform Delay, d1			36.1	34.2	33.6	
Progression Factor			1.00	1.00	0.01	
Incremental Delay, d2			13.0	4.0	0.0	
Delay (s)			49.1	38.1	0.3	
Level of Service			D	D	A	
Approach Delay (s)	0.0			41.8	0.3	
Approach LOS	A			D	A	

Intersection Summary			
HCM 2000 Control Delay	39.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	25.5
Intersection Capacity Utilization	81.1%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	515	30	280	5	5	20	165	1070	5	40	1975	470
Future Volume (vph)	515	30	280	5	5	20	165	1070	5	40	1975	470
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	12	12	16	12	11	11	12	11	11	14
Grade (%)		1%			0%			2%			0%	
Total Lost time (s)	6.5	6.5	6.5		7.0		6.5	6.5		6.5	6.5	6.5
Lane Util. Factor	0.95	0.95	1.00		1.00		0.97	0.91		1.00	0.91	1.00
Frt	1.00	1.00	0.85		0.91		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	0.96	1.00		0.99		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1561	1573	1575		1900		3285	4864		1711	4916	1689
Flt Permitted	0.95	0.96	1.00		0.99		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1561	1573	1575		1900		3285	4864		1711	4916	1689
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	560	33	304	5	5	22	179	1163	5	43	2147	511
RTOR Reduction (vph)	0	0	89	0	21	0	0	0	0	0	0	169
Lane Group Flow (vph)	297	296	215	0	11	0	179	1168	0	43	2147	342
Turn Type	Split	NA	pm+ov	Split	NA		Prot	NA		Prot	NA	Perm
Protected Phases	4	4	6	3	3		6	2		1	5	
Permitted Phases			4									5
Actuated Green, G (s)	30.7	30.7	42.5		4.0		11.8	81.6		7.2	77.0	77.0
Effective Green, g (s)	30.7	30.7	42.5		4.0		11.8	81.6		7.2	77.0	77.0
Actuated g/C Ratio	0.20	0.20	0.28		0.03		0.08	0.54		0.05	0.51	0.51
Clearance Time (s)	6.5	6.5	6.5		7.0		6.5	6.5		6.5	6.5	6.5
Vehicle Extension (s)	3.0	3.0	3.0		3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	319	321	446		50		258	2646		82	2523	867
v/s Ratio Prot	c0.19	0.19	0.04		c0.01		c0.05	0.24		0.03	c0.44	
v/s Ratio Perm			0.10									0.20
v/c Ratio	0.93	0.92	0.48		0.21		0.69	0.44		0.52	0.85	0.39
Uniform Delay, d1	58.6	58.5	44.6		71.5		67.3	20.5		69.7	31.5	22.3
Progression Factor	1.00	1.00	1.00		1.00		1.00	1.00		1.02	1.01	1.36
Incremental Delay, d2	32.9	30.8	0.8		2.1		7.8	0.5		4.1	2.7	0.9
Delay (s)	91.5	89.3	45.4		73.6		75.2	21.1		75.2	34.7	31.3
Level of Service	F	F	D		E		E	C		E	C	C
Approach Delay (s)		75.2			73.6			28.2			34.7	
Approach LOS		E			E			C			C	

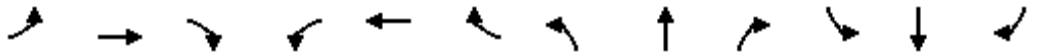
Intersection Summary			
HCM 2000 Control Delay	40.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	26.5
Intersection Capacity Utilization	80.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	195	5	615	0	0	0	0	1430	175	230	1870	0
Future Volume (vph)	195	5	615	0	0	0	0	1430	175	230	1870	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	12	11	12	12	12	12	11	16	11	11	12
Grade (%)		3%			0%			1%			0%	
Total Lost time (s)	8.0	8.0	8.0					6.5		5.5	5.5	
Lane Util. Factor	0.95	0.95	*0.80					0.76		0.97	0.91	
Frt	1.00	1.00	0.85					0.98		1.00	1.00	
Flt Protected	0.95	0.95	1.00					1.00		0.95	1.00	
Satd. Flow (prot)	1601	1664	2412					8036		3319	4916	
Flt Permitted	0.95	0.95	1.00					1.00		0.95	1.00	
Satd. Flow (perm)	1601	1664	2412					8036		3319	4916	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	212	5	668	0	0	0	0	1554	190	250	2033	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	13	0	0	0	0
Lane Group Flow (vph)	108	109	668	0	0	0	0	1731	0	250	2033	0
Turn Type	Split	NA	Prot					NA		Prot	NA	
Protected Phases	4	4	4					6		5	2	
Permitted Phases												
Actuated Green, G (s)	49.8	49.8	49.8					59.5		20.7	86.7	
Effective Green, g (s)	49.8	49.8	49.8					59.5		20.7	86.7	
Actuated g/C Ratio	0.33	0.33	0.33					0.40		0.14	0.58	
Clearance Time (s)	8.0	8.0	8.0					6.5		5.5	5.5	
Vehicle Extension (s)	3.0	3.0	3.0					3.0		3.0	3.0	
Lane Grp Cap (vph)	531	552	800					3187		458	2841	
v/s Ratio Prot	0.07	0.07	c0.28					0.22		0.08	c0.41	
v/s Ratio Perm												
v/c Ratio	0.20	0.20	0.83					0.54		0.55	0.72	
Uniform Delay, d1	35.9	35.8	46.3					34.8		60.3	22.8	
Progression Factor	1.00	1.00	1.00					0.68		0.55	0.35	
Incremental Delay, d2	0.2	0.2	7.5					0.6		4.2	1.4	
Delay (s)	36.1	36.0	53.8					24.3		37.5	9.5	
Level of Service	D	D	D					C		D	A	
Approach Delay (s)		49.5			0.0			24.3			12.6	
Approach LOS		D			A			C			B	

Intersection Summary			
HCM 2000 Control Delay	23.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	68.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	120	5	425	275	1350	0	0	1980	780
Future Volume (vph)	0	0	0	120	5	425	275	1350	0	0	1980	780
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	13	16	10	11	12	12	11	12
Grade (%)		0%			5%			0%			-1%	
Total Lost time (s)				8.0	8.0	4.0	6.5	6.0			6.0	4.0
Lane Util. Factor				0.95	0.95	1.00	0.97	0.86			0.81	1.00
Frt				1.00	1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	0.96	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				1639	1704	1750	3204	6194			7329	1591
Flt Permitted				0.95	0.96	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				1639	1704	1750	3204	6194			7329	1591
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	130	5	462	299	1467	0	0	2152	848
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	68	67	462	299	1467	0	0	2152	848
Turn Type				Split	NA	Free	Prot	NA			NA	Free
Protected Phases				4	4		1	6			2	
Permitted Phases						Free						Free
Actuated Green, G (s)				12.5	12.5	150.0	20.2	123.5			96.8	150.0
Effective Green, g (s)				12.5	12.5	150.0	20.2	123.5			96.8	150.0
Actuated g/C Ratio				0.08	0.08	1.00	0.13	0.82			0.65	1.00
Clearance Time (s)				8.0	8.0		6.5	6.0			6.0	
Vehicle Extension (s)				4.0	4.0		4.0	4.0			4.0	
Lane Grp Cap (vph)				136	142	1750	431	5099			4729	1591
v/s Ratio Prot				0.04	0.04		0.09	0.24			0.29	
v/s Ratio Perm						0.26						c0.53
v/c Ratio				0.50	0.47	0.26	0.69	0.29			0.46	0.53
Uniform Delay, d1				65.8	65.6	0.0	61.9	3.1			13.4	0.0
Progression Factor				1.00	1.00	1.00	1.41	0.26			0.45	1.00
Incremental Delay, d2				3.9	3.3	0.4	4.4	0.1			0.0	0.1
Delay (s)				69.7	69.0	0.4	91.6	0.9			6.1	0.1
Level of Service				E	E	A	F	A			A	A
Approach Delay (s)		0.0			16.0			16.3			4.4	
Approach LOS		A			B			B			A	

Intersection Summary			
HCM 2000 Control Delay	9.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	20.5
Intersection Capacity Utilization	68.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



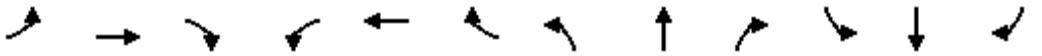
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	110	435	215	690	190	75	10	230	1060	475	30	1845
Future Volume (vph)	110	435	215	690	190	75	10	230	1060	475	30	1845
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	12	12	10	12	12	12	10	11	11	11	11
Grade (%)		3%			2%				0%			-1%
Total Lost time (s)	6.5	6.5		6.5	6.5	6.5		6.5	6.5	6.5	6.5	6.5
Lane Util. Factor	0.97	0.95		0.97	0.95	1.00		1.00	0.91	1.00	1.00	*0.80
Frt	1.00	0.95		1.00	1.00	0.85		1.00	1.00	0.85	1.00	0.99
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3156	3313		3172	3504	1567		1652	4916	1531	1719	4308
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.08	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3156	3313		3172	3504	1567		141	4916	1531	1719	4308
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	120	473	234	750	207	82	11	250	1152	516	33	2005
RTOR Reduction (vph)	0	0	0	0	0	65	0	0	0	289	0	4
Lane Group Flow (vph)	120	707	0	750	207	17	0	261	1152	227	33	2115
Turn Type	Split	NA		Split	NA	pt+ov	pm+pt	pm+pt	NA	Perm	Prot	NA
Protected Phases	4	4		3	3	3 5	1	1	6		5	2
Permitted Phases							6	6		6		
Actuated Green, G (s)	33.0	33.0		22.5	22.5	30.2		60.8	60.8	60.8	7.7	57.0
Effective Green, g (s)	33.0	33.0		22.5	22.5	30.2		60.8	60.8	60.8	7.7	57.0
Actuated g/C Ratio	0.22	0.22		0.15	0.15	0.20		0.41	0.41	0.41	0.05	0.38
Clearance Time (s)	6.5	6.5		6.5	6.5			6.5	6.5	6.5	6.5	6.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	694	728		475	525	315		172	1992	620	88	1637
v/s Ratio Prot	0.04	c0.21		c0.24	0.06	0.01		c0.12	0.23		0.02	c0.49
v/s Ratio Perm								c0.50		0.15		
v/c Ratio	0.17	0.97		1.58	0.39	0.05		1.52	0.58	0.37	0.38	1.29
Uniform Delay, d1	47.4	58.0		63.8	57.6	48.4		64.7	34.6	31.1	68.8	46.5
Progression Factor	1.00	1.00		1.00	1.00	1.00		0.63	0.46	0.61	1.00	1.00
Incremental Delay, d2	0.1	26.2		270.5	2.2	0.1		259.7	1.2	1.6	2.7	136.2
Delay (s)	47.6	84.3		334.2	59.8	48.4		300.2	17.0	20.6	71.5	182.7
Level of Service	D	F		F	E	D		F	B	C	E	F
Approach Delay (s)		78.9			257.0				56.3			181.0
Approach LOS		E			F				E			F

Intersection Summary			
HCM 2000 Control Delay	139.6	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.38		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	26.0
Intersection Capacity Utilization	111.5%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group



Movement	SBR
Lane Configurations	
Traffic Volume (vph)	105
Future Volume (vph)	105
Ideal Flow (vphpl)	1900
Lane Width	12
Grade (%)	
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	114
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	



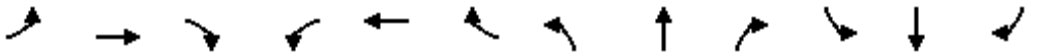
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	465	40	250	40	10	45	40	805	25	75	280	395
Future Volume (veh/h)	465	40	250	40	10	45	40	805	25	75	280	395
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1847	1847	1847	1864	1864	1864	1864	1864	1864	1776	1776	1776
Adj Flow Rate, veh/h	505	43	272	43	11	49	43	875	27	82	304	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	586	353	299	56	95	81	652	1887	58	351	1840	
Arrive On Green	0.17	0.19	0.19	0.03	0.05	0.05	0.03	0.54	0.54	0.04	0.55	0.00
Sat Flow, veh/h	3412	1847	1565	1776	1864	1580	1776	3508	108	1692	3375	1505
Grp Volume(v), veh/h	505	43	272	43	11	49	43	442	460	82	304	0
Grp Sat Flow(s),veh/h/ln	1706	1847	1565	1776	1864	1580	1776	1771	1845	1692	1687	1505
Q Serve(g_s), s	17.3	2.3	20.4	2.9	0.7	3.6	1.3	18.4	18.4	2.6	5.4	0.0
Cycle Q Clear(g_c), s	17.3	2.3	20.4	2.9	0.7	3.6	1.3	18.4	18.4	2.6	5.4	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.06	1.00		1.00
Lane Grp Cap(c), veh/h	586	353	299	56	95	81	652	953	993	351	1840	
V/C Ratio(X)	0.86	0.12	0.91	0.76	0.12	0.61	0.07	0.46	0.46	0.23	0.17	
Avail Cap(c_a), veh/h	816	426	361	146	138	117	675	953	993	442	1840	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.99	0.99	0.00
Uniform Delay (d), s/veh	48.3	40.2	47.5	57.6	54.3	55.7	11.5	17.1	17.1	12.9	13.6	0.0
Incr Delay (d2), s/veh	6.9	0.2	23.3	18.9	0.5	7.1	0.0	1.6	1.6	0.3	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.9	1.1	9.9	1.6	0.3	1.6	0.5	7.8	8.1	1.0	2.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	55.2	40.3	70.8	76.5	54.9	62.8	11.5	18.7	18.6	13.3	13.8	0.0
LnGrp LOS	E	D	E	E	D	E	B	B	B	B	B	
Approach Vol, veh/h		820			103			945			386	A
Approach Delay, s/veh		59.6			67.7			18.3			13.7	
Approach LOS		E			E			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.2	71.1	26.1	12.6	9.3	71.9	9.3	29.5
Change Period (Y+Rc), s	5.5	6.5	5.5	6.5	5.5	6.5	5.5	6.5
Max Green Setting (Gmax), s	11.1	47.3	28.7	8.9	5.3	53.1	9.9	27.7
Max Q Clear Time (g_c+I1), s	4.6	20.4	19.3	5.6	3.3	7.4	4.9	22.4
Green Ext Time (p_c), s	0.1	1.0	1.4	0.0	0.0	0.4	0.0	0.6

Intersection Summary	
HCM 6th Ctrl Delay	34.8
HCM 6th LOS	C

Notes

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	500	345	0	0	0	0	425	890	0	405	0
Future Volume (vph)	5	500	345	0	0	0	0	425	890	0	405	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	10	10	11	12	12	12
Grade (%)		5%			0%			4%			0%	
Total Lost time (s)		7.0	4.0					8.0	6.0		8.0	
Lane Util. Factor		0.95	1.00					0.95	0.88		0.91	
Frt		1.00	0.85					1.00	0.85		1.00	
Flt Protected		1.00	1.00					1.00	1.00		1.00	
Satd. Flow (prot)		3449	1544					3237	2640		5085	
Flt Permitted		1.00	1.00					1.00	1.00		1.00	
Satd. Flow (perm)		3449	1544					3237	2640		5085	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	543	375	0	0	0	0	462	967	0	440	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	548	375	0	0	0	0	462	967	0	440	0
Turn Type	Perm	NA	Free					NA	custom		NA	
Protected Phases		3						6	5 6		2 4	
Permitted Phases	3		Free									
Actuated Green, G (s)		28.5	160.0					30.0	98.5		116.5	
Effective Green, g (s)		28.5	160.0					30.0	98.5		109.5	
Actuated g/C Ratio		0.18	1.00					0.19	0.62		0.68	
Clearance Time (s)		7.0						8.0				
Vehicle Extension (s)		3.0						3.0				
Lane Grp Cap (vph)		614	1544					606	1625		3480	
v/s Ratio Prot								c0.14	c0.37		0.09	
v/s Ratio Perm		0.16	c0.24									
v/c Ratio		0.89	0.24					0.76	0.60		0.13	
Uniform Delay, d1		64.3	0.0					61.6	18.7		8.7	
Progression Factor		1.00	1.00					1.00	1.00		0.00	
Incremental Delay, d2		15.2	0.4					8.8	0.6		0.0	
Delay (s)		79.5	0.4					70.4	19.2		0.0	
Level of Service		E	A					E	B		A	
Approach Delay (s)		47.4			0.0			35.8			0.0	
Approach LOS		D			A			D			A	

Intersection Summary			
HCM 2000 Control Delay	34.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	28.0
Intersection Capacity Utilization	81.5%	ICU Level of Service	D
Analysis Period (min)	15		

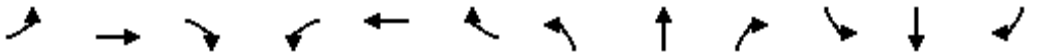
c Critical Lane Group



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	0	405	1095	430	0
Future Volume (vph)	0	0	405	1095	430	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	11	11	12	12
Grade (%)	0%			1%	0%	
Total Lost time (s)			7.0	7.0	7.0	
Lane Util. Factor			0.91	0.91	0.97	
Frt			1.00	1.00	1.00	
Flt Protected			0.95	1.00	0.95	
Satd. Flow (prot)			1549	3255	3433	
Flt Permitted			0.95	1.00	0.95	
Satd. Flow (perm)			1549	3255	3433	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	440	1190	467	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	396	1234	467	0
Turn Type			Split	NA	Prot	
Protected Phases			4 5	4 5	3 6	
Permitted Phases						
Actuated Green, G (s)			80.5	80.5	66.5	
Effective Green, g (s)			80.5	80.5	58.5	
Actuated g/C Ratio			0.50	0.50	0.37	
Clearance Time (s)						
Vehicle Extension (s)						
Lane Grp Cap (vph)			779	1637	1255	
v/s Ratio Prot			0.26	c0.38	c0.14	
v/s Ratio Perm						
v/c Ratio			0.51	0.75	0.37	
Uniform Delay, d1			26.5	31.8	37.3	
Progression Factor			1.01	0.99	0.00	
Incremental Delay, d2			0.5	2.0	0.1	
Delay (s)			27.3	33.6	0.1	
Level of Service			C	C	A	
Approach Delay (s)	0.0			32.1	0.1	
Approach LOS	A			C	A	

Intersection Summary			
HCM 2000 Control Delay	25.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	28.0
Intersection Capacity Utilization	89.8%	ICU Level of Service	E
Analysis Period (min)	15		

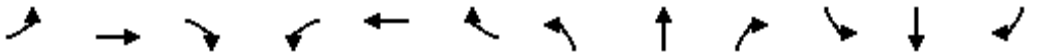
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	545	50	150	5	20	120	180	2230	10	100	1460	210
Future Volume (vph)	545	50	150	5	20	120	180	2230	10	100	1460	210
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	12	12	16	12	11	11	12	11	11	14
Grade (%)		1%			0%			2%			0%	
Total Lost time (s)	6.5	6.5	6.5		7.0		6.5	6.5		6.5	6.5	6.5
Lane Util. Factor	0.95	0.95	1.00		1.00		0.97	0.91		1.00	0.91	1.00
Frt	1.00	1.00	0.85		0.89		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	0.96	1.00		1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1561	1578	1575		1872		3285	4863		1711	4916	1689
Flt Permitted	0.95	0.96	1.00		1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1561	1578	1575		1872		3285	4863		1711	4916	1689
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	592	54	163	5	22	130	196	2424	11	109	1587	228
RTOR Reduction (vph)	0	0	79	0	101	0	0	1	0	0	0	102
Lane Group Flow (vph)	320	326	84	0	56	0	196	2434	0	109	1587	126
Turn Type	Split	NA	pm+ov	Split	NA		Prot	NA		Prot	NA	Perm
Protected Phases	4	4	6	3	3		6	2		1	5	
Permitted Phases			4									5
Actuated Green, G (s)	33.2	33.2	54.2		5.0		21.0	74.6		10.7	64.3	64.3
Effective Green, g (s)	33.2	33.2	54.2		5.0		21.0	74.6		10.7	64.3	64.3
Actuated g/C Ratio	0.22	0.22	0.36		0.03		0.14	0.50		0.07	0.43	0.43
Clearance Time (s)	6.5	6.5	6.5		7.0		6.5	6.5		6.5	6.5	6.5
Vehicle Extension (s)	3.0	3.0	3.0		3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	345	349	569		62		459	2418		122	2107	724
v/s Ratio Prot	0.20	c0.21	0.02		c0.03		0.06	c0.50		0.06	c0.32	
v/s Ratio Perm			0.03									0.07
v/c Ratio	0.93	0.93	0.15		0.91		0.43	1.01		0.89	0.75	0.17
Uniform Delay, d1	57.2	57.3	32.3		72.3		59.0	37.7		69.1	36.2	26.5
Progression Factor	1.00	1.00	1.00		1.00		1.00	1.00		0.72	1.26	2.48
Incremental Delay, d2	30.2	31.5	0.1		82.8		0.6	20.0		45.5	2.2	0.5
Delay (s)	87.4	88.8	32.4		155.1		59.6	57.7		95.3	47.7	66.1
Level of Service	F	F	C		F		E	E		F	D	E
Approach Delay (s)		76.9			155.1			57.8			52.5	
Approach LOS		E			F			E			D	

Intersection Summary			
HCM 2000 Control Delay	61.5	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	26.5
Intersection Capacity Utilization	96.1%	ICU Level of Service	F
Analysis Period (min)	15		

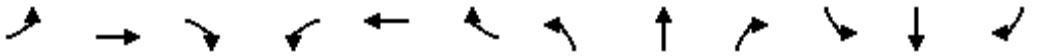
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	670	5	200	0	0	0	0	2650	245	115	1570	0
Future Volume (vph)	670	5	200	0	0	0	0	2650	245	115	1570	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	12	11	12	12	12	12	11	16	11	11	12
Grade (%)		3%			0%			1%			0%	
Total Lost time (s)	8.0	8.0	8.0					6.5		5.5	5.5	
Lane Util. Factor	0.95	0.95	*0.80					0.76		0.97	0.91	
Frt	1.00	1.00	0.85					0.99		1.00	1.00	
Flt Protected	0.95	0.95	1.00					1.00		0.95	1.00	
Satd. Flow (prot)	1601	1661	2412					8066		3319	4916	
Flt Permitted	0.95	0.95	1.00					1.00		0.95	1.00	
Satd. Flow (perm)	1601	1661	2412					8066		3319	4916	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	728	5	217	0	0	0	0	2880	266	125	1707	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	11	0	0	0	0
Lane Group Flow (vph)	364	369	217	0	0	0	0	3135	0	125	1707	0
Turn Type	Split	NA	Prot					NA		Prot	NA	
Protected Phases	4	4	4					6		5	2	
Permitted Phases												
Actuated Green, G (s)	39.9	39.9	39.9					70.6		19.5	96.6	
Effective Green, g (s)	39.9	39.9	39.9					70.6		19.5	96.6	
Actuated g/C Ratio	0.27	0.27	0.27					0.47		0.13	0.64	
Clearance Time (s)	8.0	8.0	8.0					6.5		5.5	5.5	
Vehicle Extension (s)	4.0	4.0	4.0					4.0		0.2	0.2	
Lane Grp Cap (vph)	425	441	641					3796		431	3165	
v/s Ratio Prot	c0.23	0.22	0.09					c0.39		0.04	c0.35	
v/s Ratio Perm												
v/c Ratio	0.86	0.84	0.34					0.83		0.29	0.54	
Uniform Delay, d1	52.3	52.0	44.4					34.4		59.0	14.6	
Progression Factor	1.00	1.00	1.00					0.49		0.42	0.56	
Incremental Delay, d2	16.0	13.5	0.4					0.6		1.6	0.6	
Delay (s)	68.3	65.4	44.8					17.4		26.3	8.7	
Level of Service	E	E	D					B		C	A	
Approach Delay (s)		61.8			0.0			17.4			9.9	
Approach LOS		E			A			B			A	

Intersection Summary			
HCM 2000 Control Delay	22.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	72.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	80	5	255	630	2690	0	0	1605	590
Future Volume (vph)	0	0	0	80	5	255	630	2690	0	0	1605	590
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	13	16	10	11	12	12	11	12
Grade (%)		0%			5%			0%			-1%	
Total Lost time (s)				8.0	8.0	4.0	6.5	6.0			6.0	4.0
Lane Util. Factor				0.95	0.95	1.00	0.97	0.86			0.81	1.00
Frt				1.00	1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	0.96	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				1639	1707	1750	3204	6194			7329	1591
Flt Permitted				0.95	0.96	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				1639	1707	1750	3204	6194			7329	1591
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	87	5	277	685	2924	0	0	1745	641
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	46	46	277	685	2924	0	0	1745	641
Turn Type				Split	NA	Free	Prot	NA			NA	Free
Protected Phases				4	4		1	6			2	
Permitted Phases						Free						Free
Actuated Green, G (s)				9.2	9.2	150.0	40.2	126.8			80.1	150.0
Effective Green, g (s)				9.2	9.2	150.0	40.2	126.8			80.1	150.0
Actuated g/C Ratio				0.06	0.06	1.00	0.27	0.85			0.53	1.00
Clearance Time (s)				8.0	8.0		6.5	6.0			6.0	
Vehicle Extension (s)				4.0	4.0		4.0	0.2			0.2	
Lane Grp Cap (vph)				100	104	1750	858	5235			3913	1591
v/s Ratio Prot				0.03	0.03		c0.21	c0.47			0.24	
v/s Ratio Perm						0.16						c0.40
v/c Ratio				0.46	0.44	0.16	0.80	0.56			0.45	0.40
Uniform Delay, d1				68.0	67.9	0.0	51.1	3.4			21.4	0.0
Progression Factor				1.00	1.00	1.00	1.38	0.92			0.69	1.00
Incremental Delay, d2				4.5	4.1	0.2	3.0	0.2			0.0	0.1
Delay (s)				72.5	72.0	0.2	73.6	3.4			14.7	0.1
Level of Service				E	E	A	E	A			B	A
Approach Delay (s)		0.0			18.2			16.7			10.8	
Approach LOS		A			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	14.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	20.5
Intersection Capacity Utilization	72.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	300	260	145	470	305	100	20	245	2040	640	65	1560
Future Volume (vph)	300	260	145	470	305	100	20	245	2040	640	65	1560
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	12	12	10	12	12	12	10	11	11	11	11
Grade (%)		3%			2%				0%			-1%
Total Lost time (s)	6.5	6.5		6.5	6.5	6.5		6.5	6.5	6.5	6.5	6.5
Lane Util. Factor	0.97	0.95		0.97	0.95	1.00		1.00	0.91	1.00	1.00	*0.80
Frt	1.00	0.95		1.00	1.00	0.85		1.00	1.00	0.85	1.00	0.98
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3156	3299		3172	3504	1567		1652	4916	1531	1719	4246
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.07	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3156	3299		3172	3504	1567		126	4916	1531	1719	4246
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	326	283	158	511	332	109	22	266	2217	696	71	1696
RTOR Reduction (vph)	0	0	0	0	0	89	0	0	0	218	0	12
Lane Group Flow (vph)	326	441	0	511	332	20	0	288	2217	478	71	1983
Turn Type	Split	NA		Split	NA	pt+ov	pm+pt	pm+pt	NA	Perm	Prot	NA
Protected Phases	4	4		3	3	3 5	1	1	6		5	2
Permitted Phases							6	6		6		
Actuated Green, G (s)	26.9	26.9		17.5	17.5	27.6		69.5	69.5	69.5	10.1	65.1
Effective Green, g (s)	26.9	26.9		17.5	17.5	27.6		69.5	69.5	69.5	10.1	65.1
Actuated g/C Ratio	0.18	0.18		0.12	0.12	0.18		0.46	0.46	0.46	0.07	0.43
Clearance Time (s)	6.5	6.5		6.5	6.5			6.5	6.5	6.5	6.5	6.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	565	591		370	408	288		205	2277	709	115	1842
v/s Ratio Prot	0.10	c0.13		c0.16	0.09	0.01		c0.14	0.45		0.04	c0.47
v/s Ratio Perm								c0.51		0.31		
v/c Ratio	0.58	0.75		1.38	0.81	0.07		1.40	0.97	0.67	0.62	1.08
Uniform Delay, d1	56.3	58.3		66.2	64.7	50.6		63.2	39.4	31.4	68.1	42.5
Progression Factor	1.00	1.00		1.00	1.00	1.00		0.64	0.44	0.40	1.00	1.00
Incremental Delay, d2	1.4	5.1		187.6	11.8	0.1		205.7	12.4	4.4	9.5	44.9
Delay (s)	57.8	63.4		253.9	76.4	50.7		246.2	29.9	16.9	77.5	87.3
Level of Service	E	E		F	E	D		F	C	B	E	F
Approach Delay (s)		61.0			168.7				46.5			87.0
Approach LOS		E			F				D			F

Intersection Summary			
HCM 2000 Control Delay	76.7	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.24		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	26.0
Intersection Capacity Utilization	97.9%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



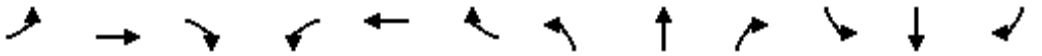
Movement	SBR
Lane Configurations	
Traffic Volume (vph)	275
Future Volume (vph)	275
Ideal Flow (vphpl)	1900
Lane Width	12
Grade (%)	
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	299
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	960	0	0	655	270	0
Future Volume (veh/h)	960	0	0	655	270	0
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	0	0	1870	1945	0
Adj Flow Rate, veh/h	1043	0	0	712	293	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	0	0	2	2	0
Cap, veh/h	3412	0	0	3412	0	0
Arrive On Green	0.96	0.00	0.00	0.96	0.00	0.00
Sat Flow, veh/h	3741	0	0	3741	0	0
Grp Volume(v), veh/h	1043	0	0	712	0	0
Grp Sat Flow(s),veh/h/ln	1777	0	0	1777	0	0
Q Serve(g_s), s	2.5	0.0	0.0	1.5	0.0	0.0
Cycle Q Clear(g_c), s	2.5	0.0	0.0	1.5	0.0	0.0
Prop In Lane		0.00	0.00		0.00	0.00
Lane Grp Cap(c), veh/h	3412	0	0	3412	0	0
V/C Ratio(X)	0.31	0.00	0.00	0.21	0.00	0.00
Avail Cap(c_a), veh/h	3412	0	0	3412	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.2	0.0	0.0	0.2	0.0	0.0
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.0	0.1	0.0	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.4	0.0	0.0	0.3	0.0	0.0
LnGrp LOS	A	A	A	A	A	A
Approach Vol, veh/h	1043			712	0	
Approach Delay, s/veh	0.4			0.3	0.0	
Approach LOS	A			A		

Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		150.0		0.0		150.0
Change Period (Y+Rc), s		6.0		5.0		6.0
Max Green Setting (Gmax), s		98.0		41.0		98.0
Max Q Clear Time (g_c+I1), s		3.5		0.0		4.5
Green Ext Time (p_c), s		0.9		0.0		1.5

Intersection Summary	
HCM 6th Ctrl Delay	0.4
HCM 6th LOS	A



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	85	1880	25	5	1575	20	30	5	5	40	10	180
Future Volume (veh/h)	85	1880	25	5	1575	20	30	5	5	40	10	180
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1847	1921	1847	1817	1817	1817	1949	1949	1949	2067	2149	2149
Adj Flow Rate, veh/h	92	2043	27	5	1712	22	33	5	5	43	11	196
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	222	2811	1205	140	2588	1154	136	20	16	202	48	225
Arrive On Green	0.02	0.77	0.77	0.00	0.75	0.75	0.14	0.12	0.12	0.14	0.12	0.12
Sat Flow, veh/h	1759	3649	1565	1731	3453	1540	818	165	129	1347	389	1821
Grp Volume(v), veh/h	92	2043	27	5	1712	22	43	0	0	54	0	196
Grp Sat Flow(s),veh/h/ln	1759	1825	1565	1731	1726	1540	1112	0	0	1736	0	1821
Q Serve(g_s), s	2.2	52.6	0.7	0.1	44.3	0.7	4.5	0.0	0.0	0.0	0.0	19.0
Cycle Q Clear(g_c), s	2.2	52.6	0.7	0.1	44.3	0.7	9.3	0.0	0.0	4.8	0.0	19.0
Prop In Lane	1.00		1.00	1.00		1.00	0.77		0.12	0.80		1.00
Lane Grp Cap(c), veh/h	222	2811	1205	140	2588	1154	188	0	0	274	0	225
V/C Ratio(X)	0.42	0.73	0.02	0.04	0.66	0.02	0.23	0.00	0.00	0.20	0.00	0.87
Avail Cap(c_a), veh/h	276	2811	1205	162	2588	1154	242	0	0	343	0	299
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	13.0	10.8	4.8	12.3	11.2	5.7	73.5	0.0	0.0	70.3	0.0	77.5
Incr Delay (d2), s/veh	2.6	1.7	0.0	0.2	1.3	0.0	1.3	0.0	0.0	0.7	0.0	24.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	20.1	0.2	0.1	16.5	0.2	1.9	0.0	0.0	2.3	0.0	10.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	15.7	12.5	4.9	12.5	12.5	5.8	74.8	0.0	0.0	71.1	0.0	101.8
LnGrp LOS	B	B	A	B	B	A	E	A	A	E	A	F
Approach Vol, veh/h		2162			1739			43			250	
Approach Delay, s/veh		12.5			12.5			74.8			95.2	
Approach LOS		B			B			E			F	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.4	140.9		28.7	6.7	144.6		28.7				
Change Period (Y+Rc), s	6.0	6.0		6.5	6.0	6.0		6.5				
Max Green Setting (Gmax), s	10.0	122.0		29.5	3.0	129.0		29.5				
Max Q Clear Time (g_c+I1), s	4.2	46.3		11.3	2.1	54.6		21.0				
Green Ext Time (p_c), s	0.2	2.9		0.3	0.0	4.0		1.2				

Intersection Summary			
HCM 6th Ctrl Delay		18.1	
HCM 6th LOS		B	



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	20	1195	30	10	115	660	140	20	40	305	545	125
Future Volume (vph)	20	1195	30	10	115	660	140	20	40	305	545	125
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	12	12	12	12	12	11	11	11	16	9	10
Grade (%)		0%				-1%			2%			-3%
Total Lost time (s)	6.0	6.0			4.5	6.0	6.0	7.5	7.5	4.0	7.0	7.0
Lane Util. Factor	1.00	0.95			1.00	0.95	1.00	1.00	1.00	1.00	0.95	0.95
Frt	1.00	1.00			1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00			0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.97
Satd. Flow (prot)	1711	3526			1778	3557	1538	1694	1783	1776	1536	1620
Flt Permitted	0.38	1.00			0.06	1.00	1.00	0.95	1.00	1.00	0.95	0.97
Satd. Flow (perm)	683	3526			114	3557	1538	1694	1783	1776	1536	1620
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	22	1299	33	11	125	717	152	22	43	332	592	136
RTOR Reduction (vph)	0	1	0	0	0	0	68	0	0	0	0	1
Lane Group Flow (vph)	22	1331	0	0	136	717	84	22	43	332	373	365
Turn Type	Perm	NA		pm+pt	pm+pt	NA	Perm	Split	NA	Free	Split	NA
Protected Phases		6		5	5	2		3	3		4	4
Permitted Phases	6			2	2		2			Free		
Actuated Green, G (s)	67.8	67.8			83.2	83.2	83.2	4.6	4.6	150.0	41.7	41.7
Effective Green, g (s)	67.8	67.8			83.2	83.2	83.2	4.6	4.6	150.0	41.7	41.7
Actuated g/C Ratio	0.45	0.45			0.55	0.55	0.55	0.03	0.03	1.00	0.28	0.28
Clearance Time (s)	6.0	6.0			4.5	6.0	6.0	7.5	7.5		7.0	7.0
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	5.0	5.0		5.0	5.0
Lane Grp Cap (vph)	308	1593			184	1972	853	51	54	1776	427	450
v/s Ratio Prot		c0.38			c0.05	0.20		0.01	c0.02		c0.24	0.23
v/s Ratio Perm	0.03				0.36		0.05			0.19		
v/c Ratio	0.07	0.84			0.74	0.36	0.10	0.43	0.80	0.19	0.87	0.81
Uniform Delay, d1	23.3	36.2			35.0	18.6	15.7	71.4	72.2	0.0	51.6	50.5
Progression Factor	1.00	1.00			1.46	0.66	0.09	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.4	5.4			14.1	0.5	0.2	11.8	60.5	0.2	18.9	12.0
Delay (s)	23.7	41.5			65.1	12.8	1.6	83.2	132.7	0.2	70.5	62.5
Level of Service	C	D			E	B	A	F	F	A	E	E
Approach Delay (s)		41.3				18.2			19.2			66.5
Approach LOS		D				B			B			E

Intersection Summary			
HCM 2000 Control Delay	37.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	25.0
Intersection Capacity Utilization	80.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

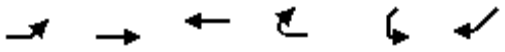


Movement	SBR
Lane Configurations	
Traffic Volume (vph)	10
Future Volume (vph)	10
Ideal Flow (vphpl)	1900
Lane Width	12
Grade (%)	
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	11
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	960	0	0	655	270	0
Future Volume (vph)	960	0	0	655	270	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	13	12
Total Lost time (s)	6.0			6.0	5.0	
Lane Util. Factor	0.95			0.95	0.97	
Frt	1.00			1.00	1.00	
Flt Protected	1.00			1.00	0.95	
Satd. Flow (prot)	3539			3539	3547	
Flt Permitted	1.00			1.00	0.95	
Satd. Flow (perm)	3539			3539	3547	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1043	0	0	712	293	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	1043	0	0	712	293	0
Turn Type	NA			NA	Prot	
Protected Phases	6			2	4	
Permitted Phases						
Actuated Green, G (s)	119.4			119.4	19.6	
Effective Green, g (s)	119.4			119.4	19.6	
Actuated g/C Ratio	0.80			0.80	0.13	
Clearance Time (s)	6.0			6.0	5.0	
Vehicle Extension (s)	0.2			0.2	5.0	
Lane Grp Cap (vph)	2817			2817	463	
v/s Ratio Prot	c0.29			0.20	c0.08	
v/s Ratio Perm						
v/c Ratio	0.37			0.25	0.63	
Uniform Delay, d1	4.4			3.9	61.8	
Progression Factor	0.52			1.00	1.00	
Incremental Delay, d2	0.3			0.2	3.9	
Delay (s)	2.6			4.1	65.7	
Level of Service	A			A	E	
Approach Delay (s)	2.6			4.1	65.7	
Approach LOS	A			A	E	

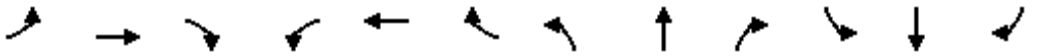
Intersection Summary			
HCM 2000 Control Delay	12.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	65.1%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	275	1320	960	0	0	0
Future Volume (vph)	275	1320	960	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	4.0	6.0			
Lane Util. Factor	1.00	0.91	0.95			
Frt	1.00	1.00	1.00			
Flt Protected	0.95	1.00	1.00			
Satd. Flow (prot)	1770	5085	3539			
Flt Permitted	0.27	1.00	1.00			
Satd. Flow (perm)	511	5085	3539			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	299	1435	1043	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	299	1435	1043	0	0	0
Turn Type	D.Pm	NA	NA			
Protected Phases		Free	2			
Permitted Phases	2					
Actuated Green, G (s)	150.0	150.0	150.0			
Effective Green, g (s)	150.0	150.0	150.0			
Actuated g/C Ratio	1.00	1.00	1.00			
Clearance Time (s)	6.0		6.0			
Vehicle Extension (s)	0.2		0.2			
Lane Grp Cap (vph)	511	5085	3539			
v/s Ratio Prot		0.28	0.29			
v/s Ratio Perm	c0.58					
v/c Ratio	0.59	0.28	0.29			
Uniform Delay, d1	0.0	0.0	0.0			
Progression Factor	1.00	1.00	1.00			
Incremental Delay, d2	4.8	0.1	0.2			
Delay (s)	4.8	0.1	0.2			
Level of Service	A	A	A			
Approach Delay (s)		0.9	0.2		0.0	
Approach LOS		A	A		A	

Intersection Summary			
HCM 2000 Control Delay	0.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	58.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	85	1880	25	5	1575	20	30	5	5	40	10	180
Future Volume (vph)	85	1880	25	5	1575	20	30	5	5	40	10	180
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	13	11	11	11	11	12	12	12	12	14	15
Grade (%)		2%			3%			-2%			-5%	
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0		6.5			6.5	6.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		1.00			1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85		0.98			1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.96			0.96	1.00
Satd. Flow (prot)	1694	3621	1515	1685	3370	1508		1783			1959	1785
Flt Permitted	0.09	1.00	1.00	0.07	1.00	1.00		0.74			0.77	1.00
Satd. Flow (perm)	166	3621	1515	121	3370	1508		1371			1571	1785
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	92	2043	27	5	1712	22	33	5	5	43	11	196
RTOR Reduction (vph)	0	0	6	0	0	6	0	3	0	0	0	81
Lane Group Flow (vph)	92	2043	21	5	1712	16	0	40	0	0	54	115
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA		Perm	NA	Perm
Protected Phases	1	6		5	2			4			8	
Permitted Phases	6		6	2		2	4			8		8
Actuated Green, G (s)	148.7	142.0	142.0	134.2	133.5	133.5		18.8			18.8	18.8
Effective Green, g (s)	148.7	142.0	142.0	134.2	133.5	133.5		18.8			18.8	18.8
Actuated g/C Ratio	0.83	0.79	0.79	0.75	0.74	0.74		0.10			0.10	0.10
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0		6.5			6.5	6.5
Vehicle Extension (s)	5.0	0.2	0.2	5.0	0.2	0.2		5.0			5.0	5.0
Lane Grp Cap (vph)	215	2856	1195	96	2499	1118		143			164	186
v/s Ratio Prot	c0.02	c0.56		0.00	0.51							
v/s Ratio Perm	0.33		0.01	0.04		0.01		0.03			0.03	c0.06
v/c Ratio	0.43	0.72	0.02	0.05	0.69	0.01		0.28			0.33	0.62
Uniform Delay, d1	12.4	9.2	4.1	10.9	12.2	6.1		74.4			74.8	77.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00			1.00	1.00
Incremental Delay, d2	2.8	1.6	0.0	0.5	1.5	0.0		2.3			2.5	8.5
Delay (s)	15.3	10.8	4.1	11.3	13.8	6.1		76.6			77.2	85.6
Level of Service	B	B	A	B	B	A		E			E	F
Approach Delay (s)		10.9			13.7			76.6			83.8	
Approach LOS		B			B			E			F	

Intersection Summary			
HCM 2000 Control Delay	17.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	18.5
Intersection Capacity Utilization	79.6%	ICU Level of Service	D
Analysis Period (min)	15		

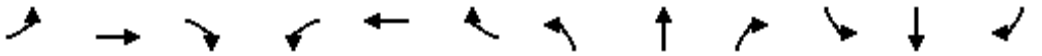
c Critical Lane Group



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1105	0	0	2025	280	0
Future Volume (veh/h)	1105	0	0	2025	280	0
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	0	0	1870	1945	0
Adj Flow Rate, veh/h	1201	0	0	2201	304	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	0	0	2	2	0
Cap, veh/h	3412	0	0	3412	0	0
Arrive On Green	0.96	0.00	0.00	0.96	0.00	0.00
Sat Flow, veh/h	3741	0	0	3741	0	0
Grp Volume(v), veh/h	1201	0	0	2201	0	0
Grp Sat Flow(s),veh/h/ln	1777	0	0	1777	0	0
Q Serve(g_s), s	3.1	0.0	0.0	9.8	0.0	0.0
Cycle Q Clear(g_c), s	3.1	0.0	0.0	9.8	0.0	0.0
Prop In Lane		0.00	0.00		0.00	0.00
Lane Grp Cap(c), veh/h	3412	0	0	3412	0	0
V/C Ratio(X)	0.35	0.00	0.00	0.65	0.00	0.00
Avail Cap(c_a), veh/h	3412	0	0	3412	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.2	0.0	0.0	0.3	0.0	0.0
Incr Delay (d2), s/veh	0.3	0.0	0.0	1.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.0	0.5	0.0	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.5	0.0	0.0	1.3	0.0	0.0
LnGrp LOS	A	A	A	A	A	A
Approach Vol, veh/h	1201			2201	0	
Approach Delay, s/veh	0.5			1.3	0.0	
Approach LOS	A			A		

Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		150.0		0.0		150.0
Change Period (Y+Rc), s		6.0		5.0		6.0
Max Green Setting (Gmax), s		119.0		20.0		119.0
Max Q Clear Time (g_c+I1), s		11.8		0.0		5.1
Green Ext Time (p_c), s		88.4		0.0		30.2

Intersection Summary	
HCM 6th Ctrl Delay	1.0
HCM 6th LOS	A



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	235	1570	55	5	2195	50	20	5	5	40	10	125
Future Volume (veh/h)	235	1570	55	5	2195	50	20	5	5	40	10	125
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1847	1921	1847	1817	1817	1817	1949	1949	1949	2067	2149	2149
Adj Flow Rate, veh/h	255	1707	60	5	2386	54	22	5	5	43	11	136
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	283	2944	1263	214	2322	1036	94	21	15	150	35	158
Arrive On Green	0.14	0.81	0.81	0.00	0.67	0.67	0.10	0.09	0.09	0.10	0.09	0.09
Sat Flow, veh/h	1759	3649	1565	1731	3453	1540	697	239	173	1322	399	1821
Grp Volume(v), veh/h	255	1707	60	5	2386	54	32	0	0	54	0	136
Grp Sat Flow(s),veh/h/ln	1759	1825	1565	1731	1726	1540	1109	0	0	1720	0	1821
Q Serve(g_s), s	21.5	30.6	1.4	0.2	121.1	2.1	2.6	0.0	0.0	0.0	0.0	13.3
Cycle Q Clear(g_c), s	21.5	30.6	1.4	0.2	121.1	2.1	7.8	0.0	0.0	5.1	0.0	13.3
Prop In Lane	1.00		1.00	1.00		1.00	0.69		0.16	0.80		1.00
Lane Grp Cap(c), veh/h	283	2944	1263	214	2322	1036	145	0	0	209	0	158
V/C Ratio(X)	0.90	0.58	0.05	0.02	1.03	0.05	0.22	0.00	0.00	0.26	0.00	0.86
Avail Cap(c_a), veh/h	392	2944	1263	236	2322	1036	165	0	0	233	0	183
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	69.4	6.3	3.5	9.6	29.5	10.0	78.4	0.0	0.0	76.4	0.0	81.1
Incr Delay (d2), s/veh	23.8	0.8	0.1	0.1	26.1	0.1	1.6	0.0	0.0	1.4	0.0	33.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	13.5	10.8	0.4	0.1	55.5	0.8	1.5	0.0	0.0	2.4	0.0	7.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	93.2	7.1	3.6	9.7	55.6	10.1	80.0	0.0	0.0	77.8	0.0	114.5
LnGrp LOS	F	A	A	A	F	B	F	A	A	E	A	F
Approach Vol, veh/h		2022			2445			32			190	
Approach Delay, s/veh		17.9			54.5			80.0			104.1	
Approach LOS		B			D			F			F	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	30.8	127.1		22.1	6.7	151.2		22.1				
Change Period (Y+Rc), s	6.0	6.0		6.5	6.0	6.0		6.5				
Max Green Setting (Gmax), s	36.0	107.4		18.1	3.0	140.4		18.1				
Max Q Clear Time (g_c+I1), s	23.5	123.1		9.8	2.2	32.6		15.3				
Green Ext Time (p_c), s	1.3	0.0		0.1	0.0	2.9		0.3				

Intersection Summary												
HCM 6th Ctrl Delay			40.9									
HCM 6th LOS			D									



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	25	685	25	15	260	1275	755	25	195	395	490	185
Future Volume (vph)	25	685	25	15	260	1275	755	25	195	395	490	185
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	12	12	12	12	12	11	11	11	16	9	10
Grade (%)		0%				-1%			2%			-3%
Total Lost time (s)	6.0	6.0			4.5	6.0	6.0	7.5	7.5	4.0	7.0	7.0
Lane Util. Factor	1.00	0.95			1.00	0.95	1.00	1.00	1.00	1.00	0.95	0.95
Frt	1.00	0.99			1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99
Flt Protected	0.95	1.00			0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.98
Satd. Flow (prot)	1711	3521			1778	3557	1538	1694	1783	1776	1536	1620
Flt Permitted	0.10	1.00			0.11	1.00	1.00	0.95	1.00	1.00	0.95	0.98
Satd. Flow (perm)	184	3521			198	3557	1538	1694	1783	1776	1536	1620
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	27	745	27	16	283	1386	821	27	212	429	533	201
RTOR Reduction (vph)	0	1	0	0	0	0	441	0	0	0	0	2
Lane Group Flow (vph)	27	771	0	0	299	1386	380	27	212	429	336	429
Turn Type	Perm	NA		pm+pt	pm+pt	NA	Perm	Split	NA	Free	Split	NA
Protected Phases		6		5	5	2		3	3		4	4
Permitted Phases	6			2	2		2			Free		
Actuated Green, G (s)	39.2	39.2			65.6	65.6	65.6	20.9	20.9	150.0	43.0	43.0
Effective Green, g (s)	39.2	39.2			65.6	65.6	65.6	20.9	20.9	150.0	43.0	43.0
Actuated g/C Ratio	0.26	0.26			0.44	0.44	0.44	0.14	0.14	1.00	0.29	0.29
Clearance Time (s)	6.0	6.0			4.5	6.0	6.0	7.5	7.5		7.0	7.0
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	5.0	5.0		5.0	5.0
Lane Grp Cap (vph)	48	920			317	1555	672	236	248	1776	440	464
v/s Ratio Prot		0.22			0.14	c0.39		0.02	c0.12		0.22	c0.26
v/s Ratio Perm	0.15				c0.27		0.25			0.24		
v/c Ratio	0.56	0.84			0.94	0.89	0.57	0.11	0.85	0.24	0.76	0.92
Uniform Delay, d1	48.0	52.4			43.8	38.9	31.5	56.5	63.1	0.0	48.9	51.9
Progression Factor	1.00	1.00			0.94	0.89	0.48	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	40.1	9.0			26.6	5.4	2.2	0.5	25.8	0.3	9.0	25.1
Delay (s)	88.0	61.4			67.6	40.3	17.4	56.9	88.8	0.3	57.9	77.0
Level of Service	F	E			E	D	B	E	F	A	E	E
Approach Delay (s)		62.3				36.0			30.7			68.6
Approach LOS		E				D			C			E

Intersection Summary			
HCM 2000 Control Delay	45.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	25.0
Intersection Capacity Utilization	92.8%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

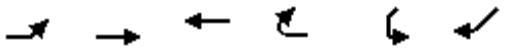


Movement	SBR
Lane Configurations	
Traffic Volume (vph)	30
Future Volume (vph)	30
Ideal Flow (vphpl)	1900
Lane Width	12
Grade (%)	
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	33
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1105	0	0	2025	280	0
Future Volume (vph)	1105	0	0	2025	280	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	13	12
Total Lost time (s)	6.0			6.0	5.0	
Lane Util. Factor	0.95			0.95	0.97	
Frt	1.00			1.00	1.00	
Flt Protected	1.00			1.00	0.95	
Satd. Flow (prot)	3539			3539	3547	
Flt Permitted	1.00			1.00	0.95	
Satd. Flow (perm)	3539			3539	3547	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1201	0	0	2201	304	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	1201	0	0	2201	304	0
Turn Type	NA			NA	Prot	
Protected Phases	6			2	4	
Permitted Phases						
Actuated Green, G (s)	121.5			121.5	17.5	
Effective Green, g (s)	121.5			121.5	17.5	
Actuated g/C Ratio	0.81			0.81	0.12	
Clearance Time (s)	6.0			6.0	5.0	
Vehicle Extension (s)	5.0			5.0	3.0	
Lane Grp Cap (vph)	2866			2866	413	
v/s Ratio Prot	0.34			c0.62	c0.09	
v/s Ratio Perm						
v/c Ratio	0.42			0.77	0.74	
Uniform Delay, d1	4.1			7.2	64.0	
Progression Factor	0.19			0.49	1.00	
Incremental Delay, d2	0.3			2.0	6.7	
Delay (s)	1.1			5.5	70.7	
Level of Service	A			A	E	
Approach Delay (s)	1.1			5.5	70.7	
Approach LOS	A			A	E	

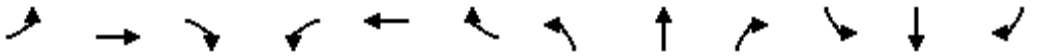
Intersection Summary			
HCM 2000 Control Delay	9.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	73.1%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	335	1415	1425	0	0	0
Future Volume (vph)	335	1415	1425	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	4.0	6.0			
Lane Util. Factor	1.00	0.91	0.95			
Frt	1.00	1.00	1.00			
Flt Protected	0.95	1.00	1.00			
Satd. Flow (prot)	1770	5085	3539			
Flt Permitted	0.13	1.00	1.00			
Satd. Flow (perm)	236	5085	3539			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	364	1538	1549	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	364	1538	1549	0	0	0
Turn Type	D.P+P	NA	NA			
Protected Phases	1	Free	2			
Permitted Phases	2					
Actuated Green, G (s)	139.0	150.0	111.6			
Effective Green, g (s)	139.0	150.0	111.6			
Actuated g/C Ratio	0.93	1.00	0.74			
Clearance Time (s)	5.0		6.0			
Vehicle Extension (s)	3.0		0.2			
Lane Grp Cap (vph)	498	5085	2633			
v/s Ratio Prot	c0.13	0.30	0.44			
v/s Ratio Perm	c0.54					
v/c Ratio	0.73	0.30	0.59			
Uniform Delay, d1	26.2	0.0	8.7			
Progression Factor	0.71	1.00	1.00			
Incremental Delay, d2	5.4	0.2	1.0			
Delay (s)	24.1	0.2	9.7			
Level of Service	C	A	A			
Approach Delay (s)		4.7	9.7		0.0	
Approach LOS		A	A		A	

Intersection Summary			
HCM 2000 Control Delay	7.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	119.4%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	235	1570	55	5	2195	50	20	5	5	40	10	125
Future Volume (vph)	235	1570	55	5	2195	50	20	5	5	40	10	125
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	13	11	11	11	11	12	12	12	12	14	15
Grade (%)		2%			3%			-2%			-5%	
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0		6.5			6.5	6.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		1.00			1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85		0.98			1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.97			0.96	1.00
Satd. Flow (prot)	1694	3621	1515	1685	3370	1508		1780			1959	1785
Flt Permitted	0.03	1.00	1.00	0.14	1.00	1.00		0.76			0.75	1.00
Satd. Flow (perm)	57	3621	1515	249	3370	1508		1401			1527	1785
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	255	1707	60	5	2386	54	22	5	5	43	11	136
RTOR Reduction (vph)	0	0	11	0	0	18	0	4	0	0	0	126
Lane Group Flow (vph)	255	1707	49	5	2386	36	0	28	0	0	54	10
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA		Perm	NA	Perm
Protected Phases	1	6		5	2			4			8	
Permitted Phases	6		6	2		2	4			8		8
Actuated Green, G (s)	153.9	147.3	147.3	119.9	119.3	119.3		13.6			13.6	13.6
Effective Green, g (s)	153.9	147.3	147.3	119.9	119.3	119.3		13.6			13.6	13.6
Actuated g/C Ratio	0.86	0.82	0.82	0.67	0.66	0.66		0.08			0.08	0.08
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0		6.5			6.5	6.5
Vehicle Extension (s)	5.0	0.2	0.2	5.0	0.2	0.2		5.0			5.0	5.0
Lane Grp Cap (vph)	308	2963	1239	170	2233	999		105			115	134
v/s Ratio Prot	c0.13	0.47		0.00	c0.71							
v/s Ratio Perm	0.58		0.03	0.02		0.02		0.02			c0.04	0.01
v/c Ratio	0.83	0.58	0.04	0.03	1.07	0.04		0.27			0.47	0.08
Uniform Delay, d1	66.8	5.6	3.1	10.2	30.4	10.5		78.5			79.7	77.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00			1.00	1.00
Incremental Delay, d2	18.3	0.8	0.1	0.1	40.4	0.1		2.9			6.2	0.5
Delay (s)	85.1	6.4	3.1	10.4	70.8	10.6		81.4			86.0	77.9
Level of Service	F	A	A	B	E	B		F			F	E
Approach Delay (s)		16.3			69.3			81.4			80.2	
Approach LOS		B			E			F			F	

Intersection Summary			
HCM 2000 Control Delay	47.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	18.5
Intersection Capacity Utilization	97.5%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



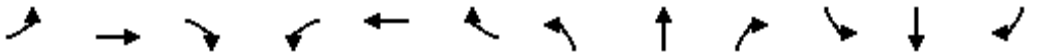
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	60	5	205	5	5	5	5	115	1260	5	5	2220
Future Volume (vph)	60	5	205	5	5	5	5	115	1260	5	5	2220
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.5	5.5		7.0			5.5	6.0	6.0	6.0	6.0
Lane Util. Factor		1.00	1.00		1.00			1.00	0.91	1.00	1.00	0.91
Frt		1.00	0.85		0.95			1.00	1.00	0.85	1.00	1.00
Flt Protected		0.96	1.00		0.98			0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)		1780	1583		1750			1770	5085	1583	1770	5067
Flt Permitted		0.73	1.00		0.89			0.04	1.00	1.00	0.19	1.00
Satd. Flow (perm)		1361	1583		1585			68	5085	1583	347	5067
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	65	5	223	5	5	5	5	125	1370	5	5	2413
RTOR Reduction (vph)	0	0	18	0	5	0	0	0	0	1	0	1
Lane Group Flow (vph)	0	70	205	0	10	0	0	130	1370	4	5	2472
Turn Type	Perm	NA	pm+ov	Perm	NA		custom	pm+pt	NA	Perm	Perm	NA
Protected Phases		4	1!		8			1	6			2
Permitted Phases	4		4	8			1!	6		6	2	
Actuated Green, G (s)		13.1	26.5		13.6			123.4	123.4	123.4	104.5	104.5
Effective Green, g (s)		13.1	26.5		13.6			123.4	123.4	123.4	104.5	104.5
Actuated g/C Ratio		0.09	0.18		0.09			0.82	0.82	0.82	0.70	0.70
Clearance Time (s)		7.5	5.5		7.0			5.5	6.0	6.0	6.0	6.0
Vehicle Extension (s)		5.0	3.0		5.0			3.0	0.2	0.2	0.2	0.2
Lane Grp Cap (vph)		118	279		143			207	4183	1302	241	3530
v/s Ratio Prot			c0.07					0.06	0.27			c0.49
v/s Ratio Perm		0.05	0.06		0.01			0.46		0.00	0.01	
v/c Ratio		0.59	0.73		0.07			0.63	0.33	0.00	0.02	0.70
Uniform Delay, d1		65.9	58.4		62.4			41.4	3.2	2.4	7.0	13.5
Progression Factor		1.00	1.00		1.00			0.80	1.18	1.00	1.00	1.00
Incremental Delay, d2		11.5	9.6		0.5			5.3	0.2	0.0	0.2	1.2
Delay (s)		77.4	68.0		62.9			38.5	4.0	2.4	7.2	14.7
Level of Service		E	E		E			D	A	A	A	B
Approach Delay (s)		70.3			62.9				7.0			14.6
Approach LOS		E			E				A			B

Intersection Summary			
HCM 2000 Control Delay	15.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	87.6%	ICU Level of Service	E
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group



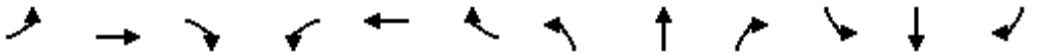
Movement	SBR
Lane Configurations	
Traffic Volume (vph)	55
Future Volume (vph)	55
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	60
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	170	5	340	300	1045	0	0	1970	465
Future Volume (vph)	0	0	0	170	5	340	300	1045	0	0	1970	465
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.5	6.5	6.5	6.0	5.5			6.0	
Lane Util. Factor				0.95	0.95	1.00	1.00	0.91			0.91	
Frt				1.00	1.00	0.85	1.00	1.00			0.97	
Flt Protected				0.95	0.95	1.00	0.95	1.00			1.00	
Satd. Flow (prot)				1681	1690	1583	1770	5085			4940	
Flt Permitted				0.95	0.95	1.00	0.05	1.00			1.00	
Satd. Flow (perm)				1681	1690	1583	86	5085			4940	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	185	5	370	326	1136	0	0	2141	505
RTOR Reduction (vph)	0	0	0	0	0	113	0	0	0	0	25	0
Lane Group Flow (vph)	0	0	0	94	96	257	326	1136	0	0	2621	0
Turn Type				Perm	NA	Perm	pm+pt	NA			NA	
Protected Phases					4		6	2			5	
Permitted Phases				4		4	2					
Actuated Green, G (s)				27.3	27.3	27.3	110.7	110.7			80.2	
Effective Green, g (s)				27.3	27.3	27.3	110.7	110.7			80.2	
Actuated g/C Ratio				0.18	0.18	0.18	0.74	0.74			0.53	
Clearance Time (s)				6.5	6.5	6.5	6.0	5.5			6.0	
Vehicle Extension (s)				4.0	4.0	4.0	3.0	0.2			0.2	
Lane Grp Cap (vph)				305	307	288	332	3752			2641	
v/s Ratio Prot							c0.16	0.22			0.53	
v/s Ratio Perm				0.06	0.06	c0.16	c0.57					
v/c Ratio				0.31	0.31	0.89	0.98	0.30			0.99	
Uniform Delay, d1				53.2	53.2	59.9	56.2	6.6			34.6	
Progression Factor				1.00	1.00	1.00	0.84	0.32			0.70	
Incremental Delay, d2				0.8	0.8	27.9	41.6	0.2			13.3	
Delay (s)				54.0	54.0	87.8	89.0	2.3			37.6	
Level of Service				D	D	F	F	A			D	
Approach Delay (s)		0.0			76.3			21.7			37.6	
Approach LOS		A			E			C			D	

Intersection Summary			
HCM 2000 Control Delay	37.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	18.5
Intersection Capacity Utilization	85.3%	ICU Level of Service	E
Analysis Period (min)	15		

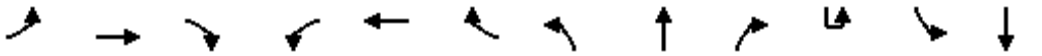
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	175	5	495	0	0	0	0	1170	165	210	1930	0
Future Volume (vph)	175	5	495	0	0	0	0	1170	165	210	1930	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5	4.0					6.0		6.0	5.5	
Lane Util. Factor	0.95	0.95	1.00					0.91		1.00	0.91	
Frt	1.00	1.00	0.85					0.98		1.00	1.00	
Flt Protected	0.95	0.95	1.00					1.00		0.95	1.00	
Satd. Flow (prot)	1681	1689	1583					4991		1770	5085	
Flt Permitted	0.95	0.95	1.00					1.00		0.14	1.00	
Satd. Flow (perm)	1681	1689	1583					4991		257	5085	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	190	5	538	0	0	0	0	1272	179	228	2098	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	10	0	0	0	0
Lane Group Flow (vph)	97	98	538	0	0	0	0	1441	0	228	2098	0
Turn Type	Split	NA	Free					NA		pm+pt	NA	
Protected Phases	4	4						5		6	2	
Permitted Phases			Free							2		
Actuated Green, G (s)	16.4	16.4	150.0					91.1		121.6	121.6	
Effective Green, g (s)	16.4	16.4	150.0					91.1		121.6	121.6	
Actuated g/C Ratio	0.11	0.11	1.00					0.61		0.81	0.81	
Clearance Time (s)	6.5	6.5						6.0		6.0	5.5	
Vehicle Extension (s)	5.0	5.0						0.2		3.0	0.2	
Lane Grp Cap (vph)	183	184	1583					3031		450	4122	
v/s Ratio Prot	0.06	c0.06						0.29		0.08	c0.41	
v/s Ratio Perm			0.34							0.33		
v/c Ratio	0.53	0.53	0.34					0.48		0.51	0.51	
Uniform Delay, d1	63.2	63.2	0.0					16.3		20.2	4.6	
Progression Factor	1.00	1.00	1.00					0.73		0.99	0.38	
Incremental Delay, d2	5.3	5.3	0.6					0.5		0.2	0.2	
Delay (s)	68.5	68.5	0.6					12.4		20.3	1.9	
Level of Service	E	E	A					B		C	A	
Approach Delay (s)		18.6			0.0			12.4			3.7	
Approach LOS		B			A			B			A	

Intersection Summary			
HCM 2000 Control Delay	8.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	18.5
Intersection Capacity Utilization	85.3%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	230	20	10	30	5	70	5	1025	15	10	95	2285
Future Volume (vph)	230	20	10	30	5	70	5	1025	15	10	95	2285
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5		6.5	6.5	6.5	5.5	6.5			5.5	6.5
Lane Util. Factor		1.00		1.00	1.00	1.00	1.00	0.91			1.00	0.91
Frt		0.99		1.00	1.00	0.85	1.00	1.00			1.00	1.00
Flt Protected		0.96		0.95	1.00	1.00	0.95	1.00			0.95	1.00
Satd. Flow (prot)		1775		1770	1863	1583	1770	5074			1770	5074
Flt Permitted		0.75		0.78	1.00	1.00	0.04	1.00			0.20	1.00
Satd. Flow (perm)		1385		1452	1863	1583	80	5074			375	5074
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	250	22	11	33	5	76	5	1114	16	11	103	2484
RTOR Reduction (vph)	0	1	0	0	0	61	0	1	0	0	0	1
Lane Group Flow (vph)	0	282	0	33	5	15	5	1129	0	0	114	2521
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA		custom	pm+pt	NA
Protected Phases		4			8		1	6			5	2
Permitted Phases	4			8		8	6			5	2	
Actuated Green, G (s)		29.5		29.5	29.5	29.5	94.9	93.7			107.5	100.8
Effective Green, g (s)		29.5		29.5	29.5	29.5	94.9	93.7			107.5	100.8
Actuated g/C Ratio		0.20		0.20	0.20	0.20	0.63	0.62			0.72	0.67
Clearance Time (s)		6.5		6.5	6.5	6.5	5.5	6.5			5.5	6.5
Vehicle Extension (s)		4.0		4.0	4.0	4.0	3.0	0.2			3.0	0.2
Lane Grp Cap (vph)		272		285	366	311	64	3169			345	3409
v/s Ratio Prot					0.00		0.00	0.22			c0.02	c0.50
v/s Ratio Perm		c0.20		0.02		0.01	0.05				0.22	
v/c Ratio		1.04		0.12	0.01	0.05	0.08	0.36			0.33	0.74
Uniform Delay, d1		60.2		49.5	48.5	48.9	15.2	13.6			7.6	16.0
Progression Factor		1.00		1.00	1.00	1.00	1.00	1.00			0.20	0.14
Incremental Delay, d2		64.7		0.2	0.0	0.1	0.5	0.3			0.5	1.3
Delay (s)		124.9		49.8	48.6	49.0	15.7	13.9			2.0	3.5
Level of Service		F		D	D	D	B	B			A	A
Approach Delay (s)		124.9			49.2			13.9				3.4
Approach LOS		F			D			B				A

Intersection Summary			
HCM 2000 Control Delay	15.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	18.5
Intersection Capacity Utilization	84.7%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Movement	SBR
Lane Configurations	
Traffic Volume (vph)	35
Future Volume (vph)	35
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	38
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	95	5	75	5	5	5	5	155	2495	5	5	1875
Future Volume (vph)	95	5	75	5	5	5	5	155	2495	5	5	1875
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.5	5.5		7.0			5.5	6.0	6.0	6.0	6.0
Lane Util. Factor		1.00	1.00		1.00			1.00	0.91	1.00	1.00	0.91
Frt		1.00	0.85		0.95			1.00	1.00	0.85	1.00	0.99
Flt Protected		0.95	1.00		0.98			0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)		1778	1583		1750			1770	5085	1583	1770	5054
Flt Permitted		0.73	1.00		0.90			0.05	1.00	1.00	0.04	1.00
Satd. Flow (perm)		1351	1583		1608			95	5085	1583	77	5054
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	103	5	82	5	5	5	5	168	2712	5	5	2038
RTOR Reduction (vph)	0	0	17	0	4	0	0	0	0	1	0	2
Lane Group Flow (vph)	0	108	65	0	11	0	0	173	2712	4	5	2123
Turn Type	Perm	NA	pm+ov	Perm	NA		custom	pm+pt	NA	Perm	Perm	NA
Protected Phases		4	1!		8			1	6			2
Permitted Phases	4		4	8			1!	6		6	2	
Actuated Green, G (s)		19.4	33.7		19.9			117.1	117.1	117.1	97.3	97.3
Effective Green, g (s)		19.4	33.7		19.9			117.1	117.1	117.1	97.3	97.3
Actuated g/C Ratio		0.13	0.22		0.13			0.78	0.78	0.78	0.65	0.65
Clearance Time (s)		7.5	5.5		7.0			5.5	6.0	6.0	6.0	6.0
Vehicle Extension (s)		5.0	3.0		5.0			3.0	0.2	0.2	0.2	0.2
Lane Grp Cap (vph)		174	355		213			233	3969	1235	49	3278
v/s Ratio Prot			0.02					0.07	c0.53			0.42
v/s Ratio Perm		c0.08	0.02		0.01			c0.51		0.00	0.07	
v/c Ratio		0.62	0.18		0.05			0.74	0.68	0.00	0.10	0.65
Uniform Delay, d1		61.8	47.0		56.8			39.5	7.7	3.6	9.9	16.0
Progression Factor		1.00	1.00		1.00			0.71	1.62	1.00	1.00	1.00
Incremental Delay, d2		9.4	0.2		0.2			8.3	0.7	0.0	4.1	1.0
Delay (s)		71.2	47.3		57.0			36.4	13.2	3.6	14.0	17.0
Level of Service		E	D		E			D	B	A	B	B
Approach Delay (s)		60.9			57.0				14.6			17.0
Approach LOS		E			E				B			B

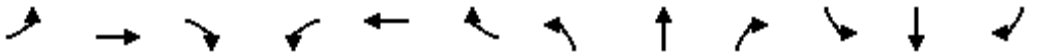
Intersection Summary			
HCM 2000 Control Delay	17.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	93.3%	ICU Level of Service	F
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group



Movement	SBR
Lane Configurations	
Traffic Volume (vph)	80
Future Volume (vph)	80
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	87
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

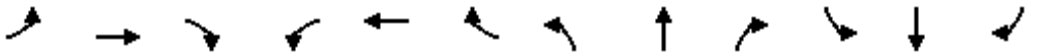
Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	160	5	325	195	2335	0	0	1480	480
Future Volume (vph)	0	0	0	160	5	325	195	2335	0	0	1480	480
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.5	6.5	6.5	6.0	5.5			6.0	
Lane Util. Factor				0.95	0.95	1.00	1.00	0.91			0.91	
Frt				1.00	1.00	0.85	1.00	1.00			0.96	
Flt Protected				0.95	0.95	1.00	0.95	1.00			1.00	
Satd. Flow (prot)				1681	1690	1583	1770	5085			4898	
Flt Permitted				0.95	0.95	1.00	0.04	1.00			1.00	
Satd. Flow (perm)				1681	1690	1583	81	5085			4898	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	174	5	353	212	2538	0	0	1609	522
RTOR Reduction (vph)	0	0	0	0	0	52	0	0	0	0	38	0
Lane Group Flow (vph)	0	0	0	89	90	301	212	2538	0	0	2093	0
Turn Type				Perm	NA	Perm	pm+pt	NA			NA	
Protected Phases					4		6	2			5	
Permitted Phases				4		4	2					
Actuated Green, G (s)				31.1	31.1	31.1	106.9	106.9			85.4	
Effective Green, g (s)				31.1	31.1	31.1	106.9	106.9			85.4	
Actuated g/C Ratio				0.21	0.21	0.21	0.71	0.71			0.57	
Clearance Time (s)				6.5	6.5	6.5	6.0	5.5			6.0	
Vehicle Extension (s)				4.0	4.0	4.0	3.0	0.2			0.2	
Lane Grp Cap (vph)				348	350	328	226	3623			2788	
v/s Ratio Prot							c0.09	0.50			0.43	
v/s Ratio Perm				0.05	0.05	c0.19	c0.57					
v/c Ratio				0.26	0.26	0.92	0.94	0.70			0.75	
Uniform Delay, d1				49.8	49.8	58.2	43.6	12.4			24.3	
Progression Factor				1.00	1.00	1.00	0.56	0.05			0.46	
Incremental Delay, d2				0.5	0.5	29.9	25.9	0.6			1.5	
Delay (s)				50.3	50.3	88.1	50.3	1.2			12.6	
Level of Service				D	D	F	D	A			B	
Approach Delay (s)		0.0			75.4			5.0			12.6	
Approach LOS		A			E			A			B	

Intersection Summary			
HCM 2000 Control Delay	14.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	18.5
Intersection Capacity Utilization	80.5%	ICU Level of Service	D
Analysis Period (min)	15		

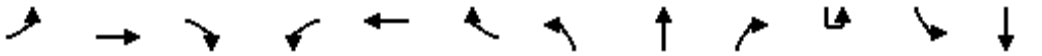
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	365	5	190	0	0	0	0	2165	135	180	1460	0
Future Volume (vph)	365	5	190	0	0	0	0	2165	135	180	1460	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5	4.0					6.0		6.0	5.5	
Lane Util. Factor	0.95	0.95	1.00					0.91		1.00	0.91	
Frt	1.00	1.00	0.85					0.99		1.00	1.00	
Flt Protected	0.95	0.95	1.00					1.00		0.95	1.00	
Satd. Flow (prot)	1681	1687	1583					5040		1770	5085	
Flt Permitted	0.95	0.95	1.00					1.00		0.04	1.00	
Satd. Flow (perm)	1681	1687	1583					5040		84	5085	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	397	5	207	0	0	0	0	2353	147	196	1587	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	5	0	0	0	0
Lane Group Flow (vph)	202	200	207	0	0	0	0	2496	0	196	1587	0
Turn Type	Split	NA	Free					NA		pm+pt	NA	
Protected Phases	4	4						5		6	2	
Permitted Phases			Free							2		
Actuated Green, G (s)	25.0	25.0	150.0					82.5		113.0	113.0	
Effective Green, g (s)	25.0	25.0	150.0					82.5		113.0	113.0	
Actuated g/C Ratio	0.17	0.17	1.00					0.55		0.75	0.75	
Clearance Time (s)	6.5	6.5						6.0		6.0	5.5	
Vehicle Extension (s)	5.0	5.0						0.2		3.0	0.2	
Lane Grp Cap (vph)	280	281	1583					2772		333	3830	
v/s Ratio Prot	c0.12	0.12						c0.50		c0.09	0.31	
v/s Ratio Perm			0.13							0.35		
v/c Ratio	0.72	0.71	0.13					0.90		0.59	0.41	
Uniform Delay, d1	59.2	59.1	0.0					30.1		45.7	6.6	
Progression Factor	1.00	1.00	1.00					0.70		1.05	0.34	
Incremental Delay, d2	10.7	10.1	0.2					4.3		1.7	0.2	
Delay (s)	69.9	69.2	0.2					25.5		49.7	2.5	
Level of Service	E	E	A					C		D	A	
Approach Delay (s)		46.0			0.0			25.5			7.7	
Approach LOS		D			A			C			A	

Intersection Summary			
HCM 2000 Control Delay	21.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	18.5
Intersection Capacity Utilization	80.5%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	45	5	10	10	5	35	10	2215	5	5	30	1535
Future Volume (vph)	45	5	10	10	5	35	10	2215	5	5	30	1535
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5		6.5	6.5	6.5	5.5	6.5			5.5	6.5
Lane Util. Factor		1.00		1.00	1.00	1.00	1.00	0.91			1.00	0.91
Frt		0.98		1.00	1.00	0.85	1.00	1.00			1.00	0.99
Flt Protected		0.96		0.95	1.00	1.00	0.95	1.00			0.95	1.00
Satd. Flow (prot)		1754		1770	1863	1583	1770	5084			1770	5047
Flt Permitted		0.78		0.75	1.00	1.00	0.11	1.00			0.04	1.00
Satd. Flow (perm)		1413		1391	1863	1583	210	5084			81	5047
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	49	5	11	11	5	38	11	2408	5	5	33	1668
RTOR Reduction (vph)	0	5	0	0	0	35	0	0	0	0	0	2
Lane Group Flow (vph)	0	60	0	11	5	3	11	2413	0	0	38	1753
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA		custom	pm+pt	NA
Protected Phases		4			8		1	6			5	2
Permitted Phases	4			8		8	6			5	2	
Actuated Green, G (s)		13.3		13.3	13.3	13.3	115.5	113.1			120.9	115.8
Effective Green, g (s)		13.3		13.3	13.3	13.3	115.5	113.1			120.9	115.8
Actuated g/C Ratio		0.09		0.09	0.09	0.09	0.77	0.75			0.81	0.77
Clearance Time (s)		6.5		6.5	6.5	6.5	5.5	6.5			5.5	6.5
Vehicle Extension (s)		4.0		4.0	4.0	4.0	3.0	0.2			3.0	0.2
Lane Grp Cap (vph)		125		123	165	140	186	3833			122	3896
v/s Ratio Prot					0.00		0.00	c0.47			c0.01	c0.35
v/s Ratio Perm		c0.04		0.01		0.00	0.04				0.24	
v/c Ratio		0.48		0.09	0.03	0.02	0.06	0.63			0.31	0.45
Uniform Delay, d1		65.0		62.8	62.5	62.4	4.3	8.6			8.0	6.0
Progression Factor		1.00		1.00	1.00	1.00	1.00	1.00			4.09	0.16
Incremental Delay, d2		3.9		0.4	0.1	0.1	0.1	0.8			1.4	0.4
Delay (s)		68.9		63.2	62.6	62.5	4.5	9.4			34.0	1.3
Level of Service		E		E	E	E	A	A			C	A
Approach Delay (s)		68.9			62.7			9.4				2.0
Approach LOS		E			E			A				A

Intersection Summary			
HCM 2000 Control Delay	7.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	18.5
Intersection Capacity Utilization	65.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



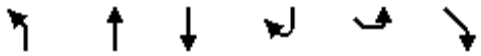
Movement	SBR
Lane Configurations	
Traffic Volume (vph)	80
Future Volume (vph)	80
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	87
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	



Movement	EBL	EBR2	WBL	WBT	WBR	SBT	SBR	NWR
Lane Configurations								
Traffic Volume (vph)	95	220	610	115	110	2120	105	1130
Future Volume (vph)	95	220	610	115	110	2120	105	1130
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	6.5	5.5	6.5		6.0	6.0	6.0
Lane Util. Factor	0.97	1.00	0.97	1.00		0.91	1.00	0.76
Frt	1.00	0.85	1.00	0.93		1.00	0.85	0.85
Flt Protected	0.95	1.00	0.95	1.00		1.00	1.00	1.00
Satd. Flow (prot)	3433	1583	3433	1726		5085	1583	3610
Flt Permitted	0.95	1.00	0.95	1.00		1.00	1.00	1.00
Satd. Flow (perm)	3433	1583	3433	1726		5085	1583	3610
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	103	239	663	125	120	2304	114	1228
RTOR Reduction (vph)	0	49	0	23	0	0	45	0
Lane Group Flow (vph)	103	190	663	222	0	2304	69	1228
Turn Type	Prot	Perm	Prot	NA		NA	Perm	Prot
Protected Phases	3		3 4	4		6		2
Permitted Phases		4					6	
Actuated Green, G (s)	17.7	30.6	53.8	30.6		83.7	83.7	83.7
Effective Green, g (s)	17.7	30.6	53.8	30.6		83.7	83.7	83.7
Actuated g/C Ratio	0.12	0.20	0.36	0.20		0.56	0.56	0.56
Clearance Time (s)	5.5	6.5		6.5		6.0	6.0	6.0
Vehicle Extension (s)	3.0	6.0		6.0		0.2	0.2	0.2
Lane Grp Cap (vph)	405	322	1231	352		2837	883	2014
v/s Ratio Prot	0.03		c0.19	c0.13		c0.45		0.34
v/s Ratio Perm		0.12					0.04	
v/c Ratio	0.25	0.59	0.54	0.63		0.81	0.08	0.61
Uniform Delay, d1	60.1	54.0	38.2	54.5		26.8	15.3	22.2
Progression Factor	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.3	5.2	0.5	6.0		2.7	0.2	1.4
Delay (s)	60.5	59.2	38.7	60.6		29.5	15.5	23.6
Level of Service	E	E	D	E		C	B	C
Approach Delay (s)				44.6		28.8		
Approach LOS				D		C		

Intersection Summary			
HCM 2000 Control Delay	32.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	87.0%	ICU Level of Service	E
Analysis Period (min)	15		

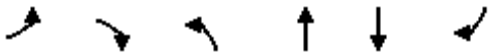
c Critical Lane Group



Movement	NBL	NBT	SBT	SBR	SEL	SER
Lane Configurations			↑↑↑↑			↱↱
Traffic Volume (vph)	0	0	3150	0	0	465
Future Volume (vph)	0	0	3150	0	0	465
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)			5.5			6.5
Lane Util. Factor			0.86			0.88
Frt			1.00			0.85
Flt Protected			1.00			1.00
Satd. Flow (prot)			6408			2787
Flt Permitted			1.00			1.00
Satd. Flow (perm)			6408			2787
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	3424	0	0	505
RTOR Reduction (vph)	0	0	0	0	0	2
Lane Group Flow (vph)	0	0	3424	0	0	503
Turn Type			NA			Prot
Protected Phases			2			4
Permitted Phases						
Actuated Green, G (s)			128.1			39.9
Effective Green, g (s)			128.1			39.9
Actuated g/C Ratio			0.71			0.22
Clearance Time (s)			5.5			6.5
Vehicle Extension (s)			0.2			6.0
Lane Grp Cap (vph)			4560			617
v/s Ratio Prot			c0.53			c0.18
v/s Ratio Perm						
v/c Ratio			0.75			0.82
Uniform Delay, d1			16.1			66.6
Progression Factor			1.00			1.00
Incremental Delay, d2			1.2			9.6
Delay (s)			17.2			76.2
Level of Service			B			E
Approach Delay (s)		0.0	17.2		76.2	
Approach LOS		A	B		E	

Intersection Summary			
HCM 2000 Control Delay	24.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	71.9%	ICU Level of Service	C
Analysis Period (min)	15		

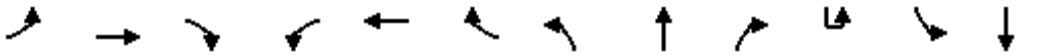
c Critical Lane Group



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	455	145	40	1725	3500	115
Future Volume (vph)	455	145	40	1725	3500	115
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.5	6.5	6.5	6.0
Lane Util. Factor	0.97	1.00	1.00	0.91	0.86	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	3433	1583	1770	5085	6408	1583
Flt Permitted	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	3433	1583	1770	5085	6408	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	495	158	43	1875	3804	125
RTOR Reduction (vph)	0	75	0	0	0	23
Lane Group Flow (vph)	495	83	43	1875	3804	102
Turn Type	Prot	Perm	Prot	NA	NA	pm+ov
Protected Phases	4		5	2	6	4
Permitted Phases		4				6
Actuated Green, G (s)	29.0	29.0	14.4	138.5	117.6	146.6
Effective Green, g (s)	29.0	29.0	14.4	138.5	117.6	146.6
Actuated g/C Ratio	0.16	0.16	0.08	0.77	0.65	0.81
Clearance Time (s)	6.0	6.0	6.5	6.5	6.5	6.0
Vehicle Extension (s)	6.0	6.0	3.0	3.0	0.2	6.0
Lane Grp Cap (vph)	553	255	141	3912	4186	1342
v/s Ratio Prot	c0.14		0.02	c0.37	c0.59	0.01
v/s Ratio Perm		0.05				0.05
v/c Ratio	0.90	0.33	0.30	0.48	0.91	0.08
Uniform Delay, d1	74.0	66.9	78.1	7.6	26.6	3.3
Progression Factor	1.00	1.00	1.00	0.25	0.58	0.52
Incremental Delay, d2	18.5	2.1	1.1	0.4	2.6	0.0
Delay (s)	92.5	69.0	78.8	2.3	18.1	1.7
Level of Service	F	E	E	A	B	A
Approach Delay (s)	86.8			4.0	17.5	
Approach LOS	F			A	B	

Intersection Summary			
HCM 2000 Control Delay	20.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	74.1%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	65	5	20	5	5	10	0	1385	5	305	5	3245
Future Volume (vph)	65	5	20	5	5	10	0	1385	5	305	5	3245
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0			5.0			4.5	5.0
Lane Util. Factor		1.00			1.00			0.91			1.00	0.91
Frt		0.97			0.93			1.00			1.00	1.00
Flt Protected		0.97			0.99			1.00			0.95	1.00
Satd. Flow (prot)		1743			1711			5083			1770	5065
Flt Permitted		0.77			0.94			1.00			0.12	1.00
Satd. Flow (perm)		1395			1629			5083			224	5065
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	71	5	22	5	5	11	0	1505	5	332	5	3527
RTOR Reduction (vph)	0	2	0	0	10	0	0	0	0	0	0	1
Lane Group Flow (vph)	0	96	0	0	11	0	0	1510	0	0	337	3624
Turn Type	Perm	NA		Perm	NA			NA		custom	pm+pt	NA
Protected Phases		8			4			6			5	2
Permitted Phases	8			4						5	2	
Actuated Green, G (s)		17.7			17.7			106.3			151.8	151.3
Effective Green, g (s)		17.7			17.7			106.3			151.8	151.3
Actuated g/C Ratio		0.10			0.10			0.59			0.84	0.84
Clearance Time (s)		6.0			6.0			5.0			4.5	5.0
Vehicle Extension (s)		3.0			3.0			0.2			3.0	0.2
Lane Grp Cap (vph)		137			160			3001			536	4257
v/s Ratio Prot								0.30			0.14	c0.72
v/s Ratio Perm		c0.07			0.01						0.39	
v/c Ratio		0.70			0.07			0.50			0.63	0.85
Uniform Delay, d1		78.6			73.7			21.5			24.7	8.0
Progression Factor		1.00			1.00			1.00			0.72	1.06
Incremental Delay, d2		15.0			0.2			0.6			1.0	1.1
Delay (s)		93.6			73.9			22.1			18.9	9.6
Level of Service		F			E			C			B	A
Approach Delay (s)		93.6			73.9			22.1				10.4
Approach LOS		F			E			C				B

Intersection Summary			
HCM 2000 Control Delay	15.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	15.5
Intersection Capacity Utilization	85.6%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Movement	SBR
Lane Configurations	
Traffic Volume (vph)	90
Future Volume (vph)	90
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	98
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

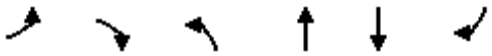
Intersection Summary



Movement	NBL	NBT	SBT	SBR	SEL	SER
Lane Configurations						
Traffic Volume (veh/h)	0	0	3150	0	0	465
Future Volume (veh/h)	0	0	3150	0	0	465
Initial Q (Qb), veh			0	0	0	0
Ped-Bike Adj(A_pbT)				1.00	1.00	1.00
Parking Bus, Adj			1.00	1.00	1.00	1.00
Work Zone On Approach			No		No	
Adj Sat Flow, veh/h/ln			1870	0	0	1870
Adj Flow Rate, veh/h			3424	0	0	505
Peak Hour Factor			0.92	0.92	0.92	0.92
Percent Heavy Veh, %			2	0	0	2
Cap, veh/h			6237	0	0	0
Arrive On Green			0.97	0.00	0.00	0.00
Sat Flow, veh/h			6958	0	0	
Grp Volume(v), veh/h			3424	0	0.0	
Grp Sat Flow(s),veh/h/ln			1609	0		
Q Serve(g_s), s			6.3	0.0		
Cycle Q Clear(g_c), s			6.3	0.0		
Prop In Lane				0.00		
Lane Grp Cap(c), veh/h			6237	0		
V/C Ratio(X)			0.55	0.00		
Avail Cap(c_a), veh/h			6237	0		
HCM Platoon Ratio			1.00	1.00		
Upstream Filter(I)			1.00	0.00		
Uniform Delay (d), s/veh			0.2	0.0		
Incr Delay (d2), s/veh			0.4	0.0		
Initial Q Delay(d3),s/veh			0.0	0.0		
%ile BackOfQ(50%),veh/ln			0.2	0.0		
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh			0.5	0.0		
LnGrp LOS			A	A		
Approach Vol, veh/h			3424			
Approach Delay, s/veh			0.5			
Approach LOS			A			

Timer - Assigned Phs	2
Phs Duration (G+Y+Rc), s	180.0
Change Period (Y+Rc), s	5.5
Max Green Setting (Gmax), s	123.5
Max Q Clear Time (g_c+I1), s	8.3
Green Ext Time (p_c), s	9.2

Intersection Summary	
HCM 6th Ctrl Delay	0.5
HCM 6th LOS	A



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	455	145	40	1725	3500	115
Future Volume (veh/h)	455	145	40	1725	3500	115
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	495	0	43	1875	3804	125
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	540		187	3954	4075	1251
Arrive On Green	0.16	0.00	0.10	0.77	0.63	0.63
Sat Flow, veh/h	3456	1585	1781	5274	6696	1585
Grp Volume(v), veh/h	495	0	43	1875	3804	125
Grp Sat Flow(s),veh/h/ln	1728	1585	1781	1702	1609	1585
Q Serve(g_s), s	25.4	0.0	4.0	23.6	95.5	3.2
Cycle Q Clear(g_c), s	25.4	0.0	4.0	23.6	95.5	3.2
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	540		187	3954	4075	1251
V/C Ratio(X)	0.92		0.23	0.47	0.93	0.10
Avail Cap(c_a), veh/h	557		187	3954	4075	1251
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	74.8	0.0	73.9	7.2	29.6	4.3
Incr Delay (d2), s/veh	22.1	0.0	0.6	0.4	5.3	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	13.1	0.0	1.9	8.2	35.9	2.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	96.9	0.0	74.5	7.6	34.9	4.5
LnGrp LOS	F		E	A	C	A
Approach Vol, veh/h	495	A		1918	3929	
Approach Delay, s/veh	96.9			9.1	33.9	
Approach LOS	F			A	C	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		145.9		34.1	25.4	120.5
Change Period (Y+Rc), s		6.5		6.0	6.5	6.5
Max Green Setting (Gmax), s		138.5		29.0	18.0	114.0
Max Q Clear Time (g_c+I1), s		25.6		27.4	6.0	97.5
Green Ext Time (p_c), s		28.5		0.7	0.0	9.0

Intersection Summary	
HCM 6th Ctrl Delay	31.3
HCM 6th LOS	C

Notes

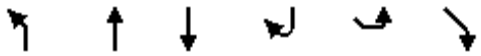
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBR2	WBL	WBT	WBR	SBT	SBR	NWR
Lane Configurations								
Traffic Volume (vph)	145	185	240	130	135	1700	115	1770
Future Volume (vph)	145	185	240	130	135	1700	115	1770
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	6.5	5.5	6.5		6.0	6.0	6.0
Lane Util. Factor	0.97	1.00	0.97	1.00		0.91	1.00	0.76
Frt	1.00	0.85	1.00	0.92		1.00	0.85	0.85
Flt Protected	0.95	1.00	0.95	1.00		1.00	1.00	1.00
Satd. Flow (prot)	3433	1583	3433	1720		5085	1583	3610
Flt Permitted	0.95	1.00	0.95	1.00		1.00	1.00	1.00
Satd. Flow (perm)	3433	1583	3433	1720		5085	1583	3610
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	158	201	261	141	147	1848	125	1924
RTOR Reduction (vph)	0	62	0	24	0	0	50	0
Lane Group Flow (vph)	158	139	261	264	0	1848	75	1924
Turn Type	Prot	Perm	Prot	NA		NA	Perm	Prot
Protected Phases	3		3 4	4		6		2
Permitted Phases		4					6	
Actuated Green, G (s)	13.8	27.7	47.0	27.7		90.5	90.5	90.5
Effective Green, g (s)	13.8	27.7	47.0	27.7		90.5	90.5	90.5
Actuated g/C Ratio	0.09	0.18	0.31	0.18		0.60	0.60	0.60
Clearance Time (s)	5.5	6.5		6.5		6.0	6.0	6.0
Vehicle Extension (s)	3.0	6.0		6.0		0.2	0.2	0.2
Lane Grp Cap (vph)	315	292	1075	317		3067	955	2178
v/s Ratio Prot	c0.05		0.08	c0.15		0.36		c0.53
v/s Ratio Perm		0.09					0.05	
v/c Ratio	0.50	0.48	0.24	0.83		0.60	0.08	0.88
Uniform Delay, d1	64.8	54.7	38.3	58.9		18.5	12.4	25.3
Progression Factor	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	1.3	3.4	0.1	19.1		0.9	0.2	5.7
Delay (s)	66.1	58.1	38.4	78.0		19.4	12.6	30.9
Level of Service	E	E	D	E		B	B	C
Approach Delay (s)				59.2		19.0		
Approach LOS				E		B		

Intersection Summary			
HCM 2000 Control Delay	31.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	74.3%	ICU Level of Service	D
Analysis Period (min)	15		

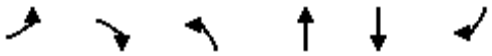
c Critical Lane Group



Movement	NBL	NBT	SBT	SBR	SEL	SER
Lane Configurations			↑↑↑↑			↱↱
Traffic Volume (vph)	0	0	2195	0	0	320
Future Volume (vph)	0	0	2195	0	0	320
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)			5.5			6.5
Lane Util. Factor			0.86			0.88
Frt			1.00			0.85
Flt Protected			1.00			1.00
Satd. Flow (prot)			6408			2787
Flt Permitted			1.00			1.00
Satd. Flow (perm)			6408			2787
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	2386	0	0	348
RTOR Reduction (vph)	0	0	0	0	0	13
Lane Group Flow (vph)	0	0	2386	0	0	335
Turn Type			NA			Prot
Protected Phases			2			4
Permitted Phases						
Actuated Green, G (s)			138.1			29.9
Effective Green, g (s)			138.1			29.9
Actuated g/C Ratio			0.77			0.17
Clearance Time (s)			5.5			6.5
Vehicle Extension (s)			0.2			6.0
Lane Grp Cap (vph)			4916			462
v/s Ratio Prot			c0.37			c0.12
v/s Ratio Perm						
v/c Ratio			0.49			0.72
Uniform Delay, d1			7.8			71.1
Progression Factor			1.00			1.00
Incremental Delay, d2			0.3			7.7
Delay (s)			8.1			78.9
Level of Service			A			E
Approach Delay (s)		0.0	8.1		78.9	
Approach LOS		A	A		E	

Intersection Summary			
HCM 2000 Control Delay	17.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	53.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	245	65	60	3240	2210	305
Future Volume (vph)	245	65	60	3240	2210	305
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.5	6.5	6.5	6.0
Lane Util. Factor	0.97	1.00	1.00	0.91	0.86	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	3433	1583	1770	5085	6408	1583
Flt Permitted	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	3433	1583	1770	5085	6408	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	266	71	65	3522	2402	332
RTOR Reduction (vph)	0	62	0	0	0	68
Lane Group Flow (vph)	266	9	65	3522	2402	264
Turn Type	Prot	Perm	Prot	NA	NA	pm+ov
Protected Phases	4		5	2	6	4
Permitted Phases		4				6
Actuated Green, G (s)	20.4	20.4	18.0	147.1	122.6	143.0
Effective Green, g (s)	20.4	20.4	18.0	147.1	122.6	143.0
Actuated g/C Ratio	0.11	0.11	0.10	0.82	0.68	0.79
Clearance Time (s)	6.0	6.0	6.5	6.5	6.5	6.0
Vehicle Extension (s)	6.0	6.0	3.0	3.0	0.2	6.0
Lane Grp Cap (vph)	389	179	177	4155	4364	1310
v/s Ratio Prot	c0.08		0.04	c0.69	0.37	0.02
v/s Ratio Perm		0.01				0.14
v/c Ratio	0.68	0.05	0.37	0.85	0.55	0.20
Uniform Delay, d1	76.7	71.2	75.7	9.8	14.6	4.5
Progression Factor	1.00	1.00	0.86	0.22	0.74	0.34
Incremental Delay, d2	7.4	0.3	0.5	0.8	0.4	0.2
Delay (s)	84.1	71.5	65.7	3.0	11.3	1.7
Level of Service	F	E	E	A	B	A
Approach Delay (s)	81.4			4.2	10.1	
Approach LOS	F			A	B	

Intersection Summary			
HCM 2000 Control Delay	10.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	80.0%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	90	5	15	10	5	5	5	10	2960	5	245	5
Future Volume (vph)	90	5	15	10	5	5	5	10	2960	5	245	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0			4.5	5.0			4.5
Lane Util. Factor		1.00			1.00			1.00	0.91			1.00
Frt		0.98			0.97			1.00	1.00			1.00
Flt Protected		0.96			0.97			0.95	1.00			0.95
Satd. Flow (prot)		1757			1757			1770	5084			1770
Flt Permitted		0.75			0.87			0.06	1.00			0.03
Satd. Flow (perm)		1370			1568			111	5084			60
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	98	5	16	11	5	5	5	11	3217	5	266	5
RTOR Reduction (vph)	0	4	0	0	4	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	115	0	0	17	0	0	16	3222	0	0	271
Turn Type	Perm	NA		Perm	NA		pm+pt	pm+pt	NA		custom	pm+pt
Protected Phases		8			4		1	1	6			5
Permitted Phases	8			4			6	6			5	2
Actuated Green, G (s)		19.7			19.7			122.5	119.5			149.8
Effective Green, g (s)		19.7			19.7			122.5	119.5			149.8
Actuated g/C Ratio		0.11			0.11			0.68	0.66			0.83
Clearance Time (s)		6.0			6.0			4.5	5.0			4.5
Vehicle Extension (s)		3.0			3.0			3.0	0.2			3.0
Lane Grp Cap (vph)		149			171			103	3375			290
v/s Ratio Prot								0.00	c0.63			c0.13
v/s Ratio Perm		c0.08			0.01			0.10				0.65
v/c Ratio		0.77			0.10			0.16	0.95			0.93
Uniform Delay, d1		78.0			72.1			21.8	27.8			68.5
Progression Factor		1.00			1.00			1.00	1.00			0.98
Incremental Delay, d2		21.8			0.2			0.7	8.1			32.0
Delay (s)		99.8			72.4			22.5	35.8			98.9
Level of Service		F			E			C	D			F
Approach Delay (s)		99.8			72.4				35.8			
Approach LOS		F			E				D			

Intersection Summary			
HCM 2000 Control Delay	27.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	15.5
Intersection Capacity Utilization	93.8%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	1895	130
Future Volume (vph)	1895	130
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	5.0	
Lane Util. Factor	0.91	
Frt	0.99	
Flt Protected	1.00	
Satd. Flow (prot)	5036	
Flt Permitted	1.00	
Satd. Flow (perm)	5036	
Peak-hour factor, PHF	0.92	0.92
Adj. Flow (vph)	2060	141
RTOR Reduction (vph)	4	0
Lane Group Flow (vph)	2197	0
Turn Type	NA	
Protected Phases	2	
Permitted Phases		
Actuated Green, G (s)	141.8	
Effective Green, g (s)	141.8	
Actuated g/C Ratio	0.79	
Clearance Time (s)	5.0	
Vehicle Extension (s)	0.2	
Lane Grp Cap (vph)	3967	
v/s Ratio Prot	0.44	
v/s Ratio Perm		
v/c Ratio	0.55	
Uniform Delay, d1	7.2	
Progression Factor	0.10	
Incremental Delay, d2	0.5	
Delay (s)	1.2	
Level of Service	A	
Approach Delay (s)	11.9	
Approach LOS	B	

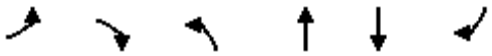
Intersection Summary



Movement	NBL	NBT	SBT	SBR	SEL	SER
Lane Configurations			↑↑↑↑			↱↱
Traffic Volume (veh/h)	0	0	2195	0	0	320
Future Volume (veh/h)	0	0	2195	0	0	320
Initial Q (Qb), veh			0	0	0	0
Ped-Bike Adj(A_pbT)				1.00	1.00	1.00
Parking Bus, Adj			1.00	1.00	1.00	1.00
Work Zone On Approach			No		No	
Adj Sat Flow, veh/h/ln			1870	0	0	1870
Adj Flow Rate, veh/h			2386	0	0	348
Peak Hour Factor			0.92	0.92	0.92	0.92
Percent Heavy Veh, %			2	0	0	2
Cap, veh/h			6237	0	0	0
Arrive On Green			0.97	0.00	0.00	0.00
Sat Flow, veh/h			6958	0	0	
Grp Volume(v), veh/h			2386	0	0.0	
Grp Sat Flow(s),veh/h/ln			1609	0		
Q Serve(g_s), s			3.2	0.0		
Cycle Q Clear(g_c), s			3.2	0.0		
Prop In Lane				0.00		
Lane Grp Cap(c), veh/h			6237	0		
V/C Ratio(X)			0.38	0.00		
Avail Cap(c_a), veh/h			6237	0		
HCM Platoon Ratio			1.00	1.00		
Upstream Filter(I)			1.00	0.00		
Uniform Delay (d), s/veh			0.1	0.0		
Incr Delay (d2), s/veh			0.2	0.0		
Initial Q Delay(d3),s/veh			0.0	0.0		
%ile BackOfQ(50%),veh/ln			0.1	0.0		
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh			0.3	0.0		
LnGrp LOS			A	A		
Approach Vol, veh/h			2386			
Approach Delay, s/veh			0.3			
Approach LOS			A			

Timer - Assigned Phs	2
Phs Duration (G+Y+Rc), s	180.0
Change Period (Y+Rc), s	5.5
Max Green Setting (Gmax), s	123.5
Max Q Clear Time (g_c+I1), s	5.2
Green Ext Time (p_c), s	4.0

Intersection Summary	
HCM 6th Ctrl Delay	0.3
HCM 6th LOS	A



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	245	65	60	3240	2210	305
Future Volume (veh/h)	245	65	60	3240	2210	305
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	266	0	65	3522	2402	332
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	320		221	4278	4361	1221
Arrive On Green	0.09	0.00	0.12	0.84	0.68	0.68
Sat Flow, veh/h	3456	1585	1781	5274	6696	1585
Grp Volume(v), veh/h	266	0	65	3522	2402	332
Grp Sat Flow(s),veh/h/ln	1728	1585	1781	1702	1609	1585
Q Serve(g_s), s	13.6	0.0	6.0	64.9	34.6	10.9
Cycle Q Clear(g_c), s	13.6	0.0	6.0	64.9	34.6	10.9
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	320		221	4278	4361	1221
V/C Ratio(X)	0.83		0.29	0.82	0.55	0.27
Avail Cap(c_a), veh/h	403		221	4278	4361	1221
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	80.3	0.0	71.7	7.6	14.9	6.0
Incr Delay (d2), s/veh	18.9	0.0	0.7	1.9	0.5	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.0	0.0	2.8	19.7	12.2	5.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	99.1	0.0	72.4	9.5	15.4	6.5
LnGrp LOS	F		E	A	B	A
Approach Vol, veh/h	266	A		3587	2734	
Approach Delay, s/veh	99.1			10.7	14.3	
Approach LOS	F			B	B	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		157.3		22.7	28.8	128.5
Change Period (Y+Rc), s		6.5		6.0	6.5	6.5
Max Green Setting (Gmax), s		146.5		21.0	18.0	122.0
Max Q Clear Time (g_c+I1), s		66.9		15.6	8.0	36.6
Green Ext Time (p_c), s		74.3		1.1	0.1	3.8

Intersection Summary	
HCM 6th Ctrl Delay	15.8
HCM 6th LOS	B

Notes

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

2027 PREFERRED ALTERNATIVE

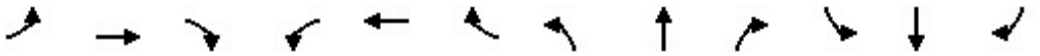
SYNCHRO ANALYSIS OUTPUTS



Movement	WBL	WBR	WBR2	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SER
Lane Configurations											
Traffic Volume (vph)	150	0	305	0	1615	330	395	1140	0	0	85
Future Volume (vph)	150	0	305	0	1615	330	395	1140	0	0	85
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5		6.5		7.0	7.0	7.0	7.0			7.0
Lane Util. Factor	0.97		0.88		0.91	1.00	0.97	0.91			1.00
Frt	1.00		0.85		1.00	0.85	1.00	1.00			0.86
Flt Protected	0.95		1.00		1.00	1.00	0.95	1.00			1.00
Satd. Flow (prot)	3433		2787		5085	1583	3433	5085			1611
Flt Permitted	0.95		1.00		1.00	1.00	0.95	1.00			1.00
Satd. Flow (perm)	3433		2787		5085	1583	3433	5085			1611
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	163	0	332	0	1755	359	429	1239	0	0	92
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	163	0	332	0	1755	359	429	1239	0	0	92
Turn Type	Prot		pt+ov		NA	Perm	Prot	NA			Prot
Protected Phases	4		4 1		2		1	6!			6!
Permitted Phases						2					
Actuated Green, G (s)	23.1		61.4		104.6	104.6	31.8	143.4			143.4
Effective Green, g (s)	23.1		61.4		104.6	104.6	31.8	143.4			143.4
Actuated g/C Ratio	0.13		0.34		0.58	0.58	0.18	0.80			0.80
Clearance Time (s)	6.5				7.0	7.0	7.0	7.0			7.0
Vehicle Extension (s)	4.0				2.0	2.0	5.0	2.0			2.0
Lane Grp Cap (vph)	440		950		2954	919	606	4051			1283
v/s Ratio Prot	0.05		c0.12		c0.35		c0.12	0.24			0.06
v/s Ratio Perm						0.23					
v/c Ratio	0.37		0.35		0.59	0.39	0.71	0.31			0.07
Uniform Delay, d1	71.8		44.4		24.1	20.4	69.7	4.9			3.9
Progression Factor	1.00		1.00		0.61	0.56	1.00	1.00			1.00
Incremental Delay, d2	0.7		0.3		0.7	1.0	4.7	0.2			0.1
Delay (s)	72.5		44.7		15.5	12.5	74.5	5.1			4.1
Level of Service	E		D		B	B	E	A			A
Approach Delay (s)	53.8				15.0			22.9		4.1	
Approach LOS	D				B			C		A	

Intersection Summary			
HCM 2000 Control Delay	22.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	20.5
Intersection Capacity Utilization	Err%	ICU Level of Service	H
Analysis Period (min)	15		

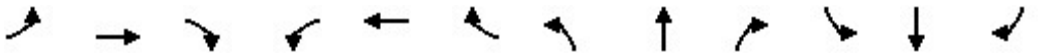
! Phase conflict between lane groups.
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	430	5	25	75	30	0	0	135	5
Future Volume (vph)	0	0	0	430	5	25	75	30	0	0	135	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				5.5	5.5	5.5	5.5	5.5			9.0	
Lane Util. Factor				0.95	0.95	1.00	1.00	1.00			0.95	
Frt				1.00	1.00	0.85	1.00	1.00			1.00	
Flt Protected				0.95	0.95	1.00	0.95	1.00			1.00	
Satd. Flow (prot)				1681	1687	1583	1770	1863			3522	
Flt Permitted				0.95	0.95	1.00	0.66	1.00			1.00	
Satd. Flow (perm)				1681	1687	1583	1221	1863			3522	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	467	5	27	82	33	0	0	147	5
RTOR Reduction (vph)	0	0	0	0	0	20	0	0	0	0	2	0
Lane Group Flow (vph)	0	0	0	238	234	7	82	33	0	0	150	0
Turn Type				Split	NA	Perm	custom	NA			NA	
Protected Phases				3	3		1 4	4 5			2	
Permitted Phases						3	5					
Actuated Green, G (s)				18.4	18.4	18.4	26.4	17.7			11.3	
Effective Green, g (s)				18.4	18.4	18.4	26.4	17.7			11.3	
Actuated g/C Ratio				0.27	0.27	0.27	0.39	0.26			0.17	
Clearance Time (s)				5.5	5.5	5.5					9.0	
Vehicle Extension (s)				5.0	5.0	5.0					2.0	
Lane Grp Cap (vph)				456	458	430	622	487			587	
v/s Ratio Prot				c0.14	0.14		c0.04	0.02			c0.04	
v/s Ratio Perm						0.00	0.02					
v/c Ratio				0.52	0.51	0.02	0.13	0.07			0.25	
Uniform Delay, d1				20.9	20.8	18.0	13.5	18.8			24.5	
Progression Factor				1.00	1.00	1.00	0.18	0.13			1.00	
Incremental Delay, d2				2.0	1.9	0.0	0.2	0.1			0.1	
Delay (s)				23.0	22.8	18.1	2.7	2.6			24.6	
Level of Service				C	C	B	A	A			C	
Approach Delay (s)		0.0			22.6			2.7			24.6	
Approach LOS		A			C			A			C	

Intersection Summary			
HCM 2000 Control Delay	20.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	67.7	Sum of lost time (s)	25.5
Intersection Capacity Utilization	37.0%	ICU Level of Service	A
Analysis Period (min)	15		

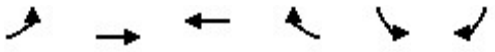
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	5	190	0	0	0	0	100	185	10	555	0
Future Volume (vph)	5	5	190	0	0	0	0	100	185	10	555	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5	5.5					9.0	9.0		9.0	
Lane Util. Factor		1.00	1.00					1.00	1.00		0.95	
Frt		1.00	0.85					1.00	0.85		1.00	
Flt Protected		0.98	1.00					1.00	1.00		1.00	
Satd. Flow (prot)		1817	1583					1863	1583		3536	
Flt Permitted		0.98	1.00					1.00	1.00		0.95	
Satd. Flow (perm)		1817	1583					1863	1583		3380	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	5	207	0	0	0	0	109	201	11	603	0
RTOR Reduction (vph)	0	0	179	0	0	0	0	0	176	0	0	0
Lane Group Flow (vph)	0	10	28	0	0	0	0	109	25	0	614	0
Turn Type	Split	NA	Perm					NA	Perm	custom	NA	
Protected Phases	4	4						5		3 6	2 3	
Permitted Phases			4						5	2		
Actuated Green, G (s)		9.3	9.3					8.4	8.4		36.8	
Effective Green, g (s)		9.3	9.3					8.4	8.4		36.8	
Actuated g/C Ratio		0.14	0.14					0.12	0.12		0.54	
Clearance Time (s)		5.5	5.5					9.0	9.0			
Vehicle Extension (s)		5.0	5.0					2.0	2.0			
Lane Grp Cap (vph)		249	217					231	196		1896	
v/s Ratio Prot		0.01						c0.06			c0.12	
v/s Ratio Perm			c0.02						0.02		0.05	
v/c Ratio		0.04	0.13					0.47	0.13		0.32	
Uniform Delay, d1		25.3	25.7					27.6	26.4		8.6	
Progression Factor		1.00	1.00					1.00	1.00		0.42	
Incremental Delay, d2		0.1	0.6					0.6	0.1		0.0	
Delay (s)		25.5	26.2					28.1	26.5		3.6	
Level of Service		C	C					C	C		A	
Approach Delay (s)		26.2			0.0			27.1			3.6	
Approach LOS		C			A			C			A	

Intersection Summary			
HCM 2000 Control Delay	14.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.32		
Actuated Cycle Length (s)	67.7	Sum of lost time (s)	25.5
Intersection Capacity Utilization	50.8%	ICU Level of Service	A
Analysis Period (min)	15		

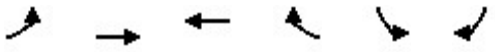
c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	2710	295	0	0	555
Future Volume (vph)	0	2710	295	0	0	555
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5	6.5			6.5
Lane Util. Factor		0.86	0.91			0.88
Frt		1.00	1.00			0.85
Flt Protected		1.00	1.00			1.00
Satd. Flow (prot)		6408	5085			2787
Flt Permitted		1.00	1.00			1.00
Satd. Flow (perm)		6408	5085			2787
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	2946	321	0	0	603
RTOR Reduction (vph)	0	0	0	0	0	159
Lane Group Flow (vph)	0	2946	321	0	0	444
Turn Type		NA	NA			custom
Protected Phases		1 2 4 6	2			1 4
Permitted Phases						
Actuated Green, G (s)		180.0	51.5			115.5
Effective Green, g (s)		180.0	51.5			115.5
Actuated g/C Ratio		1.00	0.29			0.64
Clearance Time (s)			6.5			
Vehicle Extension (s)			2.0			
Lane Grp Cap (vph)		6408	1454			1788
v/s Ratio Prot		c0.46	0.06			0.16
v/s Ratio Perm						
v/c Ratio		0.46	0.22			0.25
Uniform Delay, d1		0.0	49.0			13.7
Progression Factor		1.00	0.07			2.31
Incremental Delay, d2		0.1	0.3			0.2
Delay (s)		0.1	3.8			32.0
Level of Service		A	A			C
Approach Delay (s)		0.1	3.8		32.0	
Approach LOS		A	A		C	

Intersection Summary			
HCM 2000 Control Delay	5.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	19.5
Intersection Capacity Utilization	44.7%	ICU Level of Service	A
Analysis Period (min)	15		

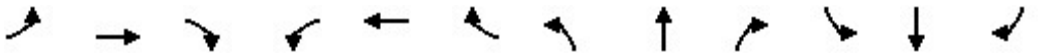
c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	945	1765	295	0	410	0
Future Volume (vph)	945	1765	295	0	410	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5	6.5		6.5	
Lane Util. Factor	0.97	0.95	0.91		0.97	
Frt	1.00	1.00	1.00		1.00	
Flt Protected	0.95	1.00	1.00		0.95	
Satd. Flow (prot)	3433	3539	5085		3433	
Flt Permitted	0.95	1.00	1.00		0.95	
Satd. Flow (perm)	3433	3539	5085		3433	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1027	1918	321	0	446	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	1027	1918	321	0	446	0
Turn Type	Prot	NA	NA		Prot	
Protected Phases	1	6	2		4	
Permitted Phases						
Actuated Green, G (s)	77.5	135.5	51.5		31.5	
Effective Green, g (s)	77.5	135.5	51.5		31.5	
Actuated g/C Ratio	0.43	0.75	0.29		0.18	
Clearance Time (s)	6.5	6.5	6.5		6.5	
Vehicle Extension (s)	6.0	2.0	2.0		4.0	
Lane Grp Cap (vph)	1478	2664	1454		600	
v/s Ratio Prot	0.30	c0.54	0.06		c0.13	
v/s Ratio Perm						
v/c Ratio	0.69	0.72	0.22		0.74	
Uniform Delay, d1	41.6	12.0	49.0		70.4	
Progression Factor	1.00	1.00	1.00		1.16	
Incremental Delay, d2	1.9	1.6	0.4		5.0	
Delay (s)	43.6	13.6	49.3		87.0	
Level of Service	D	B	D		F	
Approach Delay (s)		24.0	49.3		87.0	
Approach LOS		C	D		F	

Intersection Summary			
HCM 2000 Control Delay	33.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	19.5
Intersection Capacity Utilization	71.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	570	0	25	0	0	165	20	1210	85	90	940	345
Future Volume (vph)	570	0	25	0	0	165	20	1210	85	90	940	345
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0		8.0			5.0	5.0	7.0	4.0	5.0	7.0	4.0
Lane Util. Factor	0.97		1.00			0.88	1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00		0.85			0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95		1.00			1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433		1583			2787	1770	5085	1583	1770	5085	1583
Flt Permitted	0.95		1.00			1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433		1583			2787	1770	5085	1583	1770	5085	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	620	0	27	0	0	179	22	1315	92	98	1022	375
RTOR Reduction (vph)	0	0	21	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	620	0	6	0	0	179	22	1315	92	98	1022	375
Turn Type	Prot		Perm			pt+ov	Prot	NA	Free	Prot	NA	Free
Protected Phases	3					1 4	5	2		1	6	
Permitted Phases			3						Free			Free
Actuated Green, G (s)	37.9		37.9			36.2	5.4	85.9	180.0	15.3	95.8	180.0
Effective Green, g (s)	37.9		37.9			30.7	5.4	85.9	180.0	15.3	95.8	180.0
Actuated g/C Ratio	0.21		0.21			0.17	0.03	0.48	1.00	0.09	0.53	1.00
Clearance Time (s)	8.0		8.0				5.0	7.0		5.0	7.0	
Vehicle Extension (s)	3.0		3.0				3.0	2.0		3.0	2.0	
Lane Grp Cap (vph)	722		333			475	53	2426	1583	150	2706	1583
v/s Ratio Prot	c0.18					c0.06	0.01	c0.26		c0.06	0.20	
v/s Ratio Perm			0.00						0.06			0.24
v/c Ratio	0.86		0.02			0.38	0.42	0.54	0.06	0.65	0.38	0.24
Uniform Delay, d1	68.5		56.3			66.2	85.7	33.2	0.0	79.8	24.6	0.0
Progression Factor	1.00		1.00			1.00	1.42	0.27	1.00	1.18	0.86	1.00
Incremental Delay, d2	10.0		0.0			0.5	4.6	0.8	0.1	9.6	0.4	0.3
Delay (s)	78.4		56.3			66.7	126.2	9.7	0.1	103.9	21.6	0.3
Level of Service	E		E			E	F	A	A	F	C	A
Approach Delay (s)		77.5			66.7			10.8			21.6	
Approach LOS		E			E			B			C	

Intersection Summary			
HCM 2000 Control Delay	29.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	25.5
Intersection Capacity Utilization	58.7%	ICU Level of Service	B
Analysis Period (min)	15		

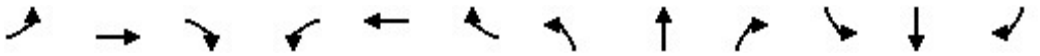
c Critical Lane Group



Movement	WBL	WBR	WBR2	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SER
Lane Configurations											
Traffic Volume (vph)	340	0	530	0	1620	265	530	2090	0	0	350
Future Volume (vph)	340	0	530	0	1620	265	530	2090	0	0	350
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5		6.5		7.0	7.0	7.0	7.0			7.0
Lane Util. Factor	0.97		0.88		0.91	1.00	0.97	0.91			1.00
Frt	1.00		0.85		1.00	0.85	1.00	1.00			0.86
Flt Protected	0.95		1.00		1.00	1.00	0.95	1.00			1.00
Satd. Flow (prot)	3433		2787		5085	1583	3433	5085			1611
Flt Permitted	0.95		1.00		1.00	1.00	0.95	1.00			1.00
Satd. Flow (perm)	3433		2787		5085	1583	3433	5085			1611
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	370	0	576	0	1761	288	576	2272	0	0	380
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	370	0	576	0	1761	288	576	2272	0	0	380
Turn Type	Prot		pt+ov		NA	Perm	Prot	NA			Prot
Protected Phases	4		4 1		2		1	6!			6!
Permitted Phases						2					
Actuated Green, G (s)	34.7		81.1		84.9	84.9	39.9	131.8			131.8
Effective Green, g (s)	34.7		81.1		84.9	84.9	39.9	131.8			131.8
Actuated g/C Ratio	0.19		0.45		0.47	0.47	0.22	0.73			0.73
Clearance Time (s)	6.5				7.0	7.0	7.0	7.0			7.0
Vehicle Extension (s)	4.0				2.0	2.0	5.0	2.0			2.0
Lane Grp Cap (vph)	661		1255		2398	746	760	3723			1179
v/s Ratio Prot	c0.11		0.21		c0.35		c0.17	0.45			0.24
v/s Ratio Perm						0.18					
v/c Ratio	0.56		0.46		0.73	0.39	0.76	0.61			0.32
Uniform Delay, d1	65.7		34.3		38.4	30.7	65.5	11.7			8.4
Progression Factor	1.00		1.00		0.72	0.71	1.00	1.00			1.00
Incremental Delay, d2	1.3		0.4		1.7	1.3	5.2	0.8			0.7
Delay (s)	67.0		34.6		29.5	22.9	70.7	12.4			9.2
Level of Service	E		C		C	C	E	B			A
Approach Delay (s)	47.3				28.6			24.2		9.2	
Approach LOS	D				C			C		A	

Intersection Summary			
HCM 2000 Control Delay	28.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	20.5
Intersection Capacity Utilization	Err%	ICU Level of Service	H
Analysis Period (min)	15		

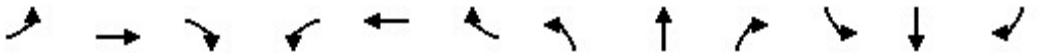
! Phase conflict between lane groups.
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	400	5	10	335	65	0	0	135	10
Future Volume (vph)	0	0	0	400	5	10	335	65	0	0	135	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				5.5	5.5	5.5	5.5	5.5			9.0	
Lane Util. Factor				0.95	0.95	1.00	1.00	1.00			0.95	
Frt				1.00	1.00	0.85	1.00	1.00			0.99	
Flt Protected				0.95	0.95	1.00	0.95	1.00			1.00	
Satd. Flow (prot)				1681	1687	1583	1770	1863			3502	
Flt Permitted				0.95	0.95	1.00	0.65	1.00			1.00	
Satd. Flow (perm)				1681	1687	1583	1214	1863			3502	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	435	5	11	364	71	0	0	147	11
RTOR Reduction (vph)	0	0	0	0	0	9	0	0	0	0	6	0
Lane Group Flow (vph)	0	0	0	222	218	2	364	71	0	0	152	0
Turn Type				Split	NA	Perm	custom	NA			NA	
Protected Phases				3	3		1 4	4 5			2	
Permitted Phases						3	5					
Actuated Green, G (s)				18.8	18.8	18.8	60.4	41.4			9.9	
Effective Green, g (s)				18.8	18.8	18.8	60.4	41.4			9.9	
Actuated g/C Ratio				0.21	0.21	0.21	0.67	0.46			0.11	
Clearance Time (s)				5.5	5.5	5.5					9.0	
Vehicle Extension (s)				5.0	5.0	5.0					2.0	
Lane Grp Cap (vph)				350	351	329	1068	855			384	
v/s Ratio Prot				c0.13	0.13		c0.16	0.04			0.04	
v/s Ratio Perm						0.00	c0.07					
v/c Ratio				0.63	0.62	0.01	0.34	0.08			0.40	
Uniform Delay, d1				32.6	32.5	28.3	7.0	13.7			37.4	
Progression Factor				1.00	1.00	1.00	0.31	0.23			1.00	
Incremental Delay, d2				5.2	4.8	0.0	0.3	0.1			0.2	
Delay (s)				37.7	37.2	28.3	2.4	3.2			37.6	
Level of Service				D	D	C	A	A			D	
Approach Delay (s)		0.0			37.3			2.6			37.6	
Approach LOS		A			D			A			D	

Intersection Summary			
HCM 2000 Control Delay	22.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	90.2	Sum of lost time (s)	25.5
Intersection Capacity Utilization	50.6%	ICU Level of Service	A
Analysis Period (min)	15		

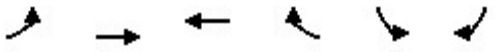
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	5	195	0	0	0	0	395	795	50	485	0
Future Volume (vph)	5	5	195	0	0	0	0	395	795	50	485	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5	5.5					9.0	9.0		9.0	
Lane Util. Factor		1.00	1.00					1.00	1.00		0.95	
Frt		1.00	0.85					1.00	0.85		1.00	
Flt Protected		0.98	1.00					1.00	1.00		1.00	
Satd. Flow (prot)		1817	1583					1863	1583		3523	
Flt Permitted		0.98	1.00					1.00	1.00		0.58	
Satd. Flow (perm)		1817	1583					1863	1583		2050	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	5	212	0	0	0	0	429	864	54	527	0
RTOR Reduction (vph)	0	0	178	0	0	0	0	0	604	0	0	0
Lane Group Flow (vph)	0	10	34	0	0	0	0	429	260	0	581	0
Turn Type	Split	NA	Perm					NA	Perm	custom	NA	
Protected Phases	4	4						5		3 6	2 3	
Permitted Phases			4						5	2		
Actuated Green, G (s)		14.3	14.3					27.1	27.1		34.2	
Effective Green, g (s)		14.3	14.3					27.1	27.1		34.2	
Actuated g/C Ratio		0.16	0.16					0.30	0.30		0.38	
Clearance Time (s)		5.5	5.5					9.0	9.0			
Vehicle Extension (s)		5.0	5.0					2.0	2.0			
Lane Grp Cap (vph)		288	250					559	475		1174	
v/s Ratio Prot		0.01						c0.23			c0.13	
v/s Ratio Perm			c0.02						0.16		0.05	
v/c Ratio		0.03	0.13					0.77	0.55		0.49	
Uniform Delay, d1		32.1	32.6					28.7	26.4		21.4	
Progression Factor		1.00	1.00					1.00	1.00		0.79	
Incremental Delay, d2		0.1	0.5					5.6	0.7		0.1	
Delay (s)		32.2	33.1					34.3	27.1		17.0	
Level of Service		C	C					C	C		B	
Approach Delay (s)		33.1			0.0			29.5			17.0	
Approach LOS		C			A			C			B	

Intersection Summary			
HCM 2000 Control Delay	26.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	90.2	Sum of lost time (s)	25.5
Intersection Capacity Utilization	87.8%	ICU Level of Service	E
Analysis Period (min)	15		

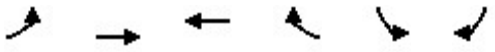
c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	1225	1370	0	0	1230
Future Volume (vph)	0	1225	1370	0	0	1230
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5	6.5			6.5
Lane Util. Factor		0.86	0.91			0.88
Frt		1.00	1.00			0.85
Flt Protected		1.00	1.00			1.00
Satd. Flow (prot)		6408	5085			2787
Flt Permitted		1.00	1.00			1.00
Satd. Flow (perm)		6408	5085			2787
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1332	1489	0	0	1337
RTOR Reduction (vph)	0	0	0	0	0	3
Lane Group Flow (vph)	0	1332	1489	0	0	1334
Turn Type		NA	NA			custom
Protected Phases		1 2 4 6	2			1 4
Permitted Phases						
Actuated Green, G (s)		180.0	65.5			101.5
Effective Green, g (s)		180.0	65.5			101.5
Actuated g/C Ratio		1.00	0.36			0.56
Clearance Time (s)			6.5			
Vehicle Extension (s)			2.0			
Lane Grp Cap (vph)		6408	1850			1571
v/s Ratio Prot		0.21	c0.29			c0.48
v/s Ratio Perm						
v/c Ratio		0.21	0.80			0.85
Uniform Delay, d1		0.0	51.5			32.9
Progression Factor		1.00	0.06			0.70
Incremental Delay, d2		0.0	2.2			4.1
Delay (s)		0.0	5.2			27.1
Level of Service		A	A			C
Approach Delay (s)		0.0	5.2		27.1	
Approach LOS		A	A		C	

Intersection Summary			
HCM 2000 Control Delay	10.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	19.5
Intersection Capacity Utilization	80.3%	ICU Level of Service	D
Analysis Period (min)	15		

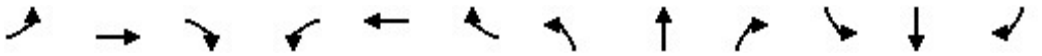
c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	715	510	1370	0	275	0
Future Volume (vph)	715	510	1370	0	275	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5	6.5		6.5	
Lane Util. Factor	0.97	0.95	0.91		0.97	
Frt	1.00	1.00	1.00		1.00	
Flt Protected	0.95	1.00	1.00		0.95	
Satd. Flow (prot)	3433	3539	5085		3433	
Flt Permitted	0.95	1.00	1.00		0.95	
Satd. Flow (perm)	3433	3539	5085		3433	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	777	554	1489	0	299	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	777	554	1489	0	299	0
Turn Type	Prot	NA	NA		Prot	
Protected Phases	1	6	2		4	
Permitted Phases						
Actuated Green, G (s)	72.5	144.5	65.5		22.5	
Effective Green, g (s)	72.5	144.5	65.5		22.5	
Actuated g/C Ratio	0.40	0.80	0.36		0.12	
Clearance Time (s)	6.5	6.5	6.5		6.5	
Vehicle Extension (s)	6.0	2.0	2.0		4.0	
Lane Grp Cap (vph)	1382	2841	1850		429	
v/s Ratio Prot	c0.23	0.16	c0.29		c0.09	
v/s Ratio Perm						
v/c Ratio	0.56	0.20	0.80		0.70	
Uniform Delay, d1	41.5	4.2	51.5		75.5	
Progression Factor	1.00	1.00	1.00		0.89	
Incremental Delay, d2	1.1	0.2	3.8		4.1	
Delay (s)	42.6	4.3	55.3		71.1	
Level of Service	D	A	E		E	
Approach Delay (s)		26.6	55.3		71.1	
Approach LOS		C	E		E	

Intersection Summary			
HCM 2000 Control Delay	44.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	19.5
Intersection Capacity Utilization	71.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	405	0	20	0	0	300	85	1180	170	150	1485	1145
Future Volume (vph)	405	0	20	0	0	300	85	1180	170	150	1485	1145
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0		8.0			5.0	5.0	7.0	4.0	5.0	7.0	4.0
Lane Util. Factor	0.97		1.00			0.88	1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00		0.85			0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95		1.00			1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433		1583			2787	1770	5085	1583	1770	5085	1583
Flt Permitted	0.95		1.00			1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433		1583			2787	1770	5085	1583	1770	5085	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	440	0	22	0	0	326	92	1283	185	163	1614	1245
RTOR Reduction (vph)	0	0	19	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	440	0	3	0	0	326	92	1283	185	163	1614	1245
Turn Type	Prot		Perm			pt+ov	Prot	NA	Free	Prot	NA	Free
Protected Phases	3					1 4	5	2		1	6	
Permitted Phases			3						Free			Free
Actuated Green, G (s)	28.2		28.2			50.1	14.5	81.7	180.0	21.6	88.8	180.0
Effective Green, g (s)	28.2		28.2			44.6	14.5	81.7	180.0	21.6	88.8	180.0
Actuated g/C Ratio	0.16		0.16			0.25	0.08	0.45	1.00	0.12	0.49	1.00
Clearance Time (s)	8.0		8.0				5.0	7.0		5.0	7.0	
Vehicle Extension (s)	3.0		3.0				3.0	2.0		3.0	2.0	
Lane Grp Cap (vph)	537		248			690	142	2308	1583	212	2508	1583
v/s Ratio Prot	0.13					0.12	0.05	0.25		0.09	0.32	
v/s Ratio Perm			0.00						0.12			c0.79
v/c Ratio	0.82		0.01			0.47	0.65	0.56	0.12	0.77	0.64	0.79
Uniform Delay, d1	73.4		64.1			57.7	80.3	35.9	0.0	76.8	33.9	0.0
Progression Factor	1.00		1.00			1.00	0.78	1.61	1.00	0.90	0.90	1.00
Incremental Delay, d2	9.5		0.0			0.5	9.5	0.9	0.1	13.1	1.1	3.4
Delay (s)	82.9		64.2			58.2	72.4	58.8	0.1	82.6	31.5	3.4
Level of Service	F		E			E	E	E	A	F	C	A
Approach Delay (s)		82.0			58.2			52.7			22.7	
Approach LOS		F			E			D			C	

Intersection Summary			
HCM 2000 Control Delay	38.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	25.5
Intersection Capacity Utilization	58.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	80	1880	185	20	235	500	95	10	60	55	120	240
Future Volume (vph)	80	1880	185	20	235	500	95	10	60	55	120	240
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	6.0	6.0		4.5	6.0	6.0	5.0	6.5	6.5	5.0	6.5
Lane Util. Factor	1.00	0.91	1.00		0.97	0.91	1.00	1.00	0.95	1.00	0.97	1.00
Frt	1.00	1.00	0.85		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	5085	1583		3433	5085	1583	1770	3539	1583	3433	1863
Flt Permitted	0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	5085	1583		3433	5085	1583	1770	3539	1583	3433	1863
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	87	2043	201	22	255	543	103	11	65	60	130	261
RTOR Reduction (vph)	0	0	91	0	0	0	44	0	0	52	0	0
Lane Group Flow (vph)	87	2043	110	0	277	543	59	11	65	8	130	261
Turn Type	Prot	NA	Perm	Prot	Prot	NA	Perm	Prot	NA	Perm	Prot	NA
Protected Phases	5	2		1	1	6		3	8		7	4
Permitted Phases			2				6			8		
Actuated Green, G (s)	12.7	81.8	81.8		17.0	86.1	86.1	1.6	21.1	21.1	8.1	27.6
Effective Green, g (s)	12.7	81.8	81.8		17.0	86.1	86.1	1.6	21.1	21.1	8.1	27.6
Actuated g/C Ratio	0.08	0.55	0.55		0.11	0.57	0.57	0.01	0.14	0.14	0.05	0.18
Clearance Time (s)	4.5	6.0	6.0		4.5	6.0	6.0	5.0	6.5	6.5	5.0	6.5
Vehicle Extension (s)	3.0	2.0	2.0		3.0	2.0	2.0	3.0	4.0	4.0	3.0	4.0
Lane Grp Cap (vph)	149	2773	863		389	2918	908	18	497	222	185	342
v/s Ratio Prot	0.05	c0.40			c0.08	c0.11		0.01	0.02		c0.04	c0.14
v/s Ratio Perm			0.07				0.04			0.01		
v/c Ratio	0.58	0.74	0.13		0.71	0.19	0.07	0.61	0.13	0.04	0.70	0.76
Uniform Delay, d1	66.1	25.9	16.7		64.1	15.2	14.1	73.9	56.4	55.7	69.8	58.1
Progression Factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	5.7	1.8	0.3		6.1	0.1	0.1	48.7	0.2	0.1	11.4	10.3
Delay (s)	71.8	27.7	17.0		70.2	15.4	14.3	122.6	56.6	55.8	81.2	68.4
Level of Service	E	C	B		E	B	B	F	E	E	F	E
Approach Delay (s)		28.4				31.7			61.6			69.7
Approach LOS		C				C			E			E

Intersection Summary			
HCM 2000 Control Delay	35.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	70.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	SBR
Lane Configurations	
Traffic Volume (vph)	55
Future Volume (vph)	55
Ideal Flow (vphpl)	1900
Total Lost time (s)	6.5
Lane Util. Factor	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1583
Flt Permitted	1.00
Satd. Flow (perm)	1583
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	60
RTOR Reduction (vph)	49
Lane Group Flow (vph)	11
Turn Type	Perm
Protected Phases	
Permitted Phases	4
Actuated Green, G (s)	27.6
Effective Green, g (s)	27.6
Actuated g/C Ratio	0.18
Clearance Time (s)	6.5
Vehicle Extension (s)	4.0
Lane Grp Cap (vph)	291
v/s Ratio Prot	
v/s Ratio Perm	0.01
v/c Ratio	0.04
Uniform Delay, d1	50.3
Progression Factor	1.00
Incremental Delay, d2	0.1
Delay (s)	50.4
Level of Service	D
Approach Delay (s)	
Approach LOS	

Intersection Summary

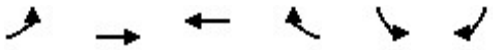
Intersection	
Int Delay, s/veh	6.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	205	135	160	0	0	800
Future Vol, veh/h	205	135	160	0	0	800
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	223	147	174	0	0	870

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	609	87	0	-	-	-
Stage 1	174	-	-	-	-	-
Stage 2	435	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	-	-
Pot Cap-1 Maneuver	427	954	-	0	0	-
Stage 1	839	-	-	0	0	-
Stage 2	620	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	427	954	-	-	-	-
Mov Cap-2 Maneuver	427	-	-	-	-	-
Stage 1	839	-	-	-	-	-
Stage 2	620	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	24.2	0	0
HCM LOS	C		

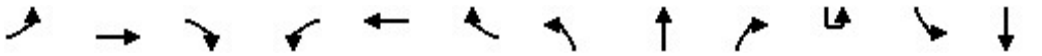
Minor Lane/Major Mvmt	NBT	WBLn1	SBT
Capacity (veh/h)	-	547	-
HCM Lane V/C Ratio	-	0.676	-
HCM Control Delay (s)	-	24.2	-
HCM Lane LOS	-	C	-
HCM 95th %tile Q(veh)	-	5.1	-



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	50	650	110	185	150	15
Future Volume (veh/h)	50	650	110	185	150	15
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	54	707	120	201	163	16
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	106	1855	548	489	427	290
Arrive On Green	0.06	0.52	0.31	0.31	0.12	0.12
Sat Flow, veh/h	1781	3647	1870	1585	3456	1585
Grp Volume(v), veh/h	54	707	120	201	163	16
Grp Sat Flow(s),veh/h/ln	1781	1777	1777	1585	1728	1585
Q Serve(g_s), s	1.0	3.9	1.6	3.3	1.4	0.3
Cycle Q Clear(g_c), s	1.0	3.9	1.6	3.3	1.4	0.3
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	106	1855	548	489	427	290
V/C Ratio(X)	0.51	0.38	0.22	0.41	0.38	0.06
Avail Cap(c_a), veh/h	604	5972	2109	1882	2558	1267
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	14.8	4.6	8.3	8.9	13.1	10.9
Incr Delay (d2), s/veh	3.8	0.0	0.1	0.2	0.6	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.5	0.4	0.7	0.5	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	18.6	4.7	8.4	9.1	13.6	11.0
LnGrp LOS	B	A	A	A	B	B
Approach Vol, veh/h		761	321		179	
Approach Delay, s/veh		5.7	8.8		13.4	
Approach LOS		A	A		B	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	6.9	15.5		10.0		22.4
Change Period (Y+Rc), s	5.0	5.5		6.0		5.5
Max Green Setting (Gmax), s	11.0	38.5		24.0		54.5
Max Q Clear Time (g_c+I1), s	3.0	5.3		3.4		5.9
Green Ext Time (p_c), s	0.0	1.3		0.6		3.4

Intersection Summary	
HCM 6th Ctrl Delay	7.6
HCM 6th LOS	A



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	90	10	10	20	5	45	5	1115	20	115	315	1790
Future Volume (vph)	90	10	10	20	5	45	5	1115	20	115	315	1790
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	11	10	12	11	11	11	11	12	12	10	11
Grade (%)		5%			0%			3%				1%
Total Lost time (s)	6.5	6.5	6.5		6.5	6.5	6.0	6.0			4.5	6.0
Lane Util. Factor	0.95	0.95	1.00		1.00	1.00	1.00	0.91			1.00	0.91
Frt	1.00	1.00	0.85		1.00	0.85	1.00	1.00			1.00	0.99
Flt Protected	0.95	0.96	1.00		0.96	1.00	0.95	1.00			0.95	1.00
Satd. Flow (prot)	1584	1604	1441		1730	1531	1685	4829			1643	4826
Flt Permitted	0.95	0.96	1.00		0.96	1.00	0.08	1.00			0.15	1.00
Satd. Flow (perm)	1584	1604	1441		1730	1531	145	4829			253	4826
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	98	11	11	22	5	49	5	1212	22	125	342	1946
RTOR Reduction (vph)	0	0	10	0	0	47	0	1	0	0	0	7
Lane Group Flow (vph)	54	55	1	0	27	2	5	1233	0	0	467	2129
Turn Type	Split	NA	Perm	Split	NA	Perm	Perm	NA		pm+pt	pm+pt	NA
Protected Phases	4	4		8	8			6		5	5	2
Permitted Phases			4			8	6			2	2	
Actuated Green, G (s)	8.6	8.6	8.6		5.9	5.9	72.5	72.5			116.5	116.5
Effective Green, g (s)	8.6	8.6	8.6		5.9	5.9	72.5	72.5			116.5	116.5
Actuated g/C Ratio	0.06	0.06	0.06		0.04	0.04	0.48	0.48			0.78	0.78
Clearance Time (s)	6.5	6.5	6.5		6.5	6.5	6.0	6.0			4.5	6.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	90	91	82		68	60	70	2334			562	3748
v/s Ratio Prot	0.03	c0.03			c0.02			0.26			c0.22	0.44
v/s Ratio Perm			0.00			0.00	0.03				c0.43	
v/c Ratio	0.60	0.60	0.01		0.40	0.03	0.07	0.53			0.83	0.57
Uniform Delay, d1	69.0	69.0	66.7		70.3	69.3	20.7	26.9			30.3	6.7
Progression Factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00			1.38	0.56
Incremental Delay, d2	10.3	10.8	0.0		3.8	0.2	2.0	0.9			7.6	0.5
Delay (s)	79.3	79.9	66.7		74.1	69.5	22.7	27.7			49.5	4.2
Level of Service	E	E	E		E	E	C	C			D	A
Approach Delay (s)		78.4			71.1			27.7				12.4
Approach LOS		E			E			C				B

Intersection Summary			
HCM 2000 Control Delay	20.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	23.5
Intersection Capacity Utilization	73.7%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	SBR
Lane Configurations	
Traffic Volume (vph)	175
Future Volume (vph)	175
Ideal Flow (vphpl)	1900
Lane Width	12
Grade (%)	
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	190
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	415	825	0	960	1570	515
Future Volume (veh/h)	415	825	0	960	1570	515
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1817	1817	0	1847	1817	1817
Adj Flow Rate, veh/h	451	897	0	1043	1707	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	0	2	2	2
Cap, veh/h	1233	996	0	3575	2792	
Arrive On Green	0.37	0.37	0.00	0.56	0.75	0.00
Sat Flow, veh/h	3358	2711	0	6870	5125	1540
Grp Volume(v), veh/h	451	897	0	1043	1707	0
Grp Sat Flow(s),veh/h/ln	1679	1355	0	1588	1654	1540
Q Serve(g_s), s	14.7	46.9	0.0	12.9	23.9	0.0
Cycle Q Clear(g_c), s	14.7	46.9	0.0	12.9	23.9	0.0
Prop In Lane	1.00	1.00	0.00			1.00
Lane Grp Cap(c), veh/h	1233	996	0	3575	2792	
V/C Ratio(X)	0.37	0.90	0.00	0.29	0.61	
Avail Cap(c_a), veh/h	1567	1265	0	3575	2792	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.33	1.33
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.82	0.00
Uniform Delay (d), s/veh	34.7	44.9	0.0	17.2	11.3	0.0
Incr Delay (d2), s/veh	0.2	7.6	0.0	0.2	0.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.2	16.9	0.0	4.7	6.6	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	34.9	52.5	0.0	17.4	12.1	0.0
LnGrp LOS	C	D	A	B	B	
Approach Vol, veh/h	1348			1043	1707	A
Approach Delay, s/veh	46.6			17.4	12.1	
Approach LOS	D			B	B	

Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		89.9		60.1		89.9
Change Period (Y+Rc), s		5.5		5.0		5.5
Max Green Setting (Gmax), s		69.5		70.0		69.5
Max Q Clear Time (g_c+I1), s		25.9		48.9		14.9
Green Ext Time (p_c), s		18.0		6.2		8.8

Intersection Summary	
HCM 6th Ctrl Delay	24.8
HCM 6th LOS	C

Notes

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.



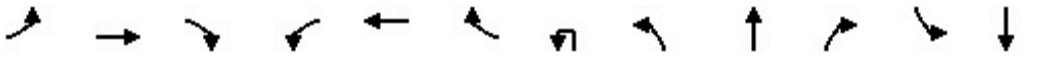
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	835	280	1030	345	0	1250
Future Volume (veh/h)	835	280	1030	345	0	1250
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1864	1939	1847	1847	0	1847
Adj Flow Rate, veh/h	908	0	1120	0	0	1359
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	0	2
Cap, veh/h	1008		3197		0	4029
Arrive On Green	0.29	0.00	0.63	0.00	0.00	0.63
Sat Flow, veh/h	3445	1643	5208	1565	0	6870
Grp Volume(v), veh/h	908	0	1120	0	0	1359
Grp Sat Flow(s),veh/h/ln	1722	1643	1681	1565	0	1588
Q Serve(g_s), s	38.0	0.0	15.7	0.0	0.0	14.9
Cycle Q Clear(g_c), s	38.0	0.0	15.7	0.0	0.0	14.9
Prop In Lane	1.00	1.00		1.00	0.00	
Lane Grp Cap(c), veh/h	1008		3197		0	4029
V/C Ratio(X)	0.90		0.35		0.00	0.34
Avail Cap(c_a), veh/h	1757		3197		0	4029
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.96	0.00	0.00	1.00
Uniform Delay (d), s/veh	51.0	0.0	12.9	0.0	0.0	12.8
Incr Delay (d2), s/veh	3.6	0.0	0.3	0.0	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	16.9	0.0	5.8	0.0	0.0	5.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	54.6	0.0	13.2	0.0	0.0	13.0
LnGrp LOS	D		B		A	B
Approach Vol, veh/h	908	A	1120	A		1359
Approach Delay, s/veh	54.6		13.2			13.0
Approach LOS	D		B			B

Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		100.6		49.4		100.6
Change Period (Y+Rc), s		5.5		5.5		5.5
Max Green Setting (Gmax), s		62.5		76.5		62.5
Max Q Clear Time (g_c+I1), s		16.9		40.0		17.7
Green Ext Time (p_c), s		12.8		3.9		9.6

Intersection Summary	
HCM 6th Ctrl Delay	24.2
HCM 6th LOS	C

Notes

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	25	5	50	130	5	35	5	120	925	260	130	1405
Future Volume (vph)	25	5	50	130	5	35	5	120	925	260	130	1405
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	9	9	10	11	9	12	11	11	10	10	12
Grade (%)		3%			1%				1%			4%
Total Lost time (s)		6.5	5.0	6.5	6.5	6.5		5.0	6.0	6.0	5.0	6.0
Lane Util. Factor		0.95	0.95	0.95	0.95	1.00		1.00	0.91	1.00	1.00	0.91
Frt		0.96	0.85	1.00	1.00	0.85		1.00	1.00	0.85	1.00	1.00
Flt Protected		0.97	1.00	0.95	0.96	1.00		0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)		1457	1333	1561	1626	1418		1702	4891	1470	1619	4978
Flt Permitted		0.97	1.00	0.95	0.96	1.00		0.12	1.00	1.00	0.25	1.00
Satd. Flow (perm)		1457	1333	1561	1626	1418		219	4891	1470	429	4978
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	27	5	54	141	5	38	5	130	1005	283	141	1527
RTOR Reduction (vph)	0	10	36	0	0	35	0	0	0	104	0	0
Lane Group Flow (vph)	0	35	5	73	73	3	0	135	1005	179	141	1538
Turn Type	Split	NA	pm+ov	Split	NA	Perm	custom	pm+pt	NA	Perm	pm+pt	NA
Protected Phases	8	8	1!	4	4			1	6		5	2
Permitted Phases			8			4	1!	6		6	2	
Actuated Green, G (s)		9.1	19.5	12.3	12.3	12.3		105.5	95.1	95.1	103.7	94.2
Effective Green, g (s)		9.1	19.5	12.3	12.3	12.3		105.5	95.1	95.1	103.7	94.2
Actuated g/C Ratio		0.06	0.13	0.08	0.08	0.08		0.70	0.63	0.63	0.69	0.63
Clearance Time (s)		6.5	5.0	6.5	6.5	6.5		5.0	6.0	6.0	5.0	6.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		88	173	128	133	116		256	3100	931	371	3126
v/s Ratio Prot		c0.02	0.00	c0.05	0.04			c0.04	0.21		0.02	0.31
v/s Ratio Perm			0.00			0.00		c0.33		0.12	0.24	
v/c Ratio		0.39	0.03	0.57	0.55	0.03		0.53	0.32	0.19	0.38	0.49
Uniform Delay, d1		67.8	57.0	66.3	66.2	63.3		9.8	12.6	11.4	8.1	15.0
Progression Factor		1.00	1.00	1.00	1.00	1.00		3.20	0.89	1.64	1.00	1.00
Incremental Delay, d2		2.9	0.1	6.0	4.6	0.1		1.9	0.3	0.4	0.7	0.6
Delay (s)		70.7	57.1	72.3	70.8	63.4		33.3	11.5	19.2	8.7	15.6
Level of Service		E	E	E	E	E		C	B	B	A	B
Approach Delay (s)		64.2			69.9				15.1			15.0
Approach LOS		E			E				B			B

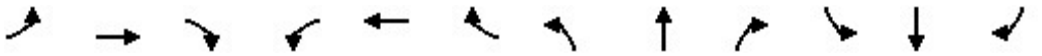
Intersection Summary			
HCM 2000 Control Delay	19.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	61.4%	ICU Level of Service	B
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group



Movement	SBR
Lane Configurations	
Traffic Volume (vph)	10
Future Volume (vph)	10
Ideal Flow (vphpl)	1900
Lane Width	12
Grade (%)	
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	11
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	145	60	155	0	20	0	45	55	70	325	0
Future Volume (veh/h)	40	145	60	155	0	20	0	45	55	70	325	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	0	1870	0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	43	158	65	168	0	22	0	49	60	76	353	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	0	2	0	2	2	2	2	0
Cap, veh/h	970	1355	535	0	0	0	0	415	352	198	641	0
Arrive On Green	0.54	0.54	0.54	0.00	0.00	0.00	0.00	0.22	0.22	0.22	0.22	0.00
Sat Flow, veh/h	1781	2488	982		0		0	1870	1585	413	2971	0
Grp Volume(v), veh/h	43	111	112		0.0		0	49	60	231	198	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1694				0	1870	1585	1682	1617	0
Q Serve(g_s), s	0.5	1.4	1.5				0.0	0.9	1.4	3.1	4.9	0.0
Cycle Q Clear(g_c), s	0.5	1.4	1.5				0.0	0.9	1.4	5.4	4.9	0.0
Prop In Lane	1.00		0.58				0.00		1.00	0.33		0.00
Lane Grp Cap(c), veh/h	970	968	922				0	415	352	480	359	0
V/C Ratio(X)	0.04	0.11	0.12				0.00	0.12	0.17	0.48	0.55	0.00
Avail Cap(c_a), veh/h	970	968	922				0	873	740	878	755	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	4.8	5.0	5.0				0.0	14.0	14.2	15.6	15.5	0.0
Incr Delay (d2), s/veh	0.1	0.2	0.3				0.0	0.1	0.2	0.8	1.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.4	0.4				0.0	0.4	0.4	2.0	1.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	4.9	5.2	5.3				0.0	14.1	14.4	16.4	16.8	0.0
LnGrp LOS	A	A	A				A	B	B	B	B	A
Approach Vol, veh/h		266						109			429	
Approach Delay, s/veh		5.2						14.3			16.6	
Approach LOS		A						B			B	

Timer - Assigned Phs				4		6		8				
Phs Duration (G+Y+Rc), s				15.0		30.0		15.0				
Change Period (Y+Rc), s				5.0		5.5		5.0				
Max Green Setting (Gmax), s				21.0		24.5		21.0				
Max Q Clear Time (g_c+I1), s				7.4		3.5		3.4				
Green Ext Time (p_c), s				2.2		1.4		0.3				

Intersection Summary												
HCM 6th Ctrl Delay			12.5									
HCM 6th LOS			B									

Notes

User approved pedestrian interval to be less than phase max green.



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	80	730	30	20	70	1930	195	150	330	305	100	100
Future Volume (vph)	80	730	30	20	70	1930	195	150	330	305	100	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	6.0	6.0		4.5	6.0	6.0	5.0	6.5	6.5	5.0	6.5
Lane Util. Factor	1.00	0.91	1.00		0.97	0.91	1.00	1.00	0.95	1.00	0.97	1.00
Frt	1.00	1.00	0.85		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	5085	1583		3433	5085	1583	1770	3539	1583	3433	1863
Flt Permitted	0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	5085	1583		3433	5085	1583	1770	3539	1583	3433	1863
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	87	793	33	22	76	2098	212	163	359	332	109	109
RTOR Reduction (vph)	0	0	14	0	0	0	96	0	0	152	0	0
Lane Group Flow (vph)	87	793	19	0	98	2098	116	163	359	180	109	109
Turn Type	Prot	NA	Perm	Prot	Prot	NA	Perm	Prot	NA	Perm	Prot	NA
Protected Phases	5	2		1	1	6		3	8		7	4
Permitted Phases			2				6			8		
Actuated Green, G (s)	11.7	85.1	85.1		8.9	82.3	82.3	17.6	26.1	26.1	7.9	16.4
Effective Green, g (s)	11.7	85.1	85.1		8.9	82.3	82.3	17.6	26.1	26.1	7.9	16.4
Actuated g/C Ratio	0.08	0.57	0.57		0.06	0.55	0.55	0.12	0.17	0.17	0.05	0.11
Clearance Time (s)	4.5	6.0	6.0		4.5	6.0	6.0	5.0	6.5	6.5	5.0	6.5
Vehicle Extension (s)	3.0	2.0	2.0		3.0	2.0	2.0	3.0	4.0	4.0	3.0	4.0
Lane Grp Cap (vph)	138	2884	898		203	2789	868	207	615	275	180	203
v/s Ratio Prot	c0.05	c0.16			0.03	c0.41		c0.09	0.10		0.03	0.06
v/s Ratio Perm			0.01				0.07			c0.11		
v/c Ratio	0.63	0.27	0.02		0.48	0.75	0.13	0.79	0.58	0.65	0.61	0.54
Uniform Delay, d1	67.1	16.6	14.2		68.3	26.0	16.5	64.4	57.0	57.7	69.5	63.2
Progression Factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	9.0	0.2	0.0		1.8	1.9	0.3	17.7	1.7	6.1	5.7	3.5
Delay (s)	76.1	16.9	14.3		70.1	27.9	16.8	82.1	58.6	63.8	75.2	66.7
Level of Service	E	B	B		E	C	B	F	E	E	E	E
Approach Delay (s)		22.4				28.7			65.1			68.3
Approach LOS		C				C			E			E

Intersection Summary			
HCM 2000 Control Delay	37.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	73.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	SBR
Lane Configurations	
Traffic Volume (vph)	185
Future Volume (vph)	185
Ideal Flow (vphpl)	1900
Total Lost time (s)	6.5
Lane Util. Factor	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1583
Flt Permitted	1.00
Satd. Flow (perm)	1583
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	201
RTOR Reduction (vph)	120
Lane Group Flow (vph)	81
Turn Type	Perm
Protected Phases	
Permitted Phases	4
Actuated Green, G (s)	16.4
Effective Green, g (s)	16.4
Actuated g/C Ratio	0.11
Clearance Time (s)	6.5
Vehicle Extension (s)	4.0
Lane Grp Cap (vph)	173
v/s Ratio Prot	
v/s Ratio Perm	0.05
v/c Ratio	0.47
Uniform Delay, d1	62.7
Progression Factor	1.00
Incremental Delay, d2	2.7
Delay (s)	65.4
Level of Service	E
Approach Delay (s)	
Approach LOS	

Intersection Summary

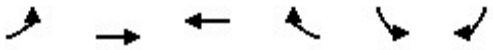
Intersection	
Int Delay, s/veh	3.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	20	115	1420	0	0	395
Future Vol, veh/h	20	115	1420	0	0	395
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	22	125	1543	0	0	429

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1758	772	0	-	-	-
Stage 1	1543	-	-	-	-	-
Stage 2	215	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	-	-
Pot Cap-1 Maneuver	76	342	-	0	0	-
Stage 1	162	-	-	0	0	-
Stage 2	800	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	76	342	-	-	-	-
Mov Cap-2 Maneuver	76	-	-	-	-	-
Stage 1	162	-	-	-	-	-
Stage 2	800	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	46.8	0	0
HCM LOS	E		

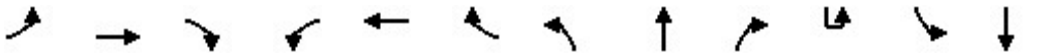
Minor Lane/Major Mvmt	NBT	WBLn1	SBT
Capacity (veh/h)	-	225	-
HCM Lane V/C Ratio	-	0.652	-
HCM Control Delay (s)	-	46.8	-
HCM Lane LOS	-	E	-
HCM 95th %tile Q(veh)	-	4	-



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	20	175	1070	465	220	80
Future Volume (veh/h)	20	175	1070	465	220	80
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	22	190	1163	505	239	87
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	45	2492	1453	608	391	220
Arrive On Green	0.03	0.70	0.60	0.60	0.11	0.11
Sat Flow, veh/h	1781	3647	2535	1022	3456	1585
Grp Volume(v), veh/h	22	190	834	834	239	87
Grp Sat Flow(s),veh/h/ln	1781	1777	1777	1686	1728	1585
Q Serve(g_s), s	0.8	1.0	22.2	24.5	4.1	3.1
Cycle Q Clear(g_c), s	0.8	1.0	22.2	24.5	4.1	3.1
Prop In Lane	1.00			0.61	1.00	1.00
Lane Grp Cap(c), veh/h	45	2492	1058	1004	391	220
V/C Ratio(X)	0.49	0.08	0.79	0.83	0.61	0.40
Avail Cap(c_a), veh/h	144	3926	1676	1591	1115	552
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.8	2.9	9.6	10.0	26.2	24.3
Incr Delay (d2), s/veh	7.8	0.0	0.5	1.1	1.5	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.2	6.2	6.6	1.7	0.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	37.7	2.9	10.1	11.1	27.7	25.5
LnGrp LOS	D	A	B	B	C	C
Approach Vol, veh/h		212	1668		326	
Approach Delay, s/veh		6.5	10.6		27.1	
Approach LOS		A	B		C	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	6.6	42.4		13.0		49.0
Change Period (Y+Rc), s	5.0	5.5		6.0		5.5
Max Green Setting (Gmax), s	5.0	58.5		20.0		68.5
Max Q Clear Time (g_c+I1), s	2.8	26.5		6.1		3.0
Green Ext Time (p_c), s	0.0	10.4		1.0		0.8

Intersection Summary	
HCM 6th Ctrl Delay	12.7
HCM 6th LOS	B



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	160	5	20	60	5	305	15	1650	30	20	90	755
Future Volume (vph)	160	5	20	60	5	305	15	1650	30	20	90	755
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	11	10	12	11	11	11	11	12	12	10	11
Grade (%)		5%			0%			3%				1%
Total Lost time (s)	6.0	6.0	6.0		5.5	5.5	6.0	6.0			4.5	6.0
Lane Util. Factor	0.95	0.95	1.00		1.00	1.00	1.00	0.91			1.00	0.91
Frt	1.00	1.00	0.85		1.00	0.85	1.00	1.00			1.00	0.98
Flt Protected	0.95	0.95	1.00		0.96	1.00	0.95	1.00			0.95	1.00
Satd. Flow (prot)	1584	1593	1441		1721	1531	1685	4829			1643	4805
Flt Permitted	0.95	0.95	1.00		0.96	1.00	0.30	1.00			0.06	1.00
Satd. Flow (perm)	1584	1593	1441		1721	1531	523	4829			105	4805
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	174	5	22	65	5	332	16	1793	33	22	98	821
RTOR Reduction (vph)	0	0	20	0	0	126	0	1	0	0	0	9
Lane Group Flow (vph)	89	90	2	0	70	206	16	1825	0	0	120	921
Turn Type	Split	NA	Perm	Split	NA	Perm	Perm	NA		pm+pt	pm+pt	NA
Protected Phases	4	4		8	8			6		5	5	2
Permitted Phases			4			8	6			2	2	
Actuated Green, G (s)	12.3	12.3	12.3		24.4	24.4	80.4	80.4			95.8	95.8
Effective Green, g (s)	12.3	12.3	12.3		24.4	24.4	80.4	80.4			95.8	95.8
Actuated g/C Ratio	0.08	0.08	0.08		0.16	0.16	0.54	0.54			0.64	0.64
Clearance Time (s)	6.0	6.0	6.0		5.5	5.5	6.0	6.0			4.5	6.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	129	130	118		279	249	280	2588			178	3068
v/s Ratio Prot	0.06	c0.06			0.04			c0.38			c0.05	0.19
v/s Ratio Perm			0.00			c0.13	0.03				0.38	
v/c Ratio	0.69	0.69	0.02		0.25	0.83	0.06	0.71			0.67	0.30
Uniform Delay, d1	67.0	67.0	63.3		54.8	60.8	16.7	26.0			27.4	12.1
Progression Factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00			1.59	0.41
Incremental Delay, d2	14.3	14.8	0.1		0.5	19.8	0.4	1.6			9.3	0.2
Delay (s)	81.3	81.8	63.3		55.3	80.6	17.0	27.6			53.0	5.2
Level of Service	F	F	E		E	F	B	C			D	A
Approach Delay (s)		79.5			76.2			27.5				10.6
Approach LOS		E			E			C				B

Intersection Summary			
HCM 2000 Control Delay	31.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	80.4%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	SBR
Lane Configurations	
Traffic Volume (vph)	100
Future Volume (vph)	100
Ideal Flow (vphpl)	1900
Lane Width	12
Grade (%)	
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	109
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

Intersection Summary



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	245	315	0	1295	650	830
Future Volume (veh/h)	245	315	0	1295	650	830
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1817	1817	0	1847	1817	1817
Adj Flow Rate, veh/h	266	342	0	1408	707	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	0	2	2	2
Cap, veh/h	502	406	0	4958	3872	
Arrive On Green	0.15	0.15	0.00	0.78	1.00	0.00
Sat Flow, veh/h	3358	2711	0	6870	5125	1540
Grp Volume(v), veh/h	266	342	0	1408	707	0
Grp Sat Flow(s),veh/h/ln	1679	1355	0	1588	1654	1540
Q Serve(g_s), s	11.0	18.4	0.0	9.4	0.0	0.0
Cycle Q Clear(g_c), s	11.0	18.4	0.0	9.4	0.0	0.0
Prop In Lane	1.00	1.00	0.00			1.00
Lane Grp Cap(c), veh/h	502	406	0	4958	3872	
V/C Ratio(X)	0.53	0.84	0.00	0.28	0.18	
Avail Cap(c_a), veh/h	739	596	0	4958	3872	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.67	1.67
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.95	0.00
Uniform Delay (d), s/veh	58.9	62.1	0.0	4.6	0.0	0.0
Incr Delay (d2), s/veh	0.9	7.2	0.0	0.1	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.8	6.8	0.0	2.7	0.0	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	59.8	69.2	0.0	4.8	0.1	0.0
LnGrp LOS	E	E	A	A	A	
Approach Vol, veh/h	608			1408	707	A
Approach Delay, s/veh	65.1			4.8	0.1	
Approach LOS	E			A	A	

Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		122.6		27.4		122.6
Change Period (Y+Rc), s		5.5		5.0		5.5
Max Green Setting (Gmax), s		106.5		33.0		106.5
Max Q Clear Time (g_c+I1), s		2.0		20.4		11.4
Green Ext Time (p_c), s		5.4		2.0		14.6

Intersection Summary	
HCM 6th Ctrl Delay	17.0
HCM 6th LOS	B

Notes

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	275	645	870	670	0	1205
Future Volume (veh/h)	275	645	870	670	0	1205
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1864	1939	1847	1847	0	1847
Adj Flow Rate, veh/h	299	0	946	0	0	1310
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	0	2
Cap, veh/h	360		4146		0	5224
Arrive On Green	0.10	0.00	1.00	0.00	0.00	0.82
Sat Flow, veh/h	3445	1643	5208	1565	0	6870
Grp Volume(v), veh/h	299	0	946	0	0	1310
Grp Sat Flow(s),veh/h/ln	1722	1643	1681	1565	0	1588
Q Serve(g_s), s	12.8	0.0	0.0	0.0	0.0	6.9
Cycle Q Clear(g_c), s	12.8	0.0	0.0	0.0	0.0	6.9
Prop In Lane	1.00	1.00		1.00	0.00	
Lane Grp Cap(c), veh/h	360		4146		0	5224
V/C Ratio(X)	0.83		0.23		0.00	0.25
Avail Cap(c_a), veh/h	677		4146		0	5224
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.96	0.00	0.00	1.00
Uniform Delay (d), s/veh	65.9	0.0	0.0	0.0	0.0	3.0
Incr Delay (d2), s/veh	5.0	0.0	0.1	0.0	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.9	0.0	0.0	0.0	0.0	1.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	70.9	0.0	0.1	0.0	0.0	3.1
LnGrp LOS	E		A		A	A
Approach Vol, veh/h	299	A	946	A		1310
Approach Delay, s/veh	70.9		0.1			3.1
Approach LOS	E		A			A

Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		128.8		21.2		128.8
Change Period (Y+Rc), s		5.5		5.5		5.5
Max Green Setting (Gmax), s		109.5		29.5		109.5
Max Q Clear Time (g_c+I1), s		8.9		14.8		2.0
Green Ext Time (p_c), s		12.9		0.9		7.8

Intersection Summary	
HCM 6th Ctrl Delay	9.9
HCM 6th LOS	A

Notes

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	75	20	150	385	10	85	5	160	1130	220	80	1545
Future Volume (vph)	75	20	150	385	10	85	5	160	1130	220	80	1545
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	9	9	10	11	9	12	11	11	10	10	12
Grade (%)		3%			1%				1%			4%
Total Lost time (s)		6.5	5.0	6.5	6.5	6.5		5.0	6.0	6.0	5.0	6.0
Lane Util. Factor		0.95	0.95	0.95	0.95	1.00		1.00	0.91	1.00	1.00	0.91
Frt		0.96	0.85	1.00	1.00	0.85		1.00	1.00	0.85	1.00	1.00
Flt Protected		0.97	1.00	0.95	0.95	1.00		0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)		1465	1333	1561	1625	1418		1702	4891	1470	1619	4979
Flt Permitted		0.97	1.00	0.95	0.95	1.00		0.06	1.00	1.00	0.18	1.00
Satd. Flow (perm)		1465	1333	1561	1625	1418		105	4891	1470	303	4979
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	82	22	163	418	11	92	5	174	1228	239	87	1679
RTOR Reduction (vph)	0	9	54	0	0	77	0	0	0	118	0	1
Lane Group Flow (vph)	0	131	73	213	216	15	0	179	1228	121	87	1689
Turn Type	Split	NA	pm+ov	Split	NA	Perm	custom	pm+pt	NA	Perm	pm+pt	NA
Protected Phases	8	8	1!	4	4			1	6		5	2
Permitted Phases			8			4	1!	6		6	2	
Actuated Green, G (s)		17.1	32.1	24.6	24.6	24.6		89.3	75.7	75.7	77.9	69.3
Effective Green, g (s)		17.1	32.1	24.6	24.6	24.6		89.3	75.7	75.7	77.9	69.3
Actuated g/C Ratio		0.11	0.21	0.16	0.16	0.16		0.60	0.50	0.50	0.52	0.46
Clearance Time (s)		6.5	5.0	6.5	6.5	6.5		5.0	6.0	6.0	5.0	6.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		167	285	256	266	232		222	2468	741	232	2300
v/s Ratio Prot		c0.09	0.03	c0.14	0.13			c0.08	0.25		0.02	0.34
v/s Ratio Perm			0.03			0.01		c0.40		0.08	0.17	
v/c Ratio		0.79	0.26	0.83	0.81	0.07		0.81	0.50	0.16	0.38	0.73
Uniform Delay, d1		64.7	49.0	60.7	60.5	53.0		41.5	24.6	20.0	19.0	32.9
Progression Factor		1.00	1.00	1.00	1.00	1.00		1.29	0.72	0.45	1.00	1.00
Incremental Delay, d2		21.1	0.5	20.0	16.9	0.1		18.3	0.7	0.5	1.0	2.1
Delay (s)		85.8	49.5	80.7	77.4	53.1		71.8	18.4	9.5	20.0	35.0
Level of Service		F	D	F	E	D		E	B	A	B	C
Approach Delay (s)		68.5			74.5				22.9			34.3
Approach LOS		E			E				C			C

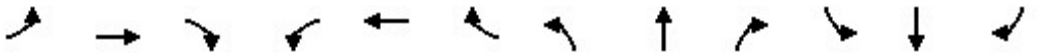
Intersection Summary			
HCM 2000 Control Delay	37.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	75.1%	ICU Level of Service	D
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group



Movement	SBR
Lane Configurations	
Traffic Volume (vph)	10
Future Volume (vph)	10
Ideal Flow (vphpl)	1900
Lane Width	12
Grade (%)	
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	11
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

Intersection Summary



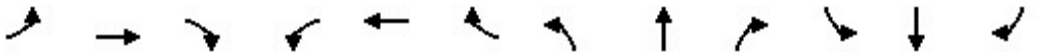
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	275	10	65	0	75	0	235	260	40	100	0
Future Volume (veh/h)	30	275	10	65	0	75	0	235	260	40	100	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	0	1870	0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	33	299	11	71	0	82	0	255	283	43	109	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	0	2	0	2	2	2	2	0
Cap, veh/h	929	1824	67	0	0	0	0	439	372	207	494	0
Arrive On Green	0.52	0.52	0.52	0.00	0.00	0.00	0.00	0.23	0.23	0.23	0.23	0.00
Sat Flow, veh/h	1781	3496	128		0		0	1870	1585	317	2187	0
Grp Volume(v), veh/h	33	152	158		0.0		0	255	283	74	78	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1847				0	1870	1585	802	1617	0
Q Serve(g_s), s	0.4	1.9	1.9				0.0	5.2	7.2	0.3	1.7	0.0
Cycle Q Clear(g_c), s	0.4	1.9	1.9				0.0	5.2	7.2	5.5	1.7	0.0
Prop In Lane	1.00		0.07				0.00		1.00	0.58		0.00
Lane Grp Cap(c), veh/h	929	927	964				0	439	372	321	380	0
V/C Ratio(X)	0.04	0.16	0.16				0.00	0.58	0.76	0.23	0.21	0.00
Avail Cap(c_a), veh/h	929	927	964				0	564	478	395	487	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	5.0	5.4	5.4				0.0	14.6	15.4	13.3	13.3	0.0
Incr Delay (d2), s/veh	0.1	0.4	0.4				0.0	1.2	5.3	0.4	0.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.6	0.6				0.0	2.0	2.7	0.5	0.6	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	5.1	5.8	5.8				0.0	15.8	20.6	13.7	13.5	0.0
LnGrp LOS	A	A	A				A	B	C	B	B	A
Approach Vol, veh/h		343						538			152	
Approach Delay, s/veh		5.7						18.4			13.6	
Approach LOS		A						B			B	

Timer - Assigned Phs				4		6		8				
Phs Duration (G+Y+Rc), s				15.1		28.0		15.1				
Change Period (Y+Rc), s				5.0		5.5		5.0				
Max Green Setting (Gmax), s				13.0		22.5		13.0				
Max Q Clear Time (g_c+I1), s				7.5		3.9		9.2				
Green Ext Time (p_c), s				0.4		1.8		1.0				

Intersection Summary			
HCM 6th Ctrl Delay		13.5	
HCM 6th LOS		B	

Notes

User approved pedestrian interval to be less than phase max green.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	800	110	385	570	260	10	245	270	275	425	5
Future Volume (veh/h)	15	800	110	385	570	260	10	245	270	275	425	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	16	870	120	418	620	283	11	266	293	299	462	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	32	1084	483	829	1926	859	163	349	536	370	691	7
Arrive On Green	0.02	0.31	0.31	0.40	0.91	0.91	0.01	0.10	0.10	0.11	0.19	0.19
Sat Flow, veh/h	1781	3554	1585	3456	3554	1585	1781	3554	1585	3456	3601	39
Grp Volume(v), veh/h	16	870	120	418	620	283	11	266	293	299	228	239
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1728	1777	1585	1781	1777	1585	1728	1777	1863
Q Serve(g_s), s	0.9	22.5	4.6	9.1	2.3	2.4	0.6	7.3	3.7	8.5	11.9	11.9
Cycle Q Clear(g_c), s	0.9	22.5	4.6	9.1	2.3	2.4	0.6	7.3	3.7	8.5	11.9	11.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.02
Lane Grp Cap(c), veh/h	32	1084	483	829	1926	859	163	349	536	370	341	358
V/C Ratio(X)	0.50	0.80	0.25	0.50	0.32	0.33	0.07	0.76	0.55	0.81	0.67	0.67
Avail Cap(c_a), veh/h	89	1084	483	829	1926	859	229	391	555	622	418	438
HCM Platoon Ratio	1.00	1.00	1.00	1.67	1.67	1.67	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.77	0.77	0.77	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	48.7	32.0	17.4	25.5	2.3	2.3	39.8	44.0	9.8	43.7	37.4	37.5
Incr Delay (d2), s/veh	11.6	6.3	1.2	0.1	0.3	0.8	0.1	7.7	1.1	1.6	3.0	2.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	10.1	2.3	3.3	0.7	0.8	0.2	3.6	2.8	3.6	5.3	5.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	60.3	38.3	18.6	25.7	2.6	3.1	39.8	51.7	10.8	45.3	40.4	40.3
LnGrp LOS	E	D	B	C	A	A	D	D	B	D	D	D
Approach Vol, veh/h		1006			1321			570			766	
Approach Delay, s/veh		36.3			10.0			30.5			42.3	
Approach LOS		D			B			C			D	

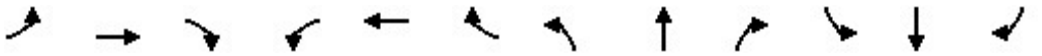
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.3	61.2	6.8	25.7	31.0	36.5	16.2	16.3
Change Period (Y+Rc), s	4.5	* 7	5.5	6.5	7.0	6.0	5.5	* 6.5
Max Green Setting (Gmax), s	5.0	* 44	5.0	23.5	16.0	30.5	18.0	* 11
Max Q Clear Time (g_c+I1), s	2.9	4.4	2.6	13.9	11.1	24.5	10.5	9.3
Green Ext Time (p_c), s	0.0	12.3	0.0	1.8	0.4	4.1	0.2	0.5

Intersection Summary	
HCM 6th Ctrl Delay	27.2
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

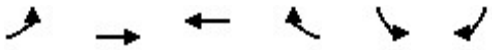
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	70	1000	275	160	780	75	365	0	375	200	0	70
Future Volume (vph)	70	1000	275	160	780	75	365	0	375	200	0	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	6.0	5.0	5.0	6.0		5.0		5.0	5.0		5.0
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95		1.00		1.00	1.00		1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00		0.85	1.00		0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95		1.00	0.95		1.00
Satd. Flow (prot)	1770	3539	1583	3433	3492		1770		1583	1770		1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95		1.00	0.95		1.00
Satd. Flow (perm)	1770	3539	1583	3433	3492		1770		1583	1770		1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	76	1087	299	174	848	82	397	0	408	217	0	76
RTOR Reduction (vph)	0	0	106	0	7	0	0	0	133	0	0	71
Lane Group Flow (vph)	76	1087	193	174	923	0	397	0	275	217	0	5
Turn Type	Prot	NA	pm+ov	Prot	NA		Prot		Over	Prot		Over
Protected Phases	5	2	8	1	6		8		1	4		5
Permitted Phases			2									
Actuated Green, G (s)	7.0	39.7	64.5	19.5	52.2		24.8		19.5	24.8		7.0
Effective Green, g (s)	7.0	39.7	64.5	19.5	52.2		24.8		19.5	24.8		7.0
Actuated g/C Ratio	0.07	0.40	0.64	0.20	0.52		0.25		0.20	0.25		0.07
Clearance Time (s)	5.0	6.0	5.0	5.0	6.0		5.0		5.0	5.0		5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0		3.0	3.0		3.0
Lane Grp Cap (vph)	123	1404	1021	669	1822		438		308	438		110
v/s Ratio Prot	0.04	c0.31	0.05	0.05	0.26		c0.22		c0.17	0.12		0.00
v/s Ratio Perm			0.07									
v/c Ratio	0.62	0.77	0.19	0.26	0.51		0.91		0.89	0.50		0.05
Uniform Delay, d1	45.2	26.2	7.2	34.1	15.5		36.5		39.2	32.2		43.4
Progression Factor	1.08	0.62	0.62	0.72	1.10		1.00		1.00	1.00		1.00
Incremental Delay, d2	7.1	3.3	0.1	0.2	0.9		22.0		26.1	0.9		0.2
Delay (s)	55.7	19.5	4.5	24.6	18.0		58.4		65.4	33.1		43.6
Level of Service	E	B	A	C	B		E		E	C		D
Approach Delay (s)		18.4			19.1			62.0			35.8	
Approach LOS		B			B			E			D	

Intersection Summary			
HCM 2000 Control Delay	29.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	74.4%	ICU Level of Service	D
Analysis Period (min)	15		

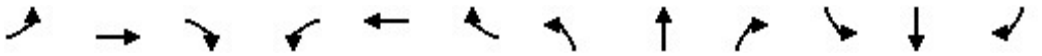
c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	365	1210	835	110	55	180
Future Volume (veh/h)	365	1210	835	110	55	180
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	397	1315	908	120	60	196
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	518	2691	2128	949	236	382
Arrive On Green	0.14	1.00	0.60	0.60	0.13	0.13
Sat Flow, veh/h	1781	3647	3647	1585	1781	1585
Grp Volume(v), veh/h	397	1315	908	120	60	196
Grp Sat Flow(s),veh/h/ln	1781	1777	1777	1585	1781	1585
Q Serve(g_s), s	8.3	0.0	13.8	3.3	3.0	10.7
Cycle Q Clear(g_c), s	8.3	0.0	13.8	3.3	3.0	10.7
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	518	2691	2128	949	236	382
V/C Ratio(X)	0.77	0.49	0.43	0.13	0.25	0.51
Avail Cap(c_a), veh/h	806	2691	2128	949	410	536
HCM Platoon Ratio	1.33	1.33	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.54	0.54	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	8.6	0.0	10.8	8.7	38.9	32.9
Incr Delay (d2), s/veh	0.5	0.3	0.6	0.3	0.6	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	0.1	5.0	1.1	1.4	9.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	9.1	0.3	11.4	9.0	39.5	33.9
LnGrp LOS	A	A	B	A	D	C
Approach Vol, veh/h		1712	1028		256	
Approach Delay, s/veh		2.4	11.1		35.2	
Approach LOS		A	B		D	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	15.8	65.9		18.3		81.7
Change Period (Y+Rc), s	5.0	6.0		5.0		6.0
Max Green Setting (Gmax), s	27.0	34.0		23.0		66.0
Max Q Clear Time (g_c+I1), s	10.3	15.8		12.7		2.0
Green Ext Time (p_c), s	0.5	4.1		0.6		8.2

Intersection Summary	
HCM 6th Ctrl Delay	8.2
HCM 6th LOS	A



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	605	10	385	895	175	155	275	410	305	160	25
Future Volume (veh/h)	5	605	10	385	895	175	155	275	410	305	160	25
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	5	658	11	418	973	190	168	299	446	332	174	27
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	12	924	412	925	1906	850	339	394	600	403	390	59
Arrive On Green	0.01	0.26	0.26	0.54	1.00	1.00	0.10	0.11	0.11	0.12	0.13	0.13
Sat Flow, veh/h	1781	3554	1585	3456	3554	1585	1781	3554	1585	3456	3091	472
Grp Volume(v), veh/h	5	658	11	418	973	190	168	299	446	332	99	102
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1728	1777	1585	1781	1777	1585	1728	1777	1785
Q Serve(g_s), s	0.3	16.8	0.4	7.4	0.0	0.0	8.2	8.2	6.7	9.4	5.1	5.3
Cycle Q Clear(g_c), s	0.3	16.8	0.4	7.4	0.0	0.0	8.2	8.2	6.7	9.4	5.1	5.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.26
Lane Grp Cap(c), veh/h	12	924	412	925	1906	850	339	394	600	403	224	225
V/C Ratio(X)	0.43	0.71	0.03	0.45	0.51	0.22	0.50	0.76	0.74	0.82	0.44	0.45
Avail Cap(c_a), veh/h	89	924	412	925	1906	850	345	444	622	622	346	348
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.56	0.56	0.56	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	49.5	33.6	13.8	18.7	0.0	0.0	34.4	43.2	9.2	43.2	40.4	40.5
Incr Delay (d2), s/veh	23.5	4.7	0.1	0.2	0.6	0.3	0.4	6.6	4.6	2.9	1.4	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	7.5	0.2	2.5	0.1	0.1	3.6	3.9	4.5	4.1	2.3	2.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	73.0	38.3	13.9	18.9	0.6	0.3	34.8	49.8	13.8	46.1	41.8	41.9
LnGrp LOS	E	D	B	B	A	A	C	D	B	D	D	D
Approach Vol, veh/h		674			1581			913			533	
Approach Delay, s/veh		38.1			5.4			29.5			44.5	
Approach LOS		D			A			C			D	

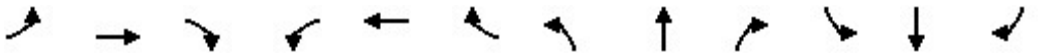
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.1	60.1	15.6	19.1	33.3	32.0	17.1	17.6
Change Period (Y+Rc), s	4.5	6.5	5.5	6.5	6.5	* 6	5.5	* 6.5
Max Green Setting (Gmax), s	5.0	42.0	10.5	19.5	21.5	* 26	18.0	* 13
Max Q Clear Time (g_c+I1), s	2.3	2.0	10.2	7.3	9.4	18.8	11.4	10.2
Green Ext Time (p_c), s	0.0	18.5	0.0	0.8	1.2	3.7	0.3	0.9

Intersection Summary	
HCM 6th Ctrl Delay	22.9
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

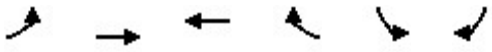
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	100	975	245	415	1085	100	350	0	225	240	0	20
Future Volume (vph)	100	975	245	415	1085	100	350	0	225	240	0	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	6.0	5.0	5.0	6.0		5.0		5.0	5.0		5.0
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95		1.00		1.00	1.00		1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00		0.85	1.00		0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95		1.00	0.95		1.00
Satd. Flow (prot)	1770	3539	1583	3433	3494		1770		1583	1770		1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95		1.00	0.95		1.00
Satd. Flow (perm)	1770	3539	1583	3433	3494		1770		1583	1770		1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	109	1060	266	451	1179	109	380	0	245	261	0	22
RTOR Reduction (vph)	0	0	25	0	7	0	0	0	135	0	0	20
Lane Group Flow (vph)	109	1060	241	451	1281	0	380	0	110	261	0	2
Turn Type	Prot	NA	pm+ov	Prot	NA		Prot		Over	Prot		Over
Protected Phases	5	2	8	1	6		8		1	4		5
Permitted Phases			2									
Actuated Green, G (s)	9.7	41.9	67.2	16.8	49.0		25.3		16.8	25.3		9.7
Effective Green, g (s)	9.7	41.9	67.2	16.8	49.0		25.3		16.8	25.3		9.7
Actuated g/C Ratio	0.10	0.42	0.67	0.17	0.49		0.25		0.17	0.25		0.10
Clearance Time (s)	5.0	6.0	5.0	5.0	6.0		5.0		5.0	5.0		5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0		3.0	3.0		3.0
Lane Grp Cap (vph)	171	1482	1063	576	1712		447		265	447		153
v/s Ratio Prot	0.06	0.30	0.06	c0.13	c0.37		c0.21		0.07	0.15		0.00
v/s Ratio Perm			0.09									
v/c Ratio	0.64	0.72	0.23	0.78	0.75		0.85		0.42	0.58		0.01
Uniform Delay, d1	43.5	24.1	6.3	39.9	20.5		35.5		37.2	32.7		40.8
Progression Factor	1.04	0.74	0.94	1.10	0.76		1.00		1.00	1.00		1.00
Incremental Delay, d2	6.1	2.4	0.1	4.8	2.1		14.3		1.1	1.9		0.0
Delay (s)	51.1	20.3	6.1	48.8	17.6		49.9		38.3	34.7		40.9
Level of Service	D	C	A	D	B		D		D	C		D
Approach Delay (s)		20.0			25.7			45.3			35.2	
Approach LOS		C			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	27.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	71.5%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	175	1265	1175	25	165	425
Future Volume (veh/h)	175	1265	1175	25	165	425
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	190	1375	1277	27	179	462
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	314	2345	1926	859	410	472
Arrive On Green	0.14	1.00	0.54	0.54	0.23	0.23
Sat Flow, veh/h	1781	3647	3647	1585	1781	1585
Grp Volume(v), veh/h	190	1375	1277	27	179	462
Grp Sat Flow(s),veh/h/ln	1781	1777	1777	1585	1781	1585
Q Serve(g_s), s	4.7	0.0	25.7	0.8	8.6	23.0
Cycle Q Clear(g_c), s	4.7	0.0	25.7	0.8	8.6	23.0
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	314	2345	1926	859	410	472
V/C Ratio(X)	0.61	0.59	0.66	0.03	0.44	0.98
Avail Cap(c_a), veh/h	513	2345	1926	859	410	472
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.68	0.68	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	13.2	0.0	16.4	10.7	33.0	34.8
Incr Delay (d2), s/veh	0.5	0.7	1.8	0.1	0.7	35.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	0.2	9.9	0.3	3.8	26.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	13.7	0.7	18.2	10.7	33.7	70.3
LnGrp LOS	B	A	B	B	C	E
Approach Vol, veh/h		1565	1304		641	
Approach Delay, s/veh		2.3	18.0		60.1	
Approach LOS		A	B		E	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	11.8	60.2		28.0		72.0
Change Period (Y+Rc), s	5.0	6.0		5.0		6.0
Max Green Setting (Gmax), s	18.0	43.0		23.0		66.0
Max Q Clear Time (g_c+I1), s	6.7	27.7		25.0		2.0
Green Ext Time (p_c), s	0.2	5.6		0.0		8.8

Intersection Summary	
HCM 6th Ctrl Delay	18.7
HCM 6th LOS	B



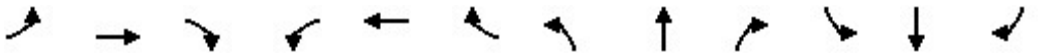
Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	5	1890	305	15	110	1740	40	65	5	170	15	5
Future Volume (vph)	5	1890	305	15	110	1740	40	65	5	170	15	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	14	13	13	12	9	12	12	10	10	10	11	11
Grade (%)		-2%				1%			0%			-7%
Total Lost time (s)	6.0	6.0			6.5	6.0			6.5	6.5	6.5	6.5
Lane Util. Factor	1.00	0.91			1.00	0.91			1.00	1.00	1.00	1.00
Frt	1.00	0.98			1.00	1.00			1.00	0.85	1.00	0.93
Flt Protected	0.95	1.00			0.95	1.00			0.96	1.00	0.95	1.00
Satd. Flow (prot)	1906	5197			1585	5043			1661	1478	1770	1724
Flt Permitted	0.10	1.00			0.95	1.00			0.73	1.00	0.71	1.00
Satd. Flow (perm)	204	5197			1585	5043			1274	1478	1319	1724
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	2054	332	16	120	1891	43	71	5	185	16	5
RTOR Reduction (vph)	0	16	0	0	0	2	0	0	0	165	0	4
Lane Group Flow (vph)	5	2370	0	0	136	1932	0	0	76	20	16	6
Turn Type	Perm	NA		Prot	Prot	NA		Perm	NA	Perm	Perm	NA
Protected Phases		6		5	5	2			4			8
Permitted Phases	6							4		4	8	
Actuated Green, G (s)	71.5	71.5			16.4	94.4			13.1	13.1	13.1	13.1
Effective Green, g (s)	71.5	71.5			16.4	94.4			13.1	13.1	13.1	13.1
Actuated g/C Ratio	0.60	0.60			0.14	0.79			0.11	0.11	0.11	0.11
Clearance Time (s)	6.0	6.0			6.5	6.0			6.5	6.5	6.5	6.5
Vehicle Extension (s)	0.2	0.2			5.0	0.2			4.0	4.0	4.0	4.0
Lane Grp Cap (vph)	121	3096			216	3967			139	161	143	188
v/s Ratio Prot		c0.46			c0.09	0.38						0.00
v/s Ratio Perm	0.02								c0.06	0.01	0.01	
v/c Ratio	0.04	0.77			0.63	0.49			0.55	0.13	0.11	0.03
Uniform Delay, d1	10.0	18.0			48.9	4.4			50.6	48.3	48.2	47.8
Progression Factor	1.00	1.00			1.25	0.71			1.00	1.00	1.00	1.00
Incremental Delay, d2	0.6	1.9			6.8	0.4			5.4	0.5	0.5	0.1
Delay (s)	10.7	19.9			68.0	3.5			56.1	48.8	48.7	47.9
Level of Service	B	B			E	A			E	D	D	D
Approach Delay (s)		19.9				7.8			50.9			48.4
Approach LOS		B				A			D			D

Intersection Summary			
HCM 2000 Control Delay	16.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	85.3%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Movement	SBR
Lane Configurations	
Traffic Volume (vph)	5
Future Volume (vph)	5
Ideal Flow (vphpl)	1900
Lane Width	11
Grade (%)	
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	5
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	



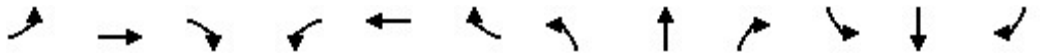
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1030	1060	0	1810	0	0	0	0	390	0	95
Future Volume (veh/h)	0	1030	1060	0	1810	0	0	0	0	390	0	95
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1847	1921	0	1817	0				1939	0	1790
Adj Flow Rate, veh/h	0	1120	0	0	1967	0				424	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				0.92	0.92	0.92
Percent Heavy Veh, %	0	2	2	0	2	0				2	0	2
Cap, veh/h	0	2670		0	3776	0				513	0	
Arrive On Green	0.00	0.51	0.00	0.00	0.76	0.00				0.14	0.00	0.00
Sat Flow, veh/h	0	3601	1628	0	5288	0				3583	0	1517
Grp Volume(v), veh/h	0	1120	0	0	1967	0				424	0	0
Grp Sat Flow(s),veh/h/ln	0	1754	1628	0	1654	0				1791	0	1517
Q Serve(g_s), s	0.0	23.9	0.0	0.0	18.8	0.0				13.8	0.0	0.0
Cycle Q Clear(g_c), s	0.0	23.9	0.0	0.0	18.8	0.0				13.8	0.0	0.0
Prop In Lane	0.00		1.00	0.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	2670		0	3776	0				513	0	
V/C Ratio(X)	0.00	0.42		0.00	0.52	0.00				0.83	0.00	
Avail Cap(c_a), veh/h	0	2670		0	3776	0				940	0	
HCM Platoon Ratio	1.00	0.67	0.67	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.58	0.00	0.00	1.00	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	12.9	0.0	0.0	5.7	0.0				50.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.3	0.0	0.0	0.5	0.0				3.5	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	10.0	0.0	0.0	5.0	0.0				6.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	13.2	0.0	0.0	6.2	0.0				53.4	0.0	0.0
LnGrp LOS	A	B		A	A	A				D	A	
Approach Vol, veh/h		1120	A		1967						424	A
Approach Delay, s/veh		13.2			6.2						53.4	
Approach LOS		B			A						D	

Timer - Assigned Phs		2		4		6						
Phs Duration (G+Y+Rc), s		97.3		22.7		97.3						
Change Period (Y+Rc), s		6.0		5.5		6.0						
Max Green Setting (Gmax), s		77.0		31.5		77.0						
Max Q Clear Time (g_c+I1), s		20.8		15.8		25.9						
Green Ext Time (p_c), s		2.9		1.4		1.3						

Intersection Summary		
HCM 6th Ctrl Delay		14.1
HCM 6th LOS		B

Notes

Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	320	980	0	0	780	15	0	135	215	25	0	265
Future Volume (vph)	320	980	0	0	780	15	0	135	215	25	0	265
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	12	12	12	12	12	13	13	13	13	13	13
Grade (%)		2%			-3%			6%			5%	
Total Lost time (s)	4.5	6.5			6.5			6.0	6.0	6.0		4.5
Lane Util. Factor	1.00	0.95			0.91			1.00	1.00	1.00		1.00
Frt	1.00	1.00			1.00			1.00	0.85	1.00		0.85
Flt Protected	0.95	1.00			1.00			1.00	1.00	0.95		1.00
Satd. Flow (prot)	1694	3504			5147			1867	1587	1783		1595
Flt Permitted	0.23	1.00			1.00			1.00	1.00	0.95		1.00
Satd. Flow (perm)	402	3504			5147			1867	1587	1783		1595
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	348	1065	0	0	848	16	0	147	234	27	0	288
RTOR Reduction (vph)	0	0	0	0	1	0	0	0	113	0	0	18
Lane Group Flow (vph)	348	1065	0	0	863	0	0	147	121	27	0	270
Turn Type	pm+pt	NA			NA			NA	Perm	Prot		custom
Protected Phases	1	6			2			4		3		1 3 4
Permitted Phases	6								4			
Actuated Green, G (s)	72.4	72.4			44.6			21.9	21.9	7.2		64.4
Effective Green, g (s)	72.4	72.4			44.6			21.9	21.9	7.2		52.4
Actuated g/C Ratio	0.60	0.60			0.37			0.18	0.18	0.06		0.44
Clearance Time (s)	4.5	6.5			6.5			6.0	6.0	6.0		
Vehicle Extension (s)	5.0	0.2			0.2			6.0	6.0	6.0		
Lane Grp Cap (vph)	493	2114			1912			340	289	106		696
v/s Ratio Prot	c0.14	0.30			0.17			c0.08		0.02		c0.17
v/s Ratio Perm	c0.29								0.08			
v/c Ratio	0.71	0.50			0.45			0.43	0.42	0.25		0.39
Uniform Delay, d1	14.0	13.6			28.5			43.5	43.4	53.8		22.9
Progression Factor	1.02	0.55			0.92			1.00	1.00	1.00		1.00
Incremental Delay, d2	5.2	0.8			0.6			2.5	2.8	3.6		0.8
Delay (s)	19.5	8.3			26.7			46.0	46.2	57.4		23.7
Level of Service	B	A			C			D	D	E		C
Approach Delay (s)		11.0			26.7			46.1			26.6	
Approach LOS		B			C			D			C	

Intersection Summary			
HCM 2000 Control Delay	21.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	23.0
Intersection Capacity Utilization	61.1%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	1210	5	5	760	10	10	5	10	75	5	25
Future Volume (vph)	5	1210	5	5	760	10	10	5	10	75	5	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	12	12	12	11	11	12	12	11	10	10	10
Grade (%)		1%			-2%			0%			-3%	
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0	4.0		4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00	1.00		1.00	
Frt	1.00	1.00		1.00	1.00			1.00	0.85		0.97	
Flt Protected	0.95	1.00		0.95	1.00			0.97	1.00		0.97	
Satd. Flow (prot)	1702	1852		1787	1815			1801	1531		1649	
Flt Permitted	0.30	1.00		0.09	1.00			0.86	1.00		0.78	
Satd. Flow (perm)	529	1852		171	1815			1597	1531		1327	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	1315	5	5	826	11	11	5	11	82	5	27
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	10	0	10	0
Lane Group Flow (vph)	5	1320	0	5	837	0	0	16	1	0	104	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		6			2			4			8	
Permitted Phases	6			2			4		4	8		
Actuated Green, G (s)	97.6	97.6		97.6	97.6			14.4	14.4		14.4	
Effective Green, g (s)	97.6	97.6		97.6	97.6			14.4	14.4		14.4	
Actuated g/C Ratio	0.81	0.81		0.81	0.81			0.12	0.12		0.12	
Clearance Time (s)	4.0	4.0		4.0	4.0			4.0	4.0		4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0		3.0	
Lane Grp Cap (vph)	430	1506		139	1476			191	183		159	
v/s Ratio Prot		c0.71			0.46							
v/s Ratio Perm	0.01			0.03				0.01	0.00		c0.08	
v/c Ratio	0.01	0.88		0.04	0.57			0.08	0.01		0.66	
Uniform Delay, d1	2.1	7.3		2.2	3.9			46.9	46.5		50.4	
Progression Factor	0.42	1.00		1.00	1.00			1.00	1.00		1.00	
Incremental Delay, d2	0.0	5.4		0.5	1.6			0.2	0.0		9.4	
Delay (s)	0.9	12.6		2.6	5.5			47.1	46.5		59.8	
Level of Service	A	B		A	A			D	D		E	
Approach Delay (s)		12.6			5.4			46.9			59.8	
Approach LOS		B			A			D			E	

Intersection Summary			
HCM 2000 Control Delay	12.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	83.3%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



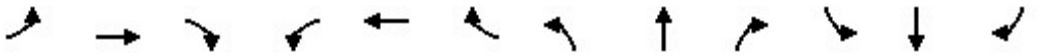
Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	5	2000	70	15	270	2190	15	85	5	140	40	5
Future Volume (vph)	5	2000	70	15	270	2190	15	85	5	140	40	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	14	13	13	12	9	12	12	10	10	10	11	11
Grade (%)		-2%				1%			0%			-7%
Total Lost time (s)	6.0	6.0			6.5	6.0			6.5	6.5	6.5	6.5
Lane Util. Factor	1.00	0.91			1.00	0.91			1.00	1.00	1.00	1.00
Frt	1.00	0.99			1.00	1.00			1.00	0.85	1.00	0.90
Flt Protected	0.95	1.00			0.95	1.00			0.95	1.00	0.95	1.00
Satd. Flow (prot)	1906	5280			1585	5055			1660	1478	1770	1671
Flt Permitted	0.07	1.00			0.95	1.00			0.73	1.00	0.69	1.00
Satd. Flow (perm)	135	5280			1585	5055			1261	1478	1294	1671
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	2174	76	16	293	2380	16	92	5	152	43	5
RTOR Reduction (vph)	0	3	0	0	0	0	0	0	0	134	0	10
Lane Group Flow (vph)	5	2247	0	0	309	2396	0	0	97	18	43	6
Turn Type	Perm	NA		Prot	Prot	NA		Perm	NA	Perm	Perm	NA
Protected Phases		6		5	5	2			4			8
Permitted Phases	6							4		4	8	
Actuated Green, G (s)	59.4	59.4			27.7	93.6			13.9	13.9	13.9	13.9
Effective Green, g (s)	59.4	59.4			27.7	93.6			13.9	13.9	13.9	13.9
Actuated g/C Ratio	0.49	0.49			0.23	0.78			0.12	0.12	0.12	0.12
Clearance Time (s)	6.0	6.0			6.5	6.0			6.5	6.5	6.5	6.5
Vehicle Extension (s)	0.2	0.2			5.0	0.2			4.0	4.0	4.0	4.0
Lane Grp Cap (vph)	66	2613			365	3942			146	171	149	193
v/s Ratio Prot		c0.43			c0.19	0.47						0.00
v/s Ratio Perm	0.04								c0.08	0.01	0.03	
v/c Ratio	0.08	0.86			0.85	0.61			0.66	0.10	0.29	0.03
Uniform Delay, d1	15.9	26.6			44.1	5.5			50.8	47.5	48.5	47.1
Progression Factor	1.00	1.00			1.32	0.65			1.00	1.00	1.00	1.00
Incremental Delay, d2	2.2	4.0			12.8	0.5			11.9	0.4	1.5	0.1
Delay (s)	18.1	30.6			70.9	4.1			62.7	47.8	50.0	47.2
Level of Service	B	C			E	A			E	D	D	D
Approach Delay (s)		30.6				11.7			53.6			49.2
Approach LOS		C				B			D			D

Intersection Summary			
HCM 2000 Control Delay	22.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	89.2%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Movement	SBR
Lane Configurations	
Traffic Volume (vph)	10
Future Volume (vph)	10
Ideal Flow (vphpl)	1900
Lane Width	11
Grade (%)	
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	11
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	



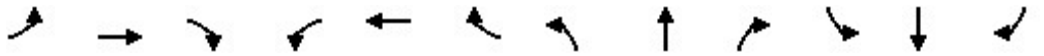
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↱		↑↑↑					↰↰		↱
Traffic Volume (veh/h)	0	955	1240	0	2260	0	0	0	0	500	0	230
Future Volume (veh/h)	0	955	1240	0	2260	0	0	0	0	500	0	230
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1847	1921	0	1817	0				1939	0	1790
Adj Flow Rate, veh/h	0	1038	0	0	2457	0				543	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				0.92	0.92	0.92
Percent Heavy Veh, %	0	2	2	0	2	0				2	0	2
Cap, veh/h	0	2549		0	3604	0				637	0	
Arrive On Green	0.00	0.24	0.00	0.00	0.73	0.00				0.18	0.00	0.00
Sat Flow, veh/h	0	3601	1628	0	5288	0				3583	0	1517
Grp Volume(v), veh/h	0	1038	0	0	2457	0				543	0	0
Grp Sat Flow(s),veh/h/ln	0	1754	1628	0	1654	0				1791	0	1517
Q Serve(g_s), s	0.0	29.9	0.0	0.0	32.2	0.0				17.6	0.0	0.0
Cycle Q Clear(g_c), s	0.0	29.9	0.0	0.0	32.2	0.0				17.6	0.0	0.0
Prop In Lane	0.00		1.00	0.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	2549		0	3604	0				637	0	
V/C Ratio(X)	0.00	0.41		0.00	0.68	0.00				0.85	0.00	
Avail Cap(c_a), veh/h	0	2549		0	3604	0				970	0	
HCM Platoon Ratio	1.00	0.33	0.33	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.45	0.00	0.00	1.00	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	23.9	0.0	0.0	8.9	0.0				47.8	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.2	0.0	0.0	1.1	0.0				4.7	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	14.0	0.0	0.0	9.4	0.0				8.3	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	24.1	0.0	0.0	10.0	0.0				52.5	0.0	0.0
LnGrp LOS	A	C		A	A	A				D	A	
Approach Vol, veh/h		1038	A		2457						543	A
Approach Delay, s/veh		24.1			10.0						52.5	
Approach LOS		C			A						D	

Timer - Assigned Phs	2	4	6
Phs Duration (G+Y+Rc), s	93.2	26.8	93.2
Change Period (Y+Rc), s	6.0	5.5	6.0
Max Green Setting (Gmax), s	76.0	32.5	76.0
Max Q Clear Time (g_c+I1), s	34.2	19.6	31.9
Green Ext Time (p_c), s	4.2	1.7	1.2

Intersection Summary	
HCM 6th Ctrl Delay	19.3
HCM 6th LOS	B

Notes

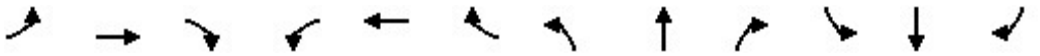
Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	220	1135	0	0	1115	40	0	260	175	30	0	405
Future Volume (vph)	220	1135	0	0	1115	40	0	260	175	30	0	405
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	12	12	12	12	12	13	13	13	13	13	13
Grade (%)		2%			-3%			6%			5%	
Total Lost time (s)	4.5	6.5			6.5			6.0	6.0	6.0		4.5
Lane Util. Factor	1.00	0.95			0.91			1.00	1.00	1.00		1.00
Frt	1.00	1.00			0.99			1.00	0.85	1.00		0.85
Flt Protected	0.95	1.00			1.00			1.00	1.00	0.95		1.00
Satd. Flow (prot)	1694	3504			5135			1867	1587	1783		1595
Flt Permitted	0.10	1.00			1.00			1.00	1.00	0.95		1.00
Satd. Flow (perm)	186	3504			5135			1867	1587	1783		1595
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	239	1234	0	0	1212	43	0	283	190	33	0	440
RTOR Reduction (vph)	0	0	0	0	3	0	0	0	98	0	0	18
Lane Group Flow (vph)	239	1234	0	0	1252	0	0	283	92	33	0	422
Turn Type	pm+pt	NA			NA			NA	Perm	Prot		custom
Protected Phases	1	6			2			4		3		1 3 4
Permitted Phases	6								4			
Actuated Green, G (s)	67.5	67.5			43.6			27.4	27.4	6.6		65.4
Effective Green, g (s)	67.5	67.5			43.6			27.4	27.4	6.6		53.4
Actuated g/C Ratio	0.56	0.56			0.36			0.23	0.23	0.05		0.44
Clearance Time (s)	4.5	6.5			6.5			6.0	6.0	6.0		
Vehicle Extension (s)	5.0	0.2			0.2			6.0	6.0	6.0		
Lane Grp Cap (vph)	348	1971			1865			426	362	98		709
v/s Ratio Prot	c0.11	0.35			0.24			c0.15		0.02		c0.26
v/s Ratio Perm	c0.27								0.06			
v/c Ratio	0.69	0.63			0.67			0.66	0.25	0.34		0.60
Uniform Delay, d1	24.8	17.7			32.2			42.1	37.9	54.6		25.1
Progression Factor	1.04	0.44			0.88			1.00	1.00	1.00		1.00
Incremental Delay, d2	6.4	1.4			1.3			6.0	1.0	5.7		2.0
Delay (s)	32.2	9.2			29.5			48.2	39.0	60.3		27.2
Level of Service	C	A			C			D	D	E		C
Approach Delay (s)		12.9			29.5			44.5			29.5	
Approach LOS		B			C			D			C	

Intersection Summary			
HCM 2000 Control Delay	24.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	23.0
Intersection Capacity Utilization	69.1%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	1295	15	5	1085	10	5	5	10	20	5	65
Future Volume (vph)	30	1295	15	5	1085	10	5	5	10	20	5	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	12	12	12	11	11	12	12	11	10	10	10
Grade (%)		1%			-2%			0%			-3%	
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0	4.0		4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00	1.00		1.00	
Frt	1.00	1.00		1.00	1.00			1.00	0.85		0.90	
Flt Protected	0.95	1.00		0.95	1.00			0.98	1.00		0.99	
Satd. Flow (prot)	1702	1850		1787	1816			1817	1531		1574	
Flt Permitted	0.18	1.00		0.08	1.00			0.84	1.00		0.93	
Satd. Flow (perm)	316	1850		145	1816			1570	1531		1474	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	33	1408	16	5	1179	11	5	5	11	22	5	71
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	10	0	65	0
Lane Group Flow (vph)	33	1424	0	5	1190	0	0	10	1	0	33	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		6			2			4			8	
Permitted Phases	6			2			4		4	8		
Actuated Green, G (s)	102.3	102.3		102.3	102.3			9.7	9.7		9.7	
Effective Green, g (s)	102.3	102.3		102.3	102.3			9.7	9.7		9.7	
Actuated g/C Ratio	0.85	0.85		0.85	0.85			0.08	0.08		0.08	
Clearance Time (s)	4.0	4.0		4.0	4.0			4.0	4.0		4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0		3.0	
Lane Grp Cap (vph)	269	1577		123	1548			126	123		119	
v/s Ratio Prot		c0.77			0.66							
v/s Ratio Perm	0.10			0.03				0.01	0.00		c0.02	
v/c Ratio	0.12	0.90		0.04	0.77			0.08	0.01		0.28	
Uniform Delay, d1	1.5	5.7		1.4	3.8			51.0	50.7		51.8	
Progression Factor	0.12	1.78		1.00	1.00			1.00	1.00		1.00	
Incremental Delay, d2	0.2	6.3		0.6	3.7			0.3	0.0		1.3	
Delay (s)	0.3	16.4		2.0	7.5			51.3	50.7		53.1	
Level of Service	A	B		A	A			D	D		D	
Approach Delay (s)		16.1			7.5			51.0			53.1	
Approach LOS		B			A			D			D	

Intersection Summary			
HCM 2000 Control Delay	13.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	87.8%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	115	830	105	465	455	105	130	125	160	425	735	255
Future Volume (vph)	115	830	105	465	455	105	130	125	160	425	735	255
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		4%			-4%			-3%			-2%	
Total Lost time (s)	6.5	7.5	6.5	7.0	7.5	7.0	6.5	4.5	7.0	7.0	4.5	4.0
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1734	3468	1552	3502	3610	1615	1796	3592	1607	1787	3575	1599
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.18	1.00	1.00	0.49	1.00	1.00
Satd. Flow (perm)	1734	3468	1552	3502	3610	1615	342	3592	1607	917	3575	1599
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	125	902	114	505	495	114	141	136	174	462	799	277
RTOR Reduction (vph)	0	0	65	0	0	48	0	0	90	0	0	0
Lane Group Flow (vph)	125	902	49	505	495	66	141	136	84	462	799	277
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	pm+pt	NA	custom	pm+pt	NA	Free
Protected Phases	1	6	3	5	2	7	3	8	5	7	4	
Permitted Phases			6			2	8		6	4		Free
Actuated Green, G (s)	15.2	47.5	60.1	24.9	57.7	87.2	34.7	22.1	72.4	58.6	39.5	150.0
Effective Green, g (s)	15.2	47.5	60.1	24.9	57.7	87.2	34.7	22.1	72.4	58.6	39.5	150.0
Actuated g/C Ratio	0.10	0.32	0.40	0.17	0.38	0.58	0.23	0.15	0.48	0.39	0.26	1.00
Clearance Time (s)	6.5	7.5	6.5	7.0	7.5	7.0	6.5	4.5	7.0	7.0	4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	175	1098	621	581	1388	938	201	529	850	529	941	1599
v/s Ratio Prot	0.07	c0.26	0.01	c0.14	0.14	0.01	0.06	0.04	0.02	c0.17	0.22	
v/s Ratio Perm			0.02			0.03	0.10		0.04	c0.17		0.17
v/c Ratio	0.71	0.82	0.08	0.87	0.36	0.07	0.70	0.26	0.10	0.87	0.85	0.17
Uniform Delay, d1	65.3	47.3	27.8	61.0	32.9	13.7	48.7	56.7	21.1	38.5	52.4	0.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	12.9	6.9	0.1	13.1	0.7	0.0	10.5	0.3	0.1	14.8	7.2	0.2
Delay (s)	78.2	54.3	27.9	74.0	33.6	13.7	59.2	56.9	21.1	53.2	59.7	0.2
Level of Service	E	D	C	E	C	B	E	E	C	D	E	A
Approach Delay (s)		54.3			49.9			43.8			47.0	
Approach LOS		D			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	49.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	26.0
Intersection Capacity Utilization	85.6%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	5	320	865	40	10	525	75	50	5	10	35	5
Future Volume (vph)	5	320	865	40	10	525	75	50	5	10	35	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	11	11	11	11	11
Grade (%)			0%			-4%			-3%			0%
Total Lost time (s)		6.0	6.0		6.0	6.0		6.5	6.5			6.5
Lane Util. Factor		1.00	1.00		1.00	0.95		1.00	1.00			1.00
Frt		1.00	0.99		1.00	0.98		1.00	0.90			1.00
Flt Protected		0.95	1.00		0.95	1.00		0.95	1.00			0.96
Satd. Flow (prot)		1770	1851		1805	3542		1736	1639			1724
Flt Permitted		0.30	1.00		0.31	1.00		0.73	1.00			0.74
Satd. Flow (perm)		554	1851		582	3542		1332	1639			1331
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	348	940	43	11	571	82	54	5	11	38	5
RTOR Reduction (vph)	0	0	1	0	0	8	0	0	10	0	0	0
Lane Group Flow (vph)	0	353	982	0	11	645	0	54	6	0	0	43
Turn Type	pm+pt	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA
Protected Phases	1!	1	6			2			8			4
Permitted Phases	6!	6			2			8			4	
Actuated Green, G (s)		88.8	88.8		48.8	48.8		8.7	8.7			8.7
Effective Green, g (s)		88.8	88.8		48.8	48.8		8.7	8.7			8.7
Actuated g/C Ratio		0.81	0.81		0.44	0.44		0.08	0.08			0.08
Clearance Time (s)		6.0	6.0		6.0	6.0		6.5	6.5			6.5
Vehicle Extension (s)		3.0	3.0		3.0	3.0		3.0	3.0			3.0
Lane Grp Cap (vph)		823	1494		258	1571		105	129			105
v/s Ratio Prot		0.13	c0.53			0.18			0.00			
v/s Ratio Perm		0.21			0.02			0.04				0.03
v/c Ratio		0.43	0.66		0.04	0.41		0.51	0.05			0.41
Uniform Delay, d1		4.3	4.4		17.4	20.8		48.6	46.8			48.2
Progression Factor		0.79	0.62		1.00	1.00		1.00	1.00			1.00
Incremental Delay, d2		0.3	2.1		0.3	0.8		4.2	0.1			2.6
Delay (s)		3.8	4.8		17.7	21.6		52.8	47.0			50.8
Level of Service		A	A		B	C		D	D			D
Approach Delay (s)			4.5			21.5			51.5			41.0
Approach LOS			A			C			D			D

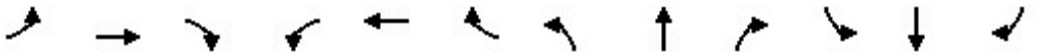
Intersection Summary			
HCM 2000 Control Delay	18.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	18.5
Intersection Capacity Utilization	90.2%	ICU Level of Service	E
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group



Movement	SBR
Lane Configurations	
Traffic Volume (vph)	510
Future Volume (vph)	510
Ideal Flow (vphpl)	1900
Lane Width	11
Grade (%)	
Total Lost time (s)	6.0
Lane Util. Factor	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1531
Flt Permitted	1.00
Satd. Flow (perm)	1531
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	554
RTOR Reduction (vph)	59
Lane Group Flow (vph)	495
Turn Type	pm+ov
Protected Phases	1!
Permitted Phases	4
Actuated Green, G (s)	42.7
Effective Green, g (s)	42.7
Actuated g/C Ratio	0.39
Clearance Time (s)	6.0
Vehicle Extension (s)	3.0
Lane Grp Cap (vph)	594
v/s Ratio Prot	c0.26
v/s Ratio Perm	0.07
v/c Ratio	0.83
Uniform Delay, d1	30.4
Progression Factor	1.00
Incremental Delay, d2	9.8
Delay (s)	40.2
Level of Service	D
Approach Delay (s)	
Approach LOS	

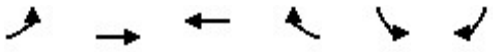
Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	0	380	0	0	920	0	0	0	0
Future Volume (vph)	0	0	0	0	380	0	0	920	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.5			4.5				
Lane Util. Factor					0.95			0.95				
Frt					1.00			1.00				
Flt Protected					1.00			1.00				
Satd. Flow (prot)					3539			3539				
Flt Permitted					1.00			1.00				
Satd. Flow (perm)					3539			3539				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	413	0	0	1000	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	413	0	0	1000	0	0	0	0
Turn Type					NA			NA				
Protected Phases					8			2				
Permitted Phases												
Actuated Green, G (s)					31.5			63.5				
Effective Green, g (s)					31.5			63.5				
Actuated g/C Ratio					0.29			0.58				
Clearance Time (s)					4.5			4.5				
Vehicle Extension (s)					3.0			3.0				
Lane Grp Cap (vph)					1013			2042				
v/s Ratio Prot					c0.12			c0.28				
v/s Ratio Perm												
v/c Ratio					0.41			0.49				
Uniform Delay, d1					31.7			13.7				
Progression Factor					0.63			1.00				
Incremental Delay, d2					1.1			0.8				
Delay (s)					21.0			14.5				
Level of Service					C			B				
Approach Delay (s)		0.0			21.0			14.5			0.0	
Approach LOS		A			C			B			A	

Intersection Summary			
HCM 2000 Control Delay	16.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	43.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	920	0	0	190	0
Future Volume (vph)	0	920	0	0	190	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5	
Lane Util. Factor		0.95			0.97	
Frt		1.00			1.00	
Flt Protected		1.00			0.95	
Satd. Flow (prot)		3539			3433	
Flt Permitted		1.00			0.95	
Satd. Flow (perm)		3539			3433	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1000	0	0	207	0
RTOR Reduction (vph)	0	0	0	0	148	0
Lane Group Flow (vph)	0	1000	0	0	59	0
Turn Type		NA			Prot	
Protected Phases		2 12			4	
Permitted Phases						
Actuated Green, G (s)		72.0			31.5	
Effective Green, g (s)		72.0			31.5	
Actuated g/C Ratio		0.65			0.29	
Clearance Time (s)					4.5	
Vehicle Extension (s)					3.0	
Lane Grp Cap (vph)		2316			983	
v/s Ratio Prot		c0.28			c0.02	
v/s Ratio Perm						
v/c Ratio		0.43			0.06	
Uniform Delay, d1		9.1			28.5	
Progression Factor		0.03			1.00	
Incremental Delay, d2		0.5			0.0	
Delay (s)		0.8			28.5	
Level of Service		A			C	
Approach Delay (s)		0.8	0.0		28.5	
Approach LOS		A	A		C	

Intersection Summary			
HCM 2000 Control Delay	5.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.33		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	38.4%	ICU Level of Service	A
Analysis Period (min)	15		

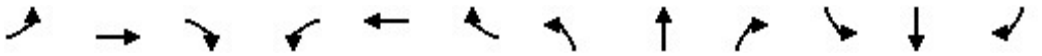
c Critical Lane Group



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	0	0	935	60	0
Future Volume (vph)	0	0	0	935	60	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.5	4.5	
Lane Util. Factor				0.95	0.97	
Frt				1.00	1.00	
Flt Protected				1.00	0.95	
Satd. Flow (prot)				3539	3433	
Flt Permitted				1.00	0.95	
Satd. Flow (perm)				3539	3433	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	1016	65	0
RTOR Reduction (vph)	0	0	0	0	41	0
Lane Group Flow (vph)	0	0	0	1016	24	0
Turn Type				NA	Prot	
Protected Phases				6 16	8	
Permitted Phases						
Actuated Green, G (s)				63.0	40.5	
Effective Green, g (s)				63.0	40.5	
Actuated g/C Ratio				0.57	0.37	
Clearance Time (s)					4.5	
Vehicle Extension (s)					3.0	
Lane Grp Cap (vph)				2026	1263	
v/s Ratio Prot				c0.29	c0.01	
v/s Ratio Perm						
v/c Ratio				0.50	0.02	
Uniform Delay, d1				14.1	22.1	
Progression Factor				0.00	1.00	
Incremental Delay, d2				0.7	0.0	
Delay (s)				0.7	22.1	
Level of Service				A	C	
Approach Delay (s)	0.0			0.7	22.1	
Approach LOS	A			A	C	

Intersection Summary			
HCM 2000 Control Delay	2.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.33		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	37.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑									↑↑	
Traffic Volume (vph)	0	535	0	0	0	0	0	0	0	0	935	0
Future Volume (vph)	0	535	0	0	0	0	0	0	0	0	935	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5									4.5	
Lane Util. Factor		0.95									0.95	
Frt		1.00									1.00	
Flt Protected		1.00									1.00	
Satd. Flow (prot)		3539									3539	
Flt Permitted		1.00									1.00	
Satd. Flow (perm)		3539									3539	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	582	0	0	0	0	0	0	0	0	1016	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	582	0	0	0	0	0	0	0	0	1016	0
Turn Type		NA									NA	
Protected Phases		4									6	
Permitted Phases												
Actuated Green, G (s)		34.5									54.5	
Effective Green, g (s)		34.5									54.5	
Actuated g/C Ratio		0.31									0.50	
Clearance Time (s)		4.5									4.5	
Vehicle Extension (s)		3.0									3.0	
Lane Grp Cap (vph)		1109									1753	
v/s Ratio Prot		c0.16									c0.29	
v/s Ratio Perm												
v/c Ratio		0.52									0.58	
Uniform Delay, d1		31.0									19.6	
Progression Factor		0.77									0.93	
Incremental Delay, d2		1.7									1.2	
Delay (s)		25.6									19.5	
Level of Service		C									B	
Approach Delay (s)		25.6			0.0			0.0			19.5	
Approach LOS		C			A			A			B	

Intersection Summary			
HCM 2000 Control Delay	21.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	48.1%	ICU Level of Service	A
Analysis Period (min)	15		

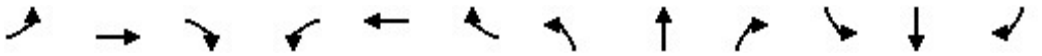
c Critical Lane Group



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	535	0	0	0	0	695
Future Volume (vph)	535	0	0	0	0	695
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5					4.5
Lane Util. Factor	0.95					0.88
Frt	1.00					0.85
Flt Protected	1.00					1.00
Satd. Flow (prot)	3539					2787
Flt Permitted	1.00					1.00
Satd. Flow (perm)	3539					2787
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	582	0	0	0	0	755
RTOR Reduction (vph)	0	0	0	0	0	108
Lane Group Flow (vph)	582	0	0	0	0	647
Turn Type	NA					Prot
Protected Phases	4 10					2
Permitted Phases						
Actuated Green, G (s)	43.0					60.5
Effective Green, g (s)	43.0					60.5
Actuated g/C Ratio	0.39					0.55
Clearance Time (s)						4.5
Vehicle Extension (s)						3.0
Lane Grp Cap (vph)	1383					1532
v/s Ratio Prot	c0.16					c0.23
v/s Ratio Perm						
v/c Ratio	0.42					0.42
Uniform Delay, d1	24.4					14.5
Progression Factor	0.00					1.00
Incremental Delay, d2	0.8					0.2
Delay (s)	0.8					14.7
Level of Service	A					B
Approach Delay (s)	0.8			0.0	14.7	
Approach LOS	A			A	B	

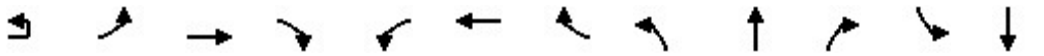
Intersection Summary			
HCM 2000 Control Delay	8.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	48.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	155	460	180	265	785	245	120	810	455	100	205	125
Future Volume (vph)	155	460	180	265	785	245	120	810	455	100	205	125
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		4%			-4%			-3%			-2%	
Total Lost time (s)	6.5	7.5	6.5	7.0	7.5	7.0	6.5	4.5	7.0	7.0	4.5	4.0
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1734	3468	1552	3502	3610	1615	1796	3592	1607	1787	3575	1599
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.59	1.00	1.00	0.09	1.00	1.00
Satd. Flow (perm)	1734	3468	1552	3502	3610	1615	1118	3592	1607	174	3575	1599
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	168	500	196	288	853	266	130	880	495	109	223	136
RTOR Reduction (vph)	0	0	113	0	0	49	0	0	258	0	0	0
Lane Group Flow (vph)	168	500	83	288	853	217	130	880	237	109	223	136
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	pm+pt	NA	custom	pm+pt	NA	Free
Protected Phases	1	6	3	5	2	7	3	8	5	7	4	
Permitted Phases			6			2	8		6	4		Free
Actuated Green, G (s)	18.5	54.2	63.7	17.5	53.7	64.2	51.3	41.8	71.7	53.8	43.3	150.0
Effective Green, g (s)	18.5	54.2	63.7	17.5	53.7	64.2	51.3	41.8	71.7	53.8	43.3	150.0
Actuated g/C Ratio	0.12	0.36	0.42	0.12	0.36	0.43	0.34	0.28	0.48	0.36	0.29	1.00
Clearance Time (s)	6.5	7.5	6.5	7.0	7.5	7.0	6.5	4.5	7.0	7.0	4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	213	1253	659	408	1292	691	425	1000	843	175	1031	1599
v/s Ratio Prot	c0.10	0.14	0.01	0.08	c0.24	0.02	0.02	c0.24	c0.03	c0.04	0.06	
v/s Ratio Perm			0.05			0.11	0.09		0.11	0.18		c0.09
v/c Ratio	0.79	0.40	0.13	0.71	0.66	0.31	0.31	0.88	0.28	0.62	0.22	0.09
Uniform Delay, d1	63.9	35.7	26.2	63.8	40.5	28.3	35.0	51.7	23.6	37.4	40.5	0.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	17.4	1.0	0.1	5.5	2.7	0.3	0.4	9.1	0.2	6.7	0.1	0.1
Delay (s)	81.2	36.7	26.3	69.3	43.1	28.6	35.4	60.8	23.8	44.1	40.6	0.1
Level of Service	F	D	C	E	D	C	D	E	C	D	D	A
Approach Delay (s)		43.0			45.7			46.4			29.6	
Approach LOS		D			D			D			C	

Intersection Summary			
HCM 2000 Control Delay	43.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	26.0
Intersection Capacity Utilization	77.5%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	10	330	850	50	5	735	20	45	5	5	10	10
Future Volume (vph)	10	330	850	50	5	735	20	45	5	5	10	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	11	11	11	11	11
Grade (%)			0%			-4%			-3%			0%
Total Lost time (s)		6.0	6.0		6.0	6.0		6.5	6.5			6.5
Lane Util. Factor		1.00	1.00		1.00	0.95		1.00	1.00			1.00
Frt		1.00	0.99		1.00	1.00		1.00	0.93			1.00
Flt Protected		0.95	1.00		0.95	1.00		0.95	1.00			0.98
Satd. Flow (prot)		1770	1847		1805	3595		1736	1691			1757
Flt Permitted		0.26	1.00		0.31	1.00		0.74	1.00			0.84
Satd. Flow (perm)		480	1847		584	3595		1358	1691			1507
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	11	359	924	54	5	799	22	49	5	5	11	11
RTOR Reduction (vph)	0	0	1	0	0	1	0	0	5	0	0	0
Lane Group Flow (vph)	0	370	977	0	5	820	0	49	5	0	0	22
Turn Type	pm+pt	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA
Protected Phases	1!	1	6			2			8			4
Permitted Phases	6!	6			2			8			4	
Actuated Green, G (s)		98.9	98.9		64.7	64.7		8.6	8.6			8.6
Effective Green, g (s)		98.9	98.9		64.7	64.7		8.6	8.6			8.6
Actuated g/C Ratio		0.82	0.82		0.54	0.54		0.07	0.07			0.07
Clearance Time (s)		6.0	6.0		6.0	6.0		6.5	6.5			6.5
Vehicle Extension (s)		3.0	3.0		3.0	3.0		3.0	3.0			3.0
Lane Grp Cap (vph)		698	1522		314	1938		97	121			108
v/s Ratio Prot		0.12	c0.53			0.23			0.00			
v/s Ratio Perm		0.31			0.01			0.04				0.01
v/c Ratio		0.53	0.64		0.02	0.42		0.51	0.04			0.20
Uniform Delay, d1		5.4	3.9		12.9	16.5		53.7	51.9			52.5
Progression Factor		0.73	0.65		1.00	1.00		1.00	1.00			1.00
Incremental Delay, d2		0.7	1.9		0.1	0.7		4.1	0.2			0.9
Delay (s)		4.6	4.5		12.9	17.2		57.7	52.0			53.4
Level of Service		A	A		B	B		E	D			D
Approach Delay (s)			4.5			17.2			56.8			48.6
Approach LOS			A			B			E			D

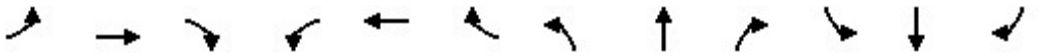
Intersection Summary			
HCM 2000 Control Delay	16.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.5
Intersection Capacity Utilization	87.4%	ICU Level of Service	E
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group



Movement	SBR
Lane Configurations	
Traffic Volume (vph)	385
Future Volume (vph)	385
Ideal Flow (vphpl)	1900
Lane Width	11
Grade (%)	
Total Lost time (s)	6.0
Lane Util. Factor	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1531
Flt Permitted	1.00
Satd. Flow (perm)	1531
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	418
RTOR Reduction (vph)	38
Lane Group Flow (vph)	380
Turn Type	pm+ov
Protected Phases	1!
Permitted Phases	4
Actuated Green, G (s)	36.8
Effective Green, g (s)	36.8
Actuated g/C Ratio	0.31
Clearance Time (s)	6.0
Vehicle Extension (s)	3.0
Lane Grp Cap (vph)	469
v/s Ratio Prot	c0.19
v/s Ratio Perm	0.06
v/c Ratio	0.81
Uniform Delay, d1	38.4
Progression Factor	1.00
Incremental Delay, d2	10.0
Delay (s)	48.3
Level of Service	D
Approach Delay (s)	
Approach LOS	

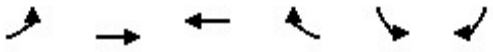
Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	0	610	0	0	905	0	0	0	0
Future Volume (vph)	0	0	0	0	610	0	0	905	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.5			4.5				
Lane Util. Factor					0.95			0.95				
Frt					1.00			1.00				
Flt Protected					1.00			1.00				
Satd. Flow (prot)					3539			3539				
Flt Permitted					1.00			1.00				
Satd. Flow (perm)					3539			3539				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	663	0	0	984	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	663	0	0	984	0	0	0	0
Turn Type					NA			NA				
Protected Phases					8			2				
Permitted Phases												
Actuated Green, G (s)					43.5			61.5				
Effective Green, g (s)					43.5			61.5				
Actuated g/C Ratio					0.36			0.51				
Clearance Time (s)					4.5			4.5				
Vehicle Extension (s)					3.0			3.0				
Lane Grp Cap (vph)					1282			1813				
v/s Ratio Prot					c0.19			c0.28				
v/s Ratio Perm												
v/c Ratio					0.52			0.54				
Uniform Delay, d1					30.0			19.8				
Progression Factor					0.67			1.00				
Incremental Delay, d2					1.4			1.2				
Delay (s)					21.6			20.9				
Level of Service					C			C				
Approach Delay (s)		0.0			21.6			20.9			0.0	
Approach LOS		A			C			C			A	

Intersection Summary			
HCM 2000 Control Delay	21.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	49.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	905	0	0	305	0
Future Volume (vph)	0	905	0	0	305	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5	
Lane Util. Factor		0.95			0.97	
Frt		1.00			1.00	
Flt Protected		1.00			0.95	
Satd. Flow (prot)		3539			3433	
Flt Permitted		1.00			0.95	
Satd. Flow (perm)		3539			3433	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	984	0	0	332	0
RTOR Reduction (vph)	0	0	0	0	133	0
Lane Group Flow (vph)	0	984	0	0	199	0
Turn Type		NA			Prot	
Protected Phases		2 12			4	
Permitted Phases						
Actuated Green, G (s)		70.0			43.5	
Effective Green, g (s)		70.0			43.5	
Actuated g/C Ratio		0.58			0.36	
Clearance Time (s)					4.5	
Vehicle Extension (s)					3.0	
Lane Grp Cap (vph)		2064			1244	
v/s Ratio Prot		c0.28			c0.06	
v/s Ratio Perm						
v/c Ratio		0.48			0.16	
Uniform Delay, d1		14.4			25.9	
Progression Factor		0.02			1.00	
Incremental Delay, d2		0.7			0.1	
Delay (s)		1.0			25.9	
Level of Service		A			C	
Approach Delay (s)		1.0	0.0		25.9	
Approach LOS		A	A		C	

Intersection Summary			
HCM 2000 Control Delay	7.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	41.2%	ICU Level of Service	A
Analysis Period (min)	15		

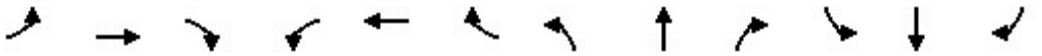
c Critical Lane Group



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	0	0	860	270	0
Future Volume (vph)	0	0	0	860	270	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.5	4.5	
Lane Util. Factor				0.95	0.97	
Frt				1.00	1.00	
Flt Protected				1.00	0.95	
Satd. Flow (prot)				3539	3433	
Flt Permitted				1.00	0.95	
Satd. Flow (perm)				3539	3433	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	935	293	0
RTOR Reduction (vph)	0	0	0	0	93	0
Lane Group Flow (vph)	0	0	0	935	200	0
Turn Type				NA	Prot	
Protected Phases				6 16	8	
Permitted Phases						
Actuated Green, G (s)				61.0	52.5	
Effective Green, g (s)				61.0	52.5	
Actuated g/C Ratio				0.51	0.44	
Clearance Time (s)					4.5	
Vehicle Extension (s)					3.0	
Lane Grp Cap (vph)				1798	1501	
v/s Ratio Prot				c0.26	c0.06	
v/s Ratio Perm						
v/c Ratio				0.52	0.13	
Uniform Delay, d1				19.7	20.2	
Progression Factor				0.00	1.00	
Incremental Delay, d2				0.9	0.0	
Delay (s)				0.9	20.2	
Level of Service				A	C	
Approach Delay (s)	0.0			0.9	20.2	
Approach LOS	A			A	C	

Intersection Summary			
HCM 2000 Control Delay	5.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	39.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	730	0	0	0	0	0	0	0	0	860	0
Future Volume (vph)	0	730	0	0	0	0	0	0	0	0	860	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5									4.5	
Lane Util. Factor		0.95									0.95	
Frt		1.00									1.00	
Flt Protected		1.00									1.00	
Satd. Flow (prot)		3539									3539	
Flt Permitted		1.00									1.00	
Satd. Flow (perm)		3539									3539	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	793	0	0	0	0	0	0	0	0	935	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	793	0	0	0	0	0	0	0	0	935	0
Turn Type		NA									NA	
Protected Phases		4									6	
Permitted Phases												
Actuated Green, G (s)		46.5									52.5	
Effective Green, g (s)		46.5									52.5	
Actuated g/C Ratio		0.39									0.44	
Clearance Time (s)		4.5									4.5	
Vehicle Extension (s)		3.0									3.0	
Lane Grp Cap (vph)		1371									1548	
v/s Ratio Prot		c0.22									c0.26	
v/s Ratio Perm												
v/c Ratio		0.58									0.60	
Uniform Delay, d1		29.0									25.8	
Progression Factor		0.76									0.89	
Incremental Delay, d2		1.7									1.6	
Delay (s)		23.8									24.6	
Level of Service		C									C	
Approach Delay (s)		23.8			0.0			0.0			24.6	
Approach LOS		C			A			A			C	

Intersection Summary			
HCM 2000 Control Delay	24.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	51.5%	ICU Level of Service	A
Analysis Period (min)	15		

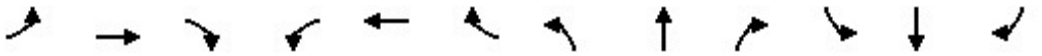
c Critical Lane Group



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	730	0	0	0	0	510
Future Volume (vph)	730	0	0	0	0	510
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5					4.5
Lane Util. Factor	0.95					0.88
Frt	1.00					0.85
Flt Protected	1.00					1.00
Satd. Flow (prot)	3539					2787
Flt Permitted	1.00					1.00
Satd. Flow (perm)	3539					2787
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	793	0	0	0	0	554
RTOR Reduction (vph)	0	0	0	0	0	89
Lane Group Flow (vph)	793	0	0	0	0	465
Turn Type	NA					Prot
Protected Phases	4 10					2
Permitted Phases						
Actuated Green, G (s)	55.0					58.5
Effective Green, g (s)	55.0					58.5
Actuated g/C Ratio	0.46					0.49
Clearance Time (s)						4.5
Vehicle Extension (s)						3.0
Lane Grp Cap (vph)	1622					1358
v/s Ratio Prot	c0.22					c0.17
v/s Ratio Perm						
v/c Ratio	0.49					0.34
Uniform Delay, d1	22.7					18.9
Progression Factor	0.00					1.00
Incremental Delay, d2	0.9					0.2
Delay (s)	0.9					19.1
Level of Service	A					B
Approach Delay (s)	0.9			0.0	19.1	
Approach LOS	A			A	B	

Intersection Summary			
HCM 2000 Control Delay	8.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	51.5%	ICU Level of Service	A
Analysis Period (min)	15		

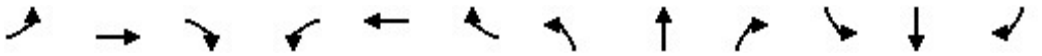
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	540	655	605	255	40	170	10	250	10	25	10
Future Volume (vph)	15	540	655	605	255	40	170	10	250	10	25	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	6.0	6.5	6.0	6.0		6.5	6.5	4.0		6.5	6.5
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95		0.95	0.95	1.00		1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.98		1.00	1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	0.96	1.00		0.99	1.00
Satd. Flow (prot)	1770	3539	1583	3433	3468		1681	1694	1583		1836	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	0.96	1.00		0.99	1.00
Satd. Flow (perm)	1770	3539	1583	3433	3468		1681	1694	1583		1836	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	16	587	712	658	277	43	185	11	272	11	27	11
RTOR Reduction (vph)	0	0	402	0	9	0	0	0	0	0	0	10
Lane Group Flow (vph)	16	587	310	658	311	0	98	98	272	0	38	1
Turn Type	Prot	NA	pm+ov	Prot	NA		Split	NA	Free	Split	NA	Perm
Protected Phases	1	6	3	5	2		3	3		4	4	
Permitted Phases			6						Free			4
Actuated Green, G (s)	1.6	21.4	36.7	23.9	45.2		15.3	15.3	90.0		4.4	4.4
Effective Green, g (s)	1.6	21.4	36.7	23.9	45.2		15.3	15.3	90.0		4.4	4.4
Actuated g/C Ratio	0.02	0.24	0.41	0.27	0.50		0.17	0.17	1.00		0.05	0.05
Clearance Time (s)	4.5	6.0	6.5	6.0	6.0		6.5	6.5			6.5	6.5
Vehicle Extension (s)	3.0	3.0	4.0	2.0	3.0		4.0	4.0			2.0	2.0
Lane Grp Cap (vph)	31	841	645	911	1741		285	287	1583		89	77
v/s Ratio Prot	0.01	c0.17	c0.08	c0.19	0.09		0.06	0.06			0.02	
v/s Ratio Perm			0.11						c0.17			0.00
v/c Ratio	0.52	0.70	0.48	0.72	0.18		0.34	0.34	0.17		0.43	0.01
Uniform Delay, d1	43.8	31.3	19.6	30.0	12.2		32.9	32.9	0.0		41.6	40.7
Progression Factor	1.00	1.00	1.00	0.78	0.46		1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	13.7	4.8	0.8	2.2	0.2		1.0	1.0	0.2		1.2	0.0
Delay (s)	57.6	36.1	20.4	25.6	5.8		33.9	33.9	0.2		42.8	40.7
Level of Service	E	D	C	C	A		C	C	A		D	D
Approach Delay (s)		27.9			19.1			14.3			42.3	
Approach LOS		C			B			B			D	

Intersection Summary			
HCM 2000 Control Delay	22.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	25.0
Intersection Capacity Utilization	77.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	775	230	565	840	25	170	20	365	10	20	25
Future Volume (veh/h)	25	775	230	565	840	25	170	20	365	10	20	25
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	27	842	0	614	913	27	185	22	0	11	22	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	49	1284		653	1839	820	352	544		196	236	
Arrive On Green	0.05	0.72	0.00	0.19	0.52	0.52	0.11	0.15	0.00	0.01	0.07	0.00
Sat Flow, veh/h	1781	3554	1585	3456	3554	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	27	842	0	614	913	27	185	22	0	11	22	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1728	1777	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	1.3	11.2	0.0	15.8	15.0	0.8	8.4	0.5	0.0	0.5	0.5	0.0
Cycle Q Clear(g_c), s	1.3	11.2	0.0	15.8	15.0	0.8	8.4	0.5	0.0	0.5	0.5	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	49	1284		653	1839	820	352	544		196	236	
V/C Ratio(X)	0.56	0.66		0.94	0.50	0.03	0.53	0.04		0.06	0.09	
Avail Cap(c_a), veh/h	99	1284		653	1839	820	352	592		350	592	
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	42.0	9.5	0.0	36.0	14.1	10.7	32.6	32.5	0.0	38.3	39.5	0.0
Incr Delay (d2), s/veh	3.7	2.6	0.0	21.8	1.0	0.1	0.7	0.0	0.0	0.0	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	3.0	0.0	8.3	5.6	0.3	3.6	0.2	0.0	0.2	0.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	45.7	12.2	0.0	57.8	15.1	10.7	33.4	32.5	0.0	38.4	39.6	0.0
LnGrp LOS	D	B		E	B	B	C	C		D	D	
Approach Vol, veh/h		869	A		1554			207	A		33	A
Approach Delay, s/veh		13.2			31.9			33.3			39.2	
Approach LOS		B			C			C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.0	53.1	7.2	19.8	24.0	39.0	15.0	12.0
Change Period (Y+Rc), s	7.5	* 6.5	6.0	6.0	7.0	6.5	5.5	6.0
Max Green Setting (Gmax), s	5.0	* 36	9.0	15.0	17.0	23.5	9.5	15.0
Max Q Clear Time (g_c+I1), s	3.3	17.0	2.5	2.5	17.8	13.2	10.4	2.5
Green Ext Time (p_c), s	0.0	6.0	0.0	0.0	0.0	3.9	0.0	0.0

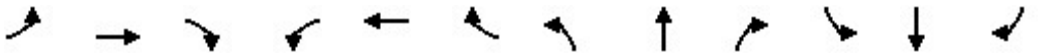
Intersection Summary	
HCM 6th Ctrl Delay	26.0
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

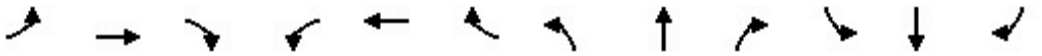
Unsignalized Delay for [NBR, EBR, SBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	235	480	85	300	640	95	55	0	405	145	0	205
Future Volume (vph)	235	480	85	300	640	95	55	0	405	145	0	205
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5		4.5	4.5		4.5
Lane Util. Factor	1.00	0.95		0.97	0.95		1.00		1.00	1.00		1.00
Frt	1.00	0.98		1.00	0.98		1.00		0.85	1.00		0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95		1.00	0.95		1.00
Satd. Flow (prot)	1770	3460		3433	3471		1770		1583	1770		1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95		1.00	0.95		1.00
Satd. Flow (perm)	1770	3460		3433	3471		1770		1583	1770		1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	255	522	92	326	696	103	60	0	440	158	0	223
RTOR Reduction (vph)	0	12	0	0	10	0	0	0	176	0	0	179
Lane Group Flow (vph)	255	602	0	326	789	0	60	0	264	158	0	44
Turn Type	Prot	NA		Prot	NA		Prot		Over	Prot		Over
Protected Phases	5	2		1	6		4		1	8		5
Permitted Phases												
Actuated Green, G (s)	17.8	42.9		20.4	45.5		13.2		20.4	13.2		17.8
Effective Green, g (s)	17.8	42.9		20.4	45.5		13.2		20.4	13.2		17.8
Actuated g/C Ratio	0.20	0.48		0.23	0.51		0.15		0.23	0.15		0.20
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5		4.5	4.5		4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0		3.0	3.0		3.0
Lane Grp Cap (vph)	350	1649		778	1754		259		358	259		313
v/s Ratio Prot	0.14	0.17		0.09	c0.23		0.03		c0.17	c0.09		0.03
v/s Ratio Perm												
v/c Ratio	0.73	0.37		0.42	0.45		0.23		0.74	0.61		0.14
Uniform Delay, d1	33.8	14.9		29.7	14.2		33.9		32.3	36.0		29.8
Progression Factor	0.57	1.16		1.27	0.69		1.00		1.00	1.00		1.00
Incremental Delay, d2	6.7	0.6		0.3	0.8		0.5		7.8	4.2		0.2
Delay (s)	26.0	17.8		38.0	10.6		34.4		40.1	40.2		30.0
Level of Service	C	B		D	B		C		D	D		C
Approach Delay (s)		20.2			18.5			39.4			34.2	
Approach LOS		C			B			D			C	

Intersection Summary			
HCM 2000 Control Delay	24.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	59.9%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	375	250	310	410	5	880	10	455	10	10	5
Future Volume (vph)	5	375	250	310	410	5	880	10	455	10	10	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	6.0	6.5	6.0	6.0		6.5	6.5	4.0		6.5	6.5
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95		0.95	0.95	1.00		1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	0.95	1.00		0.98	1.00
Satd. Flow (prot)	1770	3539	1583	3433	3533		1681	1687	1583		1817	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	0.95	1.00		0.98	1.00
Satd. Flow (perm)	1770	3539	1583	3433	3533		1681	1687	1583		1817	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	408	272	337	446	5	957	11	495	11	11	5
RTOR Reduction (vph)	0	0	135	0	1	0	0	0	0	0	0	5
Lane Group Flow (vph)	5	408	137	337	450	0	488	480	495	0	22	0
Turn Type	Prot	NA	pm+ov	Prot	NA		Split	NA	Free	Split	NA	Perm
Protected Phases	1	6	3	5	2		3	3		4	4	
Permitted Phases			6						Free			4
Actuated Green, G (s)	1.3	17.7	45.2	17.1	35.0		27.5	27.5	90.0		2.7	2.7
Effective Green, g (s)	1.3	17.7	45.2	17.1	35.0		27.5	27.5	90.0		2.7	2.7
Actuated g/C Ratio	0.01	0.20	0.50	0.19	0.39		0.31	0.31	1.00		0.03	0.03
Clearance Time (s)	4.5	6.0	6.5	6.0	6.0		6.5	6.5			6.5	6.5
Vehicle Extension (s)	3.0	3.0	4.0	2.0	3.0		4.0	4.0			2.0	2.0
Lane Grp Cap (vph)	25	696	795	652	1373		513	515	1583		54	47
v/s Ratio Prot	0.00	c0.12	0.05	c0.10	0.13		c0.29	0.28			0.01	
v/s Ratio Perm			0.03						c0.31			0.00
v/c Ratio	0.20	0.59	0.17	0.52	0.33		0.95	0.93	0.31		0.41	0.00
Uniform Delay, d1	43.8	32.8	12.2	32.7	19.3		30.6	30.3	0.0		42.9	42.3
Progression Factor	1.00	1.00	1.00	1.11	1.08		1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	3.9	3.6	0.1	0.3	0.6		28.0	24.2	0.5		1.8	0.0
Delay (s)	47.8	36.4	12.3	36.5	21.3		58.6	54.5	0.5		44.7	42.4
Level of Service	D	D	B	D	C		E	D	A		D	D
Approach Delay (s)		26.9			27.8			37.6			44.3	
Approach LOS		C			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	32.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	25.0
Intersection Capacity Utilization	68.1%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	1000	155	270	1005	20	185	10	795	50	25	35
Future Volume (veh/h)	30	1000	155	270	1005	20	185	10	795	50	25	35
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	33	1087	0	293	1092	22	201	11	0	54	27	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	56	1631		307	1816	810	349	454		266	284	
Arrive On Green	0.03	0.46	0.00	0.09	0.51	0.51	0.09	0.13	0.00	0.04	0.08	0.00
Sat Flow, veh/h	1781	3554	1585	3456	3554	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	33	1087	0	293	1092	22	201	11	0	54	27	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1728	1777	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	1.6	21.5	0.0	7.6	19.5	0.6	8.5	0.2	0.0	2.5	0.6	0.0
Cycle Q Clear(g_c), s	1.6	21.5	0.0	7.6	19.5	0.6	8.5	0.2	0.0	2.5	0.6	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	56	1631		307	1816	810	349	454		266	284	
V/C Ratio(X)	0.59	0.67		0.95	0.60	0.03	0.58	0.02		0.20	0.09	
Avail Cap(c_a), veh/h	99	1631		307	1816	810	349	1027		351	1027	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	43.0	19.0	0.0	40.8	15.5	10.9	34.0	34.3	0.0	35.8	38.4	0.0
Incr Delay (d2), s/veh	3.7	2.2	0.0	39.0	1.5	0.1	1.5	0.0	0.0	0.1	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	8.5	0.0	4.8	7.4	0.2	4.1	0.1	0.0	1.1	0.3	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	46.8	21.2	0.0	79.8	17.0	11.0	35.5	34.4	0.0	36.0	38.5	0.0
LnGrp LOS	D	C		E	B	B	D	C		D	D	
Approach Vol, veh/h		1120	A		1407			212	A		81	A
Approach Delay, s/veh		21.9			30.0			35.4			36.8	
Approach LOS		C			C			D			D	

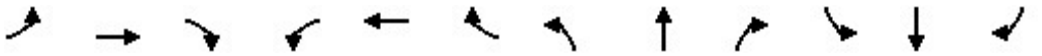
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.3	52.5	9.7	17.5	15.0	47.8	14.0	13.2
Change Period (Y+Rc), s	7.5	* 6.5	6.0	6.0	7.0	6.5	5.5	6.0
Max Green Setting (Gmax), s	5.0	* 26	8.0	26.0	8.0	22.5	8.5	26.0
Max Q Clear Time (g_c+I1), s	3.6	21.5	4.5	2.2	9.6	23.5	10.5	2.6
Green Ext Time (p_c), s	0.0	2.7	0.0	0.0	0.0	0.0	0.0	0.1

Intersection Summary	
HCM 6th Ctrl Delay	27.4
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

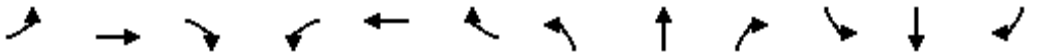
Unsignalized Delay for [NBR, EBR, SBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	150	645	45	600	455	170	125	0	340	200	0	145
Future Volume (vph)	150	645	45	600	455	170	125	0	340	200	0	145
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5		4.5	4.5		4.5
Lane Util. Factor	1.00	0.95		0.97	0.95		1.00		1.00	1.00		1.00
Frt	1.00	0.99		1.00	0.96		1.00		0.85	1.00		0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95		1.00	0.95		1.00
Satd. Flow (prot)	1770	3505		3433	3395		1770		1583	1770		1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95		1.00	0.95		1.00
Satd. Flow (perm)	1770	3505		3433	3395		1770		1583	1770		1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	163	701	49	652	495	185	136	0	370	217	0	158
RTOR Reduction (vph)	0	5	0	0	37	0	0	0	114	0	0	135
Lane Group Flow (vph)	163	745	0	652	643	0	136	0	256	217	0	23
Turn Type	Prot	NA		Prot	NA		Prot		Over	Prot		Over
Protected Phases	5	2		1	6		4		1	8		5
Permitted Phases												
Actuated Green, G (s)	13.0	37.5		23.3	47.8		15.7		23.3	15.7		13.0
Effective Green, g (s)	13.0	37.5		23.3	47.8		15.7		23.3	15.7		13.0
Actuated g/C Ratio	0.14	0.42		0.26	0.53		0.17		0.26	0.17		0.14
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5		4.5	4.5		4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0		3.0	3.0		3.0
Lane Grp Cap (vph)	255	1460		888	1803		308		409	308		228
v/s Ratio Prot	0.09	c0.21		c0.19	0.19		0.08		0.16	c0.12		0.01
v/s Ratio Perm												
v/c Ratio	0.64	0.51		0.73	0.36		0.44		0.63	0.70		0.10
Uniform Delay, d1	36.3	19.4		30.5	12.2		33.2		29.5	35.0		33.4
Progression Factor	1.08	0.55		0.88	0.68		1.00		1.00	1.00		1.00
Incremental Delay, d2	4.9	1.2		2.7	0.5		1.0		3.0	7.1		0.2
Delay (s)	44.0	11.9		29.5	8.7		34.2		32.5	42.1		33.6
Level of Service	D	B		C	A		C		C	D		C
Approach Delay (s)		17.6			18.9			32.9			38.5	
Approach LOS		B			B			C			D	

Intersection Summary			
HCM 2000 Control Delay	23.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	62.2%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	65	230	55	395	200	115	15	200	600	435	640	65
Future Volume (vph)	65	230	55	395	200	115	15	200	600	435	640	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	11	11	11	12	12	9	11	13	12	11	11
Grade (%)		-4%			2%			-1%			-2%	
Total Lost time (s)	5.5	5.5		6.0	6.0	5.5	5.5	5.5	4.0	5.5	5.5	
Lane Util. Factor	1.00	0.95		0.91	0.91	1.00	1.00	0.95	1.00	*0.99	0.95	
Frt	1.00	0.97		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00		0.95	0.98	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1805	3388		1541	3275	1567	1601	3438	1644	3539	3407	
Flt Permitted	0.95	1.00		0.95	0.98	1.00	0.36	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1805	3388		1541	3275	1567	608	3438	1644	3539	3407	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	71	250	60	429	217	125	16	217	652	473	696	71
RTOR Reduction (vph)	0	17	0	0	0	71	0	0	0	0	7	0
Lane Group Flow (vph)	71	293	0	214	432	54	16	217	652	473	760	0
Turn Type	Split	NA		Split	NA	pt+ov	Perm	NA	Free	Prot	NA	
Protected Phases	3	3		4	4	1 4		2		1	6	
Permitted Phases							2		Free			
Actuated Green, G (s)	17.5	17.5		31.0	31.0	57.6	28.4	28.4	120.0	20.6	54.5	
Effective Green, g (s)	17.5	17.5		31.0	31.0	51.6	28.4	28.4	120.0	20.6	54.5	
Actuated g/C Ratio	0.15	0.15		0.26	0.26	0.43	0.24	0.24	1.00	0.17	0.45	
Clearance Time (s)	5.5	5.5		6.0	6.0		5.5	5.5		5.5	5.5	
Vehicle Extension (s)	4.0	4.0		4.0	4.0		0.2	0.2		3.0	0.2	
Lane Grp Cap (vph)	263	494		398	846	673	143	813	1644	607	1547	
v/s Ratio Prot	0.04	c0.09		c0.14	0.13	0.03		0.06		c0.13	c0.22	
v/s Ratio Perm							0.03		0.40			
v/c Ratio	0.27	0.59		0.54	0.51	0.08	0.11	0.27	0.40	0.78	0.49	
Uniform Delay, d1	45.6	47.9		38.3	38.0	20.2	35.9	37.3	0.0	47.5	23.0	
Progression Factor	1.00	1.00		0.85	0.85	0.70	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	2.5	5.2		4.8	2.1	0.0	1.6	0.8	0.7	6.3	1.1	
Delay (s)	48.1	53.1		37.6	34.4	14.2	37.5	38.1	0.7	53.8	24.1	
Level of Service	D	D		D	C	B	D	D	A	D	C	
Approach Delay (s)		52.2			32.0			10.6			35.5	
Approach LOS		D			C			B			D	

Intersection Summary			
HCM 2000 Control Delay	29.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	22.5
Intersection Capacity Utilization	63.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	1245	20	0	605	225	0	0	215	0	0	105
Future Vol, veh/h	0	1245	20	0	605	225	0	0	215	0	0	105
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	2	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	1353	22	0	658	245	0	0	234	0	0	114

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	-	-	0	-	-	688	-	-	452
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	-	-	-	7.14	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	-	-	-	3.92	-	-	3.92
Pot Cap-1 Maneuver	0	-	-	0	-	-	0	0	333	0	0	474
Stage 1	0	-	-	0	-	-	0	0	-	0	0	-
Stage 2	0	-	-	0	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	-	-	-	-	-	-	-	-	333	-	-	474
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	37.7	15
HCM LOS			E	C

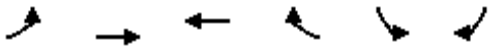
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT	WBR	SBLn1
Capacity (veh/h)	333	-	-	-	-	474
HCM Lane V/C Ratio	0.702	-	-	-	-	0.241
HCM Control Delay (s)	37.7	-	-	-	-	15
HCM Lane LOS	E	-	-	-	-	C
HCM 95th %tile Q(veh)	5	-	-	-	-	0.9



Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBR	SBR2	NEL	NER
Lane Configurations											
Traffic Volume (vph)	80	1305	0	0	2075	125	210	0	485	0	615
Future Volume (vph)	80	1305	0	0	2075	125	210	0	485	0	615
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	11	12	12	11	12	12	12	12	12	12
Grade (%)		0%			-3%		-4%			0%	
Total Lost time (s)	4.5	6.5			6.5	6.5	6.0		6.0		4.5
Lane Util. Factor	1.00	0.95			0.91	1.00	0.97		0.88		1.00
Frt	1.00	1.00			1.00	0.85	1.00		0.85		0.86
Flt Protected	0.95	1.00			1.00	1.00	0.95		1.00		1.00
Satd. Flow (prot)	1711	3421			4990	1607	3502		2842		1611
Flt Permitted	0.05	1.00			1.00	1.00	0.95		1.00		1.00
Satd. Flow (perm)	91	3421			4990	1607	3502		2842		1611
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	87	1418	0	0	2255	136	228	0	527	0	668
RTOR Reduction (vph)	0	0	0	0	0	51	0	0	304	0	0
Lane Group Flow (vph)	87	1418	0	0	2255	85	228	0	223	0	668
Turn Type	pm+pt	NA			NA	Perm	Prot		Perm		Perm
Protected Phases	1	6			2		4				
Permitted Phases	6					2			4		1 2 4 6
Actuated Green, G (s)	92.5	92.5			74.6	74.6	15.0		15.0		120.0
Effective Green, g (s)	92.5	92.5			74.6	74.6	15.0		15.0		107.5
Actuated g/C Ratio	0.77	0.77			0.62	0.62	0.12		0.12		0.90
Clearance Time (s)	4.5	6.5			6.5	6.5	6.0		6.0		
Vehicle Extension (s)	6.0	0.2			0.2	0.2	3.0		3.0		
Lane Grp Cap (vph)	251	2637			3102	999	437		355		1443
v/s Ratio Prot	0.04	c0.41			c0.45		0.07				
v/s Ratio Perm	0.23					0.05			c0.08		0.41
v/c Ratio	0.35	0.54			0.73	0.08	0.52		0.63		0.46
Uniform Delay, d1	14.8	5.4			15.7	9.1	49.1		49.9		1.1
Progression Factor	1.01	0.83			1.00	1.00	1.00		1.00		1.00
Incremental Delay, d2	2.3	0.8			1.5	0.2	4.4		8.2		0.7
Delay (s)	17.3	5.3			17.2	9.2	53.5		58.1		1.8
Level of Service	B	A			B	A	D		E		A
Approach Delay (s)		6.0			16.7		56.7			1.8	
Approach LOS		A			B		E			A	

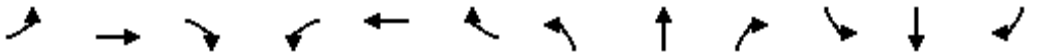
Intersection Summary			
HCM 2000 Control Delay	17.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	Err%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑↱			↱
Traffic Volume (vph)	0	2130	2195	5	0	5
Future Volume (vph)	0	2130	2195	5	0	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)		1%	-3%		0%	
Total Lost time (s)		5.0	5.0			4.0
Lane Util. Factor		0.91	0.91			1.00
Frt		1.00	1.00			0.86
Flt Protected		1.00	1.00			1.00
Satd. Flow (prot)		5060	5160			1611
Flt Permitted		1.00	1.00			1.00
Satd. Flow (perm)		5060	5160			1611
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	2315	2386	5	0	5
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	2315	2391	0	0	5
Turn Type		NA	NA			Free
Protected Phases		2	6			
Permitted Phases						Free
Actuated Green, G (s)		95.7	95.7			109.7
Effective Green, g (s)		95.7	95.7			109.7
Actuated g/C Ratio		0.87	0.87			1.00
Clearance Time (s)		5.0	5.0			
Vehicle Extension (s)		5.0	5.0			
Lane Grp Cap (vph)		4414	4501			1611
v/s Ratio Prot		0.46	c0.46			
v/s Ratio Perm						c0.00
v/c Ratio		0.52	0.53			0.00
Uniform Delay, d1		1.6	1.7			0.0
Progression Factor		1.00	1.00			1.00
Incremental Delay, d2		0.2	0.2			0.0
Delay (s)		1.9	1.9			0.0
Level of Service		A	A			A
Approach Delay (s)		1.9	1.9		0.0	
Approach LOS		A	A		A	

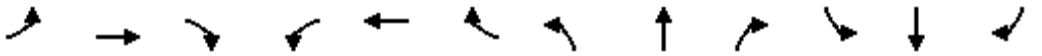
Intersection Summary			
HCM 2000 Control Delay	1.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	109.7	Sum of lost time (s)	9.0
Intersection Capacity Utilization	46.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	2045	80	10	2020	10	120	5	25	30	5	60
Future Volume (veh/h)	5	2045	80	10	2020	10	120	5	25	30	5	60
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1864	1864	1864	1908	1988	1988	1870	1945	1945	1864	1864	1864
Adj Flow Rate, veh/h	5	2223	87	11	2196	11	130	5	27	33	5	65
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	163	3235	126	157	3617	18	237	41	224	273	18	233
Arrive On Green	0.01	0.64	0.64	0.01	0.65	0.65	0.16	0.16	0.16	0.16	0.16	0.16
Sat Flow, veh/h	1776	5027	196	1818	5573	28	1331	264	1425	1373	114	1483
Grp Volume(v), veh/h	5	1498	812	11	1425	782	130	0	32	33	0	70
Grp Sat Flow(s),veh/h/ln	1776	1697	1829	1818	1809	1983	1331	0	1689	1373	0	1597
Q Serve(g_s), s	0.1	25.3	25.6	0.2	20.5	20.6	8.6	0.0	1.5	1.9	0.0	3.5
Cycle Q Clear(g_c), s	0.1	25.3	25.6	0.2	20.5	20.6	12.1	0.0	1.5	3.4	0.0	3.5
Prop In Lane	1.00		0.11	1.00		0.01	1.00		0.84	1.00		0.93
Lane Grp Cap(c), veh/h	163	2184	1177	157	2348	1287	237	0	265	273	0	251
V/C Ratio(X)	0.03	0.69	0.69	0.07	0.61	0.61	0.55	0.00	0.12	0.12	0.00	0.28
Avail Cap(c_a), veh/h	235	2184	1177	221	2348	1287	258	0	291	294	0	275
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.87	0.87	0.87	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	7.9	10.2	10.3	9.3	9.1	9.2	38.8	0.0	32.6	34.1	0.0	33.5
Incr Delay (d2), s/veh	0.1	1.5	2.9	0.2	1.2	2.1	2.0	0.0	0.2	0.2	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	7.9	9.1	0.1	6.8	7.8	2.9	0.0	0.6	0.7	0.0	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	7.9	11.8	13.2	9.5	10.3	11.3	40.8	0.0	32.8	34.2	0.0	34.1
LnGrp LOS	A	B	B	A	B	B	D	A	C	C	A	C
Approach Vol, veh/h		2315			2218			162			103	
Approach Delay, s/veh		12.3			10.7			39.2			34.1	
Approach LOS		B			B			D			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.0	63.4		20.6	6.5	62.9		20.6				
Change Period (Y+Rc), s	5.5	5.0		6.5	5.5	5.0		6.5				
Max Green Setting (Gmax), s	4.1	53.4		15.5	4.1	53.4		15.5				
Max Q Clear Time (g_c+I1), s	2.1	22.6		5.5	2.2	27.6		14.1				
Green Ext Time (p_c), s	0.0	20.4		0.3	0.0	18.9		0.1				

Intersection Summary												
HCM 6th Ctrl Delay			12.9									
HCM 6th LOS			B									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	630	25	20	170	15	610	10	60	5	5	5
Future Volume (vph)	15	630	25	20	170	15	610	10	60	5	5	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			5.5		6.0	6.0	6.0		6.0	
Lane Util. Factor		0.95			0.95		0.95	0.95	1.00		1.00	
Frt		0.99			0.99		1.00	1.00	0.85		0.95	
Flt Protected		1.00			1.00		0.95	0.95	1.00		0.98	
Satd. Flow (prot)		3516			3484		1681	1688	1583		1750	
Flt Permitted		0.95			0.86		0.95	0.95	1.00		0.98	
Satd. Flow (perm)		3327			3014		1681	1688	1583		1750	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	16	685	27	22	185	16	663	11	65	5	5	5
RTOR Reduction (vph)	0	3	0	0	7	0	0	0	43	0	5	0
Lane Group Flow (vph)	0	725	0	0	216	0	338	336	22	0	10	0
Turn Type	Perm	NA		Perm	NA		Split	NA	Perm	Split	NA	
Protected Phases		8			4		2	2		6	6	
Permitted Phases	8			4					2			
Actuated Green, G (s)		19.6			20.1		19.4	19.4	19.4		0.9	
Effective Green, g (s)		19.6			20.1		19.4	19.4	19.4		0.9	
Actuated g/C Ratio		0.34			0.35		0.34	0.34	0.34		0.02	
Clearance Time (s)		6.0			5.5		6.0	6.0	6.0		6.0	
Vehicle Extension (s)		4.0			4.0		2.0	2.0	2.0		2.0	
Lane Grp Cap (vph)		1126			1046		563	565	530		27	
v/s Ratio Prot							c0.20	0.20			c0.01	
v/s Ratio Perm		c0.22			0.07				0.01			
v/c Ratio		0.64			0.21		0.60	0.59	0.04		0.37	
Uniform Delay, d1		16.2			13.3		16.0	16.0	13.0		28.2	
Progression Factor		1.00			1.00		1.00	1.00	1.00		1.00	
Incremental Delay, d2		1.4			0.1		4.7	4.6	0.1		3.1	
Delay (s)		17.6			13.4		20.7	20.5	13.1		31.4	
Level of Service		B			B		C	C	B		C	
Approach Delay (s)		17.6			13.4			20.0			31.4	
Approach LOS		B			B			B			C	

Intersection Summary			
HCM 2000 Control Delay	18.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	57.9	Sum of lost time (s)	18.0
Intersection Capacity Utilization	62.8%	ICU Level of Service	B
Analysis Period (min)	15		

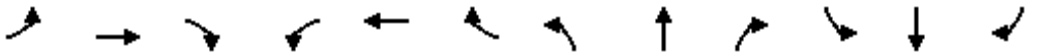
c Critical Lane Group



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	5	5	735	50	40	665
Future Volume (vph)	5	5	735	50	40	665
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0		6.0	6.0	6.0	6.0
Lane Util. Factor	0.97		0.95	1.00	1.00	0.91
Frt	0.93		1.00	0.85	1.00	1.00
Flt Protected	0.98		1.00	1.00	0.95	1.00
Satd. Flow (prot)	3261		3539	1583	1770	5085
Flt Permitted	0.98		1.00	1.00	0.35	1.00
Satd. Flow (perm)	3261		3539	1583	646	5085
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	5	799	54	43	723
RTOR Reduction (vph)	5	0	0	17	0	0
Lane Group Flow (vph)	5	0	799	37	43	723
Turn Type	Prot		NA	Perm	pm+pt	NA
Protected Phases	4		2		1	6
Permitted Phases				2	6	
Actuated Green, G (s)	1.0		45.3	45.3	53.5	53.5
Effective Green, g (s)	1.0		45.3	45.3	53.5	53.5
Actuated g/C Ratio	0.02		0.68	0.68	0.80	0.80
Clearance Time (s)	6.0		6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	49		2410	1078	556	4090
v/s Ratio Prot	c0.00		c0.23		0.00	c0.14
v/s Ratio Perm				0.02	0.06	
v/c Ratio	0.10		0.33	0.03	0.08	0.18
Uniform Delay, d1	32.3		4.4	3.5	1.5	1.5
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	0.9		0.4	0.1	0.1	0.1
Delay (s)	33.2		4.7	3.5	1.5	1.6
Level of Service	C		A	A	A	A
Approach Delay (s)	33.2		4.7			1.6
Approach LOS	C		A			A

Intersection Summary			
HCM 2000 Control Delay	3.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.33		
Actuated Cycle Length (s)	66.5	Sum of lost time (s)	18.0
Intersection Capacity Utilization	43.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	65	315	35	715	610	520	70	590	490	160	385	85
Future Volume (vph)	65	315	35	715	610	520	70	590	490	160	385	85
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	11	11	11	12	12	9	11	13	12	11	11
Grade (%)		-4%			2%			-1%			-2%	
Total Lost time (s)	5.5	5.5		6.0	6.0	5.5	5.5	5.5	4.0	5.5	5.5	
Lane Util. Factor	1.00	0.95		0.91	0.91	1.00	1.00	0.95	1.00	*0.99	0.95	
Frt	1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.97	
Flt Protected	0.95	1.00		0.95	0.98	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1805	3437		1541	3304	1567	1601	3438	1644	3539	3362	
Flt Permitted	0.95	1.00		0.95	0.98	1.00	0.46	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1805	3437		1541	3304	1567	782	3438	1644	3539	3362	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	71	342	38	777	663	565	76	641	533	174	418	92
RTOR Reduction (vph)	0	7	0	0	0	105	0	0	0	0	16	0
Lane Group Flow (vph)	71	373	0	466	974	460	76	641	533	174	494	0
Turn Type	Split	NA		Split	NA	pt+ov	Perm	NA	Free	Prot	NA	
Protected Phases	3	3		4	4	1 4		2		1	6	
Permitted Phases							2		Free			
Actuated Green, G (s)	14.5	14.5		44.0	44.0	61.1	27.9	27.9	120.0	11.1	44.5	
Effective Green, g (s)	14.5	14.5		44.0	44.0	55.1	27.9	27.9	120.0	11.1	44.5	
Actuated g/C Ratio	0.12	0.12		0.37	0.37	0.46	0.23	0.23	1.00	0.09	0.37	
Clearance Time (s)	5.5	5.5		6.0	6.0		5.5	5.5		5.5	5.5	
Vehicle Extension (s)	4.0	4.0		4.0	4.0		0.2	0.2		3.0	0.2	
Lane Grp Cap (vph)	218	415		565	1211	719	181	799	1644	327	1246	
v/s Ratio Prot	0.04	c0.11		c0.30	0.29	c0.29		c0.19		0.05	0.15	
v/s Ratio Perm							0.10		0.32			
v/c Ratio	0.33	0.90		0.82	0.80	0.64	0.42	0.80	0.32	0.53	0.40	
Uniform Delay, d1	48.3	52.0		34.5	34.1	24.8	39.2	43.4	0.0	52.0	27.8	
Progression Factor	1.00	1.00		0.81	0.81	0.57	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	3.9	24.9		11.8	5.2	1.7	0.6	5.5	0.5	1.7	0.9	
Delay (s)	52.2	76.9		39.7	32.8	15.9	39.7	49.0	0.5	53.6	28.8	
Level of Service	D	E		D	C	B	D	D	A	D	C	
Approach Delay (s)		73.0			29.7			27.7			35.1	
Approach LOS		E			C			C			D	

Intersection Summary			
HCM 2000 Control Delay	34.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	22.5
Intersection Capacity Utilization	74.5%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	6.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	945	20	0	1660	190	0	0	130	0	0	185
Future Vol, veh/h	0	945	20	0	1660	190	0	0	130	0	0	185
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	2	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	1027	22	0	1804	207	0	0	141	0	0	201

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	-	-	0	-	-	525	-	-	1006
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	-	-	-	7.14	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	-	-	-	3.92	-	-	3.92
Pot Cap-1 Maneuver	0	-	-	0	-	-	0	0	426	0	0	206
Stage 1	0	-	-	0	-	-	0	0	-	0	0	-
Stage 2	0	-	-	0	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	-	-	-	-	-	-	-	-	426	-	-	206
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	17.6	104.9
HCM LOS			C	F

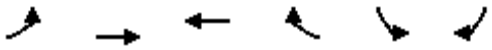
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT	WBR	SBLn1
Capacity (veh/h)	426	-	-	-	-	206
HCM Lane V/C Ratio	0.332	-	-	-	-	0.976
HCM Control Delay (s)	17.6	-	-	-	-	104.9
HCM Lane LOS	C	-	-	-	-	F
HCM 95th %tile Q(veh)	1.4	-	-	-	-	8.4



Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBR	SBR2	NEL	NER
Lane Configurations											
Traffic Volume (vph)	65	1475	0	0	2660	180	125	0	300	0	505
Future Volume (vph)	65	1475	0	0	2660	180	125	0	300	0	505
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	11	12	12	11	12	12	12	12	12	12
Grade (%)		0%			-3%		-4%			0%	
Total Lost time (s)	4.5	6.5			6.5	6.5	6.0		6.0		4.5
Lane Util. Factor	1.00	0.95			0.91	1.00	0.97		0.88		1.00
Frt	1.00	1.00			1.00	0.85	1.00		0.85		0.86
Flt Protected	0.95	1.00			1.00	1.00	0.95		1.00		1.00
Satd. Flow (prot)	1711	3421			4990	1607	3502		2842		1611
Flt Permitted	0.05	1.00			1.00	1.00	0.95		1.00		1.00
Satd. Flow (perm)	86	3421			4990	1607	3502		2842		1611
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	71	1603	0	0	2891	196	136	0	326	0	549
RTOR Reduction (vph)	0	0	0	0	0	66	0	0	146	0	0
Lane Group Flow (vph)	71	1603	0	0	2891	130	136	0	180	0	549
Turn Type	pm+pt	NA			NA	Perm	Prot		Perm		Perm
Protected Phases	1	6			2		4				
Permitted Phases	6					2			4		1 2 4 6
Actuated Green, G (s)	91.5	91.5			79.5	79.5	16.0		16.0		120.0
Effective Green, g (s)	91.5	91.5			79.5	79.5	16.0		16.0		107.5
Actuated g/C Ratio	0.76	0.76			0.66	0.66	0.13		0.13		0.90
Clearance Time (s)	4.5	6.5			6.5	6.5	6.0		6.0		
Vehicle Extension (s)	6.0	0.2			0.2	0.2	3.0		3.0		
Lane Grp Cap (vph)	167	2608			3305	1064	466		378		1443
v/s Ratio Prot	0.03	c0.47			c0.58		0.04				
v/s Ratio Perm	0.30					0.08			c0.06		0.34
v/c Ratio	0.43	0.61			0.87	0.12	0.29		0.47		0.38
Uniform Delay, d1	21.5	6.4			16.3	7.4	46.9		48.1		1.0
Progression Factor	0.85	1.07			0.57	0.02	1.00		1.00		1.00
Incremental Delay, d2	4.8	1.1			2.6	0.2	1.6		4.2		0.5
Delay (s)	23.2	7.9			11.9	0.3	48.5		52.3		1.5
Level of Service	C	A			B	A	D		D		A
Approach Delay (s)		8.5			11.2		51.2			1.5	
Approach LOS		A			B		D			A	

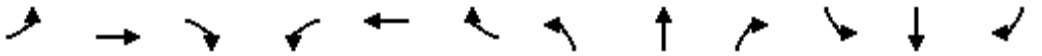
Intersection Summary			
HCM 2000 Control Delay	12.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	Err%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑↱			↱
Traffic Volume (vph)	0	2105	2835	5	0	5
Future Volume (vph)	0	2105	2835	5	0	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)		1%	-3%		0%	
Total Lost time (s)		5.0	5.0			4.0
Lane Util. Factor		0.91	0.91			1.00
Frt		1.00	1.00			0.86
Flt Protected		1.00	1.00			1.00
Satd. Flow (prot)		5060	5160			1611
Flt Permitted		1.00	1.00			1.00
Satd. Flow (perm)		5060	5160			1611
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	2288	3082	5	0	5
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	2288	3087	0	0	5
Turn Type		NA	NA			Free
Protected Phases		2	6			
Permitted Phases						Free
Actuated Green, G (s)		99.8	99.8			120.0
Effective Green, g (s)		99.8	99.8			120.0
Actuated g/C Ratio		0.83	0.83			1.00
Clearance Time (s)		5.0	5.0			
Vehicle Extension (s)		5.0	5.0			
Lane Grp Cap (vph)		4208	4291			1611
v/s Ratio Prot		0.45	c0.60			
v/s Ratio Perm						c0.00
v/c Ratio		0.54	0.72			0.00
Uniform Delay, d1		3.1	4.2			0.0
Progression Factor		0.62	1.00			1.00
Incremental Delay, d2		0.4	1.1			0.0
Delay (s)		2.4	5.3			0.0
Level of Service		A	A			A
Approach Delay (s)		2.4	5.3		0.0	
Approach LOS		A	A		A	

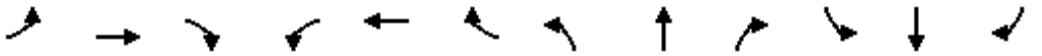
Intersection Summary			
HCM 2000 Control Delay	4.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	59.1%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	2010	85	15	2755	20	65	10	20	20	5	20
Future Volume (veh/h)	10	2010	85	15	2755	20	65	10	20	20	5	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1864	1864	1864	1908	1988	1988	1870	1945	1945	1864	1864	1864
Adj Flow Rate, veh/h	11	2185	92	16	2995	22	71	11	22	22	5	22
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	128	3558	149	188	3969	29	178	50	100	174	26	114
Arrive On Green	0.01	0.71	0.71	0.01	0.71	0.71	0.09	0.09	0.09	0.09	0.09	0.09
Sat Flow, veh/h	1776	5010	210	1818	5558	41	1383	579	1158	1372	301	1325
Grp Volume(v), veh/h	11	1477	800	16	1947	1070	71	0	33	22	0	27
Grp Sat Flow(s),veh/h/ln	1776	1697	1827	1818	1809	1981	1383	0	1737	1372	0	1626
Q Serve(g_s), s	0.2	20.1	20.3	0.2	30.0	30.2	4.5	0.0	1.6	1.4	0.0	1.4
Cycle Q Clear(g_c), s	0.2	20.1	20.3	0.2	30.0	30.2	5.9	0.0	1.6	3.0	0.0	1.4
Prop In Lane	1.00		0.11	1.00		0.02	1.00		0.67	1.00		0.81
Lane Grp Cap(c), veh/h	128	2410	1297	188	2584	1414	178	0	150	174	0	140
V/C Ratio(X)	0.09	0.61	0.62	0.09	0.75	0.76	0.40	0.00	0.22	0.13	0.00	0.19
Avail Cap(c_a), veh/h	190	2410	1297	244	2584	1414	195	0	172	191	0	161
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.85	0.85	0.85	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	9.3	6.7	6.7	6.0	8.0	8.0	41.0	0.0	38.3	39.7	0.0	38.2
Incr Delay (d2), s/veh	0.2	1.0	1.9	0.2	2.1	3.8	1.4	0.0	0.7	0.3	0.0	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	5.4	6.2	0.1	8.8	10.4	1.6	0.0	0.7	0.5	0.0	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	9.5	7.7	8.6	6.2	10.1	11.8	42.4	0.0	39.0	40.0	0.0	38.9
LnGrp LOS	A	A	A	A	B	B	D	A	D	D	A	D
Approach Vol, veh/h		2288			3033			104			49	
Approach Delay, s/veh		8.0			10.7			41.3			39.4	
Approach LOS		A			B			D			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.5	69.3		14.3	6.8	68.9		14.3				
Change Period (Y+Rc), s	5.5	5.0		6.5	5.5	5.0		6.5				
Max Green Setting (Gmax), s	4.1	60.0		8.9	4.1	60.0		8.9				
Max Q Clear Time (g_c+I1), s	2.2	32.2		5.0	2.2	22.3		7.9				
Green Ext Time (p_c), s	0.0	24.8		0.0	0.0	24.2		0.0				

Intersection Summary												
HCM 6th Ctrl Delay			10.4									
HCM 6th LOS			B									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	395	190	85	155	5	475	5	20	10	15	10
Future Volume (vph)	5	395	190	85	155	5	475	5	20	10	15	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			5.5		6.0	6.0	6.0		6.0	
Lane Util. Factor		0.95			0.95		0.95	0.95	1.00		1.00	
Frt		0.95			1.00		1.00	1.00	0.85		0.96	
Flt Protected		1.00			0.98		0.95	0.95	1.00		0.99	
Satd. Flow (prot)		3366			3469		1681	1687	1583		1764	
Flt Permitted		0.95			0.62		0.95	0.95	1.00		0.99	
Satd. Flow (perm)		3206			2191		1681	1687	1583		1764	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	429	207	92	168	5	516	5	22	11	16	11
RTOR Reduction (vph)	0	73	0	0	2	0	0	0	15	0	11	0
Lane Group Flow (vph)	0	568	0	0	263	0	258	263	7	0	27	0
Turn Type	Perm	NA		Perm	NA		Split	NA	Perm	Split	NA	
Protected Phases		8			4		2	2		6	6	
Permitted Phases	8			4					2			
Actuated Green, G (s)		18.8			19.3		19.6	19.6	19.6		2.3	
Effective Green, g (s)		18.8			19.3		19.6	19.6	19.6		2.3	
Actuated g/C Ratio		0.32			0.33		0.33	0.33	0.33		0.04	
Clearance Time (s)		6.0			5.5		6.0	6.0	6.0		6.0	
Vehicle Extension (s)		4.0			4.0		2.0	2.0	2.0		2.0	
Lane Grp Cap (vph)		1026			720		561	563	528		69	
v/s Ratio Prot							0.15	c0.16			c0.02	
v/s Ratio Perm		c0.18			0.12				0.00			
v/c Ratio		0.55			0.37		0.46	0.47	0.01		0.40	
Uniform Delay, d1		16.5			15.0		15.4	15.4	13.1		27.5	
Progression Factor		1.00			1.00		1.00	1.00	1.00		1.00	
Incremental Delay, d2		0.8			0.4		2.7	2.8	0.0		1.4	
Delay (s)		17.3			15.5		18.1	18.2	13.1		28.9	
Level of Service		B			B		B	B	B		C	
Approach Delay (s)		17.3			15.5			17.9			28.9	
Approach LOS		B			B			B			C	

Intersection Summary			
HCM 2000 Control Delay	17.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	58.7	Sum of lost time (s)	18.0
Intersection Capacity Utilization	64.2%	ICU Level of Service	C
Analysis Period (min)	15		

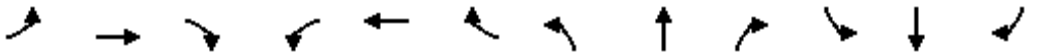
c Critical Lane Group



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	35	25	625	15	25	555
Future Volume (vph)	35	25	625	15	25	555
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0		6.0	6.0	6.0	6.0
Lane Util. Factor	0.97		0.95	1.00	1.00	0.91
Frt	0.94		1.00	0.85	1.00	1.00
Flt Protected	0.97		1.00	1.00	0.95	1.00
Satd. Flow (prot)	3292		3539	1583	1770	5085
Flt Permitted	0.97		1.00	1.00	0.39	1.00
Satd. Flow (perm)	3292		3539	1583	733	5085
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	38	27	679	16	27	603
RTOR Reduction (vph)	26	0	0	5	0	0
Lane Group Flow (vph)	39	0	679	11	27	603
Turn Type	Prot		NA	Perm	pm+pt	NA
Protected Phases	4		2		1	6
Permitted Phases				2	6	
Actuated Green, G (s)	3.0		43.3	43.3	50.5	50.5
Effective Green, g (s)	3.0		43.3	43.3	50.5	50.5
Actuated g/C Ratio	0.05		0.66	0.66	0.77	0.77
Clearance Time (s)	6.0		6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	150		2339	1046	584	3920
v/s Ratio Prot	c0.01		c0.19		0.00	c0.12
v/s Ratio Perm				0.01	0.03	
v/c Ratio	0.26		0.29	0.01	0.05	0.15
Uniform Delay, d1	30.2		4.7	3.8	1.8	1.9
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	0.9		0.3	0.0	0.0	0.1
Delay (s)	31.1		5.0	3.8	1.8	2.0
Level of Service	C		A	A	A	A
Approach Delay (s)	31.1		4.9			2.0
Approach LOS	C		A			A

Intersection Summary			
HCM 2000 Control Delay	4.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.29		
Actuated Cycle Length (s)	65.5	Sum of lost time (s)	18.0
Intersection Capacity Utilization	34.9%	ICU Level of Service	A
Analysis Period (min)	15		

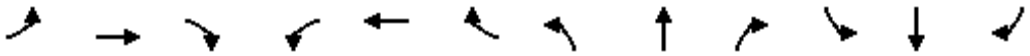
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	80	520	15	150	255	320	5	20	30	30	5	55
Future Volume (veh/h)	80	520	15	150	255	320	5	20	30	30	5	55
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	87	565	16	163	277	348	5	22	33	33	5	60
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	638	2551	72	693	1455	1298	111	52	78	122	10	114
Arrive On Green	0.72	0.72	0.72	0.04	0.82	0.82	0.08	0.08	0.08	0.08	0.08	0.08
Sat Flow, veh/h	800	3529	100	1781	1777	1585	1337	675	1013	1349	123	1480
Grp Volume(v), veh/h	87	284	297	163	277	348	5	0	55	33	0	65
Grp Sat Flow(s),veh/h/ln	800	1777	1852	1781	1777	1585	1337	0	1688	1349	0	1604
Q Serve(g_s), s	4.1	6.3	6.3	2.6	4.0	6.1	0.4	0.0	3.7	2.9	0.0	4.7
Cycle Q Clear(g_c), s	4.1	6.3	6.3	2.6	4.0	6.1	5.1	0.0	3.7	6.6	0.0	4.7
Prop In Lane	1.00		0.05	1.00		1.00	1.00		0.60	1.00		0.92
Lane Grp Cap(c), veh/h	638	1284	1339	693	1455	1298	111	0	130	122	0	124
V/C Ratio(X)	0.14	0.22	0.22	0.24	0.19	0.27	0.05	0.00	0.42	0.27	0.00	0.53
Avail Cap(c_a), veh/h	638	1284	1339	967	1455	1298	320	0	394	333	0	374
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.83	0.83	0.83	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	5.2	5.5	5.5	3.5	2.3	2.5	55.7	0.0	52.8	56.0	0.0	53.3
Incr Delay (d2), s/veh	0.4	0.4	0.4	0.1	0.2	0.4	0.4	0.0	4.6	2.5	0.0	7.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	2.3	2.4	0.8	1.1	1.6	0.2	0.0	1.8	1.1	0.0	2.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	5.6	5.9	5.9	3.7	2.6	2.9	56.1	0.0	57.4	58.5	0.0	60.5
LnGrp LOS	A	A	A	A	A	A	E	A	E	E	A	E
Approach Vol, veh/h		668			788			60			98	
Approach Delay, s/veh		5.8			3.0			57.3			59.8	
Approach LOS		A			A			E			E	

Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		104.7		15.3	11.5	93.2		15.3				
Change Period (Y+Rc), s		6.5		6.0	6.5	6.5		6.0				
Max Green Setting (Gmax), s		79.5		28.0	23.5	49.5		28.0				
Max Q Clear Time (g_c+I1), s		8.1		8.6	4.6	8.3		7.1				
Green Ext Time (p_c), s		0.8		0.7	0.4	0.7		0.4				

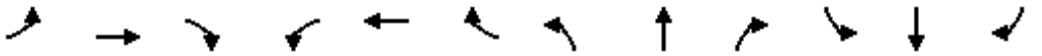
Intersection Summary												
HCM 6th Ctrl Delay			9.6									
HCM 6th LOS			A									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	150	400	30	115	490	110	80	0	180	315	0	155
Future Volume (vph)	150	400	30	115	490	110	80	0	180	315	0	155
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	6.0		4.5	6.0	6.0		5.5			5.5	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00		1.00			1.00	
Frt	1.00	0.99		1.00	1.00	0.85		0.91			0.96	
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.98			0.97	
Satd. Flow (prot)	1770	3502		1770	3539	1583		1663			1722	
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.78			0.61	
Satd. Flow (perm)	1770	3502		1770	3539	1583		1319			1089	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	163	435	33	125	533	120	87	0	196	342	0	168
RTOR Reduction (vph)	0	5	0	0	0	86	0	88	0	0	85	0
Lane Group Flow (vph)	163	463	0	125	533	34	0	195	0	0	425	0
Turn Type	Prot	NA		Prot	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	1	6		5	2			8			4	
Permitted Phases						2	8			4		
Actuated Green, G (s)	13.5	31.4		10.5	28.4	28.4		42.1			42.1	
Effective Green, g (s)	13.5	31.4		10.5	28.4	28.4		42.1			42.1	
Actuated g/C Ratio	0.14	0.31		0.10	0.28	0.28		0.42			0.42	
Clearance Time (s)	4.5	6.0		4.5	6.0	6.0		5.5			5.5	
Vehicle Extension (s)	3.0	0.2		3.0	0.2	0.2		0.2			5.0	
Lane Grp Cap (vph)	238	1099		185	1005	449		555			458	
v/s Ratio Prot	c0.09	0.13		c0.07	c0.15							
v/s Ratio Perm						0.02		0.15			c0.39	
v/c Ratio	0.68	0.42		0.68	0.53	0.08		0.35			0.93	
Uniform Delay, d1	41.2	27.1		43.1	30.2	26.2		19.7			27.5	
Progression Factor	1.00	1.00		0.79	0.74	0.39		1.00			1.00	
Incremental Delay, d2	7.9	1.2		7.8	1.7	0.3		0.1			25.9	
Delay (s)	49.1	28.3		42.0	23.9	10.6		19.8			53.4	
Level of Service	D	C		D	C	B		B			D	
Approach Delay (s)		33.7			24.8			19.8			53.4	
Approach LOS		C			C			B			D	

Intersection Summary			
HCM 2000 Control Delay	33.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	82.2%	ICU Level of Service	E
Analysis Period (min)	15		

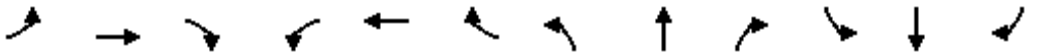
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	345	350	200	135	315	195	10	5	5	110	325	390
Future Volume (vph)	345	350	200	135	315	195	10	5	5	110	325	390
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.5		5.0	5.5			5.5	5.5	5.5	5.5	5.5
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00	0.95	0.95	1.00
Frt	1.00	0.95		1.00	0.94			1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.97	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3346		1770	3336			1801	1583	1681	1767	1583
Flt Permitted	0.17	1.00		0.43	1.00			0.97	1.00	0.95	1.00	1.00
Satd. Flow (perm)	311	3346		794	3336			1801	1583	1681	1767	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	375	380	217	147	342	212	11	5	5	120	353	424
RTOR Reduction (vph)	0	69	0	0	99	0	0	0	5	0	0	287
Lane Group Flow (vph)	375	528	0	147	455	0	0	16	0	108	365	137
Turn Type	pm+pt	NA		pm+pt	NA		Split	NA	Perm	Split	NA	Perm
Protected Phases	1	6		5	2		3	3		4	4	
Permitted Phases	6			2					3			4
Actuated Green, G (s)	47.3	34.1		27.4	19.2			3.8	3.8	32.4	32.4	32.4
Effective Green, g (s)	47.3	34.1		27.4	19.2			3.8	3.8	32.4	32.4	32.4
Actuated g/C Ratio	0.47	0.34		0.27	0.19			0.04	0.04	0.32	0.32	0.32
Clearance Time (s)	5.0	5.5		5.0	5.5			5.5	5.5	5.5	5.5	5.5
Vehicle Extension (s)	3.0	0.2		3.0	0.2			5.0	5.0	5.0	5.0	5.0
Lane Grp Cap (vph)	484	1140		297	640			68	60	544	572	512
v/s Ratio Prot	c0.18	0.16		0.04	0.14			c0.01		0.06	c0.21	
v/s Ratio Perm	c0.19			0.09					0.00			0.09
v/c Ratio	0.77	0.46		0.49	0.71			0.24	0.00	0.20	0.64	0.27
Uniform Delay, d1	22.4	25.8		28.7	37.8			46.7	46.3	24.4	28.8	25.0
Progression Factor	0.87	0.93		1.00	1.00			1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	6.3	1.1		1.3	6.6			3.7	0.0	0.4	3.2	0.6
Delay (s)	25.9	25.0		30.0	44.4			50.4	46.3	24.8	32.0	25.6
Level of Service	C	C		C	D			D	D	C	C	C
Approach Delay (s)		25.3			41.4			49.4			28.1	
Approach LOS		C			D			D			C	

Intersection Summary			
HCM 2000 Control Delay	30.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	21.5
Intersection Capacity Utilization	65.7%	ICU Level of Service	C
Analysis Period (min)	15		

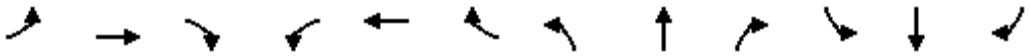
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	345	10	220	520	135	40	10	205	205	15	45
Future Volume (veh/h)	40	345	10	220	520	135	40	10	205	205	15	45
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	43	375	11	239	565	147	43	11	223	223	16	49
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	361	1437	42	571	1565	406	472	25	511	314	136	417
Arrive On Green	0.41	0.41	0.41	0.20	1.00	1.00	0.34	0.34	0.34	0.34	0.34	0.34
Sat Flow, veh/h	738	3525	103	1781	2793	724	1337	75	1521	1146	405	1242
Grp Volume(v), veh/h	43	189	197	239	359	353	43	0	234	223	0	65
Grp Sat Flow(s),veh/h/ln	738	1777	1852	1781	1777	1740	1337	0	1596	1146	0	1647
Q Serve(g_s), s	4.4	8.4	8.5	9.4	0.0	0.0	2.8	0.0	13.7	22.6	0.0	3.3
Cycle Q Clear(g_c), s	4.4	8.4	8.5	9.4	0.0	0.0	6.0	0.0	13.7	36.3	0.0	3.3
Prop In Lane	1.00		0.06	1.00		0.42	1.00		0.95	1.00		0.75
Lane Grp Cap(c), veh/h	361	724	755	571	995	975	472	0	536	314	0	553
V/C Ratio(X)	0.12	0.26	0.26	0.42	0.36	0.36	0.09	0.00	0.44	0.71	0.00	0.12
Avail Cap(c_a), veh/h	361	724	755	700	995	975	603	0	692	426	0	714
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.82	0.82	0.82	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	22.4	23.6	23.6	14.7	0.0	0.0	29.7	0.0	31.0	45.1	0.0	27.6
Incr Delay (d2), s/veh	0.7	0.9	0.8	0.4	0.8	0.9	0.2	0.0	1.2	6.5	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	3.7	3.9	3.2	0.2	0.2	0.9	0.0	5.5	7.0	0.0	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.0	24.4	24.4	15.1	0.8	0.9	29.8	0.0	32.2	51.7	0.0	27.8
LnGrp LOS	C	C	C	B	A	A	C	A	C	D	A	C
Approach Vol, veh/h		429			951			277			288	
Approach Delay, s/veh		24.3			4.4			31.9			46.3	
Approach LOS		C			A			C			D	

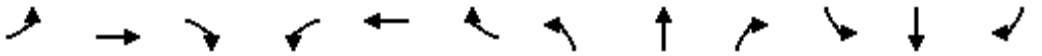
Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		73.7		46.3	18.3	55.4		46.3				
Change Period (Y+Rc), s		6.5		6.0	6.5	6.5		6.0				
Max Green Setting (Gmax), s		55.5		52.0	20.5	28.5		52.0				
Max Q Clear Time (g_c+I1), s		2.0		38.3	11.4	10.5		15.7				
Green Ext Time (p_c), s		0.8		2.0	0.5	0.4		3.5				

Intersection Summary												
HCM 6th Ctrl Delay			18.9									
HCM 6th LOS			B									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	310	380	65	180	630	505	50	0	90	125	0	195
Future Volume (vph)	310	380	65	180	630	505	50	0	90	125	0	195
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	16	12	12	12	12
Total Lost time (s)	4.5	6.0		4.5	6.0	6.0		5.0			5.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00		1.00			1.00	
Frt	1.00	0.98		1.00	1.00	0.85		0.91			0.92	
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.98			0.98	
Satd. Flow (prot)	1770	3461		1770	3539	1583		1894			1677	
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.71			0.76	
Satd. Flow (perm)	1770	3461		1770	3539	1583		1364			1300	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	337	413	71	196	685	549	54	0	98	136	0	212
RTOR Reduction (vph)	0	10	0	0	0	354	0	96	0	0	96	0
Lane Group Flow (vph)	337	474	0	196	685	195	0	56	0	0	252	0
Turn Type	Prot	NA		Prot	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	1	6		5	2			8			4	
Permitted Phases						2	8			4		
Actuated Green, G (s)	35.5	59.9		18.2	42.6	42.6		26.4			26.4	
Effective Green, g (s)	35.5	59.9		18.2	42.6	42.6		26.4			26.4	
Actuated g/C Ratio	0.30	0.50		0.15	0.36	0.36		0.22			0.22	
Clearance Time (s)	4.5	6.0		4.5	6.0	6.0		5.0			5.0	
Vehicle Extension (s)	3.0	2.0		3.0	2.0	2.0		3.0			3.0	
Lane Grp Cap (vph)	523	1727		268	1256	561		300			286	
v/s Ratio Prot	c0.19	0.14		c0.11	c0.19							
v/s Ratio Perm						0.12		0.04			c0.19	
v/c Ratio	0.64	0.27		0.73	0.55	0.35		0.19			0.88	
Uniform Delay, d1	36.8	17.4		48.6	31.0	28.5		38.1			45.3	
Progression Factor	0.94	0.89		0.83	0.78	0.66		1.00			1.00	
Incremental Delay, d2	2.6	0.4		5.9	1.0	1.0		0.3			25.5	
Delay (s)	37.1	15.9		46.0	25.1	19.8		38.4			70.8	
Level of Service	D	B		D	C	B		D			E	
Approach Delay (s)		24.6			25.9			38.4			70.8	
Approach LOS		C			C			D			E	

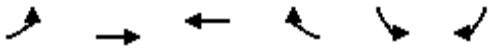
Intersection Summary			
HCM 2000 Control Delay	31.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	15.5
Intersection Capacity Utilization	73.1%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	230	350	15	5	545	30	220	85	200	205	5	550
Future Volume (vph)	230	350	15	5	545	30	220	85	200	205	5	550
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.5		5.0	5.5			5.5	5.5	5.5	5.5	5.5
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00	0.95	0.95	1.00
Frt	1.00	0.99		1.00	0.99			1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.97	1.00	0.95	0.95	1.00
Satd. Flow (prot)	1770	3518		1770	3511			1798	1583	1681	1689	1583
Flt Permitted	0.18	1.00		0.52	1.00			0.97	1.00	0.95	0.95	1.00
Satd. Flow (perm)	343	3518		966	3511			1798	1583	1681	1689	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	250	380	16	5	592	33	239	92	217	223	5	598
RTOR Reduction (vph)	0	2	0	0	3	0	0	0	172	0	0	282
Lane Group Flow (vph)	250	394	0	5	622	0	0	331	45	114	114	316
Turn Type	pm+pt	NA		pm+pt	NA		Split	NA	Perm	Split	NA	Perm
Protected Phases	1	6		5	2		3	3		4	4	
Permitted Phases	6			2					3			4
Actuated Green, G (s)	50.3	44.0		31.5	30.2			24.8	24.8	28.4	28.4	28.4
Effective Green, g (s)	50.3	44.0		31.5	30.2			24.8	24.8	28.4	28.4	28.4
Actuated g/C Ratio	0.42	0.37		0.26	0.25			0.21	0.21	0.24	0.24	0.24
Clearance Time (s)	5.0	5.5		5.0	5.5			5.5	5.5	5.5	5.5	5.5
Vehicle Extension (s)	3.0	0.2		3.0	0.2			5.0	5.0	5.0	5.0	5.0
Lane Grp Cap (vph)	323	1289		262	883			371	327	397	399	374
v/s Ratio Prot	c0.10	0.11		0.00	0.18			c0.18		0.07	0.07	
v/s Ratio Perm	c0.23			0.00					0.03			c0.20
v/c Ratio	0.77	0.31		0.02	0.70			0.89	0.14	0.29	0.29	0.84
Uniform Delay, d1	25.9	27.1		32.7	40.8			46.3	38.9	37.5	37.5	43.7
Progression Factor	0.92	0.92		1.00	1.00			1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	10.4	0.6		0.0	4.7			23.9	0.4	0.8	0.8	17.3
Delay (s)	34.3	25.5		32.8	45.5			70.2	39.3	38.3	38.3	61.0
Level of Service	C	C		C	D			E	D	D	D	E
Approach Delay (s)		28.9			45.4			57.9			54.7	
Approach LOS		C			D			E			D	

Intersection Summary			
HCM 2000 Control Delay	46.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	21.5
Intersection Capacity Utilization	80.5%	ICU Level of Service	D
Analysis Period (min)	15		

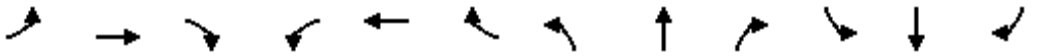
c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	1305	865	0	185	120
Future Volume (veh/h)	0	1305	865	0	185	120
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	0	1870	1870	0	1870	1870
Adj Flow Rate, veh/h	0	1418	940	0	201	130
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	2	2	0	2	2
Cap, veh/h	0	3931	4953	0	633	200
Arrive On Green	0.00	0.77	0.77	0.00	0.13	0.13
Sat Flow, veh/h	0	5443	6958	0	5023	1585
Grp Volume(v), veh/h	0	1418	940	0	201	130
Grp Sat Flow(s),veh/h/ln	0	1702	1609	0	1674	1585
Q Serve(g_s), s	0.0	10.6	4.7	0.0	4.4	9.4
Cycle Q Clear(g_c), s	0.0	10.6	4.7	0.0	4.4	9.4
Prop In Lane	0.00			0.00	1.00	1.00
Lane Grp Cap(c), veh/h	0	3931	4953	0	633	200
V/C Ratio(X)	0.00	0.36	0.19	0.00	0.32	0.65
Avail Cap(c_a), veh/h	0	3931	4953	0	1737	548
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.97	0.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	4.4	3.7	0.0	47.7	49.9
Incr Delay (d2), s/veh	0.0	0.3	0.1	0.0	1.0	12.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	3.1	1.3	0.0	1.9	4.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	4.7	3.8	0.0	48.8	62.2
LnGrp LOS	A	A	A	A	D	E
Approach Vol, veh/h		1418	940		331	
Approach Delay, s/veh		4.7	3.8		54.1	
Approach LOS		A	A		D	

Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		98.4		21.6		98.4
Change Period (Y+Rc), s		6.0		6.5		6.0
Max Green Setting (Gmax), s		66.0		41.5		66.0
Max Q Clear Time (g_c+I1), s		12.6		11.4		6.7
Green Ext Time (p_c), s		14.8		3.7		8.1

Intersection Summary		
HCM 6th Ctrl Delay		10.4
HCM 6th LOS		B



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1170	320	270	645	0	0	0	0	380	0	220
Future Volume (vph)	0	1170	320	270	645	0	0	0	0	380	0	220
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0		4.5	6.0					7.0		7.0
Lane Util. Factor		0.91		0.97	0.91					0.97		1.00
Frt		0.97		1.00	1.00					1.00		0.85
Flt Protected		1.00		0.95	1.00					0.95		1.00
Satd. Flow (prot)		4921		3433	5085					3433		1583
Flt Permitted		1.00		0.95	1.00					0.95		1.00
Satd. Flow (perm)		4921		3433	5085					3433		1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1272	348	293	701	0	0	0	0	413	0	239
RTOR Reduction (vph)	0	29	0	0	0	0	0	0	0	0	0	201
Lane Group Flow (vph)	0	1591	0	293	701	0	0	0	0	413	0	38
Turn Type		NA		Prot	NA					Prot		Prot
Protected Phases		2		1	6					4		4
Permitted Phases												
Actuated Green, G (s)		84.4		24.5	113.4					23.6		23.6
Effective Green, g (s)		84.4		24.5	113.4					23.6		23.6
Actuated g/C Ratio		0.56		0.16	0.76					0.16		0.16
Clearance Time (s)		6.0		4.5	6.0					7.0		7.0
Vehicle Extension (s)		0.2		3.0	0.2					3.0		3.0
Lane Grp Cap (vph)		2768		560	3844					540		249
v/s Ratio Prot		c0.32		c0.09	0.14					c0.12		0.02
v/s Ratio Perm												
v/c Ratio		0.57		0.52	0.18					0.76		0.15
Uniform Delay, d1		21.2		57.4	5.2					60.5		54.6
Progression Factor		1.00		0.77	0.27					1.00		1.00
Incremental Delay, d2		0.9		0.9	0.1					6.4		0.3
Delay (s)		22.1		44.8	1.5					66.9		54.8
Level of Service		C		D	A					E		D
Approach Delay (s)		22.1			14.3			0.0			62.5	
Approach LOS		C			B			A			E	

Intersection Summary			
HCM 2000 Control Delay	27.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	17.5
Intersection Capacity Utilization	60.4%	ICU Level of Service	B
Analysis Period (min)	15		
Description:			
c Critical Lane Group			



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1380	170	0	675	240	0
Future Volume (vph)	1380	170	0	675	240	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5			6.5	7.0	
Lane Util. Factor	0.91			0.91	0.97	
Frt	0.98			1.00	1.00	
Flt Protected	1.00			1.00	0.95	
Satd. Flow (prot)	5002			5085	3433	
Flt Permitted	1.00			1.00	0.95	
Satd. Flow (perm)	5002			5085	3433	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1500	185	0	734	261	0
RTOR Reduction (vph)	6	0	0	0	0	0
Lane Group Flow (vph)	1679	0	0	734	261	0
Turn Type	NA			NA	Prot	
Protected Phases	6			2	3	
Permitted Phases						
Actuated Green, G (s)	119.7			119.7	16.8	
Effective Green, g (s)	119.7			119.7	16.8	
Actuated g/C Ratio	0.80			0.80	0.11	
Clearance Time (s)	6.5			6.5	7.0	
Vehicle Extension (s)	3.0			3.0	3.0	
Lane Grp Cap (vph)	3991			4057	384	
v/s Ratio Prot	c0.34			0.14	c0.08	
v/s Ratio Perm						
v/c Ratio	0.42			0.18	0.68	
Uniform Delay, d1	4.6			3.6	64.0	
Progression Factor	1.07			0.73	1.00	
Incremental Delay, d2	0.3			0.1	4.7	
Delay (s)	5.2			2.7	68.8	
Level of Service	A			A	E	
Approach Delay (s)	5.2			2.7	68.8	
Approach LOS	A			A	E	

Intersection Summary			
HCM 2000 Control Delay	10.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	48.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1380	0	0	675	0	855
Future Volume (vph)	1380	0	0	675	0	855
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5			6.0		6.0
Lane Util. Factor	0.91			0.91		0.88
Frt	1.00			1.00		0.85
Flt Protected	1.00			1.00		1.00
Satd. Flow (prot)	5085			5085		2787
Flt Permitted	1.00			1.00		1.00
Satd. Flow (perm)	5085			5085		2787
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1500	0	0	734	0	929
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	1500	0	0	734	0	929
Turn Type	NA			NA		Prot
Protected Phases	2			4 6		4
Permitted Phases						
Actuated Green, G (s)	74.2			150.0		64.3
Effective Green, g (s)	74.2			144.5		64.3
Actuated g/C Ratio	0.49			0.96		0.43
Clearance Time (s)	5.5					6.0
Vehicle Extension (s)	3.0					3.0
Lane Grp Cap (vph)	2515			4898		1194
v/s Ratio Prot	c0.29			0.14		c0.33
v/s Ratio Perm						
v/c Ratio	0.60			0.15		0.78
Uniform Delay, d1	27.2			0.1		36.7
Progression Factor	0.35			1.00		1.00
Incremental Delay, d2	1.0			0.0		3.3
Delay (s)	10.6			0.1		40.0
Level of Service	B			A		D
Approach Delay (s)	10.6			0.1	40.0	
Approach LOS	B			A	D	

Intersection Summary			
HCM 2000 Control Delay	16.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	11.5
Intersection Capacity Utilization	66.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	70	765	820	580	215	115	135	655	0	295	105	0
Future Volume (vph)	70	765	820	580	215	115	135	655	0	295	105	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5	6.0	4.0	6.5	6.0	4.0	6.5		4.0	6.5	
Lane Util. Factor		0.97	0.91	1.00	1.00	0.91	1.00	1.00		1.00	0.97	
Frt		1.00	1.00	0.85	1.00	1.00	0.85	1.00		0.85	1.00	
Flt Protected		0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95	
Satd. Flow (prot)		3433	5085	1583	1770	5085	1583	1770		1583	3433	
Flt Permitted		0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95	
Satd. Flow (perm)		3433	5085	1583	1770	5085	1583	1770		1583	3433	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	76	832	891	630	234	125	147	712	0	321	114	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	908	891	630	234	125	147	712	0	321	114	0
Turn Type	Prot	Prot	NA	Free	Prot	NA	Free	Prot		Free	Prot	
Protected Phases	5	5	2		1	6		3			7	
Permitted Phases				Free			Free			Free		
Actuated Green, G (s)		41.9	41.6	150.0	26.7	26.4	150.0	62.7		150.0	62.7	
Effective Green, g (s)		41.9	41.6	150.0	26.7	26.4	150.0	62.7		150.0	62.7	
Actuated g/C Ratio		0.28	0.28	1.00	0.18	0.18	1.00	0.42		1.00	0.42	
Clearance Time (s)		6.5	6.0		6.5	6.0		6.5			6.5	
Vehicle Extension (s)		3.0	3.0		3.0	3.0		3.0			3.0	
Lane Grp Cap (vph)		958	1410	1583	315	894	1583	739		1583	1434	
v/s Ratio Prot		c0.26	0.18		c0.13	0.02		c0.40			0.03	
v/s Ratio Perm				c0.40			0.09			0.20		
v/c Ratio		0.95	0.63	0.40	0.74	0.14	0.09	0.96		0.20	0.08	
Uniform Delay, d1		53.0	47.5	0.0	58.4	52.2	0.0	42.5		0.0	26.3	
Progression Factor		0.75	0.74	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		14.7	1.7	0.6	9.1	0.3	0.1	24.3		0.3	0.0	
Delay (s)		54.4	36.6	0.6	67.5	52.5	0.1	66.8		0.3	26.3	
Level of Service		D	D	A	E	D	A	E		A	C	
Approach Delay (s)			33.9			44.2			46.1			10.7
Approach LOS			C			D			D			B

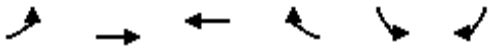
Intersection Summary			
HCM 2000 Control Delay	36.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	92.2%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



Movement	SBR
Lane Configurations	
Traffic Volume (vph)	155
Future Volume (vph)	155
Ideal Flow (vphpl)	1900
Total Lost time (s)	4.0
Lane Util. Factor	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1583
Flt Permitted	1.00
Satd. Flow (perm)	1583
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	168
RTOR Reduction (vph)	0
Lane Group Flow (vph)	168
Turn Type	Free
Protected Phases	
Permitted Phases	Free
Actuated Green, G (s)	150.0
Effective Green, g (s)	150.0
Actuated g/C Ratio	1.00
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	1583
v/s Ratio Prot	
v/s Ratio Perm	0.11
v/c Ratio	0.11
Uniform Delay, d1	0.0
Progression Factor	1.00
Incremental Delay, d2	0.1
Delay (s)	0.1
Level of Service	A
Approach Delay (s)	
Approach LOS	

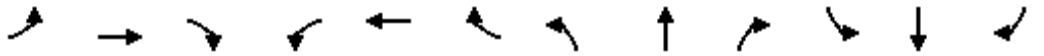
Intersection Summary



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	795	1580	0	310	120
Future Volume (veh/h)	0	795	1580	0	310	120
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	0	1870	1870	0	1870	1870
Adj Flow Rate, veh/h	0	864	1717	0	337	130
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	2	2	0	2	2
Cap, veh/h	0	3865	4870	0	698	220
Arrive On Green	0.00	0.76	0.76	0.00	0.14	0.14
Sat Flow, veh/h	0	5443	6958	0	5023	1585
Grp Volume(v), veh/h	0	864	1717	0	337	130
Grp Sat Flow(s),veh/h/ln	0	1702	1609	0	1674	1585
Q Serve(g_s), s	0.0	5.9	10.6	0.0	7.4	9.2
Cycle Q Clear(g_c), s	0.0	5.9	10.6	0.0	7.4	9.2
Prop In Lane	0.00			0.00	1.00	1.00
Lane Grp Cap(c), veh/h	0	3865	4870	0	698	220
V/C Ratio(X)	0.00	0.22	0.35	0.00	0.48	0.59
Avail Cap(c_a), veh/h	0	3865	4870	0	1695	535
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.74	0.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	4.3	4.8	0.0	47.7	48.5
Incr Delay (d2), s/veh	0.0	0.1	0.1	0.0	1.9	8.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	1.8	3.0	0.0	3.2	4.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	4.4	5.0	0.0	49.6	57.3
LnGrp LOS	A	A	A	A	D	E
Approach Vol, veh/h		864	1717		467	
Approach Delay, s/veh		4.4	5.0		51.7	
Approach LOS		A	A		D	

Timer - Assigned Phs	2	4	6
Phs Duration (G+Y+Rc), s	96.8	23.2	96.8
Change Period (Y+Rc), s	6.0	6.5	6.0
Max Green Setting (Gmax), s	67.0	40.5	67.0
Max Q Clear Time (g_c+I1), s	7.9	11.2	12.6
Green Ext Time (p_c), s	7.2	5.4	20.6

Intersection Summary	
HCM 6th Ctrl Delay	12.0
HCM 6th LOS	B



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	920	185	470	960	0	0	0	0	410	0	620
Future Volume (vph)	0	920	185	470	960	0	0	0	0	410	0	620
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0		6.5	6.0					7.0		7.0
Lane Util. Factor		0.91		0.97	0.91					0.97		1.00
Frt		0.97		1.00	1.00					1.00		0.85
Flt Protected		1.00		0.95	1.00					0.95		1.00
Satd. Flow (prot)		4958		3433	5085					3433		1583
Flt Permitted		1.00		0.95	1.00					0.95		1.00
Satd. Flow (perm)		4958		3433	5085					3433		1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1000	201	511	1043	0	0	0	0	446	0	674
RTOR Reduction (vph)	0	20	0	0	0	0	0	0	0	0	0	40
Lane Group Flow (vph)	0	1181	0	511	1043	0	0	0	0	446	0	634
Turn Type		NA		Prot	NA					Prot		Prot
Protected Phases		2		1	6					4		4
Permitted Phases												
Actuated Green, G (s)		40.3		26.5	73.3					63.7		63.7
Effective Green, g (s)		40.3		26.5	73.3					63.7		63.7
Actuated g/C Ratio		0.27		0.18	0.49					0.42		0.42
Clearance Time (s)		6.0		6.5	6.0					7.0		7.0
Vehicle Extension (s)		0.2		3.0	0.2					3.0		3.0
Lane Grp Cap (vph)		1332		606	2484					1457		672
v/s Ratio Prot		c0.24		c0.15	0.21					0.13		c0.40
v/s Ratio Perm												
v/c Ratio		0.89		0.84	0.42					0.31		0.94
Uniform Delay, d1		52.7		59.7	24.7					28.5		41.4
Progression Factor		1.00		0.93	0.71					1.00		1.00
Incremental Delay, d2		9.0		10.0	0.5					0.1		21.8
Delay (s)		61.7		65.7	18.1					28.7		63.3
Level of Service		E		E	B					C		E
Approach Delay (s)		61.7			33.8			0.0			49.5	
Approach LOS		E			C			A			D	

Intersection Summary			
HCM 2000 Control Delay	47.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	19.5
Intersection Capacity Utilization	67.8%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1075	255	0	1200	230	0
Future Volume (vph)	1075	255	0	1200	230	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5			6.5	7.0	
Lane Util. Factor	0.91			0.91	0.97	
Frt	0.97			1.00	1.00	
Flt Protected	1.00			1.00	0.95	
Satd. Flow (prot)	4939			5085	3433	
Flt Permitted	1.00			1.00	0.95	
Satd. Flow (perm)	4939			5085	3433	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1168	277	0	1304	250	0
RTOR Reduction (vph)	14	0	0	0	0	0
Lane Group Flow (vph)	1431	0	0	1304	250	0
Turn Type	NA			NA	Prot	
Protected Phases	6			2	3	
Permitted Phases						
Actuated Green, G (s)	120.2			120.2	16.3	
Effective Green, g (s)	120.2			120.2	16.3	
Actuated g/C Ratio	0.80			0.80	0.11	
Clearance Time (s)	6.5			6.5	7.0	
Vehicle Extension (s)	3.0			3.0	3.0	
Lane Grp Cap (vph)	3957			4074	373	
v/s Ratio Prot	c0.29			0.26	c0.07	
v/s Ratio Perm						
v/c Ratio	0.36			0.32	0.67	
Uniform Delay, d1	4.2			4.0	64.3	
Progression Factor	0.43			1.00	1.00	
Incremental Delay, d2	0.2			0.2	4.7	
Delay (s)	2.0			4.2	68.9	
Level of Service	A			A	E	
Approach Delay (s)	2.0			4.2	68.9	
Approach LOS	A			A	E	

Intersection Summary			
HCM 2000 Control Delay	8.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	44.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1075	0	0	1200	0	340
Future Volume (vph)	1075	0	0	1200	0	340
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5			6.0		6.0
Lane Util. Factor	0.91			0.91		0.88
Frt	1.00			1.00		0.85
Flt Protected	1.00			1.00		1.00
Satd. Flow (prot)	5085			5085		2787
Flt Permitted	1.00			1.00		1.00
Satd. Flow (perm)	5085			5085		2787
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1168	0	0	1304	0	370
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	1168	0	0	1304	0	370
Turn Type	NA			NA		Prot
Protected Phases	2			4 6		4
Permitted Phases						
Actuated Green, G (s)	101.4			150.0		37.1
Effective Green, g (s)	101.4			144.5		37.1
Actuated g/C Ratio	0.68			0.96		0.25
Clearance Time (s)	5.5					6.0
Vehicle Extension (s)	3.0					3.0
Lane Grp Cap (vph)	3437			4898		689
v/s Ratio Prot	c0.23			0.26		c0.13
v/s Ratio Perm						
v/c Ratio	0.34			0.27		0.54
Uniform Delay, d1	10.2			0.1		49.0
Progression Factor	0.27			1.00		1.00
Incremental Delay, d2	0.3			0.0		0.8
Delay (s)	3.0			0.2		49.8
Level of Service	A			A		D
Approach Delay (s)	3.0			0.2	49.8	
Approach LOS	A			A	D	

Intersection Summary			
HCM 2000 Control Delay	7.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	11.5
Intersection Capacity Utilization	42.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	35	100	830	450	300	800	125	570	0	220	280	0
Future Volume (vph)	35	100	830	450	300	800	125	570	0	220	280	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5	6.0	4.0	6.5	6.0	4.0	6.5		4.0	6.5	
Lane Util. Factor		0.97	0.91	1.00	1.00	0.91	1.00	1.00		1.00	0.97	
Frt		1.00	1.00	0.85	1.00	1.00	0.85	1.00		0.85	1.00	
Flt Protected		0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95	
Satd. Flow (prot)		3433	5085	1583	1770	5085	1583	1770		1583	3433	
Flt Permitted		0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95	
Satd. Flow (perm)		3433	5085	1583	1770	5085	1583	1770		1583	3433	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	38	109	902	489	326	870	136	620	0	239	304	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	147	902	489	326	870	136	620	0	239	304	0
Turn Type	Prot	Prot	NA	Free	Prot	NA	Free	Prot		Free	Prot	
Protected Phases	5	5	2		1	6		8			4	
Permitted Phases				Free			Free			Free		
Actuated Green, G (s)		10.8	33.0	135.0	28.9	51.1	135.0	54.1		135.0	54.1	
Effective Green, g (s)		10.8	33.0	135.0	28.9	51.1	135.0	54.1		135.0	54.1	
Actuated g/C Ratio		0.08	0.24	1.00	0.21	0.38	1.00	0.40		1.00	0.40	
Clearance Time (s)		6.5	6.0		6.5	6.0		6.5			6.5	
Vehicle Extension (s)		3.0	3.0		3.0	3.0		3.0			3.0	
Lane Grp Cap (vph)		274	1243	1583	378	1924	1583	709		1583	1375	
v/s Ratio Prot		0.04	c0.18		c0.18	0.17		c0.35			0.09	
v/s Ratio Perm				0.31			0.09			0.15		
v/c Ratio		0.54	0.73	0.31	0.86	0.45	0.09	0.87		0.15	0.22	
Uniform Delay, d1		59.7	46.8	0.0	51.1	31.5	0.0	37.3		0.0	26.6	
Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		2.0	3.7	0.5	18.0	0.8	0.1	11.6		0.2	0.1	
Delay (s)		61.7	50.6	0.5	69.1	32.2	0.1	48.9		0.2	26.7	
Level of Service		E	D	A	E	C	A	D		A	C	
Approach Delay (s)			35.7			38.0			35.4			8.7
Approach LOS			D			D			D			A

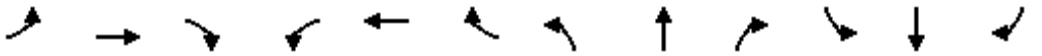
Intersection Summary			
HCM 2000 Control Delay	30.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	80.3%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	SBR
Lane Configurations	
Traffic Volume (vph)	640
Future Volume (vph)	640
Ideal Flow (vphpl)	1900
Total Lost time (s)	4.0
Lane Util. Factor	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1583
Flt Permitted	1.00
Satd. Flow (perm)	1583
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	696
RTOR Reduction (vph)	0
Lane Group Flow (vph)	696
Turn Type	Free
Protected Phases	
Permitted Phases	Free
Actuated Green, G (s)	135.0
Effective Green, g (s)	135.0
Actuated g/C Ratio	1.00
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	1583
v/s Ratio Prot	
v/s Ratio Perm	0.44
v/c Ratio	0.44
Uniform Delay, d1	0.0
Progression Factor	1.00
Incremental Delay, d2	0.9
Delay (s)	0.9
Level of Service	A
Approach Delay (s)	
Approach LOS	

Intersection Summary



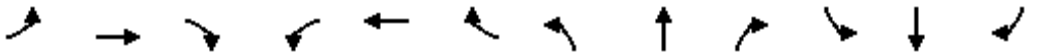
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	220	10	60	40	15	75	115	230	15	25	850	1160
Future Volume (veh/h)	220	10	60	40	15	75	115	230	15	25	850	1160
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1847	1847	1847	1864	1864	1864	1864	1864	1864	1776	1776	1776
Adj Flow Rate, veh/h	239	11	65	43	16	82	125	250	16	27	924	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	302	232	197	56	129	109	408	2089	133	722	2018	
Arrive On Green	0.09	0.13	0.13	0.03	0.07	0.07	0.04	0.62	0.62	0.02	0.60	0.00
Sat Flow, veh/h	3412	1847	1565	1776	1864	1580	1776	3382	215	1692	3375	1505
Grp Volume(v), veh/h	239	11	65	43	16	82	125	130	136	27	924	0
Grp Sat Flow(s),veh/h/ln	1706	1847	1565	1776	1864	1580	1776	1771	1826	1692	1687	1505
Q Serve(g_s), s	8.2	0.6	4.5	2.9	1.0	6.1	3.2	3.6	3.7	0.7	18.2	0.0
Cycle Q Clear(g_c), s	8.2	0.6	4.5	2.9	1.0	6.1	3.2	3.6	3.7	0.7	18.2	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.12	1.00		1.00
Lane Grp Cap(c), veh/h	302	232	197	56	129	109	408	1094	1128	722	2018	
V/C Ratio(X)	0.79	0.05	0.33	0.76	0.12	0.75	0.31	0.12	0.12	0.04	0.46	
Avail Cap(c_a), veh/h	446	400	339	126	292	248	529	1094	1128	753	2018	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.88	0.88	0.00
Uniform Delay (d), s/veh	53.6	46.1	47.8	57.6	52.4	54.8	10.0	9.5	9.5	8.7	13.4	0.0
Incr Delay (d2), s/veh	5.8	0.1	1.0	18.9	0.4	9.9	0.4	0.2	0.2	0.0	0.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.8	0.3	1.8	1.6	0.5	2.7	1.3	1.5	1.5	0.3	6.9	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	59.4	46.2	48.8	76.5	52.9	64.7	10.4	9.7	9.7	8.7	14.0	0.0
LnGrp LOS	E	D	D	E	D	E	B	A	A	A	B	
Approach Vol, veh/h		315			141			391			951	A
Approach Delay, s/veh		56.8			67.0			9.9			13.9	
Approach LOS		E			E			A			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.5	80.6	16.1	14.8	10.8	78.3	9.3	21.6
Change Period (Y+Rc), s	5.5	6.5	5.5	6.5	5.5	6.5	5.5	6.5
Max Green Setting (Gmax), s	5.1	56.4	15.7	18.8	13.5	48.0	8.5	26.0
Max Q Clear Time (g_c+I1), s	2.7	5.7	10.2	8.1	5.2	20.2	4.9	6.5
Green Ext Time (p_c), s	0.0	0.3	0.4	0.2	0.2	1.4	0.0	0.2

Intersection Summary	
HCM 6th Ctrl Delay	24.7
HCM 6th LOS	C

Notes

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	655	785	0	0	0	0	140	385	0	1250	0
Future Volume (vph)	5	655	785	0	0	0	0	140	385	0	1250	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	10	10	11	12	12	12
Grade (%)		5%			0%			4%			0%	
Total Lost time (s)		7.0	4.0					8.0	6.0		8.0	
Lane Util. Factor		0.95	1.00					0.95	0.88		0.91	
Frt		1.00	0.85					1.00	0.85		1.00	
Flt Protected		1.00	1.00					1.00	1.00		1.00	
Satd. Flow (prot)		3450	1544					3237	2640		5085	
Flt Permitted		1.00	1.00					1.00	1.00		1.00	
Satd. Flow (perm)		3450	1544					3237	2640		5085	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	712	853	0	0	0	0	152	418	0	1359	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	717	853	0	0	0	0	152	418	0	1359	0
Turn Type	Perm	NA	Free					NA	custom		NA	
Protected Phases		3						6	5 6		2 4	
Permitted Phases	3		Free									
Actuated Green, G (s)		39.9	160.0					20.5	79.3		105.1	
Effective Green, g (s)		39.9	160.0					20.5	79.3		100.6	
Actuated g/C Ratio		0.25	1.00					0.13	0.50		0.63	
Clearance Time (s)		7.0						8.0				
Vehicle Extension (s)		3.0						3.0				
Lane Grp Cap (vph)		860	1544					414	1308		3197	
v/s Ratio Prot								0.05	0.16		0.27	
v/s Ratio Perm		0.21	c0.55									
v/c Ratio		0.83	0.55					0.37	0.32		0.43	
Uniform Delay, d1		56.9	0.0					63.8	24.2		15.0	
Progression Factor		1.00	1.00					1.00	1.00		0.00	
Incremental Delay, d2		7.0	1.4					2.5	0.1		0.0	
Delay (s)		63.9	1.4					66.3	24.3		0.0	
Level of Service		E	A					E	C		A	
Approach Delay (s)		30.0			0.0			35.5			0.0	
Approach LOS		C			A			D			A	

Intersection Summary			
HCM 2000 Control Delay	19.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	25.5
Intersection Capacity Utilization	72.8%	ICU Level of Service	C
Analysis Period (min)	15		

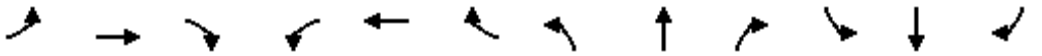
c Critical Lane Group



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	0	1250	575	145	0
Future Volume (vph)	0	0	1250	575	145	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	11	11	12	12
Grade (%)	0%			1%	0%	
Total Lost time (s)			4.5	4.5	7.0	
Lane Util. Factor			0.91	0.91	0.97	
Frt			1.00	1.00	1.00	
Flt Protected			0.95	0.97	0.95	
Satd. Flow (prot)			1549	3178	3433	
Flt Permitted			0.95	0.97	0.95	
Satd. Flow (perm)			1549	3178	3433	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	1359	625	158	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	679	1305	158	0
Turn Type			Split	NA	Prot	
Protected Phases			4 5	4 5	3 6	
Permitted Phases						
Actuated Green, G (s)			78.6	78.6	68.4	
Effective Green, g (s)			78.6	78.6	60.4	
Actuated g/C Ratio			0.49	0.49	0.38	
Clearance Time (s)						
Vehicle Extension (s)						
Lane Grp Cap (vph)			760	1561	1295	
v/s Ratio Prot			c0.44	0.41	c0.05	
v/s Ratio Perm						
v/c Ratio			0.89	0.84	0.12	
Uniform Delay, d1			36.9	35.1	32.5	
Progression Factor			1.00	1.00	0.01	
Incremental Delay, d2			12.9	4.1	0.0	
Delay (s)			49.8	39.1	0.2	
Level of Service			D	D	A	
Approach Delay (s)	0.0			42.8	0.2	
Approach LOS	A			D	A	

Intersection Summary			
HCM 2000 Control Delay	39.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	25.5
Intersection Capacity Utilization	81.1%	ICU Level of Service	D
Analysis Period (min)	15		

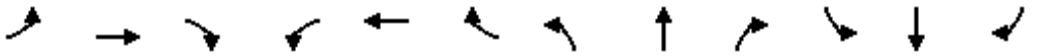
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	495	30	280	5	5	20	165	1040	5	40	2055	490
Future Volume (vph)	495	30	280	5	5	20	165	1040	5	40	2055	490
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	12	12	16	12	11	11	12	11	11	14
Grade (%)		1%			0%			2%			0%	
Total Lost time (s)	6.5	6.5	6.5		7.0		6.5	6.5		6.5	6.5	6.5
Lane Util. Factor	0.95	0.95	1.00		1.00		0.97	0.91		1.00	0.91	1.00
Frt	1.00	1.00	0.85		0.91		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	0.96	1.00		0.99		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1561	1574	1575		1900		3285	4863		1711	4916	1689
Flt Permitted	0.95	0.96	1.00		0.99		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1561	1574	1575		1900		3285	4863		1711	4916	1689
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	538	33	304	5	5	22	179	1130	5	43	2234	533
RTOR Reduction (vph)	0	0	90	0	21	0	0	0	0	0	0	169
Lane Group Flow (vph)	285	286	214	0	11	0	179	1135	0	43	2234	364
Turn Type	Split	NA	pm+ov	Split	NA		Prot	NA		Prot	NA	Perm
Protected Phases	4	4	6	3	3		6	2		1	5	
Permitted Phases			4									5
Actuated Green, G (s)	30.0	30.0	41.3		4.0		11.3	82.1		7.4	78.2	78.2
Effective Green, g (s)	30.0	30.0	41.3		4.0		11.3	82.1		7.4	78.2	78.2
Actuated g/C Ratio	0.20	0.20	0.28		0.03		0.08	0.55		0.05	0.52	0.52
Clearance Time (s)	6.5	6.5	6.5		7.0		6.5	6.5		6.5	6.5	6.5
Vehicle Extension (s)	3.0	3.0	3.0		3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	312	314	433		50		247	2661		84	2562	880
v/s Ratio Prot	c0.18	0.18	0.04		c0.01		c0.05	0.23		0.03	c0.45	
v/s Ratio Perm			0.10									0.22
v/c Ratio	0.91	0.91	0.49		0.21		0.72	0.43		0.51	0.87	0.41
Uniform Delay, d1	58.7	58.7	45.6		71.5		67.8	20.0		69.5	31.5	21.9
Progression Factor	1.00	1.00	1.00		1.00		1.00	1.00		1.03	0.98	1.24
Incremental Delay, d2	29.6	29.1	0.9		2.1		10.1	0.5		3.4	2.9	0.9
Delay (s)	88.3	87.8	46.5		73.6		77.9	20.5		75.0	33.9	28.1
Level of Service	F	F	D		E		E	C		E	C	C
Approach Delay (s)		73.6			73.6			28.4			33.4	
Approach LOS		E			E			C			C	

Intersection Summary			
HCM 2000 Control Delay	39.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	26.5
Intersection Capacity Utilization	81.8%	ICU Level of Service	D
Analysis Period (min)	15		

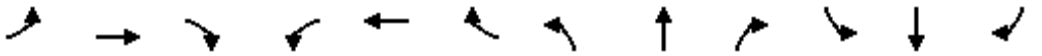
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	235	5	605	0	0	0	0	1390	165	220	1980	0
Future Volume (vph)	235	5	605	0	0	0	0	1390	165	220	1980	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	12	11	12	12	12	12	11	16	11	11	12
Grade (%)		3%			0%			1%			0%	
Total Lost time (s)	8.0	8.0	8.0					6.5		5.5	5.5	
Lane Util. Factor	0.95	0.95	*0.80					0.76		0.97	0.91	
Frt	1.00	1.00	0.85					0.98		1.00	1.00	
Flt Protected	0.95	0.95	1.00					1.00		0.95	1.00	
Satd. Flow (prot)	1601	1663	2412					8040		3319	4916	
Flt Permitted	0.95	0.95	1.00					1.00		0.95	1.00	
Satd. Flow (perm)	1601	1663	2412					8040		3319	4916	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	255	5	658	0	0	0	0	1511	179	239	2152	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	13	0	0	0	0
Lane Group Flow (vph)	130	130	658	0	0	0	0	1677	0	239	2152	0
Turn Type	Split	NA	Prot					NA		Prot	NA	
Protected Phases	4	4	4					6		5	2	
Permitted Phases												
Actuated Green, G (s)	47.8	47.8	47.8					62.3		19.9	88.7	
Effective Green, g (s)	47.8	47.8	47.8					62.3		19.9	88.7	
Actuated g/C Ratio	0.32	0.32	0.32					0.42		0.13	0.59	
Clearance Time (s)	8.0	8.0	8.0					6.5		5.5	5.5	
Vehicle Extension (s)	3.0	3.0	3.0					3.0		3.0	3.0	
Lane Grp Cap (vph)	510	529	768					3339		440	2906	
v/s Ratio Prot	0.08	0.08	c0.27					0.21		0.07	c0.44	
v/s Ratio Perm												
v/c Ratio	0.25	0.25	0.86					0.50		0.54	0.74	
Uniform Delay, d1	37.9	37.8	47.9					32.4		60.8	22.3	
Progression Factor	1.00	1.00	1.00					0.69		0.56	0.33	
Incremental Delay, d2	0.3	0.2	9.3					0.5		4.3	1.6	
Delay (s)	38.2	38.0	57.2					22.7		38.2	8.9	
Level of Service	D	D	E					C		D	A	
Approach Delay (s)		51.8			0.0			22.7			11.9	
Approach LOS		D			A			C			B	

Intersection Summary				
HCM 2000 Control Delay	22.8	HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio	0.82			
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	20.0	
Intersection Capacity Utilization	70.7%	ICU Level of Service	C	
Analysis Period (min)	15			

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	125	5	405	265	1360	0	0	2075	770
Future Volume (vph)	0	0	0	125	5	405	265	1360	0	0	2075	770
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	13	16	10	11	12	12	11	12
Grade (%)		0%			5%			0%			-1%	
Total Lost time (s)				8.0	8.0	4.0	6.5	6.0			6.0	4.0
Lane Util. Factor				0.95	0.95	1.00	0.97	0.86			0.81	1.00
Frt				1.00	1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	0.96	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				1639	1704	1750	3204	6194			7329	1591
Flt Permitted				0.95	0.96	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				1639	1704	1750	3204	6194			7329	1591
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	136	5	440	288	1478	0	0	2255	837
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	71	70	440	288	1478	0	0	2255	837
Turn Type				Split	NA	Free	Prot	NA			NA	Free
Protected Phases				4	4		1	6			2	
Permitted Phases						Free						Free
Actuated Green, G (s)				12.8	12.8	150.0	19.7	123.2			97.0	150.0
Effective Green, g (s)				12.8	12.8	150.0	19.7	123.2			97.0	150.0
Actuated g/C Ratio				0.09	0.09	1.00	0.13	0.82			0.65	1.00
Clearance Time (s)				8.0	8.0		6.5	6.0			6.0	
Vehicle Extension (s)				4.0	4.0		4.0	4.0			4.0	
Lane Grp Cap (vph)				139	145	1750	420	5087			4739	1591
v/s Ratio Prot				0.04	0.04		0.09	0.24			0.31	
v/s Ratio Perm						0.25						c0.53
v/c Ratio				0.51	0.48	0.25	0.69	0.29			0.48	0.53
Uniform Delay, d1				65.6	65.4	0.0	62.2	3.1			13.5	0.0
Progression Factor				1.00	1.00	1.00	1.42	0.30			0.45	1.00
Incremental Delay, d2				4.2	3.4	0.3	4.4	0.1			0.0	0.1
Delay (s)				69.8	68.9	0.3	92.9	1.1			6.1	0.1
Level of Service				E	E	A	F	A			A	A
Approach Delay (s)		0.0			17.1			16.0			4.5	
Approach LOS		A			B			B			A	

Intersection Summary			
HCM 2000 Control Delay	9.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	20.5
Intersection Capacity Utilization	70.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



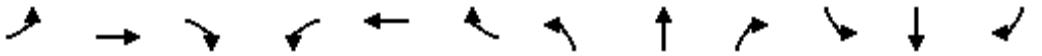
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	110	435	225	710	190	75	5	225	1065	470	30	1905
Future Volume (vph)	110	435	225	710	190	75	5	225	1065	470	30	1905
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	12	12	10	12	12	12	10	11	11	11	11
Grade (%)		3%			2%				0%			-1%
Total Lost time (s)	6.5	6.5		6.5	6.5	6.5		6.5	6.5	6.5	6.5	6.5
Lane Util. Factor	0.97	0.95		0.97	0.95	1.00		1.00	0.91	1.00	1.00	*0.80
Frt	1.00	0.95		1.00	1.00	0.85		1.00	1.00	0.85	1.00	0.99
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3156	3308		3172	3504	1567		1652	4916	1531	1719	4309
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.08	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3156	3308		3172	3504	1567		141	4916	1531	1719	4309
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	120	473	245	772	207	82	5	245	1158	511	33	2071
RTOR Reduction (vph)	0	0	0	0	0	65	0	0	0	289	0	4
Lane Group Flow (vph)	120	718	0	772	207	17	0	250	1158	222	33	2181
Turn Type	Split	NA		Split	NA	pt+ov	pm+pt	pm+pt	NA	Perm	Prot	NA
Protected Phases	4	4		3	3	3 5	1	1	6		5	2
Permitted Phases							6	6		6		
Actuated Green, G (s)	33.0	33.0		22.5	22.5	30.2		60.8	60.8	60.8	7.7	57.0
Effective Green, g (s)	33.0	33.0		22.5	22.5	30.2		60.8	60.8	60.8	7.7	57.0
Actuated g/C Ratio	0.22	0.22		0.15	0.15	0.20		0.41	0.41	0.41	0.05	0.38
Clearance Time (s)	6.5	6.5		6.5	6.5			6.5	6.5	6.5	6.5	6.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	694	727		475	525	315		172	1992	620	88	1637
v/s Ratio Prot	0.04	c0.22		c0.24	0.06	0.01		c0.11	0.24		0.02	c0.51
v/s Ratio Perm								c0.47		0.15		
v/c Ratio	0.17	0.99		1.63	0.39	0.05		1.45	0.58	0.36	0.38	1.33
Uniform Delay, d1	47.4	58.3		63.8	57.6	48.4		64.7	34.7	31.0	68.8	46.5
Progression Factor	1.00	1.00		1.00	1.00	1.00		0.66	0.48	0.51	1.00	1.00
Incremental Delay, d2	0.1	30.0		290.9	2.2	0.1		232.7	1.2	1.6	2.7	153.9
Delay (s)	47.6	88.3		354.6	59.8	48.4		275.3	17.9	17.4	71.5	200.4
Level of Service	D	F		F	E	D		F	B	B	E	F
Approach Delay (s)		82.4			273.5				51.3			198.5
Approach LOS		F			F				D			F

Intersection Summary			
HCM 2000 Control Delay	148.8	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.36		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	26.0
Intersection Capacity Utilization	113.0%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group



Movement	SBR
Lane Configurations	
Traffic Volume (vph)	105
Future Volume (vph)	105
Ideal Flow (vphpl)	1900
Lane Width	12
Grade (%)	
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	114
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	



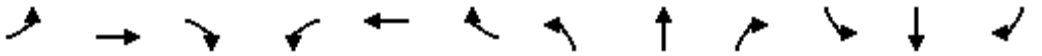
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	490	40	250	40	10	50	40	850	25	90	335	480
Future Volume (veh/h)	490	40	250	40	10	50	40	850	25	90	335	480
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1847	1847	1847	1864	1864	1864	1864	1864	1864	1776	1776	1776
Adj Flow Rate, veh/h	533	43	272	43	11	54	43	924	27	98	364	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	613	366	310	56	94	80	606	1854	54	333	1816	
Arrive On Green	0.18	0.20	0.20	0.03	0.05	0.05	0.03	0.53	0.53	0.04	0.54	0.00
Sat Flow, veh/h	3412	1847	1565	1776	1864	1580	1776	3515	103	1692	3375	1505
Grp Volume(v), veh/h	533	43	272	43	11	54	43	466	485	98	364	0
Grp Sat Flow(s),veh/h/ln	1706	1847	1565	1776	1864	1580	1776	1771	1846	1692	1687	1505
Q Serve(g_s), s	18.2	2.3	20.2	2.9	0.7	4.0	1.3	20.2	20.2	3.2	6.7	0.0
Cycle Q Clear(g_c), s	18.2	2.3	20.2	2.9	0.7	4.0	1.3	20.2	20.2	3.2	6.7	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.06	1.00		1.00
Lane Grp Cap(c), veh/h	613	366	310	56	94	80	606	934	974	333	1816	
V/C Ratio(X)	0.87	0.12	0.88	0.76	0.12	0.68	0.07	0.50	0.50	0.29	0.20	
Avail Cap(c_a), veh/h	802	414	351	144	131	111	631	934	974	440	1816	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.98	0.98	0.00
Uniform Delay (d), s/veh	47.9	39.5	46.7	57.6	54.4	56.0	12.1	18.2	18.2	13.8	14.3	0.0
Incr Delay (d2), s/veh	8.2	0.1	19.7	18.9	0.5	9.6	0.0	1.9	1.8	0.5	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.4	1.1	9.5	1.6	0.3	1.8	0.5	8.6	9.0	1.2	2.6	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	56.0	39.6	66.3	76.5	55.0	65.6	12.1	20.1	20.0	14.3	14.6	0.0
LnGrp LOS	E	D	E	E	D	E	B	C	B	B	B	
Approach Vol, veh/h		848			108			994			462	A
Approach Delay, s/veh		58.5			68.9			19.7			14.5	
Approach LOS		E			E			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.6	69.8	27.0	12.6	9.3	71.1	9.3	30.3
Change Period (Y+Rc), s	5.5	6.5	5.5	6.5	5.5	6.5	5.5	6.5
Max Green Setting (Gmax), s	12.7	46.7	28.2	8.4	5.5	53.9	9.7	26.9
Max Q Clear Time (g_c+I1), s	5.2	22.2	20.2	6.0	3.3	8.7	4.9	22.2
Green Ext Time (p_c), s	0.1	1.0	1.3	0.0	0.0	0.5	0.0	0.5

Intersection Summary	
HCM 6th Ctrl Delay	34.5
HCM 6th LOS	C

Notes

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	505	495	0	0	0	0	480	910	0	410	0
Future Volume (vph)	5	505	495	0	0	0	0	480	910	0	410	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	10	10	11	12	12	12
Grade (%)		5%			0%			4%			0%	
Total Lost time (s)		7.0	4.0					8.0	6.0		8.0	
Lane Util. Factor		0.95	1.00					0.95	0.88		0.91	
Frt		1.00	0.85					1.00	0.85		1.00	
Flt Protected		1.00	1.00					1.00	1.00		1.00	
Satd. Flow (prot)		3449	1544					3237	2640		5085	
Flt Permitted		1.00	1.00					1.00	1.00		1.00	
Satd. Flow (perm)		3449	1544					3237	2640		5085	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	549	538	0	0	0	0	522	989	0	446	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	554	538	0	0	0	0	522	989	0	446	0
Turn Type	Perm	NA	Free					NA	custom		NA	
Protected Phases		3						6	5 6		2 4	
Permitted Phases	3		Free									
Actuated Green, G (s)		33.5	160.0					31.0	93.1		111.5	
Effective Green, g (s)		33.5	160.0					31.0	93.1		104.5	
Actuated g/C Ratio		0.21	1.00					0.19	0.58		0.65	
Clearance Time (s)		7.0						8.0				
Vehicle Extension (s)		3.0						3.0				
Lane Grp Cap (vph)		722	1544					627	1536		3321	
v/s Ratio Prot								c0.16	c0.37		0.09	
v/s Ratio Perm		0.16	c0.35									
v/c Ratio		0.77	0.35					0.83	0.64		0.13	
Uniform Delay, d1		59.6	0.0					62.0	22.4		10.6	
Progression Factor		1.00	1.00					1.00	1.00		0.00	
Incremental Delay, d2		4.9	0.6					12.3	0.9		0.0	
Delay (s)		64.5	0.6					74.3	23.3		0.0	
Level of Service		E	A					E	C		A	
Approach Delay (s)		33.0			0.0			40.9			0.0	
Approach LOS		C			A			D			A	

Intersection Summary			
HCM 2000 Control Delay	32.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	28.0
Intersection Capacity Utilization	82.1%	ICU Level of Service	E
Analysis Period (min)	15		

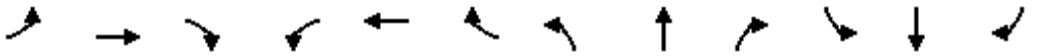
c Critical Lane Group



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	0	410	1080	485	0
Future Volume (vph)	0	0	410	1080	485	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	11	11	12	12
Grade (%)	0%			1%	0%	
Total Lost time (s)			7.0	7.0	7.0	
Lane Util. Factor			0.91	0.91	0.97	
Frt			1.00	1.00	1.00	
Flt Protected			0.95	1.00	0.95	
Satd. Flow (prot)			1549	3255	3433	
Flt Permitted			0.95	1.00	0.95	
Satd. Flow (perm)			1549	3255	3433	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	446	1174	527	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	401	1219	527	0
Turn Type			Split	NA	Prot	
Protected Phases			4 5	4 5	3 6	
Permitted Phases						
Actuated Green, G (s)			74.5	74.5	72.5	
Effective Green, g (s)			74.5	74.5	64.5	
Actuated g/C Ratio			0.47	0.47	0.40	
Clearance Time (s)						
Vehicle Extension (s)						
Lane Grp Cap (vph)			721	1515	1383	
v/s Ratio Prot			0.26	c0.37	c0.15	
v/s Ratio Perm						
v/c Ratio			0.56	0.80	0.38	
Uniform Delay, d1			30.8	36.5	33.7	
Progression Factor			1.01	1.00	0.00	
Incremental Delay, d2			0.9	3.2	0.1	
Delay (s)			32.0	39.6	0.1	
Level of Service			C	D	A	
Approach Delay (s)	0.0			37.7	0.1	
Approach LOS	A			D	A	

Intersection Summary			
HCM 2000 Control Delay	28.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	28.0
Intersection Capacity Utilization	90.4%	ICU Level of Service	E
Analysis Period (min)	15		

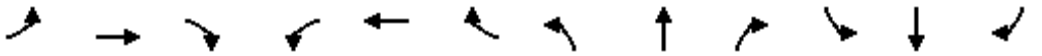
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	540	50	150	5	20	120	180	2220	10	100	1520	215
Future Volume (vph)	540	50	150	5	20	120	180	2220	10	100	1520	215
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	12	12	16	12	11	11	12	11	11	14
Grade (%)		1%			0%			2%			0%	
Total Lost time (s)	6.5	6.5	6.5		7.0		6.5	6.5		6.5	6.5	6.5
Lane Util. Factor	0.95	0.95	1.00		1.00		0.97	0.91		1.00	0.91	1.00
Frt	1.00	1.00	0.85		0.89		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	0.96	1.00		1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1561	1578	1575		1872		3285	4863		1711	4916	1689
Flt Permitted	0.95	0.96	1.00		1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1561	1578	1575		1872		3285	4863		1711	4916	1689
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	587	54	163	5	22	130	196	2413	11	109	1652	234
RTOR Reduction (vph)	0	0	79	0	101	0	0	1	0	0	0	101
Lane Group Flow (vph)	317	324	84	0	56	0	196	2423	0	109	1652	133
Turn Type	Split	NA	pm+ov	Split	NA		Prot	NA		Prot	NA	Perm
Protected Phases	4	4	6	3	3		6	2		1	5	
Permitted Phases			4									5
Actuated Green, G (s)	33.2	33.2	55.0		5.0		21.8	74.6		10.7	63.5	63.5
Effective Green, g (s)	33.2	33.2	55.0		5.0		21.8	74.6		10.7	63.5	63.5
Actuated g/C Ratio	0.22	0.22	0.37		0.03		0.15	0.50		0.07	0.42	0.42
Clearance Time (s)	6.5	6.5	6.5		7.0		6.5	6.5		6.5	6.5	6.5
Vehicle Extension (s)	3.0	3.0	3.0		3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	345	349	577		62		477	2418		122	2081	715
v/s Ratio Prot	0.20	c0.21	0.02		c0.03		0.06	c0.50		0.06	c0.34	
v/s Ratio Perm			0.03									0.08
v/c Ratio	0.92	0.93	0.15		0.91		0.41	1.00		0.89	0.79	0.19
Uniform Delay, d1	57.1	57.2	31.8		72.3		58.3	37.7		69.1	37.6	27.1
Progression Factor	1.00	1.00	1.00		1.00		1.00	1.00		0.70	1.07	1.69
Incremental Delay, d2	28.4	30.1	0.1		82.8		0.6	18.8		45.3	2.8	0.5
Delay (s)	85.5	87.4	31.9		155.1		58.8	56.5		94.0	43.0	46.3
Level of Service	F	F	C		F		E	E		F	D	D
Approach Delay (s)		75.4			155.1			56.7			46.2	
Approach LOS		E			F			E			D	

Intersection Summary			
HCM 2000 Control Delay	58.4	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	26.5
Intersection Capacity Utilization	95.7%	ICU Level of Service	F
Analysis Period (min)	15		

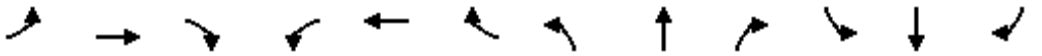
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	630	5	265	0	0	0	0	2660	220	125	1570	0
Future Volume (vph)	630	5	265	0	0	0	0	2660	220	125	1570	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	12	11	12	12	12	12	11	16	11	11	12
Grade (%)		3%			0%			1%			0%	
Total Lost time (s)	8.0	8.0	8.0					6.5		5.5	5.5	
Lane Util. Factor	0.95	0.95	*0.80					0.76		0.97	0.91	
Frt	1.00	1.00	0.85					0.99		1.00	1.00	
Flt Protected	0.95	0.95	1.00					1.00		0.95	1.00	
Satd. Flow (prot)	1601	1661	2412					8076		3319	4916	
Flt Permitted	0.95	0.95	1.00					1.00		0.95	1.00	
Satd. Flow (perm)	1601	1661	2412					8076		3319	4916	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	685	5	288	0	0	0	0	2891	239	136	1707	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	9	0	0	0	0
Lane Group Flow (vph)	342	348	288	0	0	0	0	3121	0	136	1707	0
Turn Type	Split	NA	Prot					NA		Prot	NA	
Protected Phases	4	4	4					6		5	2	
Permitted Phases												
Actuated Green, G (s)	40.9	40.9	40.9					69.6		19.5	95.6	
Effective Green, g (s)	40.9	40.9	40.9					69.6		19.5	95.6	
Actuated g/C Ratio	0.27	0.27	0.27					0.46		0.13	0.64	
Clearance Time (s)	8.0	8.0	8.0					6.5		5.5	5.5	
Vehicle Extension (s)	4.0	4.0	4.0					4.0		0.2	0.2	
Lane Grp Cap (vph)	436	452	657					3747		431	3133	
v/s Ratio Prot	c0.21	0.21	0.12					c0.39		0.04	c0.35	
v/s Ratio Perm												
v/c Ratio	0.78	0.77	0.44					0.83		0.32	0.54	
Uniform Delay, d1	50.5	50.2	45.1					35.1		59.2	15.1	
Progression Factor	1.00	1.00	1.00					0.67		0.35	0.47	
Incremental Delay, d2	9.5	8.2	0.6					0.6		1.7	0.6	
Delay (s)	59.9	58.4	45.7					24.2		22.6	7.8	
Level of Service	E	E	D					C		C	A	
Approach Delay (s)		55.2			0.0			24.2			8.9	
Approach LOS		E			A			C			A	

Intersection Summary			
HCM 2000 Control Delay	24.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	70.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	100	5	220	620	2670	0	0	1595	600
Future Volume (vph)	0	0	0	100	5	220	620	2670	0	0	1595	600
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	13	16	10	11	12	12	11	12
Grade (%)		0%			5%			0%			-1%	
Total Lost time (s)				8.0	8.0	4.0	6.5	6.0			6.0	4.0
Lane Util. Factor				0.95	0.95	1.00	0.97	0.86			0.81	1.00
Frt				1.00	1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	0.96	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				1639	1705	1750	3204	6194			7329	1591
Flt Permitted				0.95	0.96	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				1639	1705	1750	3204	6194			7329	1591
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	109	5	239	674	2902	0	0	1734	652
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	57	57	239	674	2902	0	0	1734	652
Turn Type				Split	NA	Free	Prot	NA			NA	Free
Protected Phases				4	4		1	6			2	
Permitted Phases						Free						Free
Actuated Green, G (s)				11.5	11.5	150.0	39.1	124.5			78.9	150.0
Effective Green, g (s)				11.5	11.5	150.0	39.1	124.5			78.9	150.0
Actuated g/C Ratio				0.08	0.08	1.00	0.26	0.83			0.53	1.00
Clearance Time (s)				8.0	8.0		6.5	6.0			6.0	
Vehicle Extension (s)				4.0	4.0		4.0	0.2			0.2	
Lane Grp Cap (vph)				125	130	1750	835	5141			3855	1591
v/s Ratio Prot				0.03	0.03		c0.21	c0.47			0.24	
v/s Ratio Perm						0.14						c0.41
v/c Ratio				0.46	0.44	0.14	0.81	0.56			0.45	0.41
Uniform Delay, d1				66.3	66.2	0.0	51.9	4.1			22.1	0.0
Progression Factor				1.00	1.00	1.00	1.38	0.95			0.76	1.00
Incremental Delay, d2				3.6	3.2	0.2	3.3	0.3			0.0	0.1
Delay (s)				69.8	69.4	0.2	75.2	4.1			16.7	0.1
Level of Service				E	E	A	E	A			B	A
Approach Delay (s)		0.0			22.6			17.5			12.2	
Approach LOS		A			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	15.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	20.5
Intersection Capacity Utilization	70.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	300	260	145	470	305	100	20	240	2005	625	65	1560
Future Volume (vph)	300	260	145	470	305	100	20	240	2005	625	65	1560
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	12	12	10	12	12	12	10	11	11	11	11
Grade (%)		3%			2%				0%			-1%
Total Lost time (s)	6.5	6.5		6.5	6.5	6.5		6.5	6.5	6.5	6.5	6.5
Lane Util. Factor	0.97	0.95		0.97	0.95	1.00		1.00	0.91	1.00	1.00	*0.80
Frt	1.00	0.95		1.00	1.00	0.85		1.00	1.00	0.85	1.00	0.98
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3156	3299		3172	3504	1567		1652	4916	1531	1719	4246
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.07	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3156	3299		3172	3504	1567		126	4916	1531	1719	4246
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	326	283	158	511	332	109	22	261	2179	679	71	1696
RTOR Reduction (vph)	0	0	0	0	0	89	0	0	0	217	0	12
Lane Group Flow (vph)	326	441	0	511	332	20	0	283	2179	462	71	1983
Turn Type	Split	NA		Split	NA	pt+ov	pm+pt	pm+pt	NA	Perm	Prot	NA
Protected Phases	4	4		3	3	3 5	1	1	6		5	2
Permitted Phases							6	6		6		
Actuated Green, G (s)	26.9	26.9		17.5	17.5	27.6		69.5	69.5	69.5	10.1	65.1
Effective Green, g (s)	26.9	26.9		17.5	17.5	27.6		69.5	69.5	69.5	10.1	65.1
Actuated g/C Ratio	0.18	0.18		0.12	0.12	0.18		0.46	0.46	0.46	0.07	0.43
Clearance Time (s)	6.5	6.5		6.5	6.5			6.5	6.5	6.5	6.5	6.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	565	591		370	408	288		205	2277	709	115	1842
v/s Ratio Prot	0.10	c0.13		c0.16	0.09	0.01		c0.13	0.44		0.04	c0.47
v/s Ratio Perm								c0.50		0.30		
v/c Ratio	0.58	0.75		1.38	0.81	0.07		1.38	0.96	0.65	0.62	1.08
Uniform Delay, d1	56.3	58.3		66.2	64.7	50.6		63.2	38.8	30.9	68.1	42.5
Progression Factor	1.00	1.00		1.00	1.00	1.00		0.58	0.34	0.20	1.00	1.00
Incremental Delay, d2	1.4	5.1		187.6	11.8	0.1		195.2	10.0	4.0	9.5	44.9
Delay (s)	57.8	63.4		253.9	76.4	50.7		231.5	23.0	10.3	77.5	87.3
Level of Service	E	E		F	E	D		F	C	B	E	F
Approach Delay (s)		61.0			168.7				39.0			87.0
Approach LOS		E			F				D			F

Intersection Summary			
HCM 2000 Control Delay	73.6	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.22		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	26.0
Intersection Capacity Utilization	97.6%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



Movement	SBR
Lane Configurations	
Traffic Volume (vph)	275
Future Volume (vph)	275
Ideal Flow (vphpl)	1900
Lane Width	12
Grade (%)	
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	299
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	



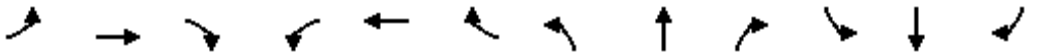
Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	20	1055	30	5	105	595	125	20	40	270	480	125
Future Volume (vph)	20	1055	30	5	105	595	125	20	40	270	480	125
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	12	12	12	12	12	11	11	11	16	9	10
Grade (%)		0%				-1%			2%			-3%
Total Lost time (s)	6.0	6.0			4.5	6.0	6.0	7.5	7.5	4.0	7.0	7.0
Lane Util. Factor	1.00	0.95			1.00	0.95	1.00	1.00	1.00	1.00	0.95	0.95
Frt	1.00	1.00			1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00			0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.97
Satd. Flow (prot)	1711	3524			1778	3557	1538	1694	1783	1776	1536	1622
Flt Permitted	0.41	1.00			0.11	1.00	1.00	0.95	1.00	1.00	0.95	0.97
Satd. Flow (perm)	731	3524			202	3557	1538	1694	1783	1776	1536	1622
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	22	1147	33	5	114	647	136	22	43	293	522	136
RTOR Reduction (vph)	0	1	0	0	0	0	59	0	0	0	0	1
Lane Group Flow (vph)	22	1179	0	0	119	647	77	22	43	293	329	339
Turn Type	Perm	NA		pm+pt	pm+pt	NA	Perm	Split	NA	Free	Split	NA
Protected Phases		6		5	5	2		3	3		4	4
Permitted Phases	6			2	2		2			Free		
Actuated Green, G (s)	69.8	69.8			84.4	84.4	84.4	6.0	6.0	150.0	39.1	39.1
Effective Green, g (s)	69.8	69.8			84.4	84.4	84.4	6.0	6.0	150.0	39.1	39.1
Actuated g/C Ratio	0.47	0.47			0.56	0.56	0.56	0.04	0.04	1.00	0.26	0.26
Clearance Time (s)	6.0	6.0			4.5	6.0	6.0	7.5	7.5		7.0	7.0
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	5.0	5.0		5.0	5.0
Lane Grp Cap (vph)	340	1639			219	2001	865	67	71	1776	400	422
v/s Ratio Prot		c0.33			c0.04	0.18		0.01	c0.02		c0.21	0.21
v/s Ratio Perm	0.03				0.27		0.05			0.16		
v/c Ratio	0.06	0.72			0.54	0.32	0.09	0.33	0.61	0.16	0.82	0.80
Uniform Delay, d1	22.1	32.2			22.9	17.5	15.1	70.0	70.8	0.0	52.2	51.9
Progression Factor	1.00	1.00			1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.4	2.8			2.7	0.4	0.2	5.9	19.6	0.2	14.2	12.0
Delay (s)	22.5	35.0			25.6	18.0	15.3	76.0	90.5	0.2	66.4	63.9
Level of Service	C	C			C	B	B	E	F	A	E	E
Approach Delay (s)		34.8				18.6			15.7			65.1
Approach LOS		C				B			B			E

Intersection Summary			
HCM 2000 Control Delay	34.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	25.0
Intersection Capacity Utilization	74.3%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

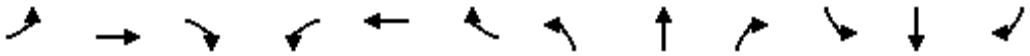


Movement	SBR
Lane Configurations	
Traffic Volume (vph)	10
Future Volume (vph)	10
Ideal Flow (vphpl)	1900
Lane Width	12
Grade (%)	
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	11
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	970	840	365	650	0	0	0	0	585	0	180
Future Volume (vph)	0	970	840	365	650	0	0	0	0	585	0	180
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	13	12	12	12	12	12
Total Lost time (s)		6.5	6.5	7.5	6.0					7.5		7.5
Lane Util. Factor		0.91	0.88	0.97	0.91					0.94		1.00
Frt		1.00	0.85	1.00	1.00					1.00		0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95		1.00
Satd. Flow (prot)		5085	2787	3433	5085					4990		1583
Flt Permitted		1.00	1.00	0.95	1.00					0.95		1.00
Satd. Flow (perm)		5085	2787	3433	5085					4990		1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1054	913	397	707	0	0	0	0	636	0	196
RTOR Reduction (vph)	0	0	501	0	0	0	0	0	0	0	0	164
Lane Group Flow (vph)	0	1054	412	397	707	0	0	0	0	636	0	32
Turn Type		NA	Prot	Prot	NA					Prot		Prot
Protected Phases		2	2	1	6					7		7
Permitted Phases												
Actuated Green, G (s)		40.6	40.6	13.4	62.0					14.5		14.5
Effective Green, g (s)		40.6	40.6	13.4	62.0					14.5		14.5
Actuated g/C Ratio		0.45	0.45	0.15	0.69					0.16		0.16
Clearance Time (s)		6.5	6.5	7.5	6.0					7.5		7.5
Vehicle Extension (s)		2.0	2.0	0.5	2.0					0.5		0.5
Lane Grp Cap (vph)		2293	1257	511	3503					803		255
v/s Ratio Prot		c0.21	0.15	c0.12	0.14					c0.13		0.02
v/s Ratio Perm												
v/c Ratio		0.46	0.33	0.78	0.20					0.79		0.12
Uniform Delay, d1		17.1	15.9	36.9	5.1					36.3		32.3
Progression Factor		1.00	1.00	0.67	0.62					1.00		1.00
Incremental Delay, d2		0.7	0.7	6.4	0.1					5.0		0.1
Delay (s)		17.8	16.6	31.1	3.3					41.3		32.4
Level of Service		B	B	C	A					D		C
Approach Delay (s)		17.2			13.3			0.0			39.2	
Approach LOS		B			B			A			D	

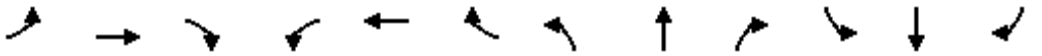
Intersection Summary			
HCM 2000 Control Delay	20.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	21.5
Intersection Capacity Utilization	55.3%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	125	1535	0	0	1060	0	240	0	695	0	0	0
Future Volume (vph)	125	1535	0	0	1060	0	240	0	695	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	7.0			6.0		6.5		6.0			
Lane Util. Factor	1.00	0.91			0.91		0.94		0.88			
Frt	1.00	1.00			1.00		1.00		0.85			
Flt Protected	0.95	1.00			1.00		0.95		1.00			
Satd. Flow (prot)	1770	5085			5085		4990		2787			
Flt Permitted	0.95	1.00			1.00		0.95		1.00			
Satd. Flow (perm)	1770	5085			5085		4990		2787			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	136	1668	0	0	1152	0	261	0	755	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	88	0	0	0
Lane Group Flow (vph)	136	1668	0	0	1152	0	261	0	667	0	0	0
Turn Type	Prot	NA			NA		Prot		Prot			
Protected Phases	5	2			6		3		8			
Permitted Phases												
Actuated Green, G (s)	9.7	52.6			37.9		23.9		24.4			
Effective Green, g (s)	9.7	52.6			37.9		23.9		24.4			
Actuated g/C Ratio	0.11	0.58			0.42		0.27		0.27			
Clearance Time (s)	6.0	7.0			6.0		6.5		6.0			
Vehicle Extension (s)	0.5	2.0			2.0		0.5		0.2			
Lane Grp Cap (vph)	190	2971			2141		1325		755			
v/s Ratio Prot	0.08	c0.33			0.23		0.05		c0.24			
v/s Ratio Perm												
v/c Ratio	0.72	0.56			0.54		0.20		0.88			
Uniform Delay, d1	38.8	11.6			19.5		25.6		31.4			
Progression Factor	1.59	0.09			0.91		1.00		1.00			
Incremental Delay, d2	8.1	0.6			0.7		0.0		11.6			
Delay (s)	70.0	1.7			18.3		25.6		43.0			
Level of Service	E	A			B		C		D			
Approach Delay (s)		6.8			18.3			38.6			0.0	
Approach LOS		A			B			D			A	

Intersection Summary			
HCM 2000 Control Delay	18.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.5
Intersection Capacity Utilization	64.8%	ICU Level of Service	C
Analysis Period (min)	15		

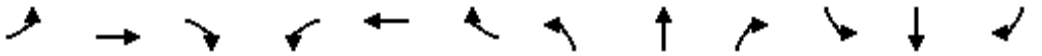
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	95	2110	25	5	1690	20	30	5	5	40	10	190
Future Volume (vph)	95	2110	25	5	1690	20	30	5	5	40	10	190
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	13	11	11	11	11	12	12	12	12	14	15
Grade (%)		2%			3%			-2%			-5%	
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0		6.5			6.5	6.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		1.00			1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85		0.98			1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.96			0.96	1.00
Satd. Flow (prot)	1694	3621	1515	1685	3370	1508		1783			1959	1785
Flt Permitted	0.07	1.00	1.00	0.04	1.00	1.00		0.74			0.77	1.00
Satd. Flow (perm)	129	3621	1515	71	3370	1508		1371			1568	1785
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	103	2293	27	5	1837	22	33	5	5	43	11	207
RTOR Reduction (vph)	0	0	6	0	0	6	0	3	0	0	0	81
Lane Group Flow (vph)	103	2293	21	5	1837	16	0	40	0	0	54	126
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA		Perm	NA	Perm
Protected Phases	1	6		5	2			4			8	
Permitted Phases	6		6	2		2	4			8		8
Actuated Green, G (s)	147.8	141.2	141.2	131.9	131.3	131.3		19.7			19.7	19.7
Effective Green, g (s)	147.8	141.2	141.2	131.9	131.3	131.3		19.7			19.7	19.7
Actuated g/C Ratio	0.82	0.78	0.78	0.73	0.73	0.73		0.11			0.11	0.11
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0		6.5			6.5	6.5
Vehicle Extension (s)	5.0	0.2	0.2	5.0	0.2	0.2		5.0			5.0	5.0
Lane Grp Cap (vph)	197	2840	1188	57	2458	1100		150			171	195
v/s Ratio Prot	c0.03	c0.63		0.00	0.55							
v/s Ratio Perm	0.40		0.01	0.06		0.01		0.03			0.03	c0.07
v/c Ratio	0.52	0.81	0.02	0.09	0.75	0.01		0.27			0.32	0.65
Uniform Delay, d1	19.8	11.4	4.2	17.9	14.5	6.7		73.5			73.9	76.8
Progression Factor	1.07	0.96	1.00	1.00	1.00	1.00		1.00			1.00	1.00
Incremental Delay, d2	3.7	2.1	0.0	1.4	2.1	0.0		2.0			2.2	9.7
Delay (s)	25.0	13.0	4.3	19.3	16.6	6.7		75.6			76.2	86.5
Level of Service	C	B	A	B	B	A		E			E	F
Approach Delay (s)		13.4			16.5			75.6			84.3	
Approach LOS		B			B			E			F	

Intersection Summary			
HCM 2000 Control Delay	19.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	18.5
Intersection Capacity Utilization	86.0%	ICU Level of Service	E
Analysis Period (min)	15		

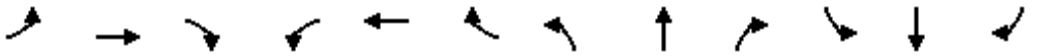
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	135	1410	10	345	875	80	20	0	110	140	0	120
Future Volume (vph)	135	1410	10	345	875	80	20	0	110	140	0	120
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	8.0	8.0	7.5	8.5	8.0	8.0		7.5	8.0		8.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97		1.00	0.97		1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00		0.85	1.00		0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	3433		1583	3433		1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	3433		1583	3433		1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	147	1533	11	375	951	87	22	0	120	152	0	130
RTOR Reduction (vph)	0	0	5	0	0	31	0	0	99	0	0	120
Lane Group Flow (vph)	147	1533	6	375	951	56	22	0	21	152	0	10
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot		Over	Prot		Over
Protected Phases	5	2	3	1	6	7	3		1	7		5
Permitted Phases			2			6						
Actuated Green, G (s)	7.2	43.3	50.6	15.9	51.0	58.3	7.3		15.9	7.3		7.2
Effective Green, g (s)	7.2	43.3	50.6	15.9	51.0	58.3	7.3		15.9	7.3		7.2
Actuated g/C Ratio	0.08	0.48	0.56	0.18	0.57	0.65	0.08		0.18	0.08		0.08
Clearance Time (s)	8.0	8.0	8.0	7.5	8.5	8.0	8.0		7.5	8.0		8.0
Vehicle Extension (s)	0.5	2.0	0.5	0.5	2.0	0.5	0.5		0.5	0.5		0.5
Lane Grp Cap (vph)	274	2446	1030	606	2881	1025	278		279	278		126
v/s Ratio Prot	0.04	c0.30	0.00	c0.11	0.19	0.00	0.01		0.01	c0.04		0.01
v/s Ratio Perm			0.00			0.03						
v/c Ratio	0.54	0.63	0.01	0.62	0.33	0.05	0.08		0.08	0.55		0.08
Uniform Delay, d1	39.8	17.3	8.7	34.2	10.4	5.8	38.2		30.9	39.8		38.3
Progression Factor	0.51	0.58	1.00	0.71	0.27	0.07	1.00		1.00	1.00		1.00
Incremental Delay, d2	0.9	1.1	0.0	1.1	0.3	0.0	0.0		0.0	1.2		0.1
Delay (s)	21.2	11.2	8.7	25.3	3.1	0.4	38.3		31.0	40.9		38.4
Level of Service	C	B	A	C	A	A	D		C	D		D
Approach Delay (s)		12.0			8.9			32.1			39.8	
Approach LOS		B			A			C			D	

Intersection Summary			
HCM 2000 Control Delay	13.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	24.5
Intersection Capacity Utilization	61.7%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



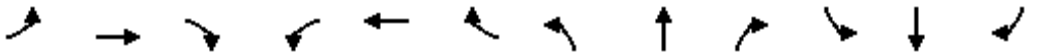
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	970	840	365	650	0	0	0	0	585	0	180
Future Volume (veh/h)	0	970	840	365	650	0	0	0	0	585	0	180
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0				1870	0	1870
Adj Flow Rate, veh/h	0	1054	913	397	707	0				636	0	196
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				0.92	0.92	0.92
Percent Heavy Veh, %	0	2	2	2	2	0				2	0	2
Cap, veh/h	0	2435	1330	468	3552	0				748	0	236
Arrive On Green	0.00	0.48	0.48	0.14	0.70	0.00				0.15	0.00	0.15
Sat Flow, veh/h	0	5274	2790	3456	5274	0				5023	0	1585
Grp Volume(v), veh/h	0	1054	913	397	707	0				636	0	196
Grp Sat Flow(s),veh/h/ln	0	1702	1395	1728	1702	0				1674	0	1585
Q Serve(g_s), s	0.0	12.2	22.9	10.1	4.4	0.0				11.1	0.0	10.8
Cycle Q Clear(g_c), s	0.0	12.2	22.9	10.1	4.4	0.0				11.1	0.0	10.8
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	2435	1330	468	3552	0				748	0	236
V/C Ratio(X)	0.00	0.43	0.69	0.85	0.20	0.00				0.85	0.00	0.83
Avail Cap(c_a), veh/h	0	2435	1330	710	3552	0				1144	0	361
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.73	0.73	0.95	0.95	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	15.5	18.3	38.0	4.8	0.0				37.3	0.0	37.2
Incr Delay (d2), s/veh	0.0	0.4	2.1	3.6	0.1	0.0				2.4	0.0	5.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	4.5	7.2	4.4	1.3	0.0				4.6	0.0	4.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	15.9	20.4	41.6	5.0	0.0				39.8	0.0	42.8
LnGrp LOS	A	B	C	D	A	A				D	A	D
Approach Vol, veh/h		1967			1104						832	
Approach Delay, s/veh		18.0			18.1						40.5	
Approach LOS		B			B						D	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	19.7	49.4		20.9		69.1
Change Period (Y+Rc), s	7.5	6.5		7.5		* 6.5
Max Green Setting (Gmax), s	18.5	29.5		20.5		* 56
Max Q Clear Time (g_c+I1), s	12.1	24.9		13.1		6.4
Green Ext Time (p_c), s	0.1	3.1		0.3		3.5

Intersection Summary		
HCM 6th Ctrl Delay		22.8
HCM 6th LOS		C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

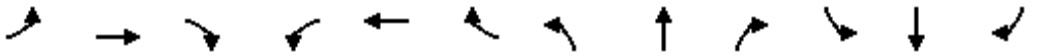


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	125	1535	0	0	1060	0	240	0	695	0	0	0
Future Volume (veh/h)	125	1535	0	0	1060	0	240	0	695	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	0	1870	0	1870			
Adj Flow Rate, veh/h	136	1668	0	0	1152	0	261	0	755			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	0	0	2	0	2	0	2			
Cap, veh/h	167	2859	0	0	2039	0	1457	0	809			
Arrive On Green	0.09	0.56	0.00	0.00	0.40	0.00	0.29	0.00	0.29			
Sat Flow, veh/h	1781	5274	0	0	5443	0	5023	0	2790			
Grp Volume(v), veh/h	136	1668	0	0	1152	0	261	0	755			
Grp Sat Flow(s),veh/h/ln	1781	1702	0	0	1702	0	1674	0	1395			
Q Serve(g_s), s	6.7	19.2	0.0	0.0	15.8	0.0	3.5	0.0	23.7			
Cycle Q Clear(g_c), s	6.7	19.2	0.0	0.0	15.8	0.0	3.5	0.0	23.7			
Prop In Lane	1.00		0.00	0.00		0.00	1.00		1.00			
Lane Grp Cap(c), veh/h	167	2859	0	0	2039	0	1457	0	809			
V/C Ratio(X)	0.81	0.58	0.00	0.00	0.57	0.00	0.18	0.00	0.93			
Avail Cap(c_a), veh/h	257	2859	0	0	2039	0	1702	0	945			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.77	0.77	0.00	0.00	1.00	0.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	40.0	12.9	0.0	0.0	21.0	0.0	23.9	0.0	31.1			
Incr Delay (d2), s/veh	4.5	0.7	0.0	0.0	1.1	0.0	0.0	0.0	13.5			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	3.1	6.7	0.0	0.0	6.1	0.0	1.4	0.0	9.2			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.5	13.6	0.0	0.0	22.1	0.0	23.9	0.0	44.6			
LnGrp LOS	D	B	A	A	C	A	C	A	D			
Approach Vol, veh/h		1804			1152			1016				
Approach Delay, s/veh		15.9			22.1			39.3				
Approach LOS		B			C			D				
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		57.4			14.5	42.9		32.6				
Change Period (Y+Rc), s		7.0			6.0	* 7		6.5				
Max Green Setting (Gmax), s		46.0			13.0	* 28		30.5				
Max Q Clear Time (g_c+I1), s		21.2			8.7	17.8		25.7				
Green Ext Time (p_c), s		9.6			0.0	4.1		0.4				

Intersection Summary	
HCM 6th Ctrl Delay	23.7
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	95	2110	25	5	1690	20	30	5	5	40	10	190
Future Volume (veh/h)	95	2110	25	5	1690	20	30	5	5	40	10	190
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1847	1921	1847	1817	1817	1817	1949	1949	1949	2067	2149	2149
Adj Flow Rate, veh/h	103	2293	27	5	1837	22	33	5	5	43	11	207
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	196	2791	1197	102	2561	1142	141	21	17	209	50	234
Arrive On Green	0.03	0.76	0.76	0.00	0.74	0.74	0.14	0.13	0.13	0.14	0.13	0.13
Sat Flow, veh/h	1759	3649	1565	1731	3453	1540	819	164	129	1347	387	1821
Grp Volume(v), veh/h	103	2293	27	5	1837	22	43	0	0	54	0	207
Grp Sat Flow(s),veh/h/ln	1759	1825	1565	1731	1726	1540	1113	0	0	1735	0	1821
Q Serve(g_s), s	2.6	71.6	0.7	0.1	52.8	0.7	4.5	0.0	0.0	0.0	0.0	20.1
Cycle Q Clear(g_c), s	2.6	71.6	0.7	0.1	52.8	0.7	9.2	0.0	0.0	4.7	0.0	20.1
Prop In Lane	1.00		1.00	1.00		1.00	0.77		0.12	0.80		1.00
Lane Grp Cap(c), veh/h	196	2791	1197	102	2561	1142	194	0	0	283	0	234
V/C Ratio(X)	0.52	0.82	0.02	0.05	0.72	0.02	0.22	0.00	0.00	0.19	0.00	0.88
Avail Cap(c_a), veh/h	267	2791	1197	125	2561	1142	236	0	0	338	0	293
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	18.6	13.4	5.1	18.9	12.8	6.1	72.6	0.0	0.0	69.5	0.0	77.1
Incr Delay (d2), s/veh	4.6	2.9	0.0	0.4	1.8	0.0	1.2	0.0	0.0	0.7	0.0	26.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	27.8	0.2	0.1	19.9	0.2	1.9	0.0	0.0	2.3	0.0	11.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.2	16.3	5.1	19.3	14.6	6.1	73.8	0.0	0.0	70.1	0.0	103.5
LnGrp LOS	C	B	A	B	B	A	E	A	A	E	A	F
Approach Vol, veh/h		2423			1864			43			261	
Approach Delay, s/veh		16.4			14.5			73.8			96.6	
Approach LOS		B			B			E			F	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.8	139.5		29.7	6.7	143.7		29.7				
Change Period (Y+Rc), s	6.0	6.0		6.5	6.0	6.0		6.5				
Max Green Setting (Gmax), s	12.0	120.5		29.0	3.0	129.5		29.0				
Max Q Clear Time (g_c+I1), s	4.6	54.8		11.2	2.1	73.6		22.1				
Green Ext Time (p_c), s	0.3	3.3		0.3	0.0	5.0		1.1				

Intersection Summary			
HCM 6th Ctrl Delay		20.7	
HCM 6th LOS		C	



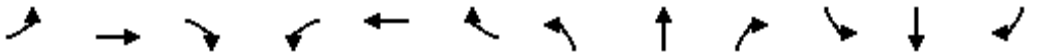
Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	25	695	25	15	260	1280	760	25	195	400	500	185
Future Volume (vph)	25	695	25	15	260	1280	760	25	195	400	500	185
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	12	12	12	12	12	11	11	11	16	9	10
Grade (%)		0%				-1%			2%			-3%
Total Lost time (s)	6.0	6.0			4.5	6.0	6.0	7.5	7.5	4.0	7.0	7.0
Lane Util. Factor	1.00	0.95			1.00	0.95	1.00	1.00	1.00	1.00	0.95	0.95
Frt	1.00	0.99			1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99
Flt Protected	0.95	1.00			0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.98
Satd. Flow (prot)	1711	3521			1778	3557	1538	1694	1783	1776	1536	1620
Flt Permitted	0.10	1.00			0.11	1.00	1.00	0.95	1.00	1.00	0.95	0.98
Satd. Flow (perm)	178	3521			208	3557	1538	1694	1783	1776	1536	1620
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	27	755	27	16	283	1391	826	27	212	435	543	201
RTOR Reduction (vph)	0	1	0	0	0	0	295	0	0	0	0	2
Lane Group Flow (vph)	27	781	0	0	299	1391	531	27	212	435	342	433
Turn Type	Perm	NA		pm+pt	pm+pt	NA	Perm	Split	NA	Free	Split	NA
Protected Phases		6		5	5	2		3	3		4	4
Permitted Phases	6			2	2		2			Free		
Actuated Green, G (s)	40.5	40.5			66.8	66.8	66.8	20.2	20.2	150.0	42.5	42.5
Effective Green, g (s)	40.5	40.5			66.8	66.8	66.8	20.2	20.2	150.0	42.5	42.5
Actuated g/C Ratio	0.27	0.27			0.45	0.45	0.45	0.13	0.13	1.00	0.28	0.28
Clearance Time (s)	6.0	6.0			4.5	6.0	6.0	7.5	7.5		7.0	7.0
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	5.0	5.0		5.0	5.0
Lane Grp Cap (vph)	48	950			320	1584	684	228	240	1776	435	459
v/s Ratio Prot		0.22			0.14	c0.39		0.02	c0.12		0.22	c0.27
v/s Ratio Perm	0.15				c0.28		0.35			0.24		
v/c Ratio	0.56	0.82			0.93	0.88	0.78	0.12	0.88	0.24	0.79	0.94
Uniform Delay, d1	47.1	51.4			42.3	37.9	35.3	57.1	63.7	0.0	49.6	52.6
Progression Factor	1.00	1.00			1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	40.1	7.9			33.4	7.2	8.4	0.5	31.2	0.3	10.4	28.8
Delay (s)	87.2	59.3			75.7	45.1	43.7	57.6	94.9	0.3	60.0	81.3
Level of Service	F	E			E	D	D	E	F	A	E	F
Approach Delay (s)		60.2				48.3			32.4			71.9
Approach LOS		E				D			C			E

Intersection Summary			
HCM 2000 Control Delay	51.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	25.0
Intersection Capacity Utilization	93.2%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

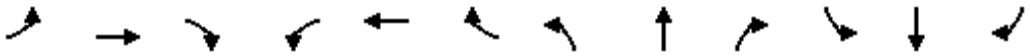


Movement	SBR
Lane Configurations	
Traffic Volume (vph)	30
Future Volume (vph)	30
Ideal Flow (vphpl)	1900
Lane Width	12
Grade (%)	
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	33
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1305	305	445	2080	0	0	0	0	510	0	235
Future Volume (vph)	0	1305	305	445	2080	0	0	0	0	510	0	235
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	13	12	12	12	12	12
Total Lost time (s)		6.5	6.5	7.5	6.0					7.5		7.5
Lane Util. Factor		0.91	0.88	0.97	0.91					0.94		1.00
Frt		1.00	0.85	1.00	1.00					1.00		0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95		1.00
Satd. Flow (prot)		5085	2787	3433	5085					4990		1583
Flt Permitted		1.00	1.00	0.95	1.00					0.95		1.00
Satd. Flow (perm)		5085	2787	3433	5085					4990		1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1418	332	484	2261	0	0	0	0	554	0	255
RTOR Reduction (vph)	0	0	184	0	0	0	0	0	0	0	0	113
Lane Group Flow (vph)	0	1418	148	484	2261	0	0	0	0	554	0	142
Turn Type		NA	Prot	Prot	NA					Prot		Prot
Protected Phases		2	2	1	6					7		7
Permitted Phases												
Actuated Green, G (s)		40.0	40.0	15.1	63.1					13.4		13.4
Effective Green, g (s)		40.0	40.0	15.1	63.1					13.4		13.4
Actuated g/C Ratio		0.44	0.44	0.17	0.70					0.15		0.15
Clearance Time (s)		6.5	6.5	7.5	6.0					7.5		7.5
Vehicle Extension (s)		2.0	2.0	0.5	2.0					0.5		0.5
Lane Grp Cap (vph)		2260	1238	575	3565					742		235
v/s Ratio Prot		0.28	0.05	0.14	c0.44					c0.11		0.09
v/s Ratio Perm												
v/c Ratio		0.63	0.12	0.84	0.63					0.75		0.60
Uniform Delay, d1		19.3	14.7	36.3	7.2					36.7		35.8
Progression Factor		1.00	1.00	0.82	0.59					1.00		1.00
Incremental Delay, d2		1.3	0.2	4.1	0.4					3.6		3.0
Delay (s)		20.6	14.9	34.0	4.7					40.3		38.8
Level of Service		C	B	C	A					D		D
Approach Delay (s)		19.5			9.9			0.0			39.8	
Approach LOS		B			A			A			D	

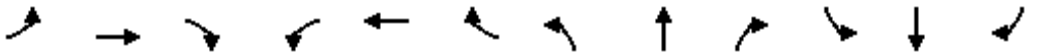
Intersection Summary			
HCM 2000 Control Delay	17.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	21.5
Intersection Capacity Utilization	66.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	145	1610	0	0	1605	0	705	0	225	0	0	0
Future Volume (vph)	145	1610	0	0	1605	0	705	0	225	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	7.0			6.0		6.5		6.0			
Lane Util. Factor	1.00	0.91			0.91		0.94		0.88			
Frt	1.00	1.00			1.00		1.00		0.85			
Flt Protected	0.95	1.00			1.00		0.95		1.00			
Satd. Flow (prot)	1770	5085			5085		4990		2787			
Flt Permitted	0.95	1.00			1.00		0.95		1.00			
Satd. Flow (perm)	1770	5085			5085		4990		2787			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	158	1750	0	0	1745	0	766	0	245	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	98	0	0	0
Lane Group Flow (vph)	158	1750	0	0	1745	0	766	0	147	0	0	0
Turn Type	Prot	NA			NA		Prot		Prot			
Protected Phases	5	2			6		3		8			
Permitted Phases												
Actuated Green, G (s)	10.4	60.2			44.8		16.3		16.8			
Effective Green, g (s)	10.4	60.2			44.8		16.3		16.8			
Actuated g/C Ratio	0.12	0.67			0.50		0.18		0.19			
Clearance Time (s)	6.0	7.0			6.0		6.5		6.0			
Vehicle Extension (s)	0.5	2.0			2.0		0.5		0.2			
Lane Grp Cap (vph)	204	3401			2531		903		520			
v/s Ratio Prot	c0.09	0.34			c0.34		c0.15		0.05			
v/s Ratio Perm												
v/c Ratio	0.77	0.51			0.69		0.85		0.28			
Uniform Delay, d1	38.7	7.5			17.3		35.7		31.4			
Progression Factor	1.03	0.99			0.97		1.00		1.00			
Incremental Delay, d2	12.5	0.5			0.1		7.2		0.1			
Delay (s)	52.2	7.9			17.0		42.8		31.5			
Level of Service	D	A			B		D		C			
Approach Delay (s)		11.6			17.0			40.1			0.0	
Approach LOS		B			B			D			A	

Intersection Summary			
HCM 2000 Control Delay	19.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.5
Intersection Capacity Utilization	65.8%	ICU Level of Service	C
Analysis Period (min)	15		

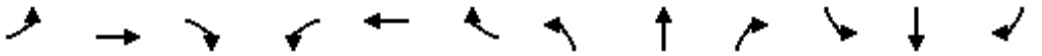
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	235	1545	55	5	2300	50	25	5	5	40	10	130
Future Volume (vph)	235	1545	55	5	2300	50	25	5	5	40	10	130
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	13	11	11	11	11	12	12	12	12	14	15
Grade (%)		2%			3%			-2%			-5%	
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0		6.5			6.5	6.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		1.00			1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85		0.98			1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.96			0.96	1.00
Satd. Flow (prot)	1694	3621	1515	1685	3370	1508		1782			1959	1785
Flt Permitted	0.03	1.00	1.00	0.14	1.00	1.00		0.75			0.78	1.00
Satd. Flow (perm)	59	3621	1515	256	3370	1508		1385			1598	1785
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	255	1679	60	5	2500	54	27	5	5	43	11	141
RTOR Reduction (vph)	0	0	11	0	0	19	0	4	0	0	0	90
Lane Group Flow (vph)	255	1679	49	5	2500	35	0	33	0	0	54	51
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA		Perm	NA	Perm
Protected Phases	1	6		5	2			4			8	
Permitted Phases	6		6	2		2	4			8		8
Actuated Green, G (s)	151.7	145.1	145.1	116.1	115.5	115.5		15.8			15.8	15.8
Effective Green, g (s)	151.7	145.1	145.1	116.1	115.5	115.5		15.8			15.8	15.8
Actuated g/C Ratio	0.84	0.81	0.81	0.64	0.64	0.64		0.09			0.09	0.09
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0		6.5			6.5	6.5
Vehicle Extension (s)	5.0	0.2	0.2	5.0	0.2	0.2		5.0			5.0	5.0
Lane Grp Cap (vph)	324	2918	1221	169	2162	967		121			140	156
v/s Ratio Prot	c0.13	0.46		0.00	c0.74							
v/s Ratio Perm	0.53		0.03	0.02		0.02		0.02			c0.03	0.03
v/c Ratio	0.79	0.58	0.04	0.03	1.16	0.04		0.28			0.39	0.32
Uniform Delay, d1	64.9	6.3	3.5	11.6	32.2	11.8		76.8			77.5	77.1
Progression Factor	0.90	1.16	1.58	1.00	1.00	1.00		1.00			1.00	1.00
Incremental Delay, d2	12.2	0.7	0.1	0.1	76.0	0.1		2.6			3.7	2.5
Delay (s)	70.4	8.1	5.6	11.7	108.3	11.9		79.3			81.2	79.6
Level of Service	E	A	A	B	F	B		E			F	E
Approach Delay (s)		16.0			106.1			79.3			80.1	
Approach LOS		B			F			E			F	

Intersection Summary			
HCM 2000 Control Delay	67.3	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.01		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	18.5
Intersection Capacity Utilization	100.6%	ICU Level of Service	G
Analysis Period (min)	15		

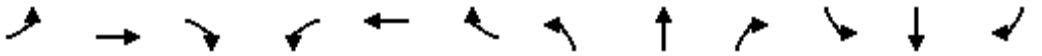
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	305	1335	175	225	2065	20	365	0	145	275	0	95
Future Volume (vph)	305	1335	175	225	2065	20	365	0	145	275	0	95
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	8.0	8.0	7.5	8.5	8.0	8.0		7.5	8.0		8.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97		1.00	0.97		1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00		0.85	1.00		0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	3433		1583	3433		1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	3433		1583	3433		1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	332	1451	190	245	2245	22	397	0	158	299	0	103
RTOR Reduction (vph)	0	0	33	0	0	8	0	0	138	0	0	91
Lane Group Flow (vph)	332	1451	157	245	2245	14	397	0	20	299	0	12
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot		Over	Prot		Over
Protected Phases	5	2	3	1	6	7	3		1	7		5
Permitted Phases			2			6						
Actuated Green, G (s)	10.1	42.2	54.9	11.6	42.7	55.4	12.7		11.6	12.7		10.1
Effective Green, g (s)	10.1	42.2	54.9	11.6	42.7	55.4	12.7		11.6	12.7		10.1
Actuated g/C Ratio	0.11	0.47	0.61	0.13	0.47	0.62	0.14		0.13	0.14		0.11
Clearance Time (s)	8.0	8.0	8.0	7.5	8.5	8.0	8.0		7.5	8.0		8.0
Vehicle Extension (s)	0.5	2.0	0.5	0.5	2.0	0.5	0.5		0.5	0.5		0.5
Lane Grp Cap (vph)	385	2384	1106	442	2412	974	484		204	484		177
v/s Ratio Prot	0.10	c0.29	0.02	0.07	c0.44	0.00	c0.12		0.01	0.09		0.01
v/s Ratio Perm			0.08			0.01						
v/c Ratio	0.86	0.61	0.14	0.55	0.93	0.01	0.82		0.10	0.62		0.07
Uniform Delay, d1	39.3	17.8	7.5	36.8	22.3	6.7	37.5		34.6	36.4		35.7
Progression Factor	0.53	0.48	0.07	1.09	0.63	1.00	1.00		1.00	1.00		1.00
Incremental Delay, d2	13.9	0.9	0.0	0.6	5.8	0.0	10.2		0.1	1.7		0.1
Delay (s)	34.9	9.4	0.5	40.7	19.9	6.7	47.7		34.7	38.0		35.8
Level of Service	C	A	A	D	B	A	D		C	D		D
Approach Delay (s)		12.8			21.8			44.0			37.4	
Approach LOS		B			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	22.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	24.5
Intersection Capacity Utilization	79.4%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



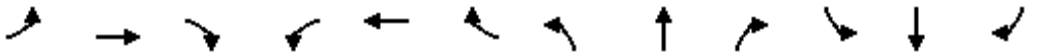
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1305	305	445	2080	0	0	0	0	510	0	235
Future Volume (veh/h)	0	1305	305	445	2080	0	0	0	0	510	0	235
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0				1870	0	1870
Adj Flow Rate, veh/h	0	1418	332	484	2261	0				554	0	255
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				0.92	0.92	0.92
Percent Heavy Veh, %	0	2	2	2	2	0				2	0	2
Cap, veh/h	0	2140	1169	557	3387	0				909	0	287
Arrive On Green	0.00	0.42	0.42	0.11	0.44	0.00				0.18	0.00	0.18
Sat Flow, veh/h	0	5274	2790	3456	5274	0				5023	0	1585
Grp Volume(v), veh/h	0	1418	332	484	2261	0				554	0	255
Grp Sat Flow(s),veh/h/ln	0	1702	1395	1728	1702	0				1674	0	1585
Q Serve(g_s), s	0.0	20.1	7.1	12.4	31.5	0.0				9.1	0.0	14.1
Cycle Q Clear(g_c), s	0.0	20.1	7.1	12.4	31.5	0.0				9.1	0.0	14.1
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	2140	1169	557	3387	0				909	0	287
V/C Ratio(X)	0.00	0.66	0.28	0.87	0.67	0.00				0.61	0.00	0.89
Avail Cap(c_a), veh/h	0	2140	1169	672	3387	0				1033	0	326
HCM Platoon Ratio	1.00	1.00	1.00	0.67	0.67	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.71	0.71	0.34	0.34	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	21.0	17.2	39.2	17.2	0.0				33.9	0.0	36.0
Incr Delay (d2), s/veh	0.0	1.2	0.4	3.4	0.4	0.0				0.5	0.0	21.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	7.7	2.2	5.7	12.8	0.0				3.7	0.0	7.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	22.2	17.7	42.6	17.5	0.0				34.4	0.0	57.1
LnGrp LOS	A	C	B	D	B	A				C	A	E
Approach Vol, veh/h		1750			2745						809	
Approach Delay, s/veh		21.3			21.9						41.5	
Approach LOS		C			C						D	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	22.0	44.2		23.8		66.2
Change Period (Y+Rc), s	7.5	6.5		7.5		* 6.5
Max Green Setting (Gmax), s	17.5	32.5		18.5		* 58
Max Q Clear Time (g_c+I1), s	14.4	22.1		16.1		33.5
Green Ext Time (p_c), s	0.1	5.7		0.2		14.5

Intersection Summary	
HCM 6th Ctrl Delay	24.7
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

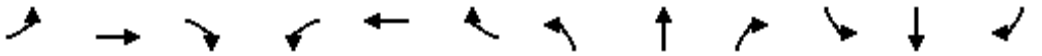


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	145	1610	0	0	1605	0	705	0	225	0	0	0
Future Volume (veh/h)	145	1610	0	0	1605	0	705	0	225	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	0	1870	0	1870			
Adj Flow Rate, veh/h	158	1750	0	0	1745	0	766	0	245			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	0	0	2	0	2	0	2			
Cap, veh/h	193	3451	0	0	2558	0	874	0	486			
Arrive On Green	0.04	0.22	0.00	0.00	0.50	0.00	0.17	0.00	0.17			
Sat Flow, veh/h	1781	5274	0	0	5443	0	5023	0	2790			
Grp Volume(v), veh/h	158	1750	0	0	1745	0	766	0	245			
Grp Sat Flow(s),veh/h/ln	1781	1702	0	0	1702	0	1674	0	1395			
Q Serve(g_s), s	7.9	27.0	0.0	0.0	23.3	0.0	13.4	0.0	7.2			
Cycle Q Clear(g_c), s	7.9	27.0	0.0	0.0	23.3	0.0	13.4	0.0	7.2			
Prop In Lane	1.00		0.00	0.00		0.00	1.00		1.00			
Lane Grp Cap(c), veh/h	193	3451	0	0	2558	0	874	0	486			
V/C Ratio(X)	0.82	0.51	0.00	0.00	0.68	0.00	0.88	0.00	0.50			
Avail Cap(c_a), veh/h	257	3451	0	0	2558	0	1033	0	573			
HCM Platoon Ratio	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.78	0.78	0.00	0.00	1.00	0.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	42.5	21.8	0.0	0.0	17.0	0.0	36.2	0.0	33.7			
Incr Delay (d2), s/veh	8.6	0.4	0.0	0.0	1.5	0.0	6.8	0.0	0.3			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	4.1	12.2	0.0	0.0	8.6	0.0	5.9	0.0	2.4			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	51.1	22.2	0.0	0.0	18.5	0.0	43.0	0.0	34.0			
LnGrp LOS	D	C	A	A	B	A	D	A	C			
Approach Vol, veh/h		1908			1745			1011				
Approach Delay, s/veh		24.6			18.5			40.8				
Approach LOS		C			B			D				
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		67.8			15.8	52.1		22.2				
Change Period (Y+Rc), s		7.0			6.0	* 7		6.5				
Max Green Setting (Gmax), s		58.0			13.0	* 40		18.5				
Max Q Clear Time (g_c+I1), s		29.0			9.9	25.3		15.4				
Green Ext Time (p_c), s		10.9			0.0	7.8		0.3				

Intersection Summary	
HCM 6th Ctrl Delay	25.9
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	235	1545	55	5	2300	50	25	5	5	40	10	130
Future Volume (veh/h)	235	1545	55	5	2300	50	25	5	5	40	10	130
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1847	1921	1847	1817	1817	1817	1949	1949	1949	2067	2149	2149
Adj Flow Rate, veh/h	255	1679	60	5	2500	54	27	5	5	43	11	141
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	206	2919	1252	216	2448	1092	105	19	14	161	37	171
Arrive On Green	0.09	0.80	0.80	0.00	0.71	0.71	0.11	0.09	0.09	0.11	0.09	0.09
Sat Flow, veh/h	1759	3649	1565	1731	3453	1540	752	202	149	1331	397	1821
Grp Volume(v), veh/h	255	1679	60	5	2500	54	37	0	0	54	0	141
Grp Sat Flow(s),veh/h/ln	1759	1825	1565	1731	1726	1540	1103	0	0	1728	0	1821
Q Serve(g_s), s	17.0	30.7	1.4	0.1	127.6	1.9	3.5	0.0	0.0	0.0	0.0	13.7
Cycle Q Clear(g_c), s	17.0	30.7	1.4	0.1	127.6	1.9	8.5	0.0	0.0	5.0	0.0	13.7
Prop In Lane	1.00		1.00	1.00		1.00	0.73		0.14	0.80		1.00
Lane Grp Cap(c), veh/h	206	2919	1252	216	2448	1092	153	0	0	222	0	171
V/C Ratio(X)	1.24	0.58	0.05	0.02	1.02	0.05	0.24	0.00	0.00	0.24	0.00	0.83
Avail Cap(c_a), veh/h	206	2919	1252	239	2448	1092	247	0	0	337	0	293
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	73.4	6.7	3.7	8.0	26.2	7.9	77.9	0.0	0.0	75.2	0.0	80.1
Incr Delay (d2), s/veh	141.2	0.8	0.1	0.1	23.7	0.1	1.7	0.0	0.0	1.2	0.0	18.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	17.7	11.1	0.5	0.1	56.2	0.7	1.7	0.0	0.0	2.4	0.0	7.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	214.5	7.5	3.8	8.1	49.9	8.0	79.7	0.0	0.0	76.4	0.0	98.9
LnGrp LOS	F	A	A	A	F	A	E	A	A	E	A	F
Approach Vol, veh/h		1994			2559			37			195	
Approach Delay, s/veh		33.9			48.9			79.7			92.6	
Approach LOS		C			D			E			F	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	23.0	133.6		23.4	6.7	150.0		23.4				
Change Period (Y+Rc), s	6.0	6.0		6.5	6.0	6.0		6.5				
Max Green Setting (Gmax), s	17.0	115.5		29.0	3.0	129.5		29.0				
Max Q Clear Time (g_c+I1), s	19.0	129.6		10.5	2.1	32.7		15.7				
Green Ext Time (p_c), s	0.0	0.0		0.2	0.0	2.8		1.2				

Intersection Summary			
HCM 6th Ctrl Delay		44.7	
HCM 6th LOS		D	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	60	5	205	5	5	5	5	120	1290	5	5	2215
Future Volume (vph)	60	5	205	5	5	5	5	120	1290	5	5	2215
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.5	5.5		7.0			5.5	6.0	6.0	6.0	6.0
Lane Util. Factor		1.00	1.00		1.00			1.00	0.91	1.00	1.00	0.91
Frt		1.00	0.85		0.95			1.00	1.00	0.85	1.00	1.00
Flt Protected		0.96	1.00		0.98			0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)		1780	1583		1750			1770	5085	1583	1770	5067
Flt Permitted		0.73	1.00		0.89			0.04	1.00	1.00	0.18	1.00
Satd. Flow (perm)		1361	1583		1585			68	5085	1583	335	5067
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	65	5	223	5	5	5	5	130	1402	5	5	2408
RTOR Reduction (vph)	0	0	18	0	5	0	0	0	0	1	0	1
Lane Group Flow (vph)	0	70	205	0	10	0	0	135	1402	4	5	2467
Turn Type	Perm	NA	pm+ov	Perm	NA		custom	pm+pt	NA	Perm	Perm	NA
Protected Phases		4	1!		8			1	6			2
Permitted Phases	4		4	8			1!	6		6	2	
Actuated Green, G (s)		13.1	26.8		13.6			123.4	123.4	123.4	104.2	104.2
Effective Green, g (s)		13.1	26.8		13.6			123.4	123.4	123.4	104.2	104.2
Actuated g/C Ratio		0.09	0.18		0.09			0.82	0.82	0.82	0.69	0.69
Clearance Time (s)		7.5	5.5		7.0			5.5	6.0	6.0	6.0	6.0
Vehicle Extension (s)		5.0	3.0		5.0			3.0	0.2	0.2	0.2	0.2
Lane Grp Cap (vph)		118	282		143			211	4183	1302	232	3519
v/s Ratio Prot			c0.07					0.06	0.28			c0.49
v/s Ratio Perm		0.05	0.06		0.01			0.47		0.00	0.01	
v/c Ratio		0.59	0.73		0.07			0.64	0.34	0.00	0.02	0.70
Uniform Delay, d1		65.9	58.1		62.4			42.2	3.3	2.4	7.1	13.6
Progression Factor		1.00	1.00		1.00			0.71	0.85	1.00	1.00	1.00
Incremental Delay, d2		11.5	9.0		0.5			5.7	0.2	0.0	0.2	1.2
Delay (s)		77.4	67.1		62.9			35.5	3.0	2.4	7.3	14.8
Level of Service		E	E		E			D	A	A	A	B
Approach Delay (s)		69.6			62.9				5.8			14.8
Approach LOS		E			E				A			B

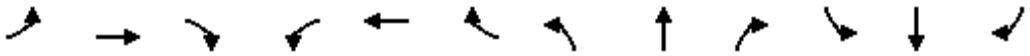
Intersection Summary			
HCM 2000 Control Delay	15.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	87.8%	ICU Level of Service	E
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group



Movement	SBR
Lane Configurations	
Traffic Volume (vph)	55
Future Volume (vph)	55
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	60
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

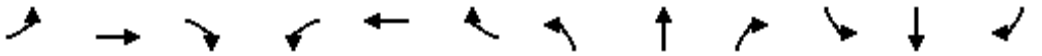
Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	170	5	335	305	1085	0	0	1950	480
Future Volume (vph)	0	0	0	170	5	335	305	1085	0	0	1950	480
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.5	6.5	6.5	6.0	5.5			6.0	
Lane Util. Factor				0.95	0.95	1.00	1.00	0.91			0.91	
Frt				1.00	1.00	0.85	1.00	1.00			0.97	
Flt Protected				0.95	0.95	1.00	0.95	1.00			1.00	
Satd. Flow (prot)				1681	1690	1583	1770	5085			4935	
Flt Permitted				0.95	0.95	1.00	0.05	1.00			1.00	
Satd. Flow (perm)				1681	1690	1583	86	5085			4935	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	185	5	364	332	1179	0	0	2120	522
RTOR Reduction (vph)	0	0	0	0	0	109	0	0	0	0	27	0
Lane Group Flow (vph)	0	0	0	94	96	255	332	1179	0	0	2615	0
Turn Type				Perm	NA	Perm	pm+pt	NA			NA	
Protected Phases					4		6	2			5	
Permitted Phases				4		4	2					
Actuated Green, G (s)				26.2	26.2	26.2	111.8	111.8			80.3	
Effective Green, g (s)				26.2	26.2	26.2	111.8	111.8			80.3	
Actuated g/C Ratio				0.17	0.17	0.17	0.75	0.75			0.54	
Clearance Time (s)				6.5	6.5	6.5	6.0	5.5			6.0	
Vehicle Extension (s)				4.0	4.0	4.0	3.0	0.2			0.2	
Lane Grp Cap (vph)				293	295	276	344	3790			2641	
v/s Ratio Prot							c0.16	0.23			0.53	
v/s Ratio Perm				0.06	0.06	c0.16	c0.56					
v/c Ratio				0.32	0.33	0.92	0.97	0.31			0.99	
Uniform Delay, d1				54.1	54.2	60.9	55.3	6.3			34.5	
Progression Factor				1.00	1.00	1.00	0.92	0.41			0.71	
Incremental Delay, d2				0.9	0.9	34.9	35.2	0.2			12.8	
Delay (s)				55.0	55.0	95.8	85.9	2.8			37.3	
Level of Service				D	E	F	F	A			D	
Approach Delay (s)		0.0			81.8			21.0			37.3	
Approach LOS		A			F			C			D	

Intersection Summary			
HCM 2000 Control Delay	37.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	18.5
Intersection Capacity Utilization	85.5%	ICU Level of Service	E
Analysis Period (min)	15		

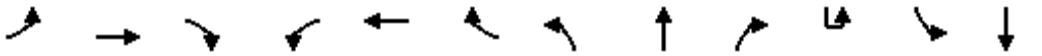
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	190	5	515	0	0	0	0	1200	150	215	1905	0
Future Volume (vph)	190	5	515	0	0	0	0	1200	150	215	1905	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5	4.0					6.0		6.0	5.5	
Lane Util. Factor	0.95	0.95	1.00					0.91		1.00	0.91	
Frt	1.00	1.00	0.85					0.98		1.00	1.00	
Flt Protected	0.95	0.95	1.00					1.00		0.95	1.00	
Satd. Flow (prot)	1681	1689	1583					5001		1770	5085	
Flt Permitted	0.95	0.95	1.00					1.00		0.12	1.00	
Satd. Flow (perm)	1681	1689	1583					5001		225	5085	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	207	5	560	0	0	0	0	1304	163	234	2071	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	9	0	0	0	0
Lane Group Flow (vph)	106	106	560	0	0	0	0	1458	0	234	2071	0
Turn Type	Split	NA	Free					NA		pm+pt	NA	
Protected Phases	4	4						5		6	2	
Permitted Phases			Free							2		
Actuated Green, G (s)	17.0	17.0	150.0					79.5		121.0	121.0	
Effective Green, g (s)	17.0	17.0	150.0					79.5		121.0	121.0	
Actuated g/C Ratio	0.11	0.11	1.00					0.53		0.81	0.81	
Clearance Time (s)	6.5	6.5						6.0		6.0	5.5	
Vehicle Extension (s)	5.0	5.0						0.2		3.0	0.2	
Lane Grp Cap (vph)	190	191	1583					2650		542	4101	
v/s Ratio Prot	c0.06	0.06						c0.29		0.10	c0.41	
v/s Ratio Perm			0.35							0.25		
v/c Ratio	0.56	0.55	0.35					0.55		0.43	0.50	
Uniform Delay, d1	62.9	62.9	0.0					23.4		21.0	4.7	
Progression Factor	1.00	1.00	1.00					0.71		0.87	0.33	
Incremental Delay, d2	5.9	5.8	0.6					0.8		0.1	0.2	
Delay (s)	68.9	68.7	0.6					17.3		18.6	1.7	
Level of Service	E	E	A					B		B	A	
Approach Delay (s)		19.3			0.0			17.3			3.4	
Approach LOS		B			A			B			A	

Intersection Summary			
HCM 2000 Control Delay	10.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	18.5
Intersection Capacity Utilization	85.5%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	230	20	10	30	5	70	5	1040	15	10	95	2280
Future Volume (vph)	230	20	10	30	5	70	5	1040	15	10	95	2280
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5		6.5	6.5	6.5	5.5	6.5			5.5	6.5
Lane Util. Factor		1.00		1.00	1.00	1.00	1.00	0.91			1.00	0.91
Frt		0.99		1.00	1.00	0.85	1.00	1.00			1.00	1.00
Flt Protected		0.96		0.95	1.00	1.00	0.95	1.00			0.95	1.00
Satd. Flow (prot)		1775		1770	1863	1583	1770	5075			1770	5074
Flt Permitted		0.75		0.73	1.00	1.00	0.05	1.00			0.19	1.00
Satd. Flow (perm)		1385		1364	1863	1583	86	5075			352	5074
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	250	22	11	33	5	76	5	1130	16	11	103	2478
RTOR Reduction (vph)	0	1	0	0	0	58	0	1	0	0	0	1
Lane Group Flow (vph)	0	282	0	33	5	18	5	1145	0	0	114	2515
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA		custom	pm+pt	NA
Protected Phases		4			8		1	6			5	2
Permitted Phases	4			8		8	6			5	2	
Actuated Green, G (s)		36.0		36.0	36.0	36.0	87.3	86.6			101.0	94.8
Effective Green, g (s)		36.0		36.0	36.0	36.0	87.3	86.6			101.0	94.8
Actuated g/C Ratio		0.24		0.24	0.24	0.24	0.58	0.58			0.67	0.63
Clearance Time (s)		6.5		6.5	6.5	6.5	5.5	6.5			5.5	6.5
Vehicle Extension (s)		4.0		4.0	4.0	4.0	3.0	0.2			3.0	0.2
Lane Grp Cap (vph)		332		327	447	379	57	2929			321	3206
v/s Ratio Prot					0.00		0.00	0.23			c0.02	c0.50
v/s Ratio Perm		c0.20		0.02		0.01	0.05				0.22	
v/c Ratio		0.85		0.10	0.01	0.05	0.09	0.39			0.36	0.78
Uniform Delay, d1		54.4		44.4	43.4	43.8	19.6	17.3			10.1	20.1
Progression Factor		1.00		1.00	1.00	1.00	1.00	1.00			0.21	0.19
Incremental Delay, d2		19.0		0.2	0.0	0.1	0.7	0.4			0.6	1.8
Delay (s)		73.4		44.6	43.5	43.9	20.2	17.7			2.7	5.6
Level of Service		E		D	D	D	C	B			A	A
Approach Delay (s)		73.4			44.1			17.7				5.5
Approach LOS		E			D			B				A

Intersection Summary			
HCM 2000 Control Delay	14.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	18.5
Intersection Capacity Utilization	84.6%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Movement	SBR
Lane Configurations	
Traffic Volume (vph)	35
Future Volume (vph)	35
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	38
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	95	5	75	5	5	5	5	160	2535	5	5	1875
Future Volume (vph)	95	5	75	5	5	5	5	160	2535	5	5	1875
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.5	5.5		7.0			5.5	6.0	6.0	6.0	6.0
Lane Util. Factor		1.00	1.00		1.00			1.00	0.91	1.00	1.00	0.91
Frt		1.00	0.85		0.95			1.00	1.00	0.85	1.00	0.99
Flt Protected		0.95	1.00		0.98			0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)		1778	1583		1750			1770	5085	1583	1770	5054
Flt Permitted		0.73	1.00		0.90			0.05	1.00	1.00	0.04	1.00
Satd. Flow (perm)		1351	1583		1608			93	5085	1583	77	5054
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	103	5	82	5	5	5	5	174	2755	5	5	2038
RTOR Reduction (vph)	0	0	17	0	4	0	0	0	0	1	0	2
Lane Group Flow (vph)	0	108	65	0	11	0	0	179	2755	4	5	2123
Turn Type	Perm	NA	pm+ov	Perm	NA		custom	pm+pt	NA	Perm	Perm	NA
Protected Phases		4	1!		8			1	6			2
Permitted Phases	4		4	8			1!	6		6	2	
Actuated Green, G (s)		19.4	34.5		19.9			117.1	117.1	117.1	96.5	96.5
Effective Green, g (s)		19.4	34.5		19.9			117.1	117.1	117.1	96.5	96.5
Actuated g/C Ratio		0.13	0.23		0.13			0.78	0.78	0.78	0.64	0.64
Clearance Time (s)		7.5	5.5		7.0			5.5	6.0	6.0	6.0	6.0
Vehicle Extension (s)		5.0	3.0		5.0			3.0	0.2	0.2	0.2	0.2
Lane Grp Cap (vph)		174	364		213			241	3969	1235	49	3251
v/s Ratio Prot			0.02					0.07	c0.54			0.42
v/s Ratio Perm		c0.08	0.02		0.01			c0.50		0.00	0.06	
v/c Ratio		0.62	0.18		0.05			0.74	0.69	0.00	0.10	0.65
Uniform Delay, d1		61.8	46.4		56.8			40.6	7.9	3.6	10.2	16.5
Progression Factor		1.00	1.00		1.00			0.66	1.65	1.00	1.00	1.00
Incremental Delay, d2		9.4	0.2		0.2			7.8	0.7	0.0	4.1	1.0
Delay (s)		71.2	46.6		57.0			34.4	13.7	3.6	14.3	17.5
Level of Service		E	D		E			C	B	A	B	B
Approach Delay (s)		60.6			57.0				14.9			17.5
Approach LOS		E			E				B			B

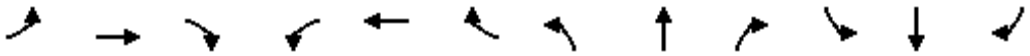
Intersection Summary			
HCM 2000 Control Delay	17.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	94.1%	ICU Level of Service	F
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group



Movement	SBR
Lane Configurations	
Traffic Volume (vph)	80
Future Volume (vph)	80
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	87
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

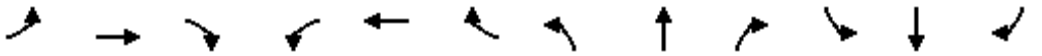
Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	165	5	340	215	2365	0	0	1480	480
Future Volume (vph)	0	0	0	165	5	340	215	2365	0	0	1480	480
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.5	6.5	6.5	6.0	5.5			6.0	
Lane Util. Factor				0.95	0.95	1.00	1.00	0.91			0.91	
Frt				1.00	1.00	0.85	1.00	1.00			0.96	
Flt Protected				0.95	0.95	1.00	0.95	1.00			1.00	
Satd. Flow (prot)				1681	1690	1583	1770	5085			4898	
Flt Permitted				0.95	0.95	1.00	0.05	1.00			1.00	
Satd. Flow (perm)				1681	1690	1583	92	5085			4898	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	179	5	370	234	2571	0	0	1609	522
RTOR Reduction (vph)	0	0	0	0	0	50	0	0	0	0	37	0
Lane Group Flow (vph)	0	0	0	91	93	320	234	2571	0	0	2094	0
Turn Type				Perm	NA	Perm	pm+pt	NA			NA	
Protected Phases					4		6	2			5	
Permitted Phases				4		4	2					
Actuated Green, G (s)				34.3	34.3	34.3	103.7	103.7			74.2	
Effective Green, g (s)				34.3	34.3	34.3	103.7	103.7			74.2	
Actuated g/C Ratio				0.23	0.23	0.23	0.69	0.69			0.49	
Clearance Time (s)				6.5	6.5	6.5	6.0	5.5			6.0	
Vehicle Extension (s)				4.0	4.0	4.0	3.0	0.2			0.2	
Lane Grp Cap (vph)				384	386	361	320	3515			2422	
v/s Ratio Prot							0.11	c0.51			c0.43	
v/s Ratio Perm				0.05	0.06	c0.20	0.39					
v/c Ratio				0.24	0.24	0.89	0.73	0.73			0.86	
Uniform Delay, d1				47.2	47.2	56.0	46.3	14.5			33.5	
Progression Factor				1.00	1.00	1.00	0.56	0.20			0.51	
Incremental Delay, d2				0.4	0.4	22.4	6.4	0.7			3.5	
Delay (s)				47.6	47.7	78.4	32.4	3.6			20.5	
Level of Service				D	D	E	C	A			C	
Approach Delay (s)		0.0			68.2			6.0			20.5	
Approach LOS		A			E			A			C	

Intersection Summary			
HCM 2000 Control Delay	17.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	18.5
Intersection Capacity Utilization	83.4%	ICU Level of Service	E
Analysis Period (min)	15		

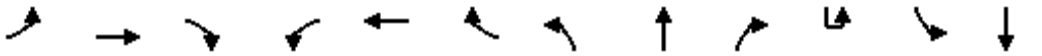
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	455	5	210	0	0	0	0	2125	165	190	1455	0
Future Volume (vph)	455	5	210	0	0	0	0	2125	165	190	1455	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5	4.0					6.0		6.0	5.5	
Lane Util. Factor	0.95	0.95	1.00					0.91		1.00	0.91	
Frt	1.00	1.00	0.85					0.99		1.00	1.00	
Flt Protected	0.95	0.95	1.00					1.00		0.95	1.00	
Satd. Flow (prot)	1681	1687	1583					5030		1770	5085	
Flt Permitted	0.95	0.95	1.00					1.00		0.04	1.00	
Satd. Flow (perm)	1681	1687	1583					5030		83	5085	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	495	5	228	0	0	0	0	2310	179	207	1582	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	6	0	0	0	0
Lane Group Flow (vph)	247	253	228	0	0	0	0	2483	0	207	1582	0
Turn Type	Split	NA	Free					NA		pm+pt	NA	
Protected Phases	4	4						5		6	2	
Permitted Phases			Free							2		
Actuated Green, G (s)	27.9	27.9	150.0					83.6		110.1	110.1	
Effective Green, g (s)	27.9	27.9	150.0					83.6		110.1	110.1	
Actuated g/C Ratio	0.19	0.19	1.00					0.56		0.73	0.73	
Clearance Time (s)	6.5	6.5						6.0		6.0	5.5	
Vehicle Extension (s)	5.0	5.0						0.2		3.0	0.2	
Lane Grp Cap (vph)	312	313	1583					2803		285	3732	
v/s Ratio Prot	0.15	c0.15						c0.49		c0.10	0.31	
v/s Ratio Perm			0.14							0.44		
v/c Ratio	0.79	0.81	0.14					0.89		0.73	0.42	
Uniform Delay, d1	58.3	58.5	0.0					29.0		48.2	7.7	
Progression Factor	1.00	1.00	1.00					0.69		0.92	0.50	
Incremental Delay, d2	14.6	16.0	0.2					3.8		4.3	0.2	
Delay (s)	72.9	74.4	0.2					23.9		48.7	4.0	
Level of Service	E	E	A					C		D	A	
Approach Delay (s)		50.7			0.0			23.9			9.2	
Approach LOS		D			A			C			A	

Intersection Summary			
HCM 2000 Control Delay	22.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	18.5
Intersection Capacity Utilization	83.4%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



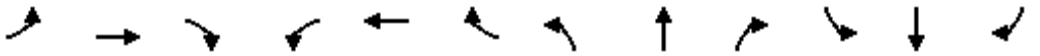
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	45	5	10	10	5	35	10	2205	5	5	30	1550
Future Volume (vph)	45	5	10	10	5	35	10	2205	5	5	30	1550
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5		6.5	6.5	6.5	5.5	6.5			5.5	6.5
Lane Util. Factor		1.00		1.00	1.00	1.00	1.00	0.91			1.00	0.91
Frt		0.98		1.00	1.00	0.85	1.00	1.00			1.00	0.99
Flt Protected		0.96		0.95	1.00	1.00	0.95	1.00			0.95	1.00
Satd. Flow (prot)		1754		1770	1863	1583	1770	5084			1770	5048
Flt Permitted		0.78		0.75	1.00	1.00	0.11	1.00			0.04	1.00
Satd. Flow (perm)		1413		1391	1863	1583	207	5084			83	5048
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	49	5	11	11	5	38	11	2397	5	5	33	1685
RTOR Reduction (vph)	0	5	0	0	0	35	0	0	0	0	0	2
Lane Group Flow (vph)	0	60	0	11	5	3	11	2402	0	0	38	1770
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA		custom	pm+pt	NA
Protected Phases		4			8		1	6			5	2
Permitted Phases	4			8		8	6			5	2	
Actuated Green, G (s)		13.3		13.3	13.3	13.3	115.2	113.2			121.2	116.2
Effective Green, g (s)		13.3		13.3	13.3	13.3	115.2	113.2			121.2	116.2
Actuated g/C Ratio		0.09		0.09	0.09	0.09	0.77	0.75			0.81	0.77
Clearance Time (s)		6.5		6.5	6.5	6.5	5.5	6.5			5.5	6.5
Vehicle Extension (s)		4.0		4.0	4.0	4.0	3.0	0.2			3.0	0.2
Lane Grp Cap (vph)		125		123	165	140	179	3836			123	3910
v/s Ratio Prot					0.00		0.00	c0.47			c0.01	c0.35
v/s Ratio Perm		c0.04		0.01		0.00	0.05				0.24	
v/c Ratio		0.48		0.09	0.03	0.02	0.06	0.63			0.31	0.45
Uniform Delay, d1		65.0		62.8	62.5	62.4	4.4	8.6			7.9	5.9
Progression Factor		1.00		1.00	1.00	1.00	1.00	1.00			4.70	0.10
Incremental Delay, d2		3.9		0.4	0.1	0.1	0.1	0.8			1.3	0.4
Delay (s)		68.9		63.2	62.6	62.5	4.5	9.3			38.2	0.9
Level of Service		E		E	E	E	A	A			D	A
Approach Delay (s)		68.9			62.7			9.3				1.7
Approach LOS		E			E			A				A

Intersection Summary			
HCM 2000 Control Delay	7.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	18.5
Intersection Capacity Utilization	65.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	SBR
Lane Configurations	
Traffic Volume (vph)	80
Future Volume (vph)	80
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	87
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	



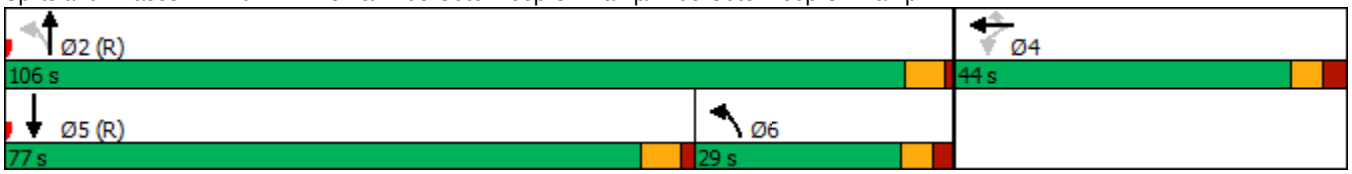
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	165	5	340	215	2365	0	0	1480	480
Future Volume (vph)	0	0	0	165	5	340	215	2365	0	0	1480	480
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	65		100	150		0	0		175
Storage Lanes	0		0	1		1	1		0	0		0
Taper Length (ft)	25			25			100			25		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	1.00	0.91	1.00	1.00	0.91	0.91
Frt						0.850					0.963	
Flt Protected				0.950	0.955		0.950					
Satd. Flow (prot)	0	0	0	1681	1690	1583	1770	5085	0	0	4897	0
Flt Permitted				0.950	0.955		0.050					
Satd. Flow (perm)	0	0	0	1681	1690	1583	93	5085	0	0	4897	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						65					74	
Link Speed (mph)		25			25			35			40	
Link Distance (ft)		922			1207			533			1762	
Travel Time (s)		25.1			32.9			10.4			30.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	179	5	370	234	2571	0	0	1609	522
Shared Lane Traffic (%)				49%								
Lane Group Flow (vph)	0	0	0	91	93	370	234	2571	0	0	2131	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			20			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		25	20		9	15		25
Turn Type				Perm	NA	Perm	pm+pt	NA			NA	
Protected Phases					4		6	2			5	
Permitted Phases				4		4	2					
Detector Phase				4	4	4	6	2			5	
Switch Phase												
Minimum Initial (s)				5.0	5.0	5.0	3.0	10.0			10.0	
Minimum Split (s)				32.5	32.5	32.5	9.0	22.5			29.0	
Total Split (s)				44.0	44.0	44.0	29.0	106.0			77.0	
Total Split (%)				29.3%	29.3%	29.3%	19.3%	70.7%			51.3%	
Maximum Green (s)				37.5	37.5	37.5	23.0	100.5			71.0	
Yellow Time (s)				3.5	3.5	3.5	3.5	4.5			4.5	
All-Red Time (s)				3.0	3.0	3.0	2.5	1.0			1.5	
Lost Time Adjust (s)				0.0	0.0	0.0	0.0	0.0			0.0	
Total Lost Time (s)				6.5	6.5	6.5	6.0	5.5			6.0	
Lead/Lag							Lag				Lead	
Lead-Lag Optimize?							Yes				Yes	
Vehicle Extension (s)				4.0	4.0	4.0	3.0	0.2			0.2	
Recall Mode				None	None	None	Max	C-Max			C-Max	
Walk Time (s)				7.0	7.0	7.0		7.0			7.0	

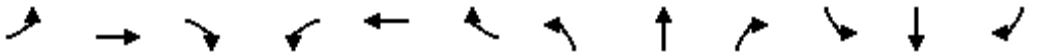
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)				19.0	19.0	19.0		10.0			16.0	
Pedestrian Calls (#/hr)				1	1	1		3			4	
Act Effct Green (s)				34.3	34.3	34.3	103.2	103.7			74.2	
Actuated g/C Ratio				0.23	0.23	0.23	0.69	0.69			0.49	
v/c Ratio				0.24	0.24	0.90	0.73	0.73			0.87	
Control Delay				47.7	47.8	70.9	34.9	3.8			20.5	
Queue Delay				0.0	0.0	0.0	0.0	0.6			0.0	
Total Delay				47.7	47.8	70.9	34.9	4.4			20.5	
LOS				D	D	E	C	A			C	
Approach Delay					63.2			6.9			20.5	
Approach LOS					E			A			C	
Queue Length 50th (ft)				74	76	291	188	190			120	
Queue Length 95th (ft)				129	131	#459	m209	198			128	
Internal Link Dist (ft)		842			1127			453			1682	
Turn Bay Length (ft)				65		100	150					
Base Capacity (vph)				420	422	444	321	3516			2460	
Starvation Cap Reductn				0	0	0	0	512			0	
Spillback Cap Reductn				0	0	0	0	0			0	
Storage Cap Reductn				0	0	0	0	0			0	
Reduced v/c Ratio				0.22	0.22	0.83	0.73	0.86			0.87	

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 150
Offset: 72 (48%), Referenced to phase 2:NBTL and 5:SBT, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.90
Intersection Signal Delay: 17.9 Intersection LOS: B
Intersection Capacity Utilization 83.4% ICU Level of Service E
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1201: MD 187 & I-495 Outer Loop On Ramp/I-495 Outer Loop Off Ramp





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	455	5	210	0	0	0	0	2125	165	190	1455	0
Future Volume (vph)	455	5	210	0	0	0	0	2125	165	190	1455	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	75		100	0		0	0		160	225		0
Storage Lanes	1		1	0		0	0		0	1		0
Taper Length (ft)	100			25			25			100		
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.91	1.00
Frt			0.850					0.989				
Flt Protected	0.950	0.953								0.950		
Satd. Flow (prot)	1681	1686	1583	0	0	0	0	5029	0	1770	5085	0
Flt Permitted	0.950	0.953								0.044		
Satd. Flow (perm)	1681	1686	1583	0	0	0	0	5029	0	82	5085	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			113					13				
Link Speed (mph)		25			25			35			40	
Link Distance (ft)		1316			667			876			533	
Travel Time (s)		35.9			18.2			17.1			9.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	495	5	228	0	0	0	0	2310	179	207	1582	0
Shared Lane Traffic (%)	50%											
Lane Group Flow (vph)	247	253	228	0	0	0	0	2489	0	207	1582	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			20	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		25	15		9	15		25	15		9
Turn Type	Split	NA	Free					NA		pm+pt	NA	
Protected Phases	4	4						5		6	2	
Permitted Phases			Free							2		
Detector Phase	4	4						5		6	2	
Switch Phase												
Minimum Initial (s)	5.0	5.0						10.0		3.0	10.0	
Minimum Split (s)	30.5	30.5						23.0		9.0	22.5	
Total Split (s)	37.0	37.0						87.0		26.0	113.0	
Total Split (%)	24.7%	24.7%						58.0%		17.3%	75.3%	
Maximum Green (s)	30.5	30.5						81.0		20.0	107.5	
Yellow Time (s)	4.0	4.0						4.5		3.5	4.0	
All-Red Time (s)	2.5	2.5						1.5		2.5	1.5	
Lost Time Adjust (s)	0.0	0.0						0.0		0.0	0.0	
Total Lost Time (s)	6.5	6.5						6.0		6.0	5.5	
Lead/Lag								Lead		Lag		
Lead-Lag Optimize?								Yes		Yes		
Vehicle Extension (s)	5.0	5.0						0.2		3.0	0.2	
Recall Mode	None	None						C-Max		None	C-Max	
Walk Time (s)	7.0	7.0						7.0			7.0	

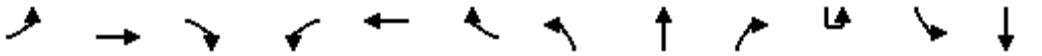
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)	17.0	17.0						10.0			10.0	
Pedestrian Calls (#/hr)	1	1						1			1	
Act Effct Green (s)	27.9	27.9	150.0					83.6		109.6	110.1	
Actuated g/C Ratio	0.19	0.19	1.00					0.56		0.73	0.73	
v/c Ratio	0.79	0.81	0.14					0.89		0.73	0.42	
Control Delay	76.5	78.1	0.2					24.5		53.8	4.2	
Queue Delay	0.0	0.0	0.0					0.0		0.0	0.5	
Total Delay	76.5	78.1	0.2					24.5		53.8	4.7	
LOS	E	E	A					C		D	A	
Approach Delay		53.2						24.5			10.4	
Approach LOS		D						C			B	
Queue Length 50th (ft)	240	247	0					791		172	73	
Queue Length 95th (ft)	349	#357	0					235		m205	79	
Internal Link Dist (ft)		1236			587			796			453	
Turn Bay Length (ft)	75		100							225		
Base Capacity (vph)	341	342	1583					2809		284	3733	
Starvation Cap Reductn	0	0	0					0		0	1519	
Spillback Cap Reductn	0	0	0					0		0	0	
Storage Cap Reductn	0	0	0					0		0	0	
Reduced v/c Ratio	0.72	0.74	0.14					0.89		0.73	0.71	

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 150
Offset: 76 (51%), Referenced to phase 2:SBTL and 5:NBT, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.89
Intersection Signal Delay: 23.6 Intersection LOS: C
Intersection Capacity Utilization 83.4% ICU Level of Service E
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1202: MD 187 & I-495 Inner Loop Off Ramp/I-495 Inner Loop On Ramp





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	45	5	10	10	5	35	10	2205	5	5	30	1550
Future Volume (vph)	45	5	10	10	5	35	10	2205	5	5	30	1550
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	60		60	150		0		140	
Storage Lanes	0		0	1		1	1		0		1	
Taper Length (ft)	25			25			100				100	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	0.91	1.00	0.91
Frt		0.977				0.850						0.993
Flt Protected		0.964		0.950			0.950				0.950	
Satd. Flow (prot)	0	1754	0	1770	1863	1583	1770	5085	0	0	1770	5050
Flt Permitted		0.776		0.747			0.111				0.044	
Satd. Flow (perm)	0	1412	0	1391	1863	1583	207	5085	0	0	82	5050
Right Turn on Red			Yes			Yes			Yes			
Satd. Flow (RTOR)		6				65						11
Link Speed (mph)		25			25			35				40
Link Distance (ft)		1111			409			1367				876
Travel Time (s)		30.3			11.2			26.6				14.9
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	49	5	11	11	5	38	11	2397	5	5	33	1685
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	65	0	11	5	38	11	2402	0	0	38	1772
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	R NA	Left	Left
Median Width(ft)		0			16			18				18
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	9	15	
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA		custom	pm+pt	NA
Protected Phases		4			8		1	6			5	2
Permitted Phases	4			8		8	6			5	2	
Detector Phase	4	4		8	8	8	1	6		5	5	2
Switch Phase												
Minimum Initial (s)	3.0	3.0		3.0	3.0	3.0	3.0	7.0		3.0	3.0	7.0
Minimum Split (s)	35.5	35.5		9.5	9.5	9.5	8.5	13.5		8.5	8.5	13.5
Total Split (s)	36.0	36.0		36.0	36.0	36.0	9.0	102.0		12.0	12.0	105.0
Total Split (%)	24.0%	24.0%		24.0%	24.0%	24.0%	6.0%	68.0%		8.0%	8.0%	70.0%
Maximum Green (s)	29.5	29.5		29.5	29.5	29.5	3.5	95.5		6.5	6.5	98.5
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	4.5		3.5	3.5	4.5
All-Red Time (s)	3.0	3.0		3.0	3.0	3.0	2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0			0.0	0.0
Total Lost Time (s)		6.5		6.5	6.5	6.5	5.5	6.5			5.5	6.5
Lead/Lag							Lead	Lag		Lead	Lead	Lag
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	4.0	4.0		4.0	4.0	4.0	3.0	0.2		3.0	3.0	0.2
Recall Mode	None	None		None	None	None	None	C-Max		None	None	C-Max
Walk Time (s)	7.0	7.0										

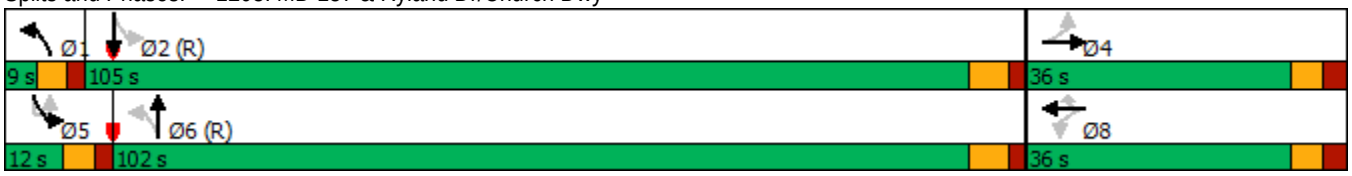


Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	80
Future Volume (vph)	80
Ideal Flow (vphpl)	1900
Storage Length (ft)	0
Storage Lanes	0
Taper Length (ft)	
Lane Util. Factor	0.91
Frt	
Flt Protected	
Satd. Flow (prot)	0
Flt Permitted	
Satd. Flow (perm)	0
Right Turn on Red	Yes
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.92
Adj. Flow (vph)	87
Shared Lane Traffic (%)	
Lane Group Flow (vph)	0
Enter Blocked Intersection	No
Lane Alignment	Right
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	1.00
Turning Speed (mph)	9
Turn Type	
Protected Phases	
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	
Minimum Split (s)	
Total Split (s)	
Total Split (%)	
Maximum Green (s)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	
Recall Mode	
Walk Time (s)	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Flash Dont Walk (s)	22.0	22.0										
Pedestrian Calls (#/hr)	2	2										
Act Effct Green (s)		14.8		14.6	14.6	14.6	120.8	116.9			124.5	122.1
Actuated g/C Ratio		0.10		0.10	0.10	0.10	0.81	0.78			0.83	0.81
v/c Ratio		0.45		0.08	0.03	0.18	0.05	0.61			0.28	0.43
Control Delay		65.1		57.5	55.4	4.9	4.6	10.7			22.9	0.9
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0			0.0	0.0
Total Delay		65.1		57.5	55.4	4.9	4.6	10.8			22.9	0.9
LOS		E		E	E	A	A	B			C	A
Approach Delay		65.1			20.3			10.7				1.4
Approach LOS		E			C			B				A
Queue Length 50th (ft)		56		10	5	0	1	359			1	13
Queue Length 95th (ft)		96		28	17	11	8	615			33	30
Internal Link Dist (ft)		1031			329			1287				796
Turn Bay Length (ft)				60		60	150				140	
Base Capacity (vph)		282		273	366	363	221	3962			142	4113
Starvation Cap Reductn		0		0	0	0	0	0			0	0
Spillback Cap Reductn		0		0	0	0	0	51			0	0
Storage Cap Reductn		0		0	0	0	0	0			0	0
Reduced v/c Ratio		0.23		0.04	0.01	0.10	0.05	0.61			0.27	0.43

Intersection Summary			
Area Type:	Other		
Cycle Length: 150			
Actuated Cycle Length: 150			
Offset: 77 (51%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.61			
Intersection Signal Delay: 7.8		Intersection LOS: A	
Intersection Capacity Utilization 65.7%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 1203: MD 187 & Ryland Dr/Church Dwy





Lane Group	SBR
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	

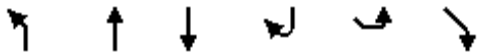
Intersection Summary



Movement	EBL	EBR2	WBL	WBT	WBR	SBT	SBR	NWR
Lane Configurations								
Traffic Volume (vph)	110	220	620	105	110	2140	125	1175
Future Volume (vph)	110	220	620	105	110	2140	125	1175
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	6.5	5.5	6.5		6.0	6.0	6.0
Lane Util. Factor	0.97	1.00	0.97	1.00		0.91	1.00	0.76
Frt	1.00	0.85	1.00	0.92		1.00	0.85	0.85
Flt Protected	0.95	1.00	0.95	1.00		1.00	1.00	1.00
Satd. Flow (prot)	3433	1583	3433	1719		5085	1583	3610
Flt Permitted	0.95	1.00	0.95	1.00		1.00	1.00	1.00
Satd. Flow (perm)	3433	1583	3433	1719		5085	1583	3610
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	120	239	674	114	120	2326	136	1277
RTOR Reduction (vph)	0	49	0	25	0	0	53	0
Lane Group Flow (vph)	120	190	674	209	0	2326	83	1277
Turn Type	Prot	Perm	Prot	NA		NA	Perm	Prot
Protected Phases	3		3 4	4		6		2
Permitted Phases		4					6	
Actuated Green, G (s)	17.7	30.6	53.8	30.6		83.7	83.7	83.7
Effective Green, g (s)	17.7	30.6	53.8	30.6		83.7	83.7	83.7
Actuated g/C Ratio	0.12	0.20	0.36	0.20		0.56	0.56	0.56
Clearance Time (s)	5.5	6.5		6.5		6.0	6.0	6.0
Vehicle Extension (s)	3.0	6.0		6.0		0.2	0.2	0.2
Lane Grp Cap (vph)	405	322	1231	350		2837	883	2014
v/s Ratio Prot	0.03		c0.20	c0.12		c0.46		0.35
v/s Ratio Perm		0.12					0.05	
v/c Ratio	0.30	0.59	0.55	0.60		0.82	0.09	0.63
Uniform Delay, d1	60.5	54.0	38.4	54.1		27.0	15.5	22.7
Progression Factor	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.4	5.2	0.5	5.0		2.8	0.2	1.5
Delay (s)	60.9	59.2	38.9	59.2		29.8	15.7	24.2
Level of Service	E	E	D	E		C	B	C
Approach Delay (s)				44.1		29.0		
Approach LOS				D		C		

Intersection Summary			
HCM 2000 Control Delay	32.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	87.7%	ICU Level of Service	E
Analysis Period (min)	15		

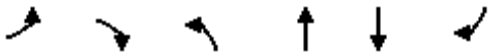
c Critical Lane Group



Movement	NBL	NBT	SBT	SBR	SEL	SER
Lane Configurations			↑↑↑↑			↱↱
Traffic Volume (vph)	0	0	3180	0	0	470
Future Volume (vph)	0	0	3180	0	0	470
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)			5.5			6.5
Lane Util. Factor			0.86			0.88
Frt			1.00			0.85
Flt Protected			1.00			1.00
Satd. Flow (prot)			6408			2787
Flt Permitted			1.00			1.00
Satd. Flow (perm)			6408			2787
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	3457	0	0	511
RTOR Reduction (vph)	0	0	0	0	0	2
Lane Group Flow (vph)	0	0	3457	0	0	509
Turn Type			NA			Prot
Protected Phases			2			4
Permitted Phases						
Actuated Green, G (s)			128.3			39.7
Effective Green, g (s)			128.3			39.7
Actuated g/C Ratio			0.71			0.22
Clearance Time (s)			5.5			6.5
Vehicle Extension (s)			0.2			6.0
Lane Grp Cap (vph)			4567			614
v/s Ratio Prot			c0.54			c0.18
v/s Ratio Perm						
v/c Ratio			0.76			0.83
Uniform Delay, d1			16.1			66.9
Progression Factor			1.00			1.00
Incremental Delay, d2			1.2			10.6
Delay (s)			17.3			77.5
Level of Service			B			E
Approach Delay (s)		0.0	17.3		77.5	
Approach LOS		A	B		E	

Intersection Summary			
HCM 2000 Control Delay	25.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	72.5%	ICU Level of Service	C
Analysis Period (min)	15		

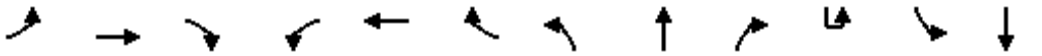
c Critical Lane Group



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	455	175	50	1715	3530	120
Future Volume (vph)	455	175	50	1715	3530	120
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.5	6.5	6.5	6.0
Lane Util. Factor	0.97	1.00	1.00	0.91	0.86	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	3433	1583	1770	5085	6408	1583
Flt Permitted	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	3433	1583	1770	5085	6408	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	495	190	54	1864	3837	130
RTOR Reduction (vph)	0	89	0	0	0	24
Lane Group Flow (vph)	495	101	54	1864	3837	106
Turn Type	Prot	Perm	Prot	NA	NA	pm+ov
Protected Phases	4		5	2	6	4
Permitted Phases		4				6
Actuated Green, G (s)	29.9	29.9	14.4	137.6	116.7	146.6
Effective Green, g (s)	29.9	29.9	14.4	137.6	116.7	146.6
Actuated g/C Ratio	0.17	0.17	0.08	0.76	0.65	0.81
Clearance Time (s)	6.0	6.0	6.5	6.5	6.5	6.0
Vehicle Extension (s)	6.0	6.0	3.0	3.0	0.2	6.0
Lane Grp Cap (vph)	570	262	141	3887	4154	1342
v/s Ratio Prot	c0.14		0.03	c0.37	c0.60	0.01
v/s Ratio Perm		0.06				0.05
v/c Ratio	0.87	0.38	0.38	0.48	0.92	0.08
Uniform Delay, d1	73.1	66.9	78.6	7.9	27.7	3.3
Progression Factor	1.00	1.00	1.01	0.31	0.59	0.50
Incremental Delay, d2	14.9	2.6	1.5	0.4	3.0	0.0
Delay (s)	88.0	69.5	81.1	2.8	19.5	1.7
Level of Service	F	E	F	A	B	A
Approach Delay (s)	82.9			5.0	19.0	
Approach LOS	F			A	B	

Intersection Summary			
HCM 2000 Control Delay	21.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	74.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	65	5	20	5	5	10	0	1395	5	295	5	3310
Future Volume (vph)	65	5	20	5	5	10	0	1395	5	295	5	3310
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0			5.0			4.5	5.0
Lane Util. Factor		1.00			1.00			0.91			1.00	0.91
Frt		0.97			0.93			1.00			1.00	1.00
Flt Protected		0.97			0.99			1.00			0.95	1.00
Satd. Flow (prot)		1743			1711			5083			1770	5064
Flt Permitted		0.77			0.94			1.00			0.12	1.00
Satd. Flow (perm)		1395			1629			5083			217	5064
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	71	5	22	5	5	11	0	1516	5	321	5	3598
RTOR Reduction (vph)	0	2	0	0	10	0	0	0	0	0	0	1
Lane Group Flow (vph)	0	96	0	0	11	0	0	1521	0	0	326	3700
Turn Type	Perm	NA		Perm	NA			NA		custom	pm+pt	NA
Protected Phases		8			4			6			5	2
Permitted Phases	8			4						5	2	
Actuated Green, G (s)		17.7			17.7			104.3			151.8	151.3
Effective Green, g (s)		17.7			17.7			104.3			151.8	151.3
Actuated g/C Ratio		0.10			0.10			0.58			0.84	0.84
Clearance Time (s)		6.0			6.0			5.0			4.5	5.0
Vehicle Extension (s)		3.0			3.0			0.2			3.0	0.2
Lane Grp Cap (vph)		137			160			2945			549	4256
v/s Ratio Prot								0.30			0.14	c0.73
v/s Ratio Perm		c0.07			0.01						0.36	
v/c Ratio		0.70			0.07			0.52			0.59	0.87
Uniform Delay, d1		78.6			73.7			22.7			24.7	8.5
Progression Factor		1.00			1.00			1.00			0.65	1.16
Incremental Delay, d2		15.0			0.2			0.7			0.7	1.2
Delay (s)		93.6			73.9			23.4			16.8	11.0
Level of Service		F			E			C			B	B
Approach Delay (s)		93.6			73.9			23.4				11.5
Approach LOS		F			E			C				B

Intersection Summary			
HCM 2000 Control Delay	16.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	15.5
Intersection Capacity Utilization	87.0%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



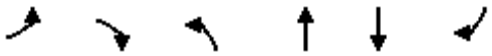
Movement	SBR
Lane Configurations	
Traffic Volume (vph)	95
Future Volume (vph)	95
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	103
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	



Movement	NBL	NBT	SBT	SBR	SEL	SER
Lane Configurations			↑↑↑↑			↱↱
Traffic Volume (veh/h)	0	0	3180	0	0	470
Future Volume (veh/h)	0	0	3180	0	0	470
Initial Q (Qb), veh			0	0	0	0
Ped-Bike Adj(A_pbT)				1.00	1.00	1.00
Parking Bus, Adj			1.00	1.00	1.00	1.00
Work Zone On Approach			No		No	
Adj Sat Flow, veh/h/ln			1870	0	0	1870
Adj Flow Rate, veh/h			3457	0	0	511
Peak Hour Factor			0.92	0.92	0.92	0.92
Percent Heavy Veh, %			2	0	0	2
Cap, veh/h			6237	0	0	0
Arrive On Green			0.97	0.00	0.00	0.00
Sat Flow, veh/h			6958	0	0	
Grp Volume(v), veh/h			3457	0	0.0	
Grp Sat Flow(s),veh/h/ln			1609	0		
Q Serve(g_s), s			6.4	0.0		
Cycle Q Clear(g_c), s			6.4	0.0		
Prop In Lane				0.00		
Lane Grp Cap(c), veh/h			6237	0		
V/C Ratio(X)			0.55	0.00		
Avail Cap(c_a), veh/h			6237	0		
HCM Platoon Ratio			1.00	1.00		
Upstream Filter(I)			1.00	0.00		
Uniform Delay (d), s/veh			0.2	0.0		
Incr Delay (d2), s/veh			0.4	0.0		
Initial Q Delay(d3),s/veh			0.0	0.0		
%ile BackOfQ(50%),veh/ln			0.2	0.0		
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh			0.5	0.0		
LnGrp LOS			A	A		
Approach Vol, veh/h			3457			
Approach Delay, s/veh			0.5			
Approach LOS			A			

Timer - Assigned Phs	2
Phs Duration (G+Y+Rc), s	180.0
Change Period (Y+Rc), s	5.5
Max Green Setting (Gmax), s	124.5
Max Q Clear Time (g_c+I1), s	8.4
Green Ext Time (p_c), s	9.5

Intersection Summary	
HCM 6th Ctrl Delay	0.5
HCM 6th LOS	A



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	455	175	50	1715	3530	120
Future Volume (veh/h)	455	175	50	1715	3530	120
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	495	0	54	1864	3837	130
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	547		193	3944	4039	1246
Arrive On Green	0.16	0.00	0.11	0.77	0.63	0.63
Sat Flow, veh/h	3456	1585	1781	5274	6696	1585
Grp Volume(v), veh/h	495	0	54	1864	3837	130
Grp Sat Flow(s),veh/h/ln	1728	1585	1781	1702	1609	1585
Q Serve(g_s), s	25.3	0.0	5.0	23.6	99.0	3.4
Cycle Q Clear(g_c), s	25.3	0.0	5.0	23.6	99.0	3.4
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	547		193	3944	4039	1246
V/C Ratio(X)	0.91		0.28	0.47	0.95	0.10
Avail Cap(c_a), veh/h	576		193	3944	4039	1246
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	74.4	0.0	73.8	7.3	30.9	4.5
Incr Delay (d2), s/veh	20.1	0.0	0.8	0.4	6.6	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.9	0.0	2.4	8.2	37.6	2.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	94.5	0.0	74.6	7.8	37.4	4.7
LnGrp LOS	F		E	A	D	A
Approach Vol, veh/h	495	A		1918	3967	
Approach Delay, s/veh	94.5			9.6	36.4	
Approach LOS	F			A	D	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		145.5		34.5	26.0	119.5
Change Period (Y+Rc), s		6.5		6.0	6.5	6.5
Max Green Setting (Gmax), s		137.5		30.0	18.0	113.0
Max Q Clear Time (g_c+I1), s		25.6		27.3	7.0	101.0
Green Ext Time (p_c), s		28.1		1.1	0.1	7.5

Intersection Summary	
HCM 6th Ctrl Delay	32.8
HCM 6th LOS	C

Notes

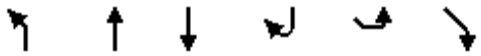
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBR2	WBL	WBT	WBR	SBT	SBR	NWR
Lane Configurations								
Traffic Volume (vph)	155	175	225	145	135	1625	125	1770
Future Volume (vph)	155	175	225	145	135	1625	125	1770
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	6.5	5.5	6.5		6.0	6.0	6.0
Lane Util. Factor	0.97	1.00	0.97	1.00		0.91	1.00	0.76
Frt	1.00	0.85	1.00	0.93		1.00	0.85	0.85
Flt Protected	0.95	1.00	0.95	1.00		1.00	1.00	1.00
Satd. Flow (prot)	3433	1583	3433	1728		5085	1583	3610
Flt Permitted	0.95	1.00	0.95	1.00		1.00	1.00	1.00
Satd. Flow (perm)	3433	1583	3433	1728		5085	1583	3610
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	168	190	245	158	147	1766	136	1924
RTOR Reduction (vph)	0	68	0	22	0	0	55	0
Lane Group Flow (vph)	168	122	245	283	0	1766	81	1924
Turn Type	Prot	Perm	Prot	NA		NA	Perm	Prot
Protected Phases	3		3 4	4		6		2
Permitted Phases		4					6	
Actuated Green, G (s)	13.2	29.3	48.0	29.3		89.5	89.5	89.5
Effective Green, g (s)	13.2	29.3	48.0	29.3		89.5	89.5	89.5
Actuated g/C Ratio	0.09	0.20	0.32	0.20		0.60	0.60	0.60
Clearance Time (s)	5.5	6.5		6.5		6.0	6.0	6.0
Vehicle Extension (s)	3.0	6.0		6.0		0.2	0.2	0.2
Lane Grp Cap (vph)	302	309	1098	337		3034	944	2153
v/s Ratio Prot	c0.05		0.07	c0.16		0.35		c0.53
v/s Ratio Perm		0.08					0.05	
v/c Ratio	0.56	0.40	0.22	0.84		0.58	0.09	0.89
Uniform Delay, d1	65.6	52.6	37.3	58.1		18.7	12.9	26.1
Progression Factor	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	2.2	2.3	0.1	19.3		0.8	0.2	6.2
Delay (s)	67.8	55.0	37.4	77.3		19.5	13.0	32.4
Level of Service	E	D	D	E		B	B	C
Approach Delay (s)				59.5		19.1		
Approach LOS				E		B		

Intersection Summary			
HCM 2000 Control Delay	32.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	75.3%	ICU Level of Service	D
Analysis Period (min)	15		

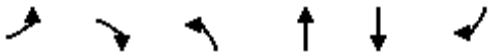
c Critical Lane Group



Movement	NBL	NBT	SBT	SBR	SEL	SER
Lane Configurations			↑↑↑↑			↱↱
Traffic Volume (vph)	0	0	2170	0	0	345
Future Volume (vph)	0	0	2170	0	0	345
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)			5.5			6.5
Lane Util. Factor			0.86			0.88
Frt			1.00			0.85
Flt Protected			1.00			1.00
Satd. Flow (prot)			6408			2787
Flt Permitted			1.00			1.00
Satd. Flow (perm)			6408			2787
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	2359	0	0	375
RTOR Reduction (vph)	0	0	0	0	0	10
Lane Group Flow (vph)	0	0	2359	0	0	365
Turn Type			NA			Prot
Protected Phases			2			4
Permitted Phases						
Actuated Green, G (s)			136.0			32.0
Effective Green, g (s)			136.0			32.0
Actuated g/C Ratio			0.76			0.18
Clearance Time (s)			5.5			6.5
Vehicle Extension (s)			0.2			6.0
Lane Grp Cap (vph)			4841			495
v/s Ratio Prot			c0.37			c0.13
v/s Ratio Perm						
v/c Ratio			0.49			0.74
Uniform Delay, d1			8.5			70.0
Progression Factor			1.00			1.00
Incremental Delay, d2			0.4			7.7
Delay (s)			8.9			77.8
Level of Service			A			E
Approach Delay (s)		0.0	8.9		77.8	
Approach LOS		A	A		E	

Intersection Summary			
HCM 2000 Control Delay	18.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	53.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	240	70	65	3160	2210	305
Future Volume (vph)	240	70	65	3160	2210	305
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.5	6.5	6.5	6.0
Lane Util. Factor	0.97	1.00	1.00	0.91	0.86	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	3433	1583	1770	5085	6408	1583
Flt Permitted	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	3433	1583	1770	5085	6408	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	261	76	71	3435	2402	332
RTOR Reduction (vph)	0	67	0	0	0	68
Lane Group Flow (vph)	261	9	71	3435	2402	264
Turn Type	Prot	Perm	Prot	NA	NA	pm+ov
Protected Phases	4		5	2	6	4
Permitted Phases		4				6
Actuated Green, G (s)	20.4	20.4	18.0	147.1	122.6	143.0
Effective Green, g (s)	20.4	20.4	18.0	147.1	122.6	143.0
Actuated g/C Ratio	0.11	0.11	0.10	0.82	0.68	0.79
Clearance Time (s)	6.0	6.0	6.5	6.5	6.5	6.0
Vehicle Extension (s)	6.0	6.0	3.0	3.0	0.2	6.0
Lane Grp Cap (vph)	389	179	177	4155	4364	1310
v/s Ratio Prot	c0.08		0.04	c0.68	0.37	0.02
v/s Ratio Perm		0.01				0.14
v/c Ratio	0.67	0.05	0.40	0.83	0.55	0.20
Uniform Delay, d1	76.6	71.1	75.9	9.3	14.6	4.5
Progression Factor	1.00	1.00	0.87	0.18	0.73	0.30
Incremental Delay, d2	6.9	0.3	0.6	0.8	0.4	0.2
Delay (s)	83.5	71.5	67.0	2.6	11.1	1.5
Level of Service	F	E	E	A	B	A
Approach Delay (s)	80.8			3.9	10.0	
Approach LOS	F			A	A	

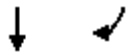
Intersection Summary			
HCM 2000 Control Delay	10.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	78.3%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	90	5	15	10	5	5	5	10	2900	5	230	5
Future Volume (vph)	90	5	15	10	5	5	5	10	2900	5	230	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0			4.5	5.0			4.5
Lane Util. Factor		1.00			1.00			1.00	0.91			1.00
Frt		0.98			0.97			1.00	1.00			1.00
Flt Protected		0.96			0.97			0.95	1.00			0.95
Satd. Flow (prot)		1757			1757			1770	5084			1770
Flt Permitted		0.75			0.87			0.06	1.00			0.03
Satd. Flow (perm)		1370			1568			108	5084			58
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	98	5	16	11	5	5	5	11	3152	5	250	5
RTOR Reduction (vph)	0	4	0	0	4	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	115	0	0	17	0	0	16	3157	0	0	255
Turn Type	Perm	NA		Perm	NA		pm+pt	pm+pt	NA		custom	pm+pt
Protected Phases		8			4		1	1	6			5
Permitted Phases	8			4			6	6			5	2
Actuated Green, G (s)		19.7			19.7			125.5	122.5			149.8
Effective Green, g (s)		19.7			19.7			125.5	122.5			149.8
Actuated g/C Ratio		0.11			0.11			0.70	0.68			0.83
Clearance Time (s)		6.0			6.0			4.5	5.0			4.5
Vehicle Extension (s)		3.0			3.0			3.0	0.2			3.0
Lane Grp Cap (vph)		149			171			103	3459			260
v/s Ratio Prot								0.00	0.62			c0.12
v/s Ratio Perm		c0.08			0.01			0.11				c0.69
v/c Ratio		0.77			0.10			0.16	0.91			0.98
Uniform Delay, d1		78.0			72.1			20.6	24.2			64.1
Progression Factor		1.00			1.00			1.00	1.00			0.97
Incremental Delay, d2		21.8			0.2			0.7	4.8			46.0
Delay (s)		99.8			72.4			21.3	29.1			108.2
Level of Service		F			E			C	C			F
Approach Delay (s)		99.8			72.4				29.0			
Approach LOS		F			E				C			

Intersection Summary			
HCM 2000 Control Delay	23.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	15.5
Intersection Capacity Utilization	91.8%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	1915	130
Future Volume (vph)	1915	130
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	5.0	
Lane Util. Factor	0.91	
Frt	0.99	
Flt Protected	1.00	
Satd. Flow (prot)	5037	
Flt Permitted	1.00	
Satd. Flow (perm)	5037	
Peak-hour factor, PHF	0.92	0.92
Adj. Flow (vph)	2082	141
RTOR Reduction (vph)	4	0
Lane Group Flow (vph)	2219	0
Turn Type	NA	
Protected Phases	2	
Permitted Phases		
Actuated Green, G (s)	141.8	
Effective Green, g (s)	141.8	
Actuated g/C Ratio	0.79	
Clearance Time (s)	5.0	
Vehicle Extension (s)	0.2	
Lane Grp Cap (vph)	3968	
v/s Ratio Prot	0.44	
v/s Ratio Perm		
v/c Ratio	0.56	
Uniform Delay, d1	7.2	
Progression Factor	0.12	
Incremental Delay, d2	0.5	
Delay (s)	1.4	
Level of Service	A	
Approach Delay (s)	12.4	
Approach LOS	B	

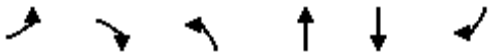
Intersection Summary



Movement	NBL	NBT	SBT	SBR	SEL	SER
Lane Configurations			↑↑↑↑			↱↱
Traffic Volume (veh/h)	0	0	2170	0	0	345
Future Volume (veh/h)	0	0	2170	0	0	345
Initial Q (Qb), veh			0	0	0	0
Ped-Bike Adj(A_pbT)				1.00	1.00	1.00
Parking Bus, Adj			1.00	1.00	1.00	1.00
Work Zone On Approach			No		No	
Adj Sat Flow, veh/h/ln			1870	0	0	1870
Adj Flow Rate, veh/h			2359	0	0	375
Peak Hour Factor			0.92	0.92	0.92	0.92
Percent Heavy Veh, %			2	0	0	2
Cap, veh/h			6237	0	0	0
Arrive On Green			0.97	0.00	0.00	0.00
Sat Flow, veh/h			6958	0	0	
Grp Volume(v), veh/h			2359	0	0.0	
Grp Sat Flow(s),veh/h/ln			1609	0		
Q Serve(g_s), s			3.2	0.0		
Cycle Q Clear(g_c), s			3.2	0.0		
Prop In Lane				0.00		
Lane Grp Cap(c), veh/h			6237	0		
V/C Ratio(X)			0.38	0.00		
Avail Cap(c_a), veh/h			6237	0		
HCM Platoon Ratio			1.00	1.00		
Upstream Filter(I)			1.00	0.00		
Uniform Delay (d), s/veh			0.1	0.0		
Incr Delay (d2), s/veh			0.2	0.0		
Initial Q Delay(d3),s/veh			0.0	0.0		
%ile BackOfQ(50%),veh/ln			0.1	0.0		
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh			0.3	0.0		
LnGrp LOS			A	A		
Approach Vol, veh/h			2359			
Approach Delay, s/veh			0.3			
Approach LOS			A			

Timer - Assigned Phs	2
Phs Duration (G+Y+Rc), s	180.0
Change Period (Y+Rc), s	5.5
Max Green Setting (Gmax), s	116.5
Max Q Clear Time (g_c+I1), s	5.2
Green Ext Time (p_c), s	3.9

Intersection Summary	
HCM 6th Ctrl Delay	0.3
HCM 6th LOS	A



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	240	70	65	3160	2210	305
Future Volume (veh/h)	240	70	65	3160	2210	305
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	261	0	71	3435	2402	332
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	316		223	4285	4361	1219
Arrive On Green	0.09	0.00	0.13	0.84	0.68	0.68
Sat Flow, veh/h	3456	1585	1781	5274	6696	1585
Grp Volume(v), veh/h	261	0	71	3435	2402	332
Grp Sat Flow(s),veh/h/ln	1728	1585	1781	1702	1609	1585
Q Serve(g_s), s	13.4	0.0	6.5	59.5	34.6	11.0
Cycle Q Clear(g_c), s	13.4	0.0	6.5	59.5	34.6	11.0
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	316		223	4285	4361	1219
V/C Ratio(X)	0.83		0.32	0.80	0.55	0.27
Avail Cap(c_a), veh/h	403		223	4285	4361	1219
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	80.4	0.0	71.7	7.1	14.9	6.1
Incr Delay (d2), s/veh	18.7	0.0	0.8	1.7	0.5	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.9	0.0	3.1	17.9	12.2	5.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	99.1	0.0	72.5	8.8	15.4	6.6
LnGrp LOS	F		E	A	B	A
Approach Vol, veh/h	261	A		3506	2734	
Approach Delay, s/veh	99.1			10.1	14.3	
Approach LOS	F			B	B	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		157.6		22.4	29.1	128.5
Change Period (Y+Rc), s		6.5		6.0	6.5	6.5
Max Green Setting (Gmax), s		146.5		21.0	18.0	122.0
Max Q Clear Time (g_c+I1), s		61.5		15.4	8.5	36.6
Green Ext Time (p_c), s		77.7		1.1	0.1	3.8

Intersection Summary	
HCM 6th Ctrl Delay	15.4
HCM 6th LOS	B

Notes

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

2045 NO BUILD CONDITIONS

SYNCHRO ANALYSIS OUTPUTS

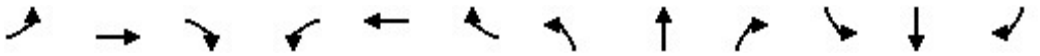


Movement	WBL	WBR	WBR2	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SER
Lane Configurations											
Traffic Volume (vph)	165	0	320	0	1695	360	440	1265	0	0	85
Future Volume (vph)	165	0	320	0	1695	360	440	1265	0	0	85
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5		6.5		7.0	7.0	7.0	7.0			7.0
Lane Util. Factor	0.97		0.88		0.91	1.00	0.97	0.91			1.00
Frt	1.00		0.85		1.00	0.85	1.00	1.00			0.86
Flt Protected	0.95		1.00		1.00	1.00	0.95	1.00			1.00
Satd. Flow (prot)	3433		2787		5085	1583	3433	5085			1611
Flt Permitted	0.95		1.00		1.00	1.00	0.95	1.00			1.00
Satd. Flow (perm)	3433		2787		5085	1583	3433	5085			1611
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	179	0	348	0	1842	391	478	1375	0	0	92
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	179	0	348	0	1842	391	478	1375	0	0	92
Turn Type	Prot		pt+ov		NA	Perm	Prot	NA			Prot
Protected Phases	4		4 1		2		1	6!			6!
Permitted Phases						2					
Actuated Green, G (s)	23.5		64.4		101.6	101.6	34.4	143.0			143.0
Effective Green, g (s)	23.5		64.4		101.6	101.6	34.4	143.0			143.0
Actuated g/C Ratio	0.13		0.36		0.56	0.56	0.19	0.79			0.79
Clearance Time (s)	6.5				7.0	7.0	7.0	7.0			7.0
Vehicle Extension (s)	4.0				2.0	2.0	5.0	2.0			2.0
Lane Grp Cap (vph)	448		997		2870	893	656	4039			1279
v/s Ratio Prot	0.05		c0.12		c0.36		c0.14	0.27			0.06
v/s Ratio Perm						0.25					
v/c Ratio	0.40		0.35		0.64	0.44	0.73	0.34			0.07
Uniform Delay, d1	71.8		42.4		26.8	22.7	68.4	5.2			4.0
Progression Factor	1.00		1.00		0.65	0.60	1.00	1.00			1.00
Incremental Delay, d2	0.8		0.3		0.9	1.2	5.0	0.2			0.1
Delay (s)	72.6		42.7		18.3	14.7	73.4	5.4			4.1
Level of Service	E		D		B	B	E	A			A
Approach Delay (s)	52.9				17.6			23.0		4.1	
Approach LOS	D				B			C		A	

Intersection Summary			
HCM 2000 Control Delay	23.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	20.5
Intersection Capacity Utilization	Err%	ICU Level of Service	H
Analysis Period (min)	15		

! Phase conflict between lane groups.

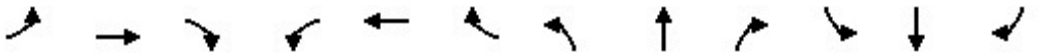
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	360	15	150	35	215	0	0	440	35
Future Volume (vph)	0	0	0	360	15	150	35	215	0	0	440	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				5.5	5.5	5.5	5.5	5.5			9.0	
Lane Util. Factor				0.95	0.95	1.00	1.00	1.00			0.95	
Frt				1.00	1.00	0.85	1.00	1.00			0.99	
Flt Protected				0.95	0.96	1.00	0.95	1.00			1.00	
Satd. Flow (prot)				1681	1692	1583	1770	1863			3500	
Flt Permitted				0.95	0.96	1.00	0.43	1.00			1.00	
Satd. Flow (perm)				1681	1692	1583	806	1863			3500	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	391	16	163	38	234	0	0	478	38
RTOR Reduction (vph)	0	0	0	0	0	124	0	0	0	0	6	0
Lane Group Flow (vph)	0	0	0	203	204	39	38	234	0	0	510	0
Turn Type				Split	NA	Perm	custom	NA			NA	
Protected Phases				3	3		1 4	4 5			2	
Permitted Phases						3	5					
Actuated Green, G (s)				19.8	19.8	19.8	50.1	51.4			21.4	
Effective Green, g (s)				19.8	19.8	19.8	50.1	42.4			21.4	
Actuated g/C Ratio				0.24	0.24	0.24	0.61	0.52			0.26	
Clearance Time (s)				5.5	5.5	5.5					9.0	
Vehicle Extension (s)				5.0	5.0	5.0					2.0	
Lane Grp Cap (vph)				404	407	381	737	960			911	
v/s Ratio Prot				c0.12	0.12		c0.01	c0.13			c0.15	
v/s Ratio Perm						0.02	0.02					
v/c Ratio				0.50	0.50	0.10	0.05	0.24			0.56	
Uniform Delay, d1				26.9	26.9	24.3	7.3	11.0			26.3	
Progression Factor				1.00	1.00	1.00	0.11	0.12			1.00	
Incremental Delay, d2				2.1	2.0	0.2	0.1	0.3			0.4	
Delay (s)				29.0	29.0	24.5	0.9	1.6			26.7	
Level of Service				C	C	C	A	A			C	
Approach Delay (s)		0.0			27.7			1.5			26.7	
Approach LOS		A			C			A			C	

Intersection Summary			
HCM 2000 Control Delay	22.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	82.2	Sum of lost time (s)	29.0
Intersection Capacity Utilization	43.6%	ICU Level of Service	A
Analysis Period (min)	15		

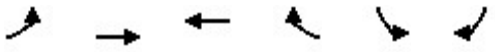
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	65	5	135	0	0	0	0	185	100	95	705	0
Future Volume (vph)	65	5	135	0	0	0	0	185	100	95	705	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5	5.5					9.0	9.0		9.0	
Lane Util. Factor		1.00	1.00					1.00	1.00		0.95	
Frt		1.00	0.85					1.00	0.85		1.00	
Flt Protected		0.96	1.00					1.00	1.00		0.99	
Satd. Flow (prot)		1780	1583					1863	1583		3518	
Flt Permitted		0.96	1.00					1.00	1.00		0.88	
Satd. Flow (perm)		1780	1583					1863	1583		3099	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	71	5	147	0	0	0	0	201	109	103	766	0
RTOR Reduction (vph)	0	0	123	0	0	0	0	0	70	0	0	0
Lane Group Flow (vph)	0	76	24	0	0	0	0	201	39	0	869	0
Turn Type	Split	NA	Perm					NA	Perm	custom	NA	
Protected Phases	4	4						5		3 6	2 3	
Permitted Phases			4						5	2		
Actuated Green, G (s)		13.3	13.3					29.1	29.1		41.2	
Effective Green, g (s)		13.3	13.3					29.1	29.1		41.2	
Actuated g/C Ratio		0.16	0.16					0.35	0.35		0.50	
Clearance Time (s)		5.5	5.5					9.0	9.0			
Vehicle Extension (s)		5.0	5.0					2.0	2.0			
Lane Grp Cap (vph)		288	256					659	560		1654	
v/s Ratio Prot		c0.04						0.11			c0.13	
v/s Ratio Perm			0.02						0.02		c0.14	
v/c Ratio		0.26	0.09					0.31	0.07		0.53	
Uniform Delay, d1		30.2	29.3					19.2	17.6		13.9	
Progression Factor		1.00	1.00					1.00	1.00		0.29	
Incremental Delay, d2		1.0	0.3					0.1	0.0		0.1	
Delay (s)		31.2	29.6					19.3	17.6		4.2	
Level of Service		C	C					B	B		A	
Approach Delay (s)		30.2			0.0			18.7			4.2	
Approach LOS		C			A			B			A	

Intersection Summary			
HCM 2000 Control Delay	11.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	82.2	Sum of lost time (s)	29.0
Intersection Capacity Utilization	55.7%	ICU Level of Service	B
Analysis Period (min)	15		

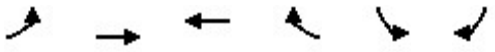
c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	2930	320	0	0	620
Future Volume (vph)	0	2930	320	0	0	620
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5	6.5			6.5
Lane Util. Factor		0.86	0.91			0.88
Frt		1.00	1.00			0.85
Flt Protected		1.00	1.00			1.00
Satd. Flow (prot)		6408	5085			2787
Flt Permitted		1.00	1.00			1.00
Satd. Flow (perm)		6408	5085			2787
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	3185	348	0	0	674
RTOR Reduction (vph)	0	0	0	0	0	127
Lane Group Flow (vph)	0	3185	348	0	0	547
Turn Type		NA	NA			custom
Protected Phases		1 2 4 6	2			1 4
Permitted Phases						
Actuated Green, G (s)		180.0	49.5			117.5
Effective Green, g (s)		180.0	49.5			117.5
Actuated g/C Ratio		1.00	0.28			0.65
Clearance Time (s)			6.5			
Vehicle Extension (s)			2.0			
Lane Grp Cap (vph)		6408	1398			1819
v/s Ratio Prot		c0.50	0.07			0.20
v/s Ratio Perm						
v/c Ratio		0.50	0.25			0.30
Uniform Delay, d1		0.0	50.8			13.5
Progression Factor		1.00	0.07			2.09
Incremental Delay, d2		0.2	0.4			0.2
Delay (s)		0.2	3.9			28.4
Level of Service		A	A			C
Approach Delay (s)		0.2	3.9		28.4	
Approach LOS		A	A		C	

Intersection Summary			
HCM 2000 Control Delay	5.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	19.5
Intersection Capacity Utilization	47.9%	ICU Level of Service	A
Analysis Period (min)	15		

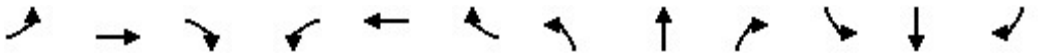
c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	1000	1930	320	0	450	0
Future Volume (vph)	1000	1930	320	0	450	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5	6.5		6.5	
Lane Util. Factor	0.97	0.95	0.91		0.97	
Frt	1.00	1.00	1.00		1.00	
Flt Protected	0.95	1.00	1.00		0.95	
Satd. Flow (prot)	3433	3539	5085		3433	
Flt Permitted	0.95	1.00	1.00		0.95	
Satd. Flow (perm)	3433	3539	5085		3433	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1087	2098	348	0	489	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	1087	2098	348	0	489	0
Turn Type	Prot	NA	NA		Prot	
Protected Phases	1	6	2		4	
Permitted Phases						
Actuated Green, G (s)	80.5	136.5	49.5		30.5	
Effective Green, g (s)	80.5	136.5	49.5		30.5	
Actuated g/C Ratio	0.45	0.76	0.28		0.17	
Clearance Time (s)	6.5	6.5	6.5		6.5	
Vehicle Extension (s)	6.0	2.0	2.0		4.0	
Lane Grp Cap (vph)	1535	2683	1398		581	
v/s Ratio Prot	0.32	c0.59	0.07		c0.14	
v/s Ratio Perm						
v/c Ratio	0.71	0.78	0.25		0.84	
Uniform Delay, d1	40.2	12.9	50.8		72.4	
Progression Factor	1.00	1.00	1.00		1.11	
Incremental Delay, d2	2.0	2.1	0.4		10.4	
Delay (s)	42.2	15.0	51.2		90.7	
Level of Service	D	B	D		F	
Approach Delay (s)		24.3	51.2		90.7	
Approach LOS		C	D		F	

Intersection Summary			
HCM 2000 Control Delay	34.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	19.5
Intersection Capacity Utilization	77.0%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	605	0	30	0	0	175	20	1275	95	100	1040	375
Future Volume (vph)	605	0	30	0	0	175	20	1275	95	100	1040	375
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0		8.0			5.0	5.0	7.0	4.0	5.0	7.0	4.0
Lane Util. Factor	0.97		1.00			0.88	1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00		0.85			0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95		1.00			1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433		1583			2787	1770	5085	1583	1770	5085	1583
Flt Permitted	0.95		1.00			1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433		1583			2787	1770	5085	1583	1770	5085	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	658	0	33	0	0	190	22	1386	103	109	1130	408
RTOR Reduction (vph)	0	0	26	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	658	0	7	0	0	190	22	1386	103	109	1130	408
Turn Type	Prot		Perm			pt+ov	Prot	NA	Free	Prot	NA	Free
Protected Phases	3					1 4	5	2		1	6	
Permitted Phases			3						Free			Free
Actuated Green, G (s)	39.4		39.4			37.8	5.4	82.8	180.0	16.4	93.8	180.0
Effective Green, g (s)	39.4		39.4			32.3	5.4	82.8	180.0	16.4	93.8	180.0
Actuated g/C Ratio	0.22		0.22			0.18	0.03	0.46	1.00	0.09	0.52	1.00
Clearance Time (s)	8.0		8.0				5.0	7.0		5.0	7.0	
Vehicle Extension (s)	3.0		3.0				3.0	2.0		3.0	2.0	
Lane Grp Cap (vph)	751		346			500	53	2339	1583	161	2649	1583
v/s Ratio Prot	c0.19					c0.07	0.01	c0.27		c0.06	0.22	
v/s Ratio Perm			0.00						0.07			0.26
v/c Ratio	0.88		0.02			0.38	0.42	0.59	0.07	0.68	0.43	0.26
Uniform Delay, d1	67.9		55.2			65.0	85.7	36.1	0.0	79.2	26.5	0.0
Progression Factor	1.00		1.00			1.00	1.45	0.30	1.00	1.19	0.86	1.00
Incremental Delay, d2	11.2		0.0			0.5	4.5	1.0	0.1	10.4	0.5	0.4
Delay (s)	79.1		55.2			65.5	128.7	11.9	0.1	104.5	23.3	0.4
Level of Service	E		E			E	F	B	A	F	C	A
Approach Delay (s)		78.0			65.5			12.8			23.0	
Approach LOS		E			E			B			C	

Intersection Summary			
HCM 2000 Control Delay	30.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	25.5
Intersection Capacity Utilization	61.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

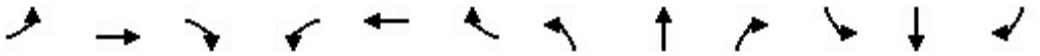


Movement	WBL	WBR	WBR2	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SER
Lane Configurations											
Traffic Volume (vph)	375	0	555	0	1680	285	555	2190	0	0	355
Future Volume (vph)	375	0	555	0	1680	285	555	2190	0	0	355
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5		7.0		7.0	7.0	7.0	7.0			7.0
Lane Util. Factor	0.97		0.88		0.91	1.00	0.97	0.91			1.00
Frt	1.00		0.85		1.00	0.85	1.00	1.00			0.86
Flt Protected	0.95		1.00		1.00	1.00	0.95	1.00			1.00
Satd. Flow (prot)	3433		2787		5085	1583	3433	5085			1611
Flt Permitted	0.95		1.00		1.00	1.00	0.95	1.00			1.00
Satd. Flow (perm)	3433		2787		5085	1583	3433	5085			1611
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	408	0	603	0	1826	310	603	2380	0	0	386
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	408	0	603	0	1826	310	603	2380	0	0	386
Turn Type	Prot		pt+ov		NA	Perm	Prot	NA			Prot
Protected Phases	4		1 4		2		1	6!			6!
Permitted Phases						2					
Actuated Green, G (s)	35.6		82.9		83.1	83.1	40.8	130.9			130.9
Effective Green, g (s)	35.6		76.4		83.1	83.1	40.8	130.9			130.9
Actuated g/C Ratio	0.20		0.42		0.46	0.46	0.23	0.73			0.73
Clearance Time (s)	6.5				7.0	7.0	7.0	7.0			7.0
Vehicle Extension (s)	4.0				2.0	2.0	5.0	2.0			2.0
Lane Grp Cap (vph)	678		1182		2347	730	778	3697			1171
v/s Ratio Prot	c0.12		0.22		c0.36		c0.18	0.47			0.24
v/s Ratio Perm						0.20					
v/c Ratio	0.60		0.51		0.78	0.42	0.78	0.64			0.33
Uniform Delay, d1	65.7		38.1		40.7	32.4	65.3	12.6			8.8
Progression Factor	1.00		1.00		0.70	0.69	1.00	1.00			1.00
Incremental Delay, d2	1.7		0.7		2.1	1.5	5.7	0.9			0.8
Delay (s)	67.5		38.8		30.8	23.8	71.0	13.5			9.6
Level of Service	E		D		C	C	E	B			A
Approach Delay (s)	50.4				29.8			25.1		9.6	
Approach LOS	D				C			C		A	

Intersection Summary			
HCM 2000 Control Delay	29.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	20.5
Intersection Capacity Utilization	Err%	ICU Level of Service	H
Analysis Period (min)	15		

! Phase conflict between lane groups.

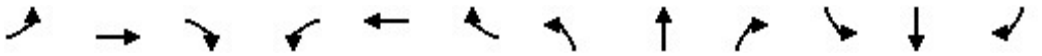
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	300	65	50	205	315	0	0	365	85
Future Volume (vph)	0	0	0	300	65	50	205	315	0	0	365	85
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				5.5	5.5	5.5	5.5	5.5			9.0	
Lane Util. Factor				0.95	0.95	1.00	1.00	1.00			0.95	
Frt				1.00	1.00	0.85	1.00	1.00			0.97	
Flt Protected				0.95	0.97	1.00	0.95	1.00			1.00	
Satd. Flow (prot)				1681	1714	1583	1770	1863			3439	
Flt Permitted				0.95	0.97	1.00	0.43	1.00			1.00	
Satd. Flow (perm)				1681	1714	1583	807	1863			3439	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	326	71	54	223	342	0	0	397	92
RTOR Reduction (vph)	0	0	0	0	0	42	0	0	0	0	20	0
Lane Group Flow (vph)	0	0	0	196	201	12	223	342	0	0	469	0
Turn Type				Split	NA	Perm	custom	NA			NA	
Protected Phases				3	3		1 4	4 5			2	
Permitted Phases						3	5					
Actuated Green, G (s)				19.4	19.4	19.4	60.5	60.5			21.4	
Effective Green, g (s)				19.4	19.4	19.4	60.5	51.5			21.4	
Actuated g/C Ratio				0.21	0.21	0.21	0.67	0.57			0.24	
Clearance Time (s)				5.5	5.5	5.5					9.0	
Vehicle Extension (s)				5.0	5.0	5.0					2.0	
Lane Grp Cap (vph)				358	365	337	855	1055			809	
v/s Ratio Prot				0.12	c0.12		c0.09	c0.18			c0.14	
v/s Ratio Perm						0.01	0.09					
v/c Ratio				0.55	0.55	0.03	0.26	0.32			0.58	
Uniform Delay, d1				31.8	31.9	28.3	8.0	10.5			30.8	
Progression Factor				1.00	1.00	1.00	0.06	0.05			1.00	
Incremental Delay, d2				3.0	3.0	0.1	0.3	0.3			0.6	
Delay (s)				34.8	34.9	28.4	0.7	0.8			31.4	
Level of Service				C	C	C	A	A			C	
Approach Delay (s)		0.0			34.1			0.8			31.4	
Approach LOS		A			C			A			C	

Intersection Summary			
HCM 2000 Control Delay	20.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	90.9	Sum of lost time (s)	29.0
Intersection Capacity Utilization	50.8%	ICU Level of Service	A
Analysis Period (min)	15		

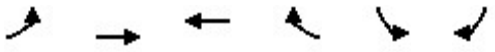
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	60	5	140	0	0	0	0	460	750	115	550	0
Future Volume (vph)	60	5	140	0	0	0	0	460	750	115	550	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5	5.5					9.0	9.0		9.0	
Lane Util. Factor		1.00	1.00					1.00	1.00		0.95	
Frt		1.00	0.85					1.00	0.85		1.00	
Flt Protected		0.96	1.00					1.00	1.00		0.99	
Satd. Flow (prot)		1780	1583					1863	1583		3509	
Flt Permitted		0.96	1.00					1.00	1.00		0.57	
Satd. Flow (perm)		1780	1583					1863	1583		2003	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	65	5	152	0	0	0	0	500	815	125	598	0
RTOR Reduction (vph)	0	0	123	0	0	0	0	0	456	0	0	0
Lane Group Flow (vph)	0	70	29	0	0	0	0	500	359	0	723	0
Turn Type	Split	NA	Perm					NA	Perm	custom	NA	
Protected Phases	4	4						5		3 6	2 3	
Permitted Phases			4						5	2		
Actuated Green, G (s)		17.1	17.1					34.4	34.4		40.8	
Effective Green, g (s)		17.1	17.1					34.4	34.4		40.8	
Actuated g/C Ratio		0.19	0.19					0.38	0.38		0.45	
Clearance Time (s)		5.5	5.5					9.0	9.0			
Vehicle Extension (s)		5.0	5.0					2.0	2.0			
Lane Grp Cap (vph)		334	297					705	599		1220	
v/s Ratio Prot		c0.04						c0.27			c0.13	
v/s Ratio Perm			0.02						0.23		0.14	
v/c Ratio		0.21	0.10					0.71	0.60		0.59	
Uniform Delay, d1		31.2	30.5					24.0	22.7		18.8	
Progression Factor		1.00	1.00					1.00	1.00		0.67	
Incremental Delay, d2		0.7	0.3					2.7	1.1		0.5	
Delay (s)		31.8	30.8					26.7	23.8		13.1	
Level of Service		C	C					C	C		B	
Approach Delay (s)		31.1			0.0			24.9			13.1	
Approach LOS		C			A			C			B	

Intersection Summary			
HCM 2000 Control Delay	21.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	90.9	Sum of lost time (s)	29.0
Intersection Capacity Utilization	88.7%	ICU Level of Service	E
Analysis Period (min)	15		

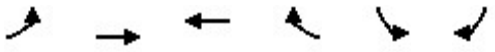
c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	1305	1495	0	0	1300
Future Volume (vph)	0	1305	1495	0	0	1300
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5	6.5			6.5
Lane Util. Factor		0.86	0.91			0.88
Frt		1.00	1.00			0.85
Flt Protected		1.00	1.00			1.00
Satd. Flow (prot)		6408	5085			2787
Flt Permitted		1.00	1.00			1.00
Satd. Flow (perm)		6408	5085			2787
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1418	1625	0	0	1413
RTOR Reduction (vph)	0	0	0	0	0	2
Lane Group Flow (vph)	0	1418	1625	0	0	1411
Turn Type		NA	NA			custom
Protected Phases		1 2 4 6	2			1 4
Permitted Phases						
Actuated Green, G (s)		180.0	67.3			99.7
Effective Green, g (s)		180.0	67.3			99.7
Actuated g/C Ratio		1.00	0.37			0.55
Clearance Time (s)			6.5			
Vehicle Extension (s)			2.0			
Lane Grp Cap (vph)		6408	1901			1543
v/s Ratio Prot		0.22	c0.32			c0.51
v/s Ratio Perm						
v/c Ratio		0.22	0.85			0.91
Uniform Delay, d1		0.0	51.9			36.3
Progression Factor		1.00	0.07			0.68
Incremental Delay, d2		0.0	2.6			7.2
Delay (s)		0.0	6.2			31.9
Level of Service		A	A			C
Approach Delay (s)		0.0	6.2		31.9	
Approach LOS		A	A		C	

Intersection Summary			
HCM 2000 Control Delay	12.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	19.5
Intersection Capacity Utilization	85.2%	ICU Level of Service	E
Analysis Period (min)	15		

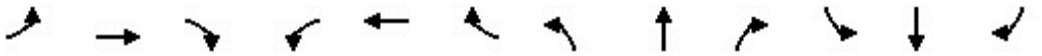
c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	750	555	1495	0	290	0
Future Volume (vph)	750	555	1495	0	290	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5	6.5		6.5	
Lane Util. Factor	0.97	0.95	0.91		0.97	
Frt	1.00	1.00	1.00		1.00	
Flt Protected	0.95	1.00	1.00		0.95	
Satd. Flow (prot)	3433	3539	5085		3433	
Flt Permitted	0.95	1.00	1.00		0.95	
Satd. Flow (perm)	3433	3539	5085		3433	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	815	603	1625	0	315	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	815	603	1625	0	315	0
Turn Type	Prot	NA	NA		Prot	
Protected Phases	1	6	2		4	
Permitted Phases						
Actuated Green, G (s)	72.5	146.3	67.3		20.7	
Effective Green, g (s)	72.5	146.3	67.3		20.7	
Actuated g/C Ratio	0.40	0.81	0.37		0.11	
Clearance Time (s)	6.5	6.5	6.5		6.5	
Vehicle Extension (s)	6.0	2.0	2.0		4.0	
Lane Grp Cap (vph)	1382	2876	1901		394	
v/s Ratio Prot	c0.24	0.17	c0.32		c0.09	
v/s Ratio Perm						
v/c Ratio	0.59	0.21	0.85		0.80	
Uniform Delay, d1	42.1	3.8	51.9		77.6	
Progression Factor	1.00	1.00	1.00		0.94	
Incremental Delay, d2	1.2	0.2	5.2		8.5	
Delay (s)	43.3	4.0	57.0		81.1	
Level of Service	D	A	E		F	
Approach Delay (s)		26.6	57.0		81.1	
Approach LOS		C	E		F	

Intersection Summary			
HCM 2000 Control Delay	46.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	19.5
Intersection Capacity Utilization	74.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	420	0	25	0	0	315	90	1230	185	155	1565	1200
Future Volume (vph)	420	0	25	0	0	315	90	1230	185	155	1565	1200
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0		8.0			5.0	5.0	7.0	4.0	5.0	7.0	4.0
Lane Util. Factor	0.97		1.00			0.88	1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00		0.85			0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95		1.00			1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433		1583			2787	1770	5085	1583	1770	5085	1583
Flt Permitted	0.95		1.00			1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433		1583			2787	1770	5085	1583	1770	5085	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	457	0	27	0	0	342	98	1337	201	168	1701	1304
RTOR Reduction (vph)	0	0	23	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	457	0	4	0	0	342	98	1337	201	168	1701	1304
Turn Type	Prot		Perm			pt+ov	Prot	NA	Free	Prot	NA	Free
Protected Phases	3					1 4	5	2		1	6	
Permitted Phases			3						Free			Free
Actuated Green, G (s)	28.6		28.6			51.2	15.0	80.2	180.0	22.0	87.2	180.0
Effective Green, g (s)	28.6		28.6			45.7	15.0	80.2	180.0	22.0	87.2	180.0
Actuated g/C Ratio	0.16		0.16			0.25	0.08	0.45	1.00	0.12	0.48	1.00
Clearance Time (s)	8.0		8.0				5.0	7.0		5.0	7.0	
Vehicle Extension (s)	3.0		3.0				3.0	2.0		3.0	2.0	
Lane Grp Cap (vph)	545		251			707	147	2265	1583	216	2463	1583
v/s Ratio Prot	0.13					0.12	0.06	0.26		0.09	0.33	
v/s Ratio Perm			0.00						0.13			c0.82
v/c Ratio	0.84		0.02			0.48	0.67	0.59	0.13	0.78	0.69	0.82
Uniform Delay, d1	73.5		63.8			57.1	80.1	37.5	0.0	76.6	35.9	0.0
Progression Factor	1.00		1.00			1.00	0.78	1.59	1.00	0.92	0.90	1.00
Incremental Delay, d2	10.9		0.0			0.5	10.6	1.1	0.2	13.3	1.3	4.1
Delay (s)	84.3		63.9			57.6	73.3	60.8	0.2	84.1	33.6	4.1
Level of Service	F		E			E	E	E	A	F	C	A
Approach Delay (s)		83.2			57.6			54.1			24.2	
Approach LOS		F			E			D			C	

Intersection Summary			
HCM 2000 Control Delay	40.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	25.5
Intersection Capacity Utilization	60.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	85	2055	200	20	255	545	105	10	65	60	130	270
Future Volume (vph)	85	2055	200	20	255	545	105	10	65	60	130	270
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	6.0	6.0		4.5	6.0	6.0	5.0	6.5	6.5	5.0	6.5
Lane Util. Factor	1.00	0.91	1.00		0.97	0.91	1.00	1.00	0.95	1.00	0.97	1.00
Frt	1.00	1.00	0.85		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	5085	1583		3433	5085	1583	1770	3539	1583	3433	1863
Flt Permitted	0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	5085	1583		3433	5085	1583	1770	3539	1583	3433	1863
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	92	2234	217	22	277	592	114	11	71	65	141	293
RTOR Reduction (vph)	0	0	103	0	0	0	50	0	0	55	0	0
Lane Group Flow (vph)	92	2234	114	0	299	592	64	11	71	10	141	293
Turn Type	Prot	NA	Perm	Prot	Prot	NA	Perm	Prot	NA	Perm	Prot	NA
Protected Phases	5	2		1	1	6		3	8		7	4
Permitted Phases			2				6			8		
Actuated Green, G (s)	12.7	78.9	78.9		17.5	83.7	83.7	1.6	23.6	23.6	8.0	30.0
Effective Green, g (s)	12.7	78.9	78.9		17.5	83.7	83.7	1.6	23.6	23.6	8.0	30.0
Actuated g/C Ratio	0.08	0.53	0.53		0.12	0.56	0.56	0.01	0.16	0.16	0.05	0.20
Clearance Time (s)	4.5	6.0	6.0		4.5	6.0	6.0	5.0	6.5	6.5	5.0	6.5
Vehicle Extension (s)	3.0	2.0	2.0		3.0	2.0	2.0	3.0	4.0	4.0	3.0	4.0
Lane Grp Cap (vph)	149	2674	832		400	2837	883	18	556	249	183	372
v/s Ratio Prot	0.05	c0.44			c0.09	0.12		0.01	0.02		c0.04	c0.16
v/s Ratio Perm			0.07				0.04			0.01		
v/c Ratio	0.62	0.84	0.14		0.75	0.21	0.07	0.61	0.13	0.04	0.77	0.79
Uniform Delay, d1	66.3	30.1	18.2		64.1	16.6	15.3	73.9	54.3	53.6	70.1	57.0
Progression Factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	7.4	3.3	0.3		7.5	0.2	0.2	48.7	0.1	0.1	17.9	11.1
Delay (s)	73.7	33.3	18.5		71.6	16.8	15.4	122.6	54.5	53.7	88.0	68.1
Level of Service	E	C	B		E	B	B	F	D	D	F	E
Approach Delay (s)		33.5				32.9			59.2			71.2
Approach LOS		C				C			E			E

Intersection Summary			
HCM 2000 Control Delay	38.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	75.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	SBR
Lane Configurations	
Traffic Volume (vph)	60
Future Volume (vph)	60
Ideal Flow (vphpl)	1900
Total Lost time (s)	6.5
Lane Util. Factor	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1583
Flt Permitted	1.00
Satd. Flow (perm)	1583
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	65
RTOR Reduction (vph)	52
Lane Group Flow (vph)	13
Turn Type	Perm
Protected Phases	
Permitted Phases	4
Actuated Green, G (s)	30.0
Effective Green, g (s)	30.0
Actuated g/C Ratio	0.20
Clearance Time (s)	6.5
Vehicle Extension (s)	4.0
Lane Grp Cap (vph)	316
v/s Ratio Prot	
v/s Ratio Perm	0.01
v/c Ratio	0.04
Uniform Delay, d1	48.4
Progression Factor	1.00
Incremental Delay, d2	0.1
Delay (s)	48.5
Level of Service	D
Approach Delay (s)	
Approach LOS	

Intersection Summary

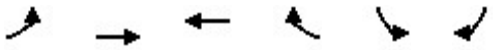
Intersection	
Int Delay, s/veh	9.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	230	145	180	0	0	875
Future Vol, veh/h	230	145	180	0	0	875
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	250	158	196	0	0	951

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	672	98	0	-	-	-
Stage 1	196	-	-	-	-	-
Stage 2	476	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	-	-
Pot Cap-1 Maneuver	389	939	-	0	0	-
Stage 1	818	-	-	0	0	-
Stage 2	591	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	389	939	-	-	-	-
Mov Cap-2 Maneuver	389	-	-	-	-	-
Stage 1	818	-	-	-	-	-
Stage 2	591	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	36.1	0	0
HCM LOS	E		

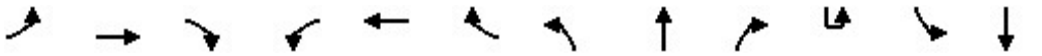
Minor Lane/Major Mvmt	NBT	WBLn1	SBT
Capacity (veh/h)	-	503	-
HCM Lane V/C Ratio	-	0.81	-
HCM Control Delay (s)	-	36.1	-
HCM Lane LOS	-	E	-
HCM 95th %tile Q(veh)	-	7.8	-



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	55	710	120	205	165	15
Future Volume (veh/h)	55	710	120	205	165	15
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	60	772	130	223	179	16
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	114	1856	542	484	438	303
Arrive On Green	0.06	0.52	0.31	0.31	0.13	0.13
Sat Flow, veh/h	1781	3647	1870	1585	3456	1585
Grp Volume(v), veh/h	60	772	130	223	179	16
Grp Sat Flow(s),veh/h/ln	1781	1777	1777	1585	1728	1585
Q Serve(g_s), s	1.1	4.3	1.8	3.7	1.6	0.3
Cycle Q Clear(g_c), s	1.1	4.3	1.8	3.7	1.6	0.3
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	114	1856	542	484	438	303
V/C Ratio(X)	0.52	0.42	0.24	0.46	0.41	0.05
Avail Cap(c_a), veh/h	653	5913	2034	1815	2532	1263
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	14.8	4.8	8.5	9.2	13.2	10.8
Incr Delay (d2), s/veh	3.7	0.1	0.1	0.3	0.6	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.6	0.5	0.9	0.5	0.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	18.5	4.8	8.6	9.5	13.8	10.9
LnGrp LOS	B	A	A	A	B	B
Approach Vol, veh/h		832	353		195	
Approach Delay, s/veh		5.8	9.1		13.5	
Approach LOS		A	A		B	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	7.1	15.5		10.2		22.6
Change Period (Y+Rc), s	5.0	5.5		6.0		5.5
Max Green Setting (Gmax), s	12.0	37.5		24.0		54.5
Max Q Clear Time (g_c+I1), s	3.1	5.7		3.6		6.3
Green Ext Time (p_c), s	0.1	1.4		0.6		3.8

Intersection Summary	
HCM 6th Ctrl Delay	7.8
HCM 6th LOS	A



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	100	10	10	25	5	50	5	1265	25	120	325	1855
Future Volume (vph)	100	10	10	25	5	50	5	1265	25	120	325	1855
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	11	10	12	11	11	11	11	12	12	10	11
Grade (%)		5%			0%			3%				1%
Total Lost time (s)	6.5	6.5	6.5		6.5	6.5	6.0	6.0			4.5	6.0
Lane Util. Factor	0.95	0.95	1.00		1.00	1.00	1.00	0.91			1.00	0.91
Frt	1.00	1.00	0.85		1.00	0.85	1.00	1.00			1.00	0.99
Flt Protected	0.95	0.96	1.00		0.96	1.00	0.95	1.00			0.95	1.00
Satd. Flow (prot)	1584	1602	1441		1728	1531	1685	4828			1643	4825
Flt Permitted	0.95	0.96	1.00		0.96	1.00	0.07	1.00			0.10	1.00
Satd. Flow (perm)	1584	1602	1441		1728	1531	133	4828			176	4825
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	109	11	11	27	5	54	5	1375	27	130	353	2016
RTOR Reduction (vph)	0	0	10	0	0	52	0	1	0	0	0	7
Lane Group Flow (vph)	60	60	1	0	32	2	5	1401	0	0	483	2210
Turn Type	Split	NA	Perm	Split	NA	Perm	Perm	NA		pm+pt	pm+pt	NA
Protected Phases	4	4		8	8			6		5	5	2
Permitted Phases			4			8	6			2	2	
Actuated Green, G (s)	9.9	9.9	9.9		5.4	5.4	67.8	67.8			115.7	115.7
Effective Green, g (s)	9.9	9.9	9.9		5.4	5.4	67.8	67.8			115.7	115.7
Actuated g/C Ratio	0.07	0.07	0.07		0.04	0.04	0.45	0.45			0.77	0.77
Clearance Time (s)	6.5	6.5	6.5		6.5	6.5	6.0	6.0			4.5	6.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	104	105	95		62	55	60	2182			560	3721
v/s Ratio Prot	c0.04	0.04			c0.02			0.29			c0.25	0.46
v/s Ratio Perm			0.00			0.00	0.04				c0.41	
v/c Ratio	0.58	0.57	0.01		0.52	0.04	0.08	0.64			0.86	0.59
Uniform Delay, d1	68.0	68.0	65.5		71.0	69.8	23.4	31.7			37.2	7.2
Progression Factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00			1.16	0.66
Incremental Delay, d2	7.5	7.3	0.0		7.1	0.3	2.7	1.5			9.4	0.5
Delay (s)	75.6	75.3	65.5		78.1	70.0	26.1	33.2			52.6	5.3
Level of Service	E	E	E		E	E	C	C			D	A
Approach Delay (s)		74.6			73.0			33.2				13.7
Approach LOS		E			E			C				B

Intersection Summary			
HCM 2000 Control Delay	23.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	23.5
Intersection Capacity Utilization	77.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	SBR
Lane Configurations	
Traffic Volume (vph)	185
Future Volume (vph)	185
Ideal Flow (vphpl)	1900
Lane Width	12
Grade (%)	
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	201
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

Intersection Summary



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	410	885	0	1085	1600	535
Future Volume (veh/h)	410	885	0	1085	1600	535
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1817	1817	0	1847	1817	1817
Adj Flow Rate, veh/h	446	962	0	1179	1739	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	0	2	2	2
Cap, veh/h	1313	1060	0	2717	2674	
Arrive On Green	0.39	0.39	0.00	0.54	0.72	0.00
Sat Flow, veh/h	3358	2711	0	5374	5125	1540
Grp Volume(v), veh/h	446	962	0	1179	1739	0
Grp Sat Flow(s),veh/h/ln	1679	1355	0	1681	1654	1540
Q Serve(g_s), s	14.0	50.3	0.0	21.1	27.9	0.0
Cycle Q Clear(g_c), s	14.0	50.3	0.0	21.1	27.9	0.0
Prop In Lane	1.00	1.00	0.00			1.00
Lane Grp Cap(c), veh/h	1313	1060	0	2717	2674	
V/C Ratio(X)	0.34	0.91	0.00	0.43	0.65	
Avail Cap(c_a), veh/h	1612	1301	0	2717	2674	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.33	1.33
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.81	0.00
Uniform Delay (d), s/veh	32.1	43.1	0.0	20.8	13.7	0.0
Incr Delay (d2), s/veh	0.2	8.2	0.0	0.5	1.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.9	18.2	0.0	8.3	8.2	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	32.2	51.3	0.0	21.3	14.7	0.0
LnGrp LOS	C	D	A	C	B	
Approach Vol, veh/h	1408			1179	1739	A
Approach Delay, s/veh	45.3			21.3	14.7	
Approach LOS	D			C	B	

Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		86.3		63.7		86.3
Change Period (Y+Rc), s		5.5		5.0		5.5
Max Green Setting (Gmax), s		67.5		72.0		67.5
Max Q Clear Time (g_c+I1), s		29.9		52.3		23.1
Green Ext Time (p_c), s		17.5		6.4		10.3

Intersection Summary		
HCM 6th Ctrl Delay		26.5
HCM 6th LOS		C

Notes

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.



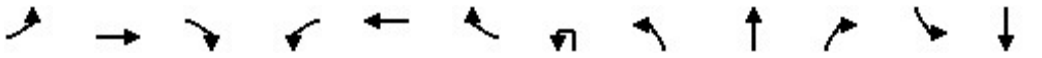
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	860	315	1100	395	0	1275
Future Volume (veh/h)	860	315	1100	395	0	1275
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1864	1939	1847	1847	0	1847
Adj Flow Rate, veh/h	935	0	1196	0	0	1386
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	0	2
Cap, veh/h	1036		3156		0	3977
Arrive On Green	0.30	0.00	0.83	0.00	0.00	0.63
Sat Flow, veh/h	3445	1643	5208	1565	0	6870
Grp Volume(v), veh/h	935	0	1196	0	0	1386
Grp Sat Flow(s),veh/h/ln	1722	1643	1681	1565	0	1588
Q Serve(g_s), s	39.1	0.0	8.7	0.0	0.0	15.7
Cycle Q Clear(g_c), s	39.1	0.0	8.7	0.0	0.0	15.7
Prop In Lane	1.00	1.00		1.00	0.00	
Lane Grp Cap(c), veh/h	1036		3156		0	3977
V/C Ratio(X)	0.90		0.38		0.00	0.35
Avail Cap(c_a), veh/h	1734		3156		0	3977
HCM Platoon Ratio	1.00	1.00	1.33	1.33	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.91	0.00	0.00	1.00
Uniform Delay (d), s/veh	50.3	0.0	5.4	0.0	0.0	13.4
Incr Delay (d2), s/veh	4.1	0.0	0.3	0.0	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	17.4	0.0	2.5	0.0	0.0	5.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	54.4	0.0	5.7	0.0	0.0	13.7
LnGrp LOS	D		A		A	B
Approach Vol, veh/h	935	A	1196	A		1386
Approach Delay, s/veh	54.4		5.7			13.7
Approach LOS	D		A			B

Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		99.4		50.6		99.4
Change Period (Y+Rc), s		5.5		5.5		5.5
Max Green Setting (Gmax), s		63.5		75.5		63.5
Max Q Clear Time (g_c+I1), s		17.7		41.1		10.7
Green Ext Time (p_c), s		13.2		4.0		10.7

Intersection Summary	
HCM 6th Ctrl Delay	21.8
HCM 6th LOS	C

Notes

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.



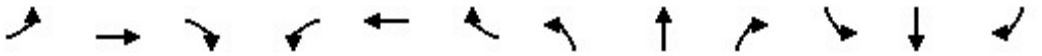
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	35	10	65	185	10	55	5	130	1000	280	145	1435
Future Volume (vph)	35	10	65	185	10	55	5	130	1000	280	145	1435
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	9	9	10	11	9	12	11	11	10	10	12
Grade (%)		3%			1%				1%			4%
Total Lost time (s)		6.5	5.0	6.5	6.5	6.5		5.0	6.0	6.0	5.0	6.0
Lane Util. Factor		0.95	0.95	0.95	0.95	1.00		1.00	0.91	1.00	1.00	0.91
Frt		0.97	0.85	1.00	1.00	0.85		1.00	1.00	0.85	1.00	1.00
Flt Protected		0.97	1.00	0.95	0.96	1.00		0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)		1472	1333	1561	1629	1418		1702	4891	1470	1619	4978
Flt Permitted		0.97	1.00	0.95	0.96	1.00		0.11	1.00	1.00	0.22	1.00
Satd. Flow (perm)		1472	1333	1561	1629	1418		193	4891	1470	380	4978
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	38	11	71	201	11	60	5	141	1087	304	158	1560
RTOR Reduction (vph)	0	7	48	0	0	54	0	0	0	124	0	0
Lane Group Flow (vph)	0	56	9	107	105	6	0	146	1087	180	158	1571
Turn Type	Split	NA	pm+ov	Split	NA	Perm	custom	pm+pt	NA	Perm	pm+pt	NA
Protected Phases	8	8	1!	4	4			1	6		5	2
Permitted Phases			8			4	1!	6		6	2	
Actuated Green, G (s)		10.9	23.3	15.6	15.6	15.6		101.3	88.9	88.9	97.7	87.1
Effective Green, g (s)		10.9	23.3	15.6	15.6	15.6		101.3	88.9	88.9	97.7	87.1
Actuated g/C Ratio		0.07	0.16	0.10	0.10	0.10		0.68	0.59	0.59	0.65	0.58
Clearance Time (s)		6.5	5.0	6.5	6.5	6.5		5.0	6.0	6.0	5.0	6.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		106	207	162	169	147		255	2898	871	335	2890
v/s Ratio Prot		c0.04	0.00	c0.07	0.06			c0.05	0.22		0.03	0.32
v/s Ratio Perm			0.00			0.00		c0.34		0.12	0.27	
v/c Ratio		0.52	0.04	0.66	0.62	0.04		0.57	0.38	0.21	0.47	0.54
Uniform Delay, d1		67.1	53.9	64.7	64.4	60.5		13.3	16.0	14.2	10.6	19.3
Progression Factor		1.00	1.00	1.00	1.00	1.00		2.43	0.98	2.07	1.00	1.00
Incremental Delay, d2		4.6	0.1	9.7	6.9	0.1		2.9	0.4	0.5	1.1	0.7
Delay (s)		71.7	54.0	74.3	71.3	60.6		35.4	16.0	29.9	11.6	20.0
Level of Service		E	D	E	E	E		D	B	C	B	C
Approach Delay (s)		63.3			70.1				20.6			19.2
Approach LOS		E			E				C			B

Intersection Summary			
HCM 2000 Control Delay	25.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	63.7%	ICU Level of Service	B
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group



Movement	SBR
Lane Configurations	
Traffic Volume (vph)	10
Future Volume (vph)	10
Ideal Flow (vphpl)	1900
Lane Width	12
Grade (%)	
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	11
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	110	430	170	170	0	25	0	50	60	80	355	0
Future Volume (veh/h)	110	430	170	170	0	25	0	50	60	80	355	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	0	1870	0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	120	467	185	185	0	27	0	54	65	87	386	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	0	2	0	2	2	2	2	0
Cap, veh/h	958	1340	527	0	0	0	0	433	367	209	657	0
Arrive On Green	0.54	0.54	0.54	0.00	0.00	0.00	0.00	0.23	0.23	0.23	0.23	0.00
Sat Flow, veh/h	1781	2491	980		0		0	1870	1585	443	2922	0
Grp Volume(v), veh/h	120	332	320		0.0		0	54	65	254	219	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1694				0	1870	1585	1663	1617	0
Q Serve(g_s), s	1.5	4.8	4.9				0.0	1.0	1.5	4.0	5.5	0.0
Cycle Q Clear(g_c), s	1.5	4.8	4.9				0.0	1.0	1.5	6.1	5.5	0.0
Prop In Lane	1.00		0.58				0.00		1.00	0.34		0.00
Lane Grp Cap(c), veh/h	958	956	911				0	433	367	491	375	0
V/C Ratio(X)	0.13	0.35	0.35				0.00	0.12	0.18	0.52	0.59	0.00
Avail Cap(c_a), veh/h	958	956	911				0	862	731	861	745	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	5.2	6.0	6.0				0.0	13.8	14.0	15.7	15.6	0.0
Incr Delay (d2), s/veh	0.3	1.0	1.1				0.0	0.1	0.2	0.8	1.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	1.6	1.5				0.0	0.4	0.5	2.2	1.9	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	5.5	7.0	7.1				0.0	14.0	14.2	16.5	17.0	0.0
LnGrp LOS	A	A	A				A	B	B	B	B	A
Approach Vol, veh/h		772						119			473	
Approach Delay, s/veh		6.8						14.1			16.8	
Approach LOS		A						B			B	

Timer - Assigned Phs				4		6		8				
Phs Duration (G+Y+Rc), s				15.6		30.0		15.6				
Change Period (Y+Rc), s				5.0		5.5		5.0				
Max Green Setting (Gmax), s				21.0		24.5		21.0				
Max Q Clear Time (g_c+I1), s				8.1		6.9		3.5				
Green Ext Time (p_c), s				2.4		4.5		0.4				

Intersection Summary			
HCM 6th Ctrl Delay		10.9	
HCM 6th LOS		B	

Notes

User approved pedestrian interval to be less than phase max green.



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	85	795	30	20	75	2115	215	165	360	335	110	110
Future Volume (vph)	85	795	30	20	75	2115	215	165	360	335	110	110
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	6.0	6.0		4.5	6.0	6.0	5.0	6.5	6.5	5.0	6.5
Lane Util. Factor	1.00	0.91	1.00		0.97	0.91	1.00	1.00	0.95	1.00	0.97	1.00
Frt	1.00	1.00	0.85		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	5085	1583		3433	5085	1583	1770	3539	1583	3433	1863
Flt Permitted	0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	5085	1583		3433	5085	1583	1770	3539	1583	3433	1863
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	92	864	33	22	82	2299	234	179	391	364	120	120
RTOR Reduction (vph)	0	0	15	0	0	0	109	0	0	132	0	0
Lane Group Flow (vph)	92	864	18	0	104	2299	125	179	391	232	120	120
Turn Type	Prot	NA	Perm	Prot	Prot	NA	Perm	Prot	NA	Perm	Prot	NA
Protected Phases	5	2		1	1	6		3	8		7	4
Permitted Phases			2				6			8		
Actuated Green, G (s)	11.2	82.7	82.7		8.7	80.2	80.2	17.9	29.0	29.0	7.6	18.7
Effective Green, g (s)	11.2	82.7	82.7		8.7	80.2	80.2	17.9	29.0	29.0	7.6	18.7
Actuated g/C Ratio	0.07	0.55	0.55		0.06	0.53	0.53	0.12	0.19	0.19	0.05	0.12
Clearance Time (s)	4.5	6.0	6.0		4.5	6.0	6.0	5.0	6.5	6.5	5.0	6.5
Vehicle Extension (s)	3.0	2.0	2.0		3.0	2.0	2.0	3.0	4.0	4.0	3.0	4.0
Lane Grp Cap (vph)	132	2803	872		199	2718	846	211	684	306	173	232
v/s Ratio Prot	c0.05	0.17			0.03	c0.45		c0.10	0.11		0.03	0.06
v/s Ratio Perm			0.01				0.08			c0.15		
v/c Ratio	0.70	0.31	0.02		0.52	0.85	0.15	0.85	0.57	0.76	0.69	0.52
Uniform Delay, d1	67.7	18.2	15.3		68.6	29.6	17.6	64.7	54.9	57.2	70.1	61.4
Progression Factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	14.8	0.3	0.0		2.5	3.5	0.4	25.8	1.4	10.8	11.4	2.6
Delay (s)	82.6	18.5	15.3		71.1	33.1	18.0	90.5	56.3	68.0	81.5	64.0
Level of Service	F	B	B		E	C	B	F	E	E	F	E
Approach Delay (s)		24.3				33.3			67.4			69.7
Approach LOS		C				C			E			E

Intersection Summary			
HCM 2000 Control Delay	41.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	78.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	SBR
Lane Configurations	
Traffic Volume (vph)	205
Future Volume (vph)	205
Ideal Flow (vphpl)	1900
Total Lost time (s)	6.5
Lane Util. Factor	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1583
Flt Permitted	1.00
Satd. Flow (perm)	1583
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	223
RTOR Reduction (vph)	111
Lane Group Flow (vph)	112
Turn Type	Perm
Protected Phases	
Permitted Phases	4
Actuated Green, G (s)	18.7
Effective Green, g (s)	18.7
Actuated g/C Ratio	0.12
Clearance Time (s)	6.5
Vehicle Extension (s)	4.0
Lane Grp Cap (vph)	197
v/s Ratio Prot	
v/s Ratio Perm	0.07
v/c Ratio	0.57
Uniform Delay, d1	61.8
Progression Factor	1.00
Incremental Delay, d2	4.5
Delay (s)	66.3
Level of Service	E
Approach Delay (s)	
Approach LOS	

Intersection Summary

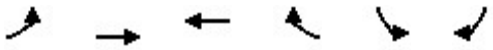
Intersection	
Int Delay, s/veh	7.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	25	130	1550	0	0	440
Future Vol, veh/h	25	130	1550	0	0	440
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	27	141	1685	0	0	478

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1924	843	0	-	-	-
Stage 1	1685	-	-	-	-	-
Stage 2	239	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	-	-
Pot Cap-1 Maneuver	59	307	-	0	0	-
Stage 1	136	-	-	0	0	-
Stage 2	778	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	59	307	-	-	-	-
Mov Cap-2 Maneuver	59	-	-	-	-	-
Stage 1	136	-	-	-	-	-
Stage 2	778	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	98.8	0	0
HCM LOS	F		

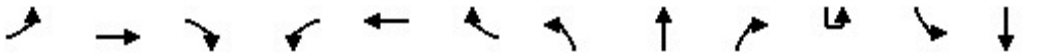
Minor Lane/Major Mvmt	NBT	WBLn1	SBT
Capacity (veh/h)	-	183	-
HCM Lane V/C Ratio	-	0.921	-
HCM Control Delay (s)	-	98.8	-
HCM Lane LOS	-	F	-
HCM 95th %tile Q(veh)	-	7.1	-



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	20	195	1170	510	245	85
Future Volume (veh/h)	20	195	1170	510	245	85
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	22	212	1272	554	266	92
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	44	2573	1545	637	400	223
Arrive On Green	0.02	0.72	0.63	0.63	0.12	0.12
Sat Flow, veh/h	1781	3647	2548	1011	3456	1585
Grp Volume(v), veh/h	22	212	901	925	266	92
Grp Sat Flow(s),veh/h/ln	1781	1777	1777	1688	1728	1585
Q Serve(g_s), s	0.9	1.3	27.4	32.2	5.3	3.8
Cycle Q Clear(g_c), s	0.9	1.3	27.4	32.2	5.3	3.8
Prop In Lane	1.00			0.60	1.00	1.00
Lane Grp Cap(c), veh/h	44	2573	1119	1063	400	223
V/C Ratio(X)	0.50	0.08	0.81	0.87	0.66	0.41
Avail Cap(c_a), veh/h	124	3389	1447	1375	962	481
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.6	2.9	10.0	10.9	30.4	28.2
Incr Delay (d2), s/veh	8.5	0.0	2.0	4.2	1.9	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.3	8.5	10.0	2.3	0.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	43.1	2.9	12.0	15.1	32.3	29.4
LnGrp LOS	D	A	B	B	C	C
Approach Vol, veh/h		234	1826		358	
Approach Delay, s/veh		6.7	13.6		31.6	
Approach LOS		A	B		C	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	6.8	50.7		14.3		57.5
Change Period (Y+Rc), s	5.0	5.5		6.0		5.5
Max Green Setting (Gmax), s	5.0	58.5		20.0		68.5
Max Q Clear Time (g_c+I1), s	2.9	34.2		7.3		3.3
Green Ext Time (p_c), s	0.0	11.0		1.0		0.9

Intersection Summary	
HCM 6th Ctrl Delay	15.6
HCM 6th LOS	B



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	165	5	25	65	5	320	15	1725	35	20	100	825
Future Volume (vph)	165	5	25	65	5	320	15	1725	35	20	100	825
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	11	10	12	11	11	11	11	12	12	10	11
Grade (%)		5%			0%			3%				1%
Total Lost time (s)	6.0	6.0	6.0		5.5	5.5	6.0	6.0			4.5	6.0
Lane Util. Factor	0.95	0.95	1.00		1.00	1.00	1.00	0.91			1.00	0.91
Frt	1.00	1.00	0.85		1.00	0.85	1.00	1.00			1.00	0.98
Flt Protected	0.95	0.95	1.00		0.96	1.00	0.95	1.00			0.95	1.00
Satd. Flow (prot)	1584	1593	1441		1720	1531	1685	4828			1643	4805
Flt Permitted	0.95	0.95	1.00		0.96	1.00	0.27	1.00			0.05	1.00
Satd. Flow (perm)	1584	1593	1441		1720	1531	478	4828			84	4805
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	179	5	27	71	5	348	16	1875	38	22	109	897
RTOR Reduction (vph)	0	0	25	0	0	118	0	1	0	0	0	10
Lane Group Flow (vph)	91	93	2	0	76	230	16	1912	0	0	131	1007
Turn Type	Split	NA	Perm	Split	NA	Perm	Perm	NA		pm+pt	pm+pt	NA
Protected Phases	4	4		8	8			6		5	5	2
Permitted Phases			4			8	6			2	2	
Actuated Green, G (s)	12.0	12.0	12.0		26.2	26.2	78.3	78.3			94.3	94.3
Effective Green, g (s)	12.0	12.0	12.0		26.2	26.2	78.3	78.3			94.3	94.3
Actuated g/C Ratio	0.08	0.08	0.08		0.17	0.17	0.52	0.52			0.63	0.63
Clearance Time (s)	6.0	6.0	6.0		5.5	5.5	6.0	6.0			4.5	6.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	126	127	115		300	267	249	2520			172	3020
v/s Ratio Prot	0.06	c0.06			0.04			0.40			c0.06	0.21
v/s Ratio Perm			0.00			c0.15	0.03				c0.42	
v/c Ratio	0.72	0.73	0.02		0.25	0.86	0.06	0.76			0.76	0.33
Uniform Delay, d1	67.4	67.4	63.6		53.5	60.1	17.7	28.4			39.5	13.1
Progression Factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00			1.56	0.40
Incremental Delay, d2	18.4	19.4	0.1		0.4	23.6	0.5	2.2			17.2	0.3
Delay (s)	85.8	86.9	63.6		53.9	83.7	18.2	30.6			78.9	5.5
Level of Service	F	F	E		D	F	B	C			E	A
Approach Delay (s)		83.4			78.4			30.5				13.9
Approach LOS		F			E			C				B

Intersection Summary			
HCM 2000 Control Delay	33.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	83.6%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Movement	SBR
Lane Configurations	
Traffic Volume (vph)	110
Future Volume (vph)	110
Ideal Flow (vphpl)	1900
Lane Width	12
Grade (%)	
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	120
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	275	375	0	1365	680	830
Future Volume (veh/h)	275	375	0	1365	680	830
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1817	1817	0	1847	1817	1817
Adj Flow Rate, veh/h	299	408	0	1484	739	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	0	2	2	2
Cap, veh/h	591	477	0	3801	3740	
Arrive On Green	0.18	0.18	0.00	0.75	1.00	0.00
Sat Flow, veh/h	3358	2711	0	5374	5125	1540
Grp Volume(v), veh/h	299	408	0	1484	739	0
Grp Sat Flow(s),veh/h/ln	1679	1355	0	1681	1654	1540
Q Serve(g_s), s	12.1	21.9	0.0	15.4	0.0	0.0
Cycle Q Clear(g_c), s	12.1	21.9	0.0	15.4	0.0	0.0
Prop In Lane	1.00	1.00	0.00			1.00
Lane Grp Cap(c), veh/h	591	477	0	3801	3740	
V/C Ratio(X)	0.51	0.85	0.00	0.39	0.20	
Avail Cap(c_a), veh/h	851	687	0	3801	3740	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.67	1.67
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.93	0.00
Uniform Delay (d), s/veh	55.9	59.9	0.0	6.4	0.0	0.0
Incr Delay (d2), s/veh	0.7	7.3	0.0	0.3	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.3	8.1	0.0	5.0	0.0	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	56.6	67.2	0.0	6.7	0.1	0.0
LnGrp LOS	E	E	A	A	A	
Approach Vol, veh/h	707			1484	739	A
Approach Delay, s/veh	62.7			6.7	0.1	
Approach LOS	E			A	A	

Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		118.6		31.4		118.6
Change Period (Y+Rc), s		5.5		5.0		5.5
Max Green Setting (Gmax), s		101.5		38.0		101.5
Max Q Clear Time (g_c+I1), s		2.0		23.9		17.4
Green Ext Time (p_c), s		5.7		2.5		16.0

Intersection Summary		
HCM 6th Ctrl Delay		18.6
HCM 6th LOS		B

Notes

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	370	720	905	735	0	1140
Future Volume (veh/h)	370	720	905	735	0	1140
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1864	1939	1847	1847	0	1847
Adj Flow Rate, veh/h	402	0	984	0	0	1239
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	0	2
Cap, veh/h	469		3986		0	5023
Arrive On Green	0.14	0.00	1.00	0.00	0.00	0.79
Sat Flow, veh/h	3445	1643	5208	1565	0	6870
Grp Volume(v), veh/h	402	0	984	0	0	1239
Grp Sat Flow(s),veh/h/ln	1722	1643	1681	1565	0	1588
Q Serve(g_s), s	17.1	0.0	0.0	0.0	0.0	7.6
Cycle Q Clear(g_c), s	17.1	0.0	0.0	0.0	0.0	7.6
Prop In Lane	1.00	1.00		1.00	0.00	
Lane Grp Cap(c), veh/h	469		3986		0	5023
V/C Ratio(X)	0.86		0.25		0.00	0.25
Avail Cap(c_a), veh/h	792		3986		0	5023
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.92	0.00	0.00	1.00
Uniform Delay (d), s/veh	63.4	0.0	0.0	0.0	0.0	4.1
Incr Delay (d2), s/veh	4.9	0.0	0.1	0.0	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.9	0.0	0.1	0.0	0.0	2.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	68.3	0.0	0.1	0.0	0.0	4.2
LnGrp LOS	E		A		A	A
Approach Vol, veh/h	402	A	984	A		1239
Approach Delay, s/veh	68.3		0.1			4.2
Approach LOS	E		A			A

Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		124.1		25.9		124.1
Change Period (Y+Rc), s		5.5		5.5		5.5
Max Green Setting (Gmax), s		104.5		34.5		104.5
Max Q Clear Time (g_c+I1), s		9.6		19.1		2.0
Green Ext Time (p_c), s		11.7		1.3		8.2

Intersection Summary	
HCM 6th Ctrl Delay	12.5
HCM 6th LOS	B

Notes

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

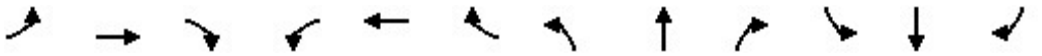
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	110	30	195	495	20	130	5	170	1215	235	85	1455
Future Volume (vph)	110	30	195	495	20	130	5	170	1215	235	85	1455
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	9	9	10	11	9	12	11	11	10	10	12
Grade (%)		3%			1%				1%			4%
Total Lost time (s)		6.5	5.0	6.5	6.5	6.5		5.0	6.0	6.0	5.0	6.0
Lane Util. Factor		0.95	0.95	0.95	0.95	1.00		1.00	0.91	1.00	1.00	0.91
Frt		0.97	0.85	1.00	1.00	0.85		1.00	1.00	0.85	1.00	1.00
Flt Protected		0.97	1.00	0.95	0.96	1.00		0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)		1476	1333	1561	1627	1418		1702	4891	1470	1619	4978
Flt Permitted		0.97	1.00	0.95	0.96	1.00		0.06	1.00	1.00	0.13	1.00
Satd. Flow (perm)		1476	1333	1561	1627	1418		113	4891	1470	223	4978
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	120	33	212	538	22	141	5	185	1321	255	92	1582
RTOR Reduction (vph)	0	6	52	0	0	112	0	0	0	130	0	1
Lane Group Flow (vph)	0	185	122	280	280	29	0	190	1321	125	92	1592
Turn Type	Split	NA	pm+ov	Split	NA	Perm	custom	pm+pt	NA	Perm	pm+pt	NA
Protected Phases	8	8	1!	4	4			1	6		5	2
Permitted Phases			8			4	1!	6		6	2	
Actuated Green, G (s)		21.7	37.1	30.5	30.5	30.5		78.8	64.4	64.4	67.8	58.4
Effective Green, g (s)		21.7	37.1	30.5	30.5	30.5		78.8	64.4	64.4	67.8	58.4
Actuated g/C Ratio		0.14	0.25	0.20	0.20	0.20		0.53	0.43	0.43	0.45	0.39
Clearance Time (s)		6.5	5.0	6.5	6.5	6.5		5.0	6.0	6.0	5.0	6.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		213	329	317	330	288		222	2099	631	188	1938
v/s Ratio Prot		c0.13	0.04	c0.18	0.17			c0.09	0.27		0.03	0.32
v/s Ratio Perm			0.05			0.02		c0.36		0.09	0.19	
v/c Ratio		0.87	0.37	0.88	0.85	0.10		0.86	0.63	0.20	0.49	0.82
Uniform Delay, d1		62.8	46.8	58.0	57.5	48.6		43.8	33.5	26.7	25.6	41.1
Progression Factor		1.00	1.00	1.00	1.00	1.00		1.49	0.74	0.53	1.00	1.00
Incremental Delay, d2		29.1	0.7	23.9	18.0	0.2		25.2	1.4	0.7	2.0	4.1
Delay (s)		91.8	47.5	81.9	75.5	48.7		90.7	26.0	14.9	27.6	45.2
Level of Service		F	D	F	E	D		F	C	B	C	D
Approach Delay (s)		70.7			72.7				31.4			44.2
Approach LOS		E			E				C			D

Intersection Summary			
HCM 2000 Control Delay	45.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	79.1%	ICU Level of Service	D
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group



Movement	SBR
Lane Configurations	
Traffic Volume (vph)	10
Future Volume (vph)	10
Ideal Flow (vphpl)	1900
Lane Width	12
Grade (%)	
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	11
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	



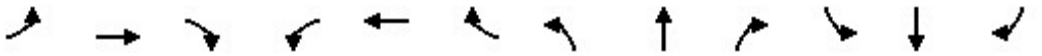
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	365	15	75	0	85	0	260	285	45	110	0
Future Volume (veh/h)	40	365	15	75	0	85	0	260	285	45	110	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	0	1870	0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	43	397	16	82	0	92	0	283	310	49	120	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	0	2	0	2	2	2	2	0
Cap, veh/h	913	1785	72	0	0	0	0	464	393	207	500	0
Arrive On Green	0.51	0.51	0.51	0.00	0.00	0.00	0.00	0.25	0.25	0.25	0.25	0.00
Sat Flow, veh/h	1781	3482	140		0		0	1870	1585	298	2099	0
Grp Volume(v), veh/h	43	202	211		0.0		0	283	310	79	90	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1845				0	1870	1585	694	1617	0
Q Serve(g_s), s	0.5	2.7	2.8				0.0	5.9	8.0	0.8	1.9	0.0
Cycle Q Clear(g_c), s	0.5	2.7	2.8				0.0	5.9	8.0	6.7	1.9	0.0
Prop In Lane	1.00		0.08				0.00		1.00	0.62		0.00
Lane Grp Cap(c), veh/h	913	911	946				0	464	393	305	401	0
V/C Ratio(X)	0.05	0.22	0.22				0.00	0.61	0.79	0.26	0.22	0.00
Avail Cap(c_a), veh/h	913	911	946				0	554	469	355	479	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	5.3	5.9	5.9				0.0	14.6	15.4	13.8	13.1	0.0
Incr Delay (d2), s/veh	0.1	0.6	0.5				0.0	1.4	7.4	0.4	0.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.9	0.9				0.0	2.3	3.2	0.6	0.6	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	5.4	6.4	6.4				0.0	16.0	22.8	14.3	13.4	0.0
LnGrp LOS	A	A	A				A	B	C	B	B	A
Approach Vol, veh/h		456						593			169	
Approach Delay, s/veh		6.3						19.6			13.8	
Approach LOS		A						B			B	

Timer - Assigned Phs				4		6		8				
Phs Duration (G+Y+Rc), s				15.9		28.0		15.9				
Change Period (Y+Rc), s				5.0		5.5		5.0				
Max Green Setting (Gmax), s				13.0		22.5		13.0				
Max Q Clear Time (g_c+I1), s				8.7		4.8		10.0				
Green Ext Time (p_c), s				0.4		2.5		0.9				

Intersection Summary												
HCM 6th Ctrl Delay			13.8									
HCM 6th LOS			B									

Notes

User approved pedestrian interval to be less than phase max green.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	790	110	460	630	230	10	245	290	340	425	5
Future Volume (veh/h)	15	790	110	460	630	230	10	245	290	340	425	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	16	859	120	500	685	250	11	266	315	370	462	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	244	1022	456	499	2053	916	197	391	174	440	807	9
Arrive On Green	0.29	0.29	0.29	0.22	0.58	0.58	0.01	0.11	0.11	0.13	0.22	0.22
Sat Flow, veh/h	599	3554	1585	1781	3554	1585	1781	3554	1585	3456	3601	39
Grp Volume(v), veh/h	16	859	120	500	685	250	11	266	315	370	228	239
Grp Sat Flow(s),veh/h/ln	599	1777	1585	1781	1777	1585	1781	1777	1585	1728	1777	1863
Q Serve(g_s), s	2.0	22.7	5.8	22.0	10.1	7.9	0.5	7.2	11.0	10.5	11.4	11.4
Cycle Q Clear(g_c), s	2.0	22.7	5.8	22.0	10.1	7.9	0.5	7.2	11.0	10.5	11.4	11.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.02
Lane Grp Cap(c), veh/h	244	1022	456	499	2053	916	197	391	174	440	398	418
V/C Ratio(X)	0.07	0.84	0.26	1.00	0.33	0.27	0.06	0.68	1.81	0.84	0.57	0.57
Avail Cap(c_a), veh/h	244	1022	456	499	2053	916	263	391	174	622	418	438
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.82	0.82	0.82	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.1	33.5	27.4	26.3	11.0	10.6	38.7	42.8	44.5	42.6	34.5	34.5
Incr Delay (d2), s/veh	0.5	8.3	1.4	37.1	0.4	0.6	0.0	4.7	384.8	5.1	1.7	1.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	10.5	2.4	13.9	3.8	2.8	0.2	3.4	22.9	4.7	5.0	5.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.6	41.8	28.9	63.4	11.4	11.2	38.7	47.5	429.3	47.8	36.2	36.2
LnGrp LOS	C	D	C	F	B	B	D	D	F	D	D	D
Approach Vol, veh/h		995			1435			592			837	
Approach Delay, s/veh		40.0			29.5			250.5			41.3	
Approach LOS		D			C			F			D	

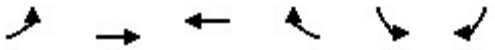
Timer - Assigned Phs		2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s		64.3	6.8	28.9	29.0	35.3	18.2	17.5				
Change Period (Y+Rc), s		6.5	5.5	6.5	7.0	* 6.5	5.5	* 6.5				
Max Green Setting (Gmax), s		53.0	5.0	23.5	22.0	* 25	18.0	* 11				
Max Q Clear Time (g_c+I1), s		12.1	2.5	13.4	24.0	24.7	12.5	13.0				
Green Ext Time (p_c), s		13.4	0.0	1.9	0.0	0.0	0.3	0.0				

Intersection Summary		
HCM 6th Ctrl Delay		68.7
HCM 6th LOS		E

Notes

User approved pedestrian interval to be less than phase max green.

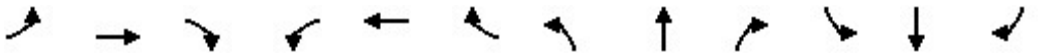
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	245	1175	1125	125	65	195
Future Volume (veh/h)	245	1175	1125	125	65	195
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	266	1277	1223	136	71	212
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	371	2642	2205	983	261	348
Arrive On Green	0.07	0.74	0.62	0.62	0.15	0.15
Sat Flow, veh/h	1781	3647	3647	1585	1781	1585
Grp Volume(v), veh/h	266	1277	1223	136	71	212
Grp Sat Flow(s),veh/h/ln	1781	1777	1777	1585	1781	1585
Q Serve(g_s), s	5.0	14.4	19.9	3.6	3.5	12.1
Cycle Q Clear(g_c), s	5.0	14.4	19.9	3.6	3.5	12.1
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	371	2642	2205	983	261	348
V/C Ratio(X)	0.72	0.48	0.55	0.14	0.27	0.61
Avail Cap(c_a), veh/h	544	2642	2205	983	410	480
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.38	0.38	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	12.0	5.1	11.0	7.9	37.9	35.2
Incr Delay (d2), s/veh	0.4	0.2	1.0	0.3	0.6	1.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	4.1	7.0	1.1	1.6	10.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	12.3	5.4	12.0	8.2	38.5	36.9
LnGrp LOS	B	A	B	A	D	D
Approach Vol, veh/h		1543	1359		283	
Approach Delay, s/veh		6.6	11.6		37.3	
Approach LOS		A	B		D	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	12.3	68.0		19.7		80.3
Change Period (Y+Rc), s	5.0	6.0		5.0		6.0
Max Green Setting (Gmax), s	17.0	44.0		23.0		66.0
Max Q Clear Time (g_c+I1), s	7.0	21.9		14.1		16.4
Green Ext Time (p_c), s	0.3	6.2		0.6		7.7

Intersection Summary	
HCM 6th Ctrl Delay	11.5
HCM 6th LOS	B



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	710	10	435	865	200	155	275	425	320	160	25
Future Volume (veh/h)	5	710	10	435	865	200	155	275	425	320	160	25
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	5	772	11	473	940	217	168	299	462	348	174	27
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	229	1146	511	506	2075	926	330	391	174	418	476	73
Arrive On Green	0.32	0.32	0.32	0.19	0.58	0.58	0.08	0.11	0.11	0.12	0.15	0.15
Sat Flow, veh/h	486	3554	1585	1781	3554	1585	1781	3554	1585	3456	3091	472
Grp Volume(v), veh/h	5	772	11	473	940	217	168	299	462	348	99	102
Grp Sat Flow(s),veh/h/ln	486	1777	1585	1781	1777	1585	1781	1777	1585	1728	1777	1785
Q Serve(g_s), s	0.7	18.8	0.5	16.8	15.0	6.6	7.7	8.2	11.0	9.8	5.0	5.1
Cycle Q Clear(g_c), s	0.7	18.8	0.5	16.8	15.0	6.6	7.7	8.2	11.0	9.8	5.0	5.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.26
Lane Grp Cap(c), veh/h	229	1146	511	506	2075	926	330	391	174	418	274	275
V/C Ratio(X)	0.02	0.67	0.02	0.93	0.45	0.23	0.51	0.76	2.65	0.83	0.36	0.37
Avail Cap(c_a), veh/h	229	1146	511	557	2075	926	330	391	174	622	370	371
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.68	0.68	0.68	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.2	29.3	23.1	19.3	11.8	10.0	36.6	43.2	44.5	43.0	37.9	38.0
Incr Delay (d2), s/veh	0.2	3.2	0.1	16.2	0.5	0.4	0.5	8.7	758.6	3.8	0.8	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	8.1	0.2	8.6	5.5	2.3	3.7	4.0	41.0	4.3	2.2	2.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.4	32.5	23.2	35.5	12.3	10.4	37.1	52.0	803.1	46.8	38.7	38.8
LnGrp LOS	C	C	C	D	B	B	D	D	F	D	D	D
Approach Vol, veh/h		788			1630			929			549	
Approach Delay, s/veh		32.3			18.8			422.8			43.8	
Approach LOS		C			B			F			D	

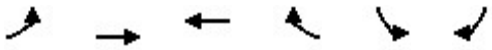
Timer - Assigned Phs	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	64.9	13.2	21.9	26.1	38.7	17.6	17.5
Change Period (Y+Rc), s	6.5	5.5	6.5	7.0	* 6.5	5.5	* 6.5
Max Green Setting (Gmax), s	53.0	7.7	20.8	22.0	* 25	18.0	* 11
Max Q Clear Time (g_c+I1), s	17.0	9.7	7.1	18.8	20.8	11.8	13.0
Green Ext Time (p_c), s	17.3	0.0	0.8	0.3	2.4	0.3	0.0

Intersection Summary	
HCM 6th Ctrl Delay	121.4
HCM 6th LOS	F

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	130	1325	1100	30	200	400
Future Volume (veh/h)	130	1325	1100	30	200	400
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	141	1440	1196	33	217	435
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	272	2126	1771	790	520	542
Arrive On Green	0.05	0.60	0.50	0.50	0.29	0.29
Sat Flow, veh/h	1781	3647	3647	1585	1781	1585
Grp Volume(v), veh/h	141	1440	1196	33	217	435
Grp Sat Flow(s),veh/h/ln	1781	1777	1777	1585	1781	1585
Q Serve(g_s), s	3.7	27.4	25.4	1.1	9.8	24.9
Cycle Q Clear(g_c), s	3.7	27.4	25.4	1.1	9.8	24.9
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	272	2126	1771	790	520	542
V/C Ratio(X)	0.52	0.68	0.68	0.04	0.42	0.80
Avail Cap(c_a), veh/h	272	2126	1771	790	873	856
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.47	0.47	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	15.6	13.6	19.0	12.9	28.6	29.9
Incr Delay (d2), s/veh	0.4	0.8	2.1	0.1	0.5	3.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	10.0	10.0	0.4	4.2	20.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	16.0	14.4	21.1	12.9	29.1	32.9
LnGrp LOS	B	B	C	B	C	C
Approach Vol, veh/h		1581	1229		652	
Approach Delay, s/veh		14.5	20.8		31.6	
Approach LOS		B	C		C	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	10.0	55.8		34.2		65.8
Change Period (Y+Rc), s	5.0	6.0		5.0		6.0
Max Green Setting (Gmax), s	5.0	30.0		49.0		40.0
Max Q Clear Time (g_c+I1), s	5.7	27.4		26.9		29.4
Green Ext Time (p_c), s	0.0	1.5		2.3		5.4

Intersection Summary	
HCM 6th Ctrl Delay	20.0
HCM 6th LOS	B



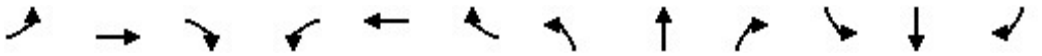
Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	5	1955	335	15	120	1865	45	70	5	175	15	5
Future Volume (vph)	5	1955	335	15	120	1865	45	70	5	175	15	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	14	13	13	12	9	12	12	10	10	10	11	11
Grade (%)		-2%				1%			0%			-7%
Total Lost time (s)	6.0	6.0			6.5	6.0			6.5	6.5	6.5	6.5
Lane Util. Factor	1.00	0.91			1.00	0.91			1.00	1.00	1.00	1.00
Frt	1.00	0.98			1.00	1.00			1.00	0.85	1.00	0.93
Flt Protected	0.95	1.00			0.95	1.00			0.96	1.00	0.95	1.00
Satd. Flow (prot)	1906	5191			1585	5042			1661	1478	1770	1724
Flt Permitted	0.09	1.00			0.95	1.00			0.73	1.00	0.70	1.00
Satd. Flow (perm)	175	5191			1585	5042			1273	1478	1313	1724
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	2125	364	16	130	2027	49	76	5	190	16	5
RTOR Reduction (vph)	0	18	0	0	0	2	0	0	0	169	0	4
Lane Group Flow (vph)	5	2471	0	0	146	2074	0	0	81	21	16	6
Turn Type	Perm	NA		Prot	Prot	NA		Perm	NA	Perm	Perm	NA
Protected Phases		6		5	5	2			4			8
Permitted Phases	6							4		4	8	
Actuated Green, G (s)	71.2	71.2			16.6	94.3			13.2	13.2	13.2	13.2
Effective Green, g (s)	71.2	71.2			16.6	94.3			13.2	13.2	13.2	13.2
Actuated g/C Ratio	0.59	0.59			0.14	0.79			0.11	0.11	0.11	0.11
Clearance Time (s)	6.0	6.0			6.5	6.0			6.5	6.5	6.5	6.5
Vehicle Extension (s)	0.2	0.2			5.0	0.2			4.0	4.0	4.0	4.0
Lane Grp Cap (vph)	103	3079			219	3962			140	162	144	189
v/s Ratio Prot		c0.48			c0.09	0.41						0.00
v/s Ratio Perm	0.03								c0.06	0.01	0.01	
v/c Ratio	0.05	0.80			0.67	0.52			0.58	0.13	0.11	0.03
Uniform Delay, d1	10.2	18.9			49.1	4.7			50.8	48.2	48.1	47.7
Progression Factor	1.00	1.00			1.19	0.63			1.00	1.00	1.00	1.00
Incremental Delay, d2	0.9	2.3			8.2	0.4			6.8	0.5	0.5	0.1
Delay (s)	11.1	21.3			66.7	3.4			57.5	48.7	48.6	47.8
Level of Service	B	C			E	A			E	D	D	D
Approach Delay (s)		21.2				7.5			51.3			48.3
Approach LOS		C				A			D			D

Intersection Summary			
HCM 2000 Control Delay	16.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	88.1%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Movement	SBR
Lane Configurations	
Traffic Volume (vph)	5
Future Volume (vph)	5
Ideal Flow (vphpl)	1900
Lane Width	11
Grade (%)	
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	5
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1085	1075	0	1860	0	0	0	0	340	0	185
Future Volume (veh/h)	0	1085	1075	0	1860	0	0	0	0	340	0	185
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1847	1921	0	1817	0				1939	0	1790
Adj Flow Rate, veh/h	0	1179	0	0	2022	0				370	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				0.92	0.92	0.92
Percent Heavy Veh, %	0	2	2	0	2	0				2	0	2
Cap, veh/h	0	2726		0	3854	0				456	0	
Arrive On Green	0.00	0.52	0.00	0.00	0.78	0.00				0.13	0.00	0.00
Sat Flow, veh/h	0	3601	1628	0	5288	0				3583	0	1517
Grp Volume(v), veh/h	0	1179	0	0	2022	0				370	0	0
Grp Sat Flow(s),veh/h/ln	0	1754	1628	0	1654	0				1791	0	1517
Q Serve(g_s), s	0.0	24.9	0.0	0.0	18.4	0.0				12.1	0.0	0.0
Cycle Q Clear(g_c), s	0.0	24.9	0.0	0.0	18.4	0.0				12.1	0.0	0.0
Prop In Lane	0.00		1.00	0.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	2726		0	3854	0				456	0	
V/C Ratio(X)	0.00	0.43		0.00	0.52	0.00				0.81	0.00	
Avail Cap(c_a), veh/h	0	2726		0	3854	0				940	0	
HCM Platoon Ratio	1.00	0.67	0.67	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.53	0.00	0.00	1.00	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	12.4	0.0	0.0	5.0	0.0				51.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.3	0.0	0.0	0.5	0.0				3.5	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	10.4	0.0	0.0	4.6	0.0				5.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	12.7	0.0	0.0	5.6	0.0				54.5	0.0	0.0
LnGrp LOS	A	B		A	A	A				D	A	
Approach Vol, veh/h		1179	A		2022						370	A
Approach Delay, s/veh		12.7			5.6						54.5	
Approach LOS		B			A						D	

Timer - Assigned Phs	2	4	6
Phs Duration (G+Y+Rc), s	99.2	20.8	99.2
Change Period (Y+Rc), s	6.0	5.5	6.0
Max Green Setting (Gmax), s	77.0	31.5	77.0
Max Q Clear Time (g_c+I1), s	20.4	14.1	26.9
Green Ext Time (p_c), s	3.0	1.2	1.4

Intersection Summary	
HCM 6th Ctrl Delay	13.0
HCM 6th LOS	B

Notes

Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	330	1005	0	0	850	15	0	160	250	25	0	275
Future Volume (vph)	330	1005	0	0	850	15	0	160	250	25	0	275
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	12	12	12	12	12	13	13	13	13	13	13
Grade (%)		2%			-3%			6%			5%	
Total Lost time (s)	4.5	6.5			6.5			6.0	6.0	6.0		4.5
Lane Util. Factor	1.00	0.95			0.91			1.00	1.00	1.00		1.00
Frt	1.00	1.00			1.00			1.00	0.85	1.00		0.85
Flt Protected	0.95	1.00			1.00			1.00	1.00	0.95		1.00
Satd. Flow (prot)	1694	3504			5148			1867	1587	1783		1595
Flt Permitted	0.19	1.00			1.00			1.00	1.00	0.95		1.00
Satd. Flow (perm)	335	3504			5148			1867	1587	1783		1595
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	359	1092	0	0	924	16	0	174	272	27	0	299
RTOR Reduction (vph)	0	0	0	0	1	0	0	0	105	0	0	17
Lane Group Flow (vph)	359	1092	0	0	939	0	0	174	167	27	0	282
Turn Type	pm+pt	NA			NA			NA	Perm	Prot		custom
Protected Phases	1	6			2			4		3		1 3 4
Permitted Phases	6								4			
Actuated Green, G (s)	71.4	71.4			41.8			22.9	22.9	7.2		67.2
Effective Green, g (s)	71.4	71.4			41.8			22.9	22.9	7.2		55.2
Actuated g/C Ratio	0.60	0.60			0.35			0.19	0.19	0.06		0.46
Clearance Time (s)	4.5	6.5			6.5			6.0	6.0	6.0		
Vehicle Extension (s)	5.0	0.2			0.2			6.0	6.0	6.0		
Lane Grp Cap (vph)	483	2084			1793			356	302	106		733
v/s Ratio Prot	c0.16	0.31			0.18			0.09		0.02		c0.18
v/s Ratio Perm	c0.29								c0.11			
v/c Ratio	0.74	0.52			0.52			0.49	0.55	0.25		0.38
Uniform Delay, d1	17.7	14.3			31.2			43.3	43.9	53.8		21.3
Progression Factor	0.93	0.50			0.90			1.00	1.00	1.00		1.00
Incremental Delay, d2	6.7	0.9			0.9			3.0	4.7	3.6		0.7
Delay (s)	23.1	8.0			29.1			46.3	48.6	57.4		22.0
Level of Service	C	A			C			D	D	E		C
Approach Delay (s)		11.8			29.1			47.7			24.9	
Approach LOS		B			C			D			C	

Intersection Summary			
HCM 2000 Control Delay	23.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	23.0
Intersection Capacity Utilization	64.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	1270	5	5	825	10	10	5	10	80	5	30
Future Volume (vph)	5	1270	5	5	825	10	10	5	10	80	5	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	12	12	12	11	11	12	12	11	10	10	10
Grade (%)		1%			-2%			0%			-3%	
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0	4.0		4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00	1.00		1.00	
Frt	1.00	1.00		1.00	1.00			1.00	0.85		0.96	
Flt Protected	0.95	1.00		0.95	1.00			0.97	1.00		0.97	
Satd. Flow (prot)	1702	1852		1787	1815			1801	1531		1645	
Flt Permitted	0.26	1.00		0.05	1.00			0.85	1.00		0.78	
Satd. Flow (perm)	471	1852		100	1815			1588	1531		1332	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	1380	5	5	897	11	11	5	11	87	5	33
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	10	0	11	0
Lane Group Flow (vph)	5	1385	0	5	908	0	0	16	1	0	114	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		6			2			4			8	
Permitted Phases	6			2			4		4	8		
Actuated Green, G (s)	97.1	97.1		97.1	97.1			14.9	14.9		14.9	
Effective Green, g (s)	97.1	97.1		97.1	97.1			14.9	14.9		14.9	
Actuated g/C Ratio	0.81	0.81		0.81	0.81			0.12	0.12		0.12	
Clearance Time (s)	4.0	4.0		4.0	4.0			4.0	4.0		4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0		3.0	
Lane Grp Cap (vph)	381	1498		80	1468			197	190		165	
v/s Ratio Prot		c0.75			0.50							
v/s Ratio Perm	0.01			0.05				0.01	0.00		c0.09	
v/c Ratio	0.01	0.92		0.06	0.62			0.08	0.01		0.69	
Uniform Delay, d1	2.2	8.7		2.3	4.4			46.5	46.1		50.3	
Progression Factor	0.48	1.01		1.00	1.00			1.00	1.00		1.00	
Incremental Delay, d2	0.0	8.7		1.5	2.0			0.2	0.0		11.3	
Delay (s)	1.1	17.5		3.8	6.3			46.7	46.1		61.7	
Level of Service	A	B		A	A			D	D		E	
Approach Delay (s)		17.4			6.3			46.4			61.7	
Approach LOS		B			A			D			E	

Intersection Summary			
HCM 2000 Control Delay	15.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	87.0%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



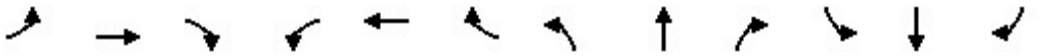
Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	5	2075	75	20	285	2285	15	90	5	145	40	5
Future Volume (vph)	5	2075	75	20	285	2285	15	90	5	145	40	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	14	13	13	12	9	12	12	10	10	10	11	11
Grade (%)		-2%				1%			0%			-7%
Total Lost time (s)	6.0	6.0			6.5	6.0			6.5	6.5	6.5	6.5
Lane Util. Factor	1.00	0.91			1.00	0.91			1.00	1.00	1.00	1.00
Frt	1.00	0.99			1.00	1.00			1.00	0.85	1.00	0.90
Flt Protected	0.95	1.00			0.95	1.00			0.95	1.00	0.95	1.00
Satd. Flow (prot)	1906	5279			1585	5055			1660	1478	1770	1671
Flt Permitted	0.07	1.00			0.95	1.00			0.72	1.00	0.69	1.00
Satd. Flow (perm)	137	5279			1585	5055			1260	1478	1287	1671
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	2255	82	22	310	2484	16	98	5	158	43	5
RTOR Reduction (vph)	0	3	0	0	0	0	0	0	0	139	0	10
Lane Group Flow (vph)	5	2334	0	0	332	2500	0	0	103	19	43	6
Turn Type	Perm	NA		Prot	Prot	NA		Perm	NA	Perm	Perm	NA
Protected Phases		6		5	5	2			4			8
Permitted Phases	6							4		4	8	
Actuated Green, G (s)	58.4	58.4			28.4	93.3			14.2	14.2	14.2	14.2
Effective Green, g (s)	58.4	58.4			28.4	93.3			14.2	14.2	14.2	14.2
Actuated g/C Ratio	0.49	0.49			0.24	0.78			0.12	0.12	0.12	0.12
Clearance Time (s)	6.0	6.0			6.5	6.0			6.5	6.5	6.5	6.5
Vehicle Extension (s)	0.2	0.2			5.0	0.2			4.0	4.0	4.0	4.0
Lane Grp Cap (vph)	66	2569			375	3930			149	174	152	197
v/s Ratio Prot		c0.44			c0.21	0.49						0.00
v/s Ratio Perm	0.04								c0.08	0.01	0.03	
v/c Ratio	0.08	0.91			0.89	0.64			0.69	0.11	0.28	0.03
Uniform Delay, d1	16.4	28.3			44.2	5.9			50.8	47.2	48.3	46.8
Progression Factor	1.00	1.00			1.36	0.61			1.00	1.00	1.00	1.00
Incremental Delay, d2	2.2	6.1			15.7	0.5			13.9	0.4	1.4	0.1
Delay (s)	18.6	34.4			76.0	4.1			64.7	47.6	49.7	46.9
Level of Service	B	C			E	A			E	D	D	D
Approach Delay (s)		34.4				12.5			54.4			48.9
Approach LOS		C				B			D			D

Intersection Summary			
HCM 2000 Control Delay	24.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	92.2%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



Movement	SBR
Lane Configurations	
Traffic Volume (vph)	10
Future Volume (vph)	10
Ideal Flow (vphpl)	1900
Lane Width	11
Grade (%)	
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	11
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	



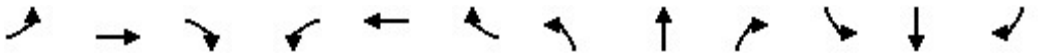
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	975	1305	0	2405	0	0	0	0	520	0	200
Future Volume (veh/h)	0	975	1305	0	2405	0	0	0	0	520	0	200
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1847	1921	0	1817	0				1939	0	1790
Adj Flow Rate, veh/h	0	1060	0	0	2614	0				565	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				0.92	0.92	0.92
Percent Heavy Veh, %	0	2	2	0	2	0				2	0	2
Cap, veh/h	0	2534		0	3583	0				652	0	
Arrive On Green	0.00	0.48	0.00	0.00	0.72	0.00				0.18	0.00	0.00
Sat Flow, veh/h	0	3601	1628	0	5288	0				3583	0	1517
Grp Volume(v), veh/h	0	1060	0	0	2614	0				565	0	0
Grp Sat Flow(s),veh/h/ln	0	1754	1628	0	1654	0				1791	0	1517
Q Serve(g_s), s	0.0	23.5	0.0	0.0	37.1	0.0				18.4	0.0	0.0
Cycle Q Clear(g_c), s	0.0	23.5	0.0	0.0	37.1	0.0				18.4	0.0	0.0
Prop In Lane	0.00		1.00	0.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	2534		0	3583	0				652	0	
V/C Ratio(X)	0.00	0.42		0.00	0.73	0.00				0.87	0.00	
Avail Cap(c_a), veh/h	0	2534		0	3583	0				857	0	
HCM Platoon Ratio	1.00	0.67	0.67	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.37	0.00	0.00	1.00	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	14.7	0.0	0.0	9.8	0.0				47.7	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.2	0.0	0.0	1.3	0.0				7.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	9.9	0.0	0.0	11.0	0.0				8.9	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	14.8	0.0	0.0	11.1	0.0				55.1	0.0	0.0
LnGrp LOS	A	B		A	B	A				E	A	
Approach Vol, veh/h		1060	A		2614						565	A
Approach Delay, s/veh		14.8			11.1						55.1	
Approach LOS		B			B						E	

Timer - Assigned Phs		2		4		6						
Phs Duration (G+Y+Rc), s		92.7		27.3		92.7						
Change Period (Y+Rc), s		6.0		5.5		6.0						
Max Green Setting (Gmax), s		79.8		28.7		79.8						
Max Q Clear Time (g_c+I1), s		39.1		20.4		25.5						
Green Ext Time (p_c), s		4.7		1.5		1.2						

Intersection Summary												
HCM 6th Ctrl Delay			17.9									
HCM 6th LOS			B									

Notes

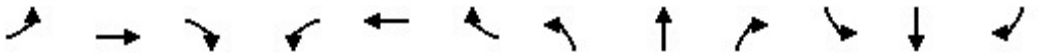
Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	220	1165	0	0	1165	40	0	315	170	35	0	445
Future Volume (vph)	220	1165	0	0	1165	40	0	315	170	35	0	445
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	12	12	12	12	12	13	13	13	13	13	13
Grade (%)		2%			-3%			6%			5%	
Total Lost time (s)	4.5	6.5			6.5			6.0	6.0	6.0		4.5
Lane Util. Factor	1.00	0.95			0.91			1.00	1.00	1.00		1.00
Frt	1.00	1.00			1.00			1.00	0.85	1.00		0.85
Flt Protected	0.95	1.00			1.00			1.00	1.00	0.95		1.00
Satd. Flow (prot)	1694	3504			5136			1867	1587	1783		1595
Flt Permitted	0.09	1.00			1.00			1.00	1.00	0.95		1.00
Satd. Flow (perm)	154	3504			5136			1867	1587	1783		1595
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	239	1266	0	0	1266	43	0	342	185	38	0	484
RTOR Reduction (vph)	0	0	0	0	3	0	0	0	95	0	0	17
Lane Group Flow (vph)	239	1266	0	0	1306	0	0	342	90	38	0	467
Turn Type	pm+pt	NA			NA			NA	Perm	Prot		custom
Protected Phases	1	6			2			4		3		1 3 4
Permitted Phases	6								4			
Actuated Green, G (s)	65.5	65.5			41.9			30.4	30.4	5.6		67.1
Effective Green, g (s)	65.5	65.5			41.9			30.4	30.4	5.6		55.1
Actuated g/C Ratio	0.55	0.55			0.35			0.25	0.25	0.05		0.46
Clearance Time (s)	4.5	6.5			6.5			6.0	6.0	6.0		
Vehicle Extension (s)	5.0	0.2			0.2			6.0	6.0	6.0		
Lane Grp Cap (vph)	329	1912			1793			472	402	83		732
v/s Ratio Prot	c0.12	0.36			0.25			c0.18		0.02		c0.29
v/s Ratio Perm	c0.28								0.06			
v/c Ratio	0.73	0.66			0.73			0.72	0.22	0.46		0.64
Uniform Delay, d1	29.8	19.4			34.1			41.0	35.5	55.7		24.8
Progression Factor	1.03	0.45			0.88			1.00	1.00	1.00		1.00
Incremental Delay, d2	8.3	1.6			1.6			7.6	0.8	10.9		2.5
Delay (s)	38.9	10.3			31.5			48.6	36.3	66.6		27.4
Level of Service	D	B			C			D	D	E		C
Approach Delay (s)		14.8			31.5			44.3			30.2	
Approach LOS		B			C			D			C	

Intersection Summary			
HCM 2000 Control Delay	26.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	23.0
Intersection Capacity Utilization	73.0%	ICU Level of Service	C
Analysis Period (min)	15		

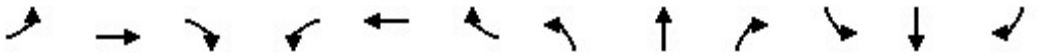
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	1320	15	5	1135	10	5	5	10	25	5	65
Future Volume (vph)	35	1320	15	5	1135	10	5	5	10	25	5	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	12	12	12	11	11	12	12	11	10	10	10
Grade (%)		1%			-2%			0%			-3%	
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0	4.0		4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00	1.00		1.00	
Frt	1.00	1.00		1.00	1.00			1.00	0.85		0.91	
Flt Protected	0.95	1.00		0.95	1.00			0.98	1.00		0.99	
Satd. Flow (prot)	1702	1850		1787	1816			1817	1531		1580	
Flt Permitted	0.15	1.00		0.06	1.00			0.84	1.00		0.91	
Satd. Flow (perm)	275	1850		113	1816			1569	1531		1459	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	38	1435	16	5	1234	11	5	5	11	27	5	71
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	10	0	65	0
Lane Group Flow (vph)	38	1451	0	5	1245	0	0	10	1	0	38	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		6			2			4			8	
Permitted Phases	6			2			4		4	8		
Actuated Green, G (s)	102.0	102.0		102.0	102.0			10.0	10.0		10.0	
Effective Green, g (s)	102.0	102.0		102.0	102.0			10.0	10.0		10.0	
Actuated g/C Ratio	0.85	0.85		0.85	0.85			0.08	0.08		0.08	
Clearance Time (s)	4.0	4.0		4.0	4.0			4.0	4.0		4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0		3.0	
Lane Grp Cap (vph)	233	1572		96	1543			130	127		121	
v/s Ratio Prot		c0.78			0.69							
v/s Ratio Perm	0.14			0.04				0.01	0.00		c0.03	
v/c Ratio	0.16	0.92		0.05	0.81			0.08	0.01		0.31	
Uniform Delay, d1	1.6	6.3		1.4	4.3			50.7	50.4		51.8	
Progression Factor	0.11	1.91		1.00	1.00			1.00	1.00		1.00	
Incremental Delay, d2	0.3	7.7		1.0	4.6			0.3	0.0		1.5	
Delay (s)	0.4	19.7		2.4	8.9			51.0	50.5		53.3	
Level of Service	A	B		A	A			D	D		D	
Approach Delay (s)		19.2			8.9			50.7			53.3	
Approach LOS		B			A			D			D	

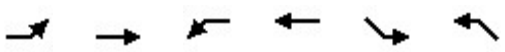
Intersection Summary			
HCM 2000 Control Delay	16.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	89.4%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	115	860	105	510	455	100	145	140	160	510	725	275
Future Volume (vph)	115	860	105	510	455	100	145	140	160	510	725	275
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		4%			-4%			-3%			-2%	
Total Lost time (s)	6.5	7.5	6.5	7.0	7.5	7.0	6.5	4.5	7.0	7.0	4.5	4.0
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1734	3468	1552	3502	3610	1615	1796	3592	1607	1787	3575	1599
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.18	1.00	1.00	0.47	1.00	1.00
Satd. Flow (perm)	1734	3468	1552	3502	3610	1615	338	3592	1607	880	3575	1599
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	125	935	114	554	495	109	158	152	174	554	788	299
RTOR Reduction (vph)	0	0	67	0	0	46	0	0	89	0	0	0
Lane Group Flow (vph)	125	935	47	554	495	63	158	152	85	554	788	299
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	pm+pt	NA	custom	pm+pt	NA	Free
Protected Phases	1	6	3	5	2	7	3	8	5	7	4	
Permitted Phases			6			2	8		6	4		Free
Actuated Green, G (s)	15.5	46.4	57.9	27.2	58.6	86.6	33.9	22.4	73.6	57.4	39.4	150.0
Effective Green, g (s)	15.5	46.4	57.9	27.2	58.6	86.6	33.9	22.4	73.6	57.4	39.4	150.0
Actuated g/C Ratio	0.10	0.31	0.39	0.18	0.39	0.58	0.23	0.15	0.49	0.38	0.26	1.00
Clearance Time (s)	6.5	7.5	6.5	7.0	7.5	7.0	6.5	4.5	7.0	7.0	4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	179	1072	599	635	1410	932	188	536	863	506	939	1599
v/s Ratio Prot	0.07	c0.27	0.01	c0.16	0.14	0.01	0.06	0.04	0.02	c0.20	0.22	
v/s Ratio Perm			0.02			0.03	0.13		0.04	c0.21		0.19
v/c Ratio	0.70	0.87	0.08	0.87	0.35	0.07	0.84	0.28	0.10	1.09	0.84	0.19
Uniform Delay, d1	65.0	49.0	29.2	59.7	32.3	13.9	49.8	56.7	20.4	42.8	52.3	0.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	11.3	9.8	0.1	12.6	0.7	0.0	27.2	0.3	0.1	68.3	6.7	0.3
Delay (s)	76.3	58.8	29.2	72.3	33.0	14.0	77.1	57.0	20.5	111.1	59.0	0.3
Level of Service	E	E	C	E	C	B	E	E	C	F	E	A
Approach Delay (s)		57.8			50.0			50.4			65.9	
Approach LOS		E			D			D			E	

Intersection Summary			
HCM 2000 Control Delay	57.9	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.00		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	26.0
Intersection Capacity Utilization	92.4%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBL	WBT	SEL	NWL
Lane Configurations						
Traffic Volume (vph)	580	355	650	325	185	50
Future Volume (vph)	580	355	650	325	185	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	9.0	7.5	9.0	7.5	7.0	7.0
Lane Util. Factor	1.00	0.95	0.97	0.95	1.00	0.97
Frt	1.00	1.00	1.00	1.00	1.00	1.00
Flt Protected	0.95	1.00	0.95	1.00	0.95	0.95
Satd. Flow (prot)	1770	3539	3433	3539	1770	3433
Flt Permitted	0.95	1.00	0.95	1.00	0.95	0.95
Satd. Flow (perm)	1770	3539	3433	3539	1770	3433
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	630	386	707	353	201	54
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	630	386	707	353	201	54
Turn Type	Prot	NA	Prot	NA	Prot	Prot
Protected Phases	1	5	6	2	4	8
Permitted Phases						
Actuated Green, G (s)	54.0	20.0	55.5	21.5	21.0	21.0
Effective Green, g (s)	54.0	20.0	55.5	21.5	21.0	21.0
Actuated g/C Ratio	0.45	0.17	0.46	0.18	0.18	0.18
Clearance Time (s)	9.0	7.5	9.0	7.5	7.0	7.0
Lane Grp Cap (vph)	796	589	1587	634	309	600
v/s Ratio Prot	c0.36	0.11	0.21	c0.10	c0.11	0.02
v/s Ratio Perm						
v/c Ratio	0.79	0.66	0.45	0.56	0.65	0.09
Uniform Delay, d1	28.2	46.8	21.8	44.9	46.1	41.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	7.9	5.6	0.9	3.5	10.2	0.3
Delay (s)	36.1	52.4	22.7	48.4	56.3	41.8
Level of Service	D	D	C	D	E	D
Approach Delay (s)		42.3		31.3		
Approach LOS		D		C		

Intersection Summary			
HCM 2000 Control Delay	38.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	23.5
Intersection Capacity Utilization	78.6%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	5	330	880	35	10	545	80	50	5	10	40	5
Future Volume (vph)	5	330	880	35	10	545	80	50	5	10	40	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	11	11	11	11	11
Grade (%)			0%			-4%			-3%			0%
Total Lost time (s)		6.0	6.0		6.0	6.0		6.5	6.5			6.5
Lane Util. Factor		1.00	0.95		1.00	0.95		1.00	1.00			1.00
Frt		1.00	0.99		1.00	0.98		1.00	0.90			1.00
Flt Protected		0.95	1.00		0.95	1.00		0.95	1.00			0.96
Satd. Flow (prot)		1770	3519		1805	3541		1736	1639			1723
Flt Permitted		0.27	1.00		0.29	1.00		0.74	1.00			0.74
Satd. Flow (perm)		499	3519		547	3541		1354	1639			1327
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	359	957	38	11	592	87	54	5	11	43	5
RTOR Reduction (vph)	0	0	2	0	0	9	0	0	10	0	0	0
Lane Group Flow (vph)	0	364	993	0	11	670	0	54	6	0	0	48
Turn Type	pm+pt	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA
Protected Phases	1!	1	6			2			8			4
Permitted Phases	6!	6			2			8			4	
Actuated Green, G (s)		63.6	63.6		32.2	32.2		5.4	5.4			5.4
Effective Green, g (s)		63.6	63.6		32.2	32.2		5.4	5.4			5.4
Actuated g/C Ratio		0.78	0.78		0.40	0.40		0.07	0.07			0.07
Clearance Time (s)		6.0	6.0		6.0	6.0		6.5	6.5			6.5
Vehicle Extension (s)		3.0	3.0		3.0	3.0		3.0	3.0			3.0
Lane Grp Cap (vph)		785	2746		216	1399		89	108			87
v/s Ratio Prot		0.14	0.28			0.19			0.00			
v/s Ratio Perm		c0.22			0.02			0.04				0.04
v/c Ratio		0.46	0.36		0.05	0.48		0.61	0.05			0.55
Uniform Delay, d1		4.3	2.7		15.2	18.4		37.0	35.7			36.9
Progression Factor		1.00	1.00		1.00	1.00		1.00	1.00			1.00
Incremental Delay, d2		0.4	0.1		0.4	1.2		11.2	0.2			7.4
Delay (s)		4.7	2.8		15.7	19.6		48.2	35.9			44.2
Level of Service		A	A		B	B		D	D			D
Approach Delay (s)			3.3			19.5			45.4			45.0
Approach LOS			A			B			D			D

Intersection Summary			
HCM 2000 Control Delay	18.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	81.5	Sum of lost time (s)	18.5
Intersection Capacity Utilization	92.7%	ICU Level of Service	F
Analysis Period (min)	15		

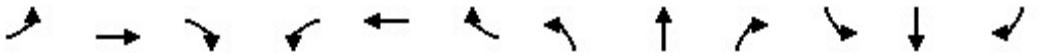
! Phase conflict between lane groups.

c Critical Lane Group



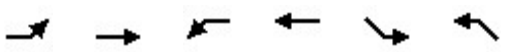
Movement	SBR
Lane Configurations	
Traffic Volume (vph)	530
Future Volume (vph)	530
Ideal Flow (vphpl)	1900
Lane Width	11
Grade (%)	
Total Lost time (s)	6.0
Lane Util. Factor	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1531
Flt Permitted	1.00
Satd. Flow (perm)	1531
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	576
RTOR Reduction (vph)	41
Lane Group Flow (vph)	535
Turn Type	pm+ov
Protected Phases	1!
Permitted Phases	4
Actuated Green, G (s)	30.8
Effective Green, g (s)	30.8
Actuated g/C Ratio	0.38
Clearance Time (s)	6.0
Vehicle Extension (s)	3.0
Lane Grp Cap (vph)	578
v/s Ratio Prot	c0.29
v/s Ratio Perm	0.06
v/c Ratio	0.93
Uniform Delay, d1	24.3
Progression Factor	1.00
Incremental Delay, d2	20.8
Delay (s)	45.1
Level of Service	D
Approach Delay (s)	
Approach LOS	

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	175	490	155	250	820	295	110	755	485	130	195	140
Future Volume (vph)	175	490	155	250	820	295	110	755	485	130	195	140
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		4%			-4%			-3%			-2%	
Total Lost time (s)	6.5	7.5	6.5	7.0	7.5	7.0	6.5	4.5	7.0	7.0	4.5	4.0
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1734	3468	1552	3502	3610	1615	1796	3592	1607	1787	3575	1599
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.62	1.00	1.00	0.09	1.00	1.00
Satd. Flow (perm)	1734	3468	1552	3502	3610	1615	1170	3592	1607	171	3575	1599
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	190	533	168	272	891	321	120	821	527	141	212	152
RTOR Reduction (vph)	0	0	97	0	0	46	0	0	274	0	0	0
Lane Group Flow (vph)	190	533	71	272	891	275	120	821	253	141	212	152
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	pm+pt	NA	custom	pm+pt	NA	Free
Protected Phases	1	6	3	5	2	7	3	8	5	7	4	
Permitted Phases			6			2	8		6	4		Free
Actuated Green, G (s)	20.1	54.9	63.2	17.2	52.5	65.8	46.9	38.6	72.1	57.4	44.1	150.0
Effective Green, g (s)	20.1	54.9	63.2	17.2	52.5	65.8	46.9	38.6	72.1	57.4	44.1	150.0
Actuated g/C Ratio	0.13	0.37	0.42	0.11	0.35	0.44	0.31	0.26	0.48	0.38	0.29	1.00
Clearance Time (s)	6.5	7.5	6.5	7.0	7.5	7.0	6.5	4.5	7.0	7.0	4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	232	1269	653	401	1263	708	400	924	847	208	1051	1599
v/s Ratio Prot	c0.11	0.15	0.01	0.08	c0.25	0.03	0.02	c0.23	c0.03	c0.06	0.06	
v/s Ratio Perm			0.04			0.14	0.08		0.12	0.20		0.10
v/c Ratio	0.82	0.42	0.11	0.68	0.71	0.39	0.30	0.89	0.30	0.68	0.20	0.10
Uniform Delay, d1	63.2	35.6	26.3	63.7	42.1	28.5	38.0	53.6	23.6	36.2	39.7	0.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	19.7	1.0	0.1	4.5	3.3	0.4	0.4	10.4	0.2	8.5	0.1	0.1
Delay (s)	82.9	36.6	26.4	68.3	45.4	28.8	38.4	64.0	23.8	44.6	39.8	0.1
Level of Service	F	D	C	E	D	C	D	E	C	D	D	A
Approach Delay (s)		44.6			46.0			47.5			29.2	
Approach LOS		D			D			D			C	

Intersection Summary			
HCM 2000 Control Delay	44.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	26.0
Intersection Capacity Utilization	79.6%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBL	WBT	SEL	NWL
Lane Configurations						
Traffic Volume (vph)	500	445	580	325	310	325
Future Volume (vph)	500	445	580	325	310	325
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	9.0	7.5	9.0	7.5	7.0	7.0
Lane Util. Factor	1.00	0.95	0.97	0.95	1.00	0.97
Frt	1.00	1.00	1.00	1.00	1.00	1.00
Flt Protected	0.95	1.00	0.95	1.00	0.95	0.95
Satd. Flow (prot)	1770	3539	3433	3539	1770	3433
Flt Permitted	0.95	1.00	0.95	1.00	0.95	0.95
Satd. Flow (perm)	1770	3539	3433	3539	1770	3433
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	543	484	630	353	337	353
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	543	484	630	353	337	353
Turn Type	Prot	NA	Prot	NA	Prot	Prot
Protected Phases	1	5	6	2	4	8
Permitted Phases						
Actuated Green, G (s)	71.0	33.5	65.0	27.5	48.0	48.0
Effective Green, g (s)	71.0	33.5	65.0	27.5	48.0	48.0
Actuated g/C Ratio	0.42	0.20	0.38	0.16	0.28	0.28
Clearance Time (s)	9.0	7.5	9.0	7.5	7.0	7.0
Lane Grp Cap (vph)	739	697	1312	572	499	969
v/s Ratio Prot	c0.31	0.14	0.18	c0.10	c0.19	0.10
v/s Ratio Perm						
v/c Ratio	0.73	0.69	0.48	0.62	0.68	0.36
Uniform Delay, d1	41.6	63.5	39.7	66.3	54.1	48.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	6.4	5.6	1.3	4.9	7.2	1.1
Delay (s)	48.0	69.1	41.0	71.3	61.2	49.9
Level of Service	D	E	D	E	E	D
Approach Delay (s)		58.0		51.9		
Approach LOS		E		D		

Intersection Summary			
HCM 2000 Control Delay	55.1	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	170.0	Sum of lost time (s)	23.5
Intersection Capacity Utilization	79.9%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	10	355	920	55	5	770	25	50	5	5	10	10
Future Volume (vph)	10	355	920	55	5	770	25	50	5	5	10	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	11	11	11	11	11
Grade (%)			0%			-4%			-3%			0%
Total Lost time (s)		6.0	6.0		6.0	6.0		6.5	6.5			6.5
Lane Util. Factor		1.00	0.95		1.00	0.95		1.00	1.00			1.00
Frt		1.00	0.99		1.00	1.00		1.00	0.93			1.00
Flt Protected		0.95	1.00		0.95	1.00		0.95	1.00			0.98
Satd. Flow (prot)		1770	3509		1805	3593		1736	1691			1757
Flt Permitted		0.22	1.00		0.27	1.00		0.74	1.00			0.84
Satd. Flow (perm)		401	3509		513	3593		1358	1691			1507
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	11	386	1000	60	5	837	27	54	5	5	11	11
RTOR Reduction (vph)	0	0	3	0	0	2	0	0	5	0	0	0
Lane Group Flow (vph)	0	397	1057	0	5	862	0	54	5	0	0	22
Turn Type	pm+pt	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA
Protected Phases	1!	1	6			2			8			4
Permitted Phases	6!	6			2			8			4	
Actuated Green, G (s)		67.0	67.0		40.2	40.2		7.6	7.6			7.6
Effective Green, g (s)		67.0	67.0		40.2	40.2		7.6	7.6			7.6
Actuated g/C Ratio		0.77	0.77		0.46	0.46		0.09	0.09			0.09
Clearance Time (s)		6.0	6.0		6.0	6.0		6.5	6.5			6.5
Vehicle Extension (s)		3.0	3.0		3.0	3.0		3.0	3.0			3.0
Lane Grp Cap (vph)		635	2699		236	1658		118	147			131
v/s Ratio Prot		0.15	0.30			0.24			0.00			
v/s Ratio Perm		c0.33			0.01			0.04				0.01
v/c Ratio		0.63	0.39		0.02	0.52		0.46	0.04			0.17
Uniform Delay, d1		7.1	3.3		12.8	16.6		37.8	36.4			36.8
Progression Factor		1.00	1.00		1.00	1.00		1.00	1.00			1.00
Incremental Delay, d2		1.9	0.1		0.2	1.2		2.8	0.1			0.6
Delay (s)		9.0	3.4		12.9	17.8		40.6	36.5			37.4
Level of Service		A	A		B	B		D	D			D
Approach Delay (s)			4.9			17.8			40.0			39.7
Approach LOS			A			B			D			D

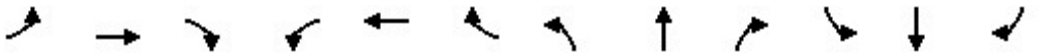
Intersection Summary			
HCM 2000 Control Delay	15.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	87.1	Sum of lost time (s)	18.5
Intersection Capacity Utilization	91.4%	ICU Level of Service	F
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group



Movement	SBR
Lane Configurations	
Traffic Volume (vph)	410
Future Volume (vph)	410
Ideal Flow (vphpl)	1900
Lane Width	11
Grade (%)	
Total Lost time (s)	6.0
Lane Util. Factor	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1531
Flt Permitted	1.00
Satd. Flow (perm)	1531
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	446
RTOR Reduction (vph)	24
Lane Group Flow (vph)	422
Turn Type	pm+ov
Protected Phases	1!
Permitted Phases	4
Actuated Green, G (s)	28.4
Effective Green, g (s)	28.4
Actuated g/C Ratio	0.33
Clearance Time (s)	6.0
Vehicle Extension (s)	3.0
Lane Grp Cap (vph)	499
v/s Ratio Prot	c0.20
v/s Ratio Perm	0.07
v/c Ratio	0.85
Uniform Delay, d1	27.3
Progression Factor	1.00
Incremental Delay, d2	12.5
Delay (s)	39.9
Level of Service	D
Approach Delay (s)	
Approach LOS	

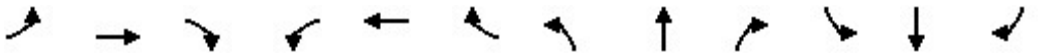
Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	665	665	565	255	30	155	15	235	5	25	10
Future Volume (vph)	25	665	665	565	255	30	155	15	235	5	25	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.5	6.0	6.0		6.5	6.5	4.0		6.5	6.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		0.95	0.95	1.00		1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.98		1.00	1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	0.96	1.00		0.99	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3483		1681	1699	1583		1848	1583
Flt Permitted	0.56	1.00	1.00	0.16	1.00		0.95	0.96	1.00		0.99	1.00
Satd. Flow (perm)	1049	3539	1583	305	3483		1681	1699	1583		1848	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	27	723	723	614	277	33	168	16	255	5	27	11
RTOR Reduction (vph)	0	0	457	0	7	0	0	0	0	0	0	10
Lane Group Flow (vph)	27	723	266	614	303	0	92	92	255	0	32	1
Turn Type	Perm	NA	pm+ov	pm+pt	NA		Split	NA	Free	Split	NA	Perm
Protected Phases		6	3	5	2		3	3		4	4	
Permitted Phases	6		6	2					Free			4
Actuated Green, G (s)	18.4	18.4	33.1	52.1	52.1		14.7	14.7	90.0		4.2	4.2
Effective Green, g (s)	18.4	18.4	33.1	52.1	52.1		14.7	14.7	90.0		4.2	4.2
Actuated g/C Ratio	0.20	0.20	0.37	0.58	0.58		0.16	0.16	1.00		0.05	0.05
Clearance Time (s)	6.0	6.0	6.5	6.0	6.0		6.5	6.5			6.5	6.5
Vehicle Extension (s)	3.0	3.0	4.0	2.0	3.0		4.0	4.0			2.0	2.0
Lane Grp Cap (vph)	214	723	582	627	2016		274	277	1583		86	73
v/s Ratio Prot		0.20	c0.07	c0.30	0.09		0.05	0.05			0.02	
v/s Ratio Perm	0.03		0.09	c0.26					c0.16			0.00
v/c Ratio	0.13	1.00	0.46	0.98	0.15		0.34	0.33	0.16		0.37	0.01
Uniform Delay, d1	29.2	35.8	21.6	23.5	8.7		33.3	33.3	0.0		41.6	40.9
Progression Factor	1.00	1.00	1.00	0.65	0.45		1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	1.2	33.5	0.8	29.5	0.2		1.0	1.0	0.2		1.0	0.0
Delay (s)	30.4	69.3	22.4	44.8	4.1		34.3	34.3	0.2		42.6	40.9
Level of Service	C	E	C	D	A		C	C	A		D	D
Approach Delay (s)		45.6			31.2			14.5			42.2	
Approach LOS		D			C			B			D	

Intersection Summary			
HCM 2000 Control Delay	36.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	25.0
Intersection Capacity Utilization	92.5%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	640	245	560	780	20	65	20	495	10	20	5
Future Volume (veh/h)	20	640	245	560	780	20	65	20	495	10	20	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	22	696	0	609	848	22	71	22	0	11	22	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	42	1451		686	2053	916	252	343		196	236	
Arrive On Green	0.02	0.41	0.00	0.20	0.58	0.58	0.05	0.10	0.00	0.01	0.07	0.00
Sat Flow, veh/h	1781	3554	1585	3456	3554	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	22	696	0	609	848	22	71	22	0	11	22	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1728	1777	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	1.1	13.0	0.0	15.4	11.9	0.5	3.3	0.5	0.0	0.5	0.5	0.0
Cycle Q Clear(g_c), s	1.1	13.0	0.0	15.4	11.9	0.5	3.3	0.5	0.0	0.5	0.5	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	42	1451		686	2053	916	252	343		196	236	
V/C Ratio(X)	0.53	0.48		0.89	0.41	0.02	0.28	0.06		0.06	0.09	
Avail Cap(c_a), veh/h	148	1451		730	2053	916	352	513		350	513	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	43.4	19.6	0.0	35.1	10.5	8.1	36.7	37.0	0.0	38.3	39.5	0.0
Incr Delay (d2), s/veh	3.8	1.1	0.0	12.4	0.6	0.0	0.2	0.0	0.0	0.0	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	5.2	0.0	7.3	4.2	0.2	1.4	0.2	0.0	0.2	0.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.2	20.7	0.0	47.5	11.2	8.2	36.9	37.0	0.0	38.4	39.6	0.0
LnGrp LOS	D	C		D	B	A	D	D		D	D	
Approach Vol, veh/h		718	A		1479			93	A		33	A
Approach Delay, s/veh		21.5			26.1			36.9			39.2	
Approach LOS		C			C			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.6	58.5	7.2	14.7	24.9	43.2	9.9	12.0
Change Period (Y+Rc), s	7.5	* 6.5	6.0	6.0	7.0	6.5	5.5	6.0
Max Green Setting (Gmax), s	7.5	* 36	9.0	13.0	19.0	23.5	9.5	13.0
Max Q Clear Time (g_c+I1), s	3.1	13.9	2.5	2.5	17.4	15.0	5.3	2.5
Green Ext Time (p_c), s	0.0	5.8	0.0	0.0	0.4	2.8	0.0	0.0

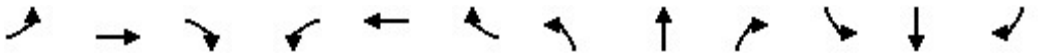
Intersection Summary	
HCM 6th Ctrl Delay	25.3
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

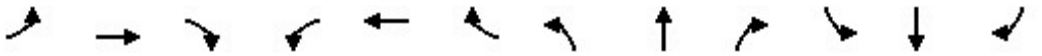
Unsignalized Delay for [NBR, EBR, SBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	360	215	365	500	5	855	10	485	10	5	10
Future Volume (vph)	10	360	215	365	500	5	855	10	485	10	5	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.5	6.0	6.0		6.5	6.5	4.0		6.5	6.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		0.95	0.95	1.00		1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	0.95	1.00		0.97	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3534		1681	1687	1583		1801	1583
Flt Permitted	0.45	1.00	1.00	0.31	1.00		0.95	0.95	1.00		0.97	1.00
Satd. Flow (perm)	833	3539	1583	575	3534		1681	1687	1583		1801	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	11	391	234	397	543	5	929	11	527	11	5	11
RTOR Reduction (vph)	0	0	118	0	1	0	0	0	0	0	0	11
Lane Group Flow (vph)	11	391	116	397	547	0	474	466	527	0	16	0
Turn Type	Perm	NA	pm+ov	pm+pt	NA		Split	NA	Free	Split	NA	Perm
Protected Phases		6	3	5	2		3	3		4	4	
Permitted Phases	6		6	2					Free			4
Actuated Green, G (s)	17.1	17.1	44.6	41.0	41.0		27.5	27.5	90.0		2.5	2.5
Effective Green, g (s)	17.1	17.1	44.6	41.0	41.0		27.5	27.5	90.0		2.5	2.5
Actuated g/C Ratio	0.19	0.19	0.50	0.46	0.46		0.31	0.31	1.00		0.03	0.03
Clearance Time (s)	6.0	6.0	6.5	6.0	6.0		6.5	6.5			6.5	6.5
Vehicle Extension (s)	3.0	3.0	4.0	2.0	3.0		4.0	4.0			2.0	2.0
Lane Grp Cap (vph)	158	672	784	499	1609		513	515	1583		50	43
v/s Ratio Prot		0.11	0.05	c0.16	0.15		c0.28	0.28			0.01	
v/s Ratio Perm	0.01		0.03	c0.20					c0.33			0.00
v/c Ratio	0.07	0.58	0.15	0.80	0.34		0.92	0.90	0.33		0.32	0.01
Uniform Delay, d1	29.9	33.2	12.4	18.0	15.8		30.2	30.0	0.0		42.9	42.5
Progression Factor	1.00	1.00	1.00	0.96	0.88		1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.9	3.7	0.1	7.5	0.5		22.7	19.6	0.6		1.3	0.0
Delay (s)	30.8	36.9	12.5	24.8	14.5		53.0	49.6	0.6		44.3	42.6
Level of Service	C	D	B	C	B		D	D	A		D	D
Approach Delay (s)		27.8			18.8			33.1			43.6	
Approach LOS		C			B			C			D	

Intersection Summary			
HCM 2000 Control Delay	27.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	25.0
Intersection Capacity Utilization	78.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	780	60	245	700	30	160	5	885	50	25	10
Future Volume (veh/h)	15	780	60	245	700	30	160	5	885	50	25	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	16	848	0	266	761	33	174	5	0	54	27	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	33	1644		307	1875	836	343	441		264	279	
Arrive On Green	0.02	0.46	0.00	0.09	0.53	0.53	0.09	0.12	0.00	0.04	0.08	0.00
Sat Flow, veh/h	1781	3554	1585	3456	3554	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	16	848	0	266	761	33	174	5	0	54	27	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1728	1777	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	0.8	15.2	0.0	6.8	11.6	0.9	8.0	0.1	0.0	2.5	0.6	0.0
Cycle Q Clear(g_c), s	0.8	15.2	0.0	6.8	11.6	0.9	8.0	0.1	0.0	2.5	0.6	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	33	1644		307	1875	836	343	441		264	279	
V/C Ratio(X)	0.49	0.52		0.87	0.41	0.04	0.51	0.01		0.20	0.10	
Avail Cap(c_a), veh/h	99	1644		307	1875	836	343	1027		349	1035	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	43.8	17.1	0.0	40.5	12.8	10.3	33.8	34.6	0.0	36.0	38.5	0.0
Incr Delay (d2), s/veh	4.2	1.2	0.0	21.9	0.7	0.1	0.5	0.0	0.0	0.1	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	5.9	0.0	3.7	4.3	0.3	3.4	0.0	0.0	1.1	0.3	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.9	18.2	0.0	62.4	13.4	10.3	34.3	34.6	0.0	36.1	38.7	0.0
LnGrp LOS	D	B		E	B	B	C	C		D	D	
Approach Vol, veh/h		864	A		1060			179	A		81	A
Approach Delay, s/veh		18.8			25.6			34.3			37.0	
Approach LOS		B			C			C			D	

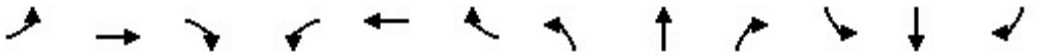
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.1	54.0	9.7	17.2	15.0	48.1	13.8	13.1
Change Period (Y+Rc), s	7.5	* 6.5	6.0	6.0	7.0	6.5	5.5	6.0
Max Green Setting (Gmax), s	5.0	* 26	8.0	26.0	8.0	22.5	8.3	26.2
Max Q Clear Time (g_c+I1), s	2.8	13.6	4.5	2.1	8.8	17.2	10.0	2.6
Green Ext Time (p_c), s	0.0	4.0	0.0	0.0	0.0	2.5	0.0	0.1

Intersection Summary	
HCM 6th Ctrl Delay	24.0
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [NBR, EBR, SBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	70	245	55	410	210	120	15	220	635	460	700	70
Future Volume (vph)	70	245	55	410	210	120	15	220	635	460	700	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	11	11	11	12	12	9	11	13	12	11	11
Grade (%)		-4%			2%			-1%			-2%	
Total Lost time (s)	5.5	5.5		6.0	6.0	5.5	5.5	5.5	4.0	5.5	5.5	
Lane Util. Factor	1.00	0.95		0.91	0.91	1.00	1.00	0.95	1.00	*0.99	0.95	
Frt	1.00	0.97		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00		0.95	0.98	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1805	3393		1541	3275	1567	1601	3438	1644	3539	3408	
Flt Permitted	0.95	1.00		0.95	0.98	1.00	0.34	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1805	3393		1541	3275	1567	568	3438	1644	3539	3408	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	76	266	60	446	228	130	16	239	690	500	761	76
RTOR Reduction (vph)	0	16	0	0	0	74	0	0	0	0	6	0
Lane Group Flow (vph)	76	310	0	223	451	56	16	239	690	500	831	0
Turn Type	Split	NA		Split	NA	pt+ov	Perm	NA	Free	Prot	NA	
Protected Phases	3	3		4	4	1 4		2		1	6	
Permitted Phases							2		Free			
Actuated Green, G (s)	17.5	17.5		29.9	29.9	57.4	28.6	28.6	120.0	21.5	55.6	
Effective Green, g (s)	17.5	17.5		29.9	29.9	51.4	28.6	28.6	120.0	21.5	55.6	
Actuated g/C Ratio	0.15	0.15		0.25	0.25	0.43	0.24	0.24	1.00	0.18	0.46	
Clearance Time (s)	5.5	5.5		6.0	6.0		5.5	5.5		5.5	5.5	
Vehicle Extension (s)	4.0	4.0		4.0	4.0		0.2	0.2		3.0	0.2	
Lane Grp Cap (vph)	263	494		383	816	671	135	819	1644	634	1579	
v/s Ratio Prot	0.04	c0.09		c0.14	0.14	0.04		0.07		c0.14	c0.24	
v/s Ratio Perm							0.03		0.42			
v/c Ratio	0.29	0.63		0.58	0.55	0.08	0.12	0.29	0.42	0.79	0.53	
Uniform Delay, d1	45.7	48.2		39.6	39.2	20.3	35.8	37.4	0.0	47.1	22.8	
Progression Factor	1.00	1.00		0.84	0.84	0.51	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	2.8	5.9		6.0	2.5	0.1	1.8	0.9	0.8	6.5	1.3	
Delay (s)	48.5	54.1		39.2	35.4	10.4	37.6	38.3	0.8	53.5	24.1	
Level of Service	D	D		D	D	B	D	D	A	D	C	
Approach Delay (s)		53.0			32.4			10.9			35.1	
Approach LOS		D			C			B			D	

Intersection Summary			
HCM 2000 Control Delay	30.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	22.5
Intersection Capacity Utilization	65.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	4.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	1315	25	0	625	235	0	0	225	0	0	115
Future Vol, veh/h	0	1315	25	0	625	235	0	0	225	0	0	115
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	2	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	1429	27	0	679	255	0	0	245	0	0	125

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	-	-	0	-	-	728	-	-	467
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	-	-	-	7.14	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	-	-	-	3.92	-	-	3.92
Pot Cap-1 Maneuver	0	-	-	0	-	-	0	0	314	0	0	464
Stage 1	0	-	-	0	-	-	0	0	-	0	0	-
Stage 2	0	-	-	0	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	-	-	-	-	-	-	-	-	314	-	-	464
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	47.3	15.6
HCM LOS			E	C

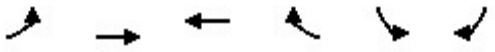
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT	WBR	SBLn1
Capacity (veh/h)	314	-	-	-	-	464
HCM Lane V/C Ratio	0.779	-	-	-	-	0.269
HCM Control Delay (s)	47.3	-	-	-	-	15.6
HCM Lane LOS	E	-	-	-	-	C
HCM 95th %tile Q(veh)	6.2	-	-	-	-	1.1



Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBR	SBR2	NEL	NER
Lane Configurations											
Traffic Volume (vph)	175	1240	0	0	2190	170	255	0	515	0	780
Future Volume (vph)	175	1240	0	0	2190	170	255	0	515	0	780
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	11	12	12	11	12	12	12	12	12	12
Grade (%)		0%			-3%		-4%			0%	
Total Lost time (s)	4.5	6.5			6.5	6.5	6.0		6.0		4.5
Lane Util. Factor	1.00	0.95			0.91	1.00	0.97		0.88		1.00
Frt	1.00	1.00			1.00	0.85	1.00		0.85		0.86
Flt Protected	0.95	1.00			1.00	1.00	0.95		1.00		1.00
Satd. Flow (prot)	1711	3421			4990	1607	3502		2842		1611
Flt Permitted	0.05	1.00			1.00	1.00	0.95		1.00		1.00
Satd. Flow (perm)	96	3421			4990	1607	3502		2842		1611
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	190	1348	0	0	2380	185	277	0	560	0	848
RTOR Reduction (vph)	0	0	0	0	0	76	0	0	413	0	0
Lane Group Flow (vph)	190	1348	0	0	2380	109	277	0	147	0	848
Turn Type	pm+pt	NA			NA	Perm	Prot		Perm		Perm
Protected Phases	1	6			2		4				
Permitted Phases	6					2			4		1 2 4 6
Actuated Green, G (s)	94.5	94.5			70.5	70.5	13.0		13.0		120.0
Effective Green, g (s)	94.5	94.5			70.5	70.5	13.0		13.0		107.5
Actuated g/C Ratio	0.79	0.79			0.59	0.59	0.11		0.11		0.90
Clearance Time (s)	4.5	6.5			6.5	6.5	6.0		6.0		
Vehicle Extension (s)	6.0	0.2			0.2	0.2	3.0		3.0		
Lane Grp Cap (vph)	338	2694			2931	944	379		307		1443
v/s Ratio Prot	0.09	0.39			c0.48		c0.08				
v/s Ratio Perm	0.35					0.07			0.05		c0.53
v/c Ratio	0.56	0.50			0.81	0.12	0.73		0.48		0.59
Uniform Delay, d1	31.2	4.5			19.5	11.0	51.8		50.3		1.4
Progression Factor	0.99	0.82			1.00	1.00	1.00		1.00		1.00
Incremental Delay, d2	4.4	0.7			2.6	0.2	11.8		5.3		1.2
Delay (s)	35.3	4.3			22.1	11.2	63.6		55.6		2.6
Level of Service	D	A			C	B	E		E		A
Approach Delay (s)		8.2			21.3		58.2			2.6	
Approach LOS		A			C		E			A	

Intersection Summary			
HCM 2000 Control Delay	20.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	Err%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group



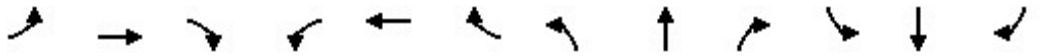
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑			↱
Traffic Volume (vph)	0	2275	2355	5	0	5
Future Volume (vph)	0	2275	2355	5	0	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)		1%	-3%		0%	
Total Lost time (s)		5.0	5.0			4.0
Lane Util. Factor		0.91	0.91			1.00
Frt		1.00	1.00			0.86
Flt Protected		1.00	1.00			1.00
Satd. Flow (prot)		5060	5160			1611
Flt Permitted		1.00	1.00			1.00
Satd. Flow (perm)		5060	5160			1611
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	2473	2560	5	0	5
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	2473	2565	0	0	5
Turn Type		NA	NA			Free
Protected Phases		2	6			
Permitted Phases						Free
Actuated Green, G (s)		95.7	95.7			109.7
Effective Green, g (s)		95.7	95.7			109.7
Actuated g/C Ratio		0.87	0.87			1.00
Clearance Time (s)		5.0	5.0			
Vehicle Extension (s)		5.0	5.0			
Lane Grp Cap (vph)		4414	4501			1611
v/s Ratio Prot		0.49	c0.50			
v/s Ratio Perm						c0.00
v/c Ratio		0.56	0.57			0.00
Uniform Delay, d1		1.7	1.8			0.0
Progression Factor		1.00	1.00			1.00
Incremental Delay, d2		0.3	0.3			0.0
Delay (s)		2.0	2.1			0.0
Level of Service		A	A			A
Approach Delay (s)		2.0	2.1		0.0	
Approach LOS		A	A		A	

Intersection Summary			
HCM 2000 Control Delay	2.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	109.7	Sum of lost time (s)	9.0
Intersection Capacity Utilization	49.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	2185	85	10	2170	10	125	5	30	35	5	65
Future Volume (veh/h)	5	2185	85	10	2170	10	125	5	30	35	5	65
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1864	1864	1864	1908	1988	1988	1870	1945	1945	1864	1864	1864
Adj Flow Rate, veh/h	5	2375	92	11	2359	11	136	5	33	38	5	71
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	146	3197	123	142	3575	17	243	36	241	279	17	246
Arrive On Green	0.01	0.64	0.64	0.01	0.64	0.64	0.16	0.16	0.16	0.16	0.16	0.16
Sat Flow, veh/h	1776	5029	194	1818	5575	26	1323	221	1461	1365	105	1491
Grp Volume(v), veh/h	5	1598	869	11	1530	840	136	0	38	38	0	76
Grp Sat Flow(s),veh/h/ln	1776	1697	1830	1818	1809	1983	1323	0	1682	1365	0	1596
Q Serve(g_s), s	0.1	29.2	29.7	0.2	23.7	23.7	9.0	0.0	1.7	2.2	0.0	3.8
Cycle Q Clear(g_c), s	0.1	29.2	29.7	0.2	23.7	23.7	12.8	0.0	1.7	3.9	0.0	3.8
Prop In Lane	1.00		0.11	1.00		0.01	1.00		0.87	1.00		0.93
Lane Grp Cap(c), veh/h	146	2157	1163	142	2320	1272	243	0	277	279	0	263
V/C Ratio(X)	0.03	0.74	0.75	0.08	0.66	0.66	0.56	0.00	0.14	0.14	0.00	0.29
Avail Cap(c_a), veh/h	217	2157	1163	205	2320	1272	253	0	290	289	0	275
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.84	0.84	0.84	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	8.9	11.3	11.4	11.0	10.0	10.1	38.6	0.0	32.1	33.8	0.0	33.0
Incr Delay (d2), s/veh	0.1	2.0	3.7	0.2	1.5	2.7	2.6	0.0	0.2	0.2	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	9.3	10.7	0.1	7.9	9.1	3.1	0.0	0.7	0.7	0.0	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	9.0	13.3	15.1	11.2	11.5	12.8	41.1	0.0	32.3	34.0	0.0	33.6
LnGrp LOS	A	B	B	B	B	B	D	A	C	C	A	C
Approach Vol, veh/h		2472			2381			174			114	
Approach Delay, s/veh		13.9			12.0			39.2			33.7	
Approach LOS		B			B			D			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.0	62.7		21.3	6.5	62.2		21.3				
Change Period (Y+Rc), s	5.5	5.0		6.5	5.5	5.0		6.5				
Max Green Setting (Gmax), s	4.1	53.4		15.5	4.1	53.4		15.5				
Max Q Clear Time (g_c+I1), s	2.1	25.7		5.9	2.2	31.7		14.8				
Green Ext Time (p_c), s	0.0	20.4		0.3	0.0	17.5		0.0				

Intersection Summary			
HCM 6th Ctrl Delay		14.3	
HCM 6th LOS		B	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	700	40	10	315	20	640	10	65	5	5	5
Future Volume (vph)	20	700	40	10	315	20	640	10	65	5	5	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			5.5		6.0	6.0	6.0		6.0	
Lane Util. Factor		0.95			0.95		0.95	0.95	1.00		1.00	
Frt		0.99			0.99		1.00	1.00	0.85		0.95	
Flt Protected		1.00			1.00		0.95	0.95	1.00		0.98	
Satd. Flow (prot)		3507			3503		1681	1688	1583		1750	
Flt Permitted		0.94			0.92		0.95	0.95	1.00		0.98	
Satd. Flow (perm)		3290			3243		1681	1688	1583		1750	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	22	761	43	11	342	22	696	11	71	5	5	5
RTOR Reduction (vph)	0	4	0	0	6	0	0	0	48	0	5	0
Lane Group Flow (vph)	0	822	0	0	369	0	355	352	23	0	10	0
Turn Type	Perm	NA		Perm	NA		Split	NA	Perm	Split	NA	
Protected Phases		8			4		2	2		6	6	
Permitted Phases	8			4					2			
Actuated Green, G (s)		21.4			21.9		19.4	19.4	19.4		1.0	
Effective Green, g (s)		21.4			21.9		19.4	19.4	19.4		1.0	
Actuated g/C Ratio		0.36			0.37		0.32	0.32	0.32		0.02	
Clearance Time (s)		6.0			5.5		6.0	6.0	6.0		6.0	
Vehicle Extension (s)		4.0			4.0		2.0	2.0	2.0		2.0	
Lane Grp Cap (vph)		1177			1187		545	547	513		29	
v/s Ratio Prot							c0.21	0.21			c0.01	
v/s Ratio Perm		c0.25			0.11				0.01			
v/c Ratio		0.70			0.31		0.65	0.64	0.04		0.35	
Uniform Delay, d1		16.4			13.6		17.3	17.2	13.8		29.1	
Progression Factor		1.00			1.00		1.00	1.00	1.00		1.00	
Incremental Delay, d2		2.0			0.2		5.9	5.7	0.2		2.6	
Delay (s)		18.4			13.8		23.2	23.0	14.0		31.7	
Level of Service		B			B		C	C	B		C	
Approach Delay (s)		18.4			13.8			22.3			31.7	
Approach LOS		B			B			C			C	

Intersection Summary			
HCM 2000 Control Delay	19.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	59.8	Sum of lost time (s)	18.0
Intersection Capacity Utilization	69.8%	ICU Level of Service	C
Analysis Period (min)	15		

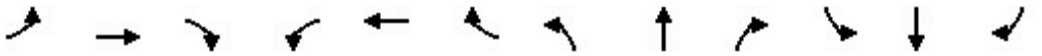
c Critical Lane Group



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	5	5	880	80	50	755
Future Volume (vph)	5	5	880	80	50	755
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0		6.0	6.0	6.0	6.0
Lane Util. Factor	0.97		0.95	1.00	1.00	0.91
Frt	0.93		1.00	0.85	1.00	1.00
Flt Protected	0.98		1.00	1.00	0.95	1.00
Satd. Flow (prot)	3261		3539	1583	1770	5085
Flt Permitted	0.98		1.00	1.00	0.28	1.00
Satd. Flow (perm)	3261		3539	1583	526	5085
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	5	957	87	54	821
RTOR Reduction (vph)	5	0	0	30	0	0
Lane Group Flow (vph)	5	0	957	57	54	821
Turn Type	Prot		NA	Perm	pm+pt	NA
Protected Phases	4		2		1	6
Permitted Phases				2	6	
Actuated Green, G (s)	1.0		42.3	42.3	51.7	51.7
Effective Green, g (s)	1.0		42.3	42.3	51.7	51.7
Actuated g/C Ratio	0.02		0.65	0.65	0.80	0.80
Clearance Time (s)	6.0		6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	50		2313	1034	485	4063
v/s Ratio Prot	c0.00		c0.27		0.01	c0.16
v/s Ratio Perm				0.04	0.08	
v/c Ratio	0.10		0.41	0.06	0.11	0.20
Uniform Delay, d1	31.4		5.3	4.0	2.1	1.6
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	0.9		0.5	0.1	0.1	0.1
Delay (s)	32.3		5.9	4.1	2.2	1.7
Level of Service	C		A	A	A	A
Approach Delay (s)	32.3		5.7			1.7
Approach LOS	C		A			A

Intersection Summary			
HCM 2000 Control Delay	4.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	64.7	Sum of lost time (s)	18.0
Intersection Capacity Utilization	47.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	70	350	40	715	615	525	75	645	540	180	420	90
Future Volume (vph)	70	350	40	715	615	525	75	645	540	180	420	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	11	11	11	12	12	9	11	13	12	11	11
Grade (%)		-4%			2%			-1%			-2%	
Total Lost time (s)	5.5	5.5		6.0	6.0	5.5	5.5	5.5	4.0	5.5	5.5	
Lane Util. Factor	1.00	0.95		0.91	0.91	1.00	1.00	0.95	1.00	*0.99	0.95	
Frt	1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.97	
Flt Protected	0.95	1.00		0.95	0.98	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1805	3436		1541	3305	1567	1601	3438	1644	3539	3364	
Flt Permitted	0.95	1.00		0.95	0.98	1.00	0.44	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1805	3436		1541	3305	1567	748	3438	1644	3539	3364	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	76	380	43	777	668	571	82	701	587	196	457	98
RTOR Reduction (vph)	0	7	0	0	0	108	0	0	0	0	15	0
Lane Group Flow (vph)	76	416	0	474	971	463	82	701	587	196	540	0
Turn Type	Split	NA		Split	NA	pt+ov	Perm	NA	Free	Prot	NA	
Protected Phases	3	3		4	4	1 4		2		1	6	
Permitted Phases							2		Free			
Actuated Green, G (s)	15.5	15.5		44.0	44.0	61.4	26.6	26.6	120.0	11.4	43.5	
Effective Green, g (s)	15.5	15.5		44.0	44.0	55.4	26.6	26.6	120.0	11.4	43.5	
Actuated g/C Ratio	0.13	0.13		0.37	0.37	0.46	0.22	0.22	1.00	0.10	0.36	
Clearance Time (s)	5.5	5.5		6.0	6.0		5.5	5.5		5.5	5.5	
Vehicle Extension (s)	4.0	4.0		4.0	4.0		0.2	0.2		3.0	0.2	
Lane Grp Cap (vph)	233	443		565	1211	723	165	762	1644	336	1219	
v/s Ratio Prot	0.04	c0.12		c0.31	0.29	c0.30		c0.20		0.06	0.16	
v/s Ratio Perm							0.11		0.36			
v/c Ratio	0.33	0.94		0.84	0.80	0.64	0.50	0.92	0.36	0.58	0.44	
Uniform Delay, d1	47.5	51.8		34.8	34.1	24.7	40.8	45.7	0.0	52.0	29.0	
Progression Factor	1.00	1.00		0.85	0.84	0.53	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	3.7	29.9		12.9	5.2	1.8	0.9	15.8	0.6	2.6	1.2	
Delay (s)	51.2	81.7		42.4	34.0	14.8	41.7	61.5	0.6	54.6	30.2	
Level of Service	D	F		D	C	B	D	E	A	D	C	
Approach Delay (s)		77.1			30.5			34.2			36.6	
Approach LOS		E			C			C			D	

Intersection Summary			
HCM 2000 Control Delay	37.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	22.5
Intersection Capacity Utilization	77.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	10

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	1045	25	0	1645	200	0	0	135	0	0	210
Future Vol, veh/h	0	1045	25	0	1645	200	0	0	135	0	0	210
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	2	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	1136	27	0	1788	217	0	0	147	0	0	228

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	-	-	0	-	-	582	-	-	1003
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	-	-	-	7.14	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	-	-	-	3.92	-	-	3.92
Pot Cap-1 Maneuver	0	-	-	0	-	-	0	0	391	0	0	~ 206
Stage 1	0	-	-	0	-	-	0	0	-	0	0	-
Stage 2	0	-	-	0	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	-	-	-	-	-	-	-	-	391	-	-	~ 206
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	19.6	143.3
HCM LOS			C	F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT	WBR	SBLn1
Capacity (veh/h)	391	-	-	-	-	206
HCM Lane V/C Ratio	0.375	-	-	-	-	1.108
HCM Control Delay (s)	19.6	-	-	-	-	143.3
HCM Lane LOS	C	-	-	-	-	F
HCM 95th %tile Q(veh)	1.7	-	-	-	-	10.7

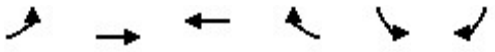
Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon



Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBR	SBR2	NEL	NER
Lane Configurations											
Traffic Volume (vph)	115	1585	0	0	2790	195	175	0	260	0	565
Future Volume (vph)	115	1585	0	0	2790	195	175	0	260	0	565
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	11	12	12	11	12	12	12	12	12	12
Grade (%)		0%			-3%		-4%			0%	
Total Lost time (s)	4.5	6.5			6.5	6.5	6.0		6.0		4.5
Lane Util. Factor	1.00	0.95			0.91	1.00	0.97		0.88		1.00
Frt	1.00	1.00			1.00	0.85	1.00		0.85		0.86
Flt Protected	0.95	1.00			1.00	1.00	0.95		1.00		1.00
Satd. Flow (prot)	1711	3421			4990	1607	3502		2842		1611
Flt Permitted	0.05	1.00			1.00	1.00	0.95		1.00		1.00
Satd. Flow (perm)	82	3421			4990	1607	3502		2842		1611
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	125	1723	0	0	3033	212	190	0	283	0	614
RTOR Reduction (vph)	0	0	0	0	0	64	0	0	220	0	0
Lane Group Flow (vph)	125	1723	0	0	3033	148	190	0	63	0	614
Turn Type	pm+pt	NA			NA	Perm	Prot		Perm		Perm
Protected Phases	1	6			2		4				
Permitted Phases	6					2			4		1 2 4 6
Actuated Green, G (s)	99.5	99.5			83.8	83.8	8.0		8.0		120.0
Effective Green, g (s)	99.5	99.5			83.8	83.8	8.0		8.0		107.5
Actuated g/C Ratio	0.83	0.83			0.70	0.70	0.07		0.07		0.90
Clearance Time (s)	4.5	6.5			6.5	6.5	6.0		6.0		
Vehicle Extension (s)	6.0	0.2			0.2	0.2	3.0		3.0		
Lane Grp Cap (vph)	220	2836			3484	1122	233		189		1443
v/s Ratio Prot	0.05	c0.50			c0.61		c0.05				
v/s Ratio Perm	0.42					0.09			0.02		0.38
v/c Ratio	0.57	0.61			0.87	0.13	0.82		0.33		0.43
Uniform Delay, d1	32.7	3.5			13.9	6.0	55.3		53.4		1.1
Progression Factor	0.87	1.13			0.50	0.00	1.00		1.00		1.00
Incremental Delay, d2	6.8	1.0			2.3	0.2	26.0		4.7		0.6
Delay (s)	35.2	5.0			9.3	0.2	81.3		58.1		1.6
Level of Service	D	A			A	A	F		E		A
Approach Delay (s)		7.0			8.7		67.4			1.6	
Approach LOS		A			A		E			A	

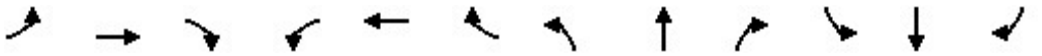
Intersection Summary			
HCM 2000 Control Delay	12.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	Err%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑			↱
Traffic Volume (vph)	0	2325	2980	5	0	5
Future Volume (vph)	0	2325	2980	5	0	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)		1%	-3%		0%	
Total Lost time (s)		5.0	5.0			4.0
Lane Util. Factor		0.91	0.91			1.00
Frt		1.00	1.00			0.86
Flt Protected		1.00	1.00			1.00
Satd. Flow (prot)		5060	5160			1611
Flt Permitted		1.00	1.00			1.00
Satd. Flow (perm)		5060	5160			1611
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	2527	3239	5	0	5
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	2527	3244	0	0	5
Turn Type		NA	NA			Free
Protected Phases		2	6			
Permitted Phases						Free
Actuated Green, G (s)		99.8	99.8			120.0
Effective Green, g (s)		99.8	99.8			120.0
Actuated g/C Ratio		0.83	0.83			1.00
Clearance Time (s)		5.0	5.0			
Vehicle Extension (s)		5.0	5.0			
Lane Grp Cap (vph)		4208	4291			1611
v/s Ratio Prot		0.50	c0.63			
v/s Ratio Perm						c0.00
v/c Ratio		0.60	0.76			0.00
Uniform Delay, d1		3.4	4.6			0.0
Progression Factor		0.87	1.00			1.00
Incremental Delay, d2		0.5	1.3			0.0
Delay (s)		3.5	5.9			0.0
Level of Service		A	A			A
Approach Delay (s)		3.5	5.9		0.0	
Approach LOS		A	A		A	

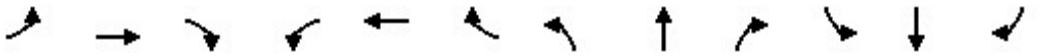
Intersection Summary			
HCM 2000 Control Delay	4.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	61.9%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	2220	95	15	2895	25	70	10	25	25	5	20
Future Volume (veh/h)	10	2220	95	15	2895	25	70	10	25	25	5	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1864	1864	1864	1908	1988	1988	1870	1945	1945	1864	1864	1864
Adj Flow Rate, veh/h	11	2413	103	16	3147	27	76	11	27	27	5	22
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	121	3536	150	163	3942	34	184	45	111	175	27	120
Arrive On Green	0.01	0.71	0.71	0.01	0.71	0.71	0.09	0.09	0.09	0.09	0.09	0.09
Sat Flow, veh/h	1776	5007	212	1818	5550	47	1383	499	1225	1365	301	1325
Grp Volume(v), veh/h	11	1629	887	16	2048	1126	76	0	38	27	0	27
Grp Sat Flow(s),veh/h/ln	1776	1697	1826	1818	1809	1979	1383	0	1725	1365	0	1626
Q Serve(g_s), s	0.2	24.4	24.9	0.2	34.0	34.4	4.8	0.0	1.8	1.7	0.0	1.4
Cycle Q Clear(g_c), s	0.2	24.4	24.9	0.2	34.0	34.4	6.2	0.0	1.8	3.5	0.0	1.4
Prop In Lane	1.00		0.12	1.00		0.02	1.00		0.71	1.00		0.81
Lane Grp Cap(c), veh/h	121	2396	1290	163	2570	1406	184	0	156	175	0	147
V/C Ratio(X)	0.09	0.68	0.69	0.10	0.80	0.80	0.41	0.00	0.24	0.15	0.00	0.18
Avail Cap(c_a), veh/h	183	2396	1290	219	2570	1406	196	0	171	187	0	161
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.80	0.80	0.80	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	11.3	7.5	7.5	7.5	8.7	8.8	40.8	0.0	38.1	39.7	0.0	37.9
Incr Delay (d2), s/veh	0.3	1.3	2.4	0.3	2.7	4.9	1.5	0.0	0.8	0.4	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	6.7	7.8	0.1	10.2	12.1	1.7	0.0	0.8	0.6	0.0	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	11.6	8.7	10.0	7.7	11.4	13.6	42.2	0.0	38.9	40.1	0.0	38.5
LnGrp LOS	B	A	A	A	B	B	D	A	D	D	A	D
Approach Vol, veh/h		2527			3190			114			54	
Approach Delay, s/veh		9.2			12.2			41.1			39.3	
Approach LOS		A			B			D			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.5	68.9		14.6	6.8	68.6		14.6				
Change Period (Y+Rc), s	5.5	5.0		6.5	5.5	5.0		6.5				
Max Green Setting (Gmax), s	4.1	60.0		8.9	4.1	60.0		8.9				
Max Q Clear Time (g_c+I1), s	2.2	36.4		5.5	2.2	26.9		8.2				
Green Ext Time (p_c), s	0.0	22.0		0.0	0.0	24.9		0.0				

Intersection Summary												
HCM 6th Ctrl Delay			11.7									
HCM 6th LOS			B									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	400	90	205	100	5	535	5	25	10	20	15
Future Volume (vph)	5	400	90	205	100	5	535	5	25	10	20	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			5.5		6.0	6.0	6.0		6.0	
Lane Util. Factor		0.95			0.95		0.95	0.95	1.00		1.00	
Frt		0.97			1.00		1.00	1.00	0.85		0.96	
Flt Protected		1.00			0.97		0.95	0.95	1.00		0.99	
Satd. Flow (prot)		3441			3418		1681	1687	1583		1761	
Flt Permitted		0.95			0.61		0.95	0.95	1.00		0.99	
Satd. Flow (perm)		3273			2150		1681	1687	1583		1761	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	435	98	223	109	5	582	5	27	11	22	16
RTOR Reduction (vph)	0	25	0	0	1	0	0	0	18	0	15	0
Lane Group Flow (vph)	0	513	0	0	336	0	291	296	9	0	34	0
Turn Type	Perm	NA		Perm	NA		Split	NA	Perm	Split	NA	
Protected Phases		8			4		2	2		6	6	
Permitted Phases	8			4					2			
Actuated Green, G (s)		17.4			17.9		19.5	19.5	19.5		3.6	
Effective Green, g (s)		17.4			17.9		19.5	19.5	19.5		3.6	
Actuated g/C Ratio		0.30			0.31		0.33	0.33	0.33		0.06	
Clearance Time (s)		6.0			5.5		6.0	6.0	6.0		6.0	
Vehicle Extension (s)		4.0			4.0		2.0	2.0	2.0		2.0	
Lane Grp Cap (vph)		973			657		560	562	527		108	
v/s Ratio Prot							0.17	c0.18			c0.02	
v/s Ratio Perm		c0.16			0.16				0.01			
v/c Ratio		0.53			0.91dl		0.52	0.53	0.02		0.31	
Uniform Delay, d1		17.1			16.7		15.7	15.8	13.1		26.3	
Progression Factor		1.00			1.00		1.00	1.00	1.00		1.00	
Incremental Delay, d2		0.7			0.9		3.4	3.5	0.1		0.6	
Delay (s)		17.8			17.6		19.1	19.3	13.1		26.9	
Level of Service		B			B		B	B	B		C	
Approach Delay (s)		17.8			17.6			18.9			26.9	
Approach LOS		B			B			B			C	

Intersection Summary			
HCM 2000 Control Delay	18.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	58.5	Sum of lost time (s)	18.0
Intersection Capacity Utilization	62.8%	ICU Level of Service	B
Analysis Period (min)	15		

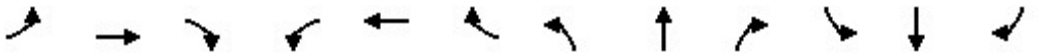
dl Defacto Left Lane. Recode with 1 though lane as a left lane.
c Critical Lane Group



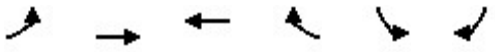
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	45	30	645	5	30	450
Future Volume (vph)	45	30	645	5	30	450
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0		6.0	6.0	6.0	6.0
Lane Util. Factor	0.97		0.95	1.00	1.00	0.91
Frt	0.94		1.00	0.85	1.00	1.00
Flt Protected	0.97		1.00	1.00	0.95	1.00
Satd. Flow (prot)	3297		3539	1583	1770	5085
Flt Permitted	0.97		1.00	1.00	0.38	1.00
Satd. Flow (perm)	3297		3539	1583	717	5085
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	49	33	701	5	33	489
RTOR Reduction (vph)	31	0	0	2	0	0
Lane Group Flow (vph)	51	0	701	3	33	489
Turn Type	Prot		NA	Perm	pm+pt	NA
Protected Phases	4		2		1	6
Permitted Phases				2	6	
Actuated Green, G (s)	3.1		39.9	39.9	48.2	48.2
Effective Green, g (s)	3.1		39.9	39.9	48.2	48.2
Actuated g/C Ratio	0.05		0.63	0.63	0.76	0.76
Clearance Time (s)	6.0		6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	161		2230	997	584	3871
v/s Ratio Prot	c0.02		c0.20		0.00	c0.10
v/s Ratio Perm				0.00	0.04	
v/c Ratio	0.31		0.31	0.00	0.06	0.13
Uniform Delay, d1	29.1		5.4	4.3	1.9	2.0
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	1.1		0.4	0.0	0.0	0.1
Delay (s)	30.2		5.8	4.3	1.9	2.1
Level of Service	C		A	A	A	A
Approach Delay (s)	30.2		5.8			2.1
Approach LOS	C		A			A

Intersection Summary			
HCM 2000 Control Delay	5.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.31		
Actuated Cycle Length (s)	63.3	Sum of lost time (s)	18.0
Intersection Capacity Utilization	39.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



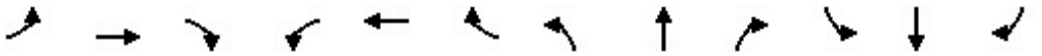
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	90	590	15	140	240	300	5	20	35	105	5	60
Future Volume (veh/h)	90	590	15	140	240	300	5	20	35	105	5	60
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	98	641	16	152	261	326	5	22	38	114	5	65
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	603	2319	58	590	1340	1196	196	87	150	207	16	210
Arrive On Green	0.65	0.65	0.65	0.05	0.75	0.75	0.14	0.14	0.14	0.14	0.14	0.14
Sat Flow, veh/h	829	3543	88	1781	1777	1585	1331	616	1063	1343	114	1488
Grp Volume(v), veh/h	98	321	336	152	261	326	5	0	60	114	0	70
Grp Sat Flow(s),veh/h/ln	829	1777	1854	1781	1777	1585	1331	0	1679	1343	0	1603
Q Serve(g_s), s	5.6	9.1	9.2	3.2	5.1	7.6	0.4	0.0	3.8	9.9	0.0	4.7
Cycle Q Clear(g_c), s	5.6	9.1	9.2	3.2	5.1	7.6	5.1	0.0	3.8	13.7	0.0	4.7
Prop In Lane	1.00		0.05	1.00		1.00	1.00		0.63	1.00		0.93
Lane Grp Cap(c), veh/h	603	1163	1214	590	1340	1196	196	0	237	207	0	227
V/C Ratio(X)	0.16	0.28	0.28	0.26	0.19	0.27	0.03	0.00	0.25	0.55	0.00	0.31
Avail Cap(c_a), veh/h	603	1163	1214	813	1340	1196	363	0	448	375	0	427
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.75	0.75	0.75	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	8.1	8.7	8.7	5.9	4.2	4.6	48.5	0.0	45.9	52.0	0.0	46.2
Incr Delay (d2), s/veh	0.6	0.6	0.6	0.2	0.2	0.4	0.1	0.0	1.2	4.8	0.0	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	3.6	3.7	1.1	1.7	2.3	0.1	0.0	1.7	3.6	0.0	2.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	8.7	9.3	9.3	6.1	4.5	5.0	48.7	0.0	47.0	56.8	0.0	47.9
LnGrp LOS	A	A	A	A	A	A	D	A	D	E	A	D
Approach Vol, veh/h		755			739			65			184	
Approach Delay, s/veh		9.2			5.0			47.2			53.4	
Approach LOS		A			A			D			D	
Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		97.0		23.0	12.0	85.1		23.0				
Change Period (Y+Rc), s		6.5		6.0	6.5	6.5		6.0				
Max Green Setting (Gmax), s		75.5		32.0	20.5	48.5		32.0				
Max Q Clear Time (g_c+I1), s		9.6		15.7	5.2	11.2		7.1				
Green Ext Time (p_c), s		0.7		1.2	0.3	0.8		0.5				
Intersection Summary												
HCM 6th Ctrl Delay			13.5									
HCM 6th LOS			B									



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	90	640	585	60	365	95
Future Volume (vph)	90	640	585	60	365	95
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	5.5	
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	
Frt	1.00	1.00	1.00	0.85	0.97	
Flt Protected	0.95	1.00	1.00	1.00	0.96	
Satd. Flow (prot)	1770	3539	3539	1583	1742	
Flt Permitted	0.37	1.00	1.00	1.00	0.96	
Satd. Flow (perm)	684	3539	3539	1583	1742	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	98	696	636	65	397	103
RTOR Reduction (vph)	0	0	0	46	11	0
Lane Group Flow (vph)	98	696	636	19	489	0
Turn Type	Perm	NA	NA	Perm	Prot	
Protected Phases		6	2		4	
Permitted Phases	6			2		
Actuated Green, G (s)	13.6	13.6	13.6	13.6	21.0	
Effective Green, g (s)	13.6	13.6	13.6	13.6	21.0	
Actuated g/C Ratio	0.30	0.30	0.30	0.30	0.46	
Clearance Time (s)	6.0	6.0	6.0	6.0	5.5	
Vehicle Extension (s)	0.2	0.2	0.2	0.2	5.0	
Lane Grp Cap (vph)	201	1044	1044	467	793	
v/s Ratio Prot		c0.20	0.18		c0.28	
v/s Ratio Perm	0.14			0.01		
v/c Ratio	0.49	0.67	0.61	0.04	0.62	
Uniform Delay, d1	13.4	14.3	14.0	11.6	9.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.7	1.3	0.7	0.0	2.1	
Delay (s)	14.1	15.5	14.7	11.6	11.6	
Level of Service	B	B	B	B	B	
Approach Delay (s)		15.3	14.4		11.6	
Approach LOS		B	B		B	

Intersection Summary			
HCM 2000 Control Delay	14.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	46.1	Sum of lost time (s)	11.5
Intersection Capacity Utilization	62.6%	ICU Level of Service	B
Analysis Period (min)	15		

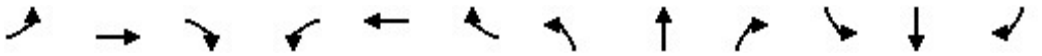
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	390	395	220	145	290	210	5	5	5	120	355	350
Future Volume (vph)	390	395	220	145	290	210	5	5	5	120	355	350
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.5		5.0	5.5			5.5	5.5	5.5	5.5	5.5
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00	0.95	0.95	1.00
Frt	1.00	0.95		1.00	0.94			1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.98	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3349		1770	3316			1817	1583	1681	1767	1583
Flt Permitted	0.18	1.00		0.40	1.00			0.98	1.00	0.95	1.00	1.00
Satd. Flow (perm)	327	3349		741	3316			1817	1583	1681	1767	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	424	429	239	158	315	228	5	5	5	130	386	380
RTOR Reduction (vph)	0	67	0	0	136	0	0	0	5	0	0	250
Lane Group Flow (vph)	424	601	0	158	407	0	0	10	0	117	399	130
Turn Type	pm+pt	NA		pm+pt	NA		Split	NA	Perm	Split	NA	Perm
Protected Phases	1	6		5	2		3	3		4	4	
Permitted Phases	6			2					3			4
Actuated Green, G (s)	45.7	31.4		28.5	19.2			3.5	3.5	34.3	34.3	34.3
Effective Green, g (s)	45.7	31.4		28.5	19.2			3.5	3.5	34.3	34.3	34.3
Actuated g/C Ratio	0.46	0.31		0.28	0.19			0.04	0.04	0.34	0.34	0.34
Clearance Time (s)	5.0	5.5		5.0	5.5			5.5	5.5	5.5	5.5	5.5
Vehicle Extension (s)	3.0	0.2		3.0	0.2			5.0	5.0	5.0	5.0	5.0
Lane Grp Cap (vph)	459	1051		306	636			63	55	576	606	542
v/s Ratio Prot	c0.20	0.18		0.05	0.12			c0.01		0.07	c0.23	
v/s Ratio Perm	c0.22			0.10					0.00			0.08
v/c Ratio	0.92	0.57		0.52	0.64			0.16	0.00	0.20	0.66	0.24
Uniform Delay, d1	25.4	28.7		28.1	37.2			46.8	46.6	23.2	27.9	23.5
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	24.3	2.3		1.5	4.9			2.5	0.0	0.4	3.5	0.5
Delay (s)	49.7	30.9		29.5	42.1			49.3	46.6	23.6	31.3	24.0
Level of Service	D	C		C	D			D	D	C	C	C
Approach Delay (s)		38.2			39.3			48.4			27.2	
Approach LOS		D			D			D			C	

Intersection Summary			
HCM 2000 Control Delay	34.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	21.5
Intersection Capacity Utilization	69.0%	ICU Level of Service	C
Analysis Period (min)	15		

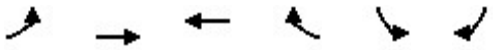
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	45	340	10	230	545	140	45	10	200	200	15	50
Future Volume (veh/h)	45	340	10	230	545	140	45	10	200	200	15	50
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	49	370	11	250	592	152	49	11	217	217	16	54
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	360	1477	44	585	1599	409	453	25	494	305	122	412
Arrive On Green	0.42	0.42	0.42	0.10	0.57	0.57	0.33	0.33	0.33	0.33	0.33	0.33
Sat Flow, veh/h	716	3524	105	1781	2801	717	1331	77	1520	1153	375	1267
Grp Volume(v), veh/h	49	186	195	250	375	369	49	0	228	217	0	70
Grp Sat Flow(s),veh/h/ln	716	1777	1852	1781	1777	1741	1331	0	1597	1153	0	1642
Q Serve(g_s), s	5.1	8.2	8.2	9.1	13.8	13.8	3.2	0.0	13.5	21.9	0.0	3.6
Cycle Q Clear(g_c), s	5.1	8.2	8.2	9.1	13.8	13.8	6.8	0.0	13.5	35.4	0.0	3.6
Prop In Lane	1.00		0.06	1.00		0.41	1.00		0.95	1.00		0.77
Lane Grp Cap(c), veh/h	360	745	776	585	1014	994	453	0	519	305	0	534
V/C Ratio(X)	0.14	0.25	0.25	0.43	0.37	0.37	0.11	0.00	0.44	0.71	0.00	0.13
Avail Cap(c_a), veh/h	360	745	776	746	1014	994	541	0	625	382	0	643
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.92	0.92	0.92	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	21.7	22.6	22.6	15.8	14.0	14.0	31.0	0.0	31.9	45.8	0.0	28.6
Incr Delay (d2), s/veh	0.8	0.8	0.8	0.5	1.0	1.0	0.2	0.0	1.3	7.4	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	3.6	3.7	3.7	5.7	5.6	1.1	0.0	5.4	6.9	0.0	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.5	23.4	23.4	16.2	15.0	15.0	31.2	0.0	33.1	53.2	0.0	28.8
LnGrp LOS	C	C	C	B	B	B	C	A	C	D	A	C
Approach Vol, veh/h		430			994			277			287	
Approach Delay, s/veh		23.3			15.3			32.8			47.2	
Approach LOS		C			B			C			D	

Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		75.0		45.0	18.2	56.8		45.0				
Change Period (Y+Rc), s		6.5		6.0	6.5	6.5		6.0				
Max Green Setting (Gmax), s		60.5		47.0	22.5	31.5		47.0				
Max Q Clear Time (g_c+I1), s		15.8		37.4	11.1	10.2		15.5				
Green Ext Time (p_c), s		0.8		1.6	0.5	0.5		3.3				

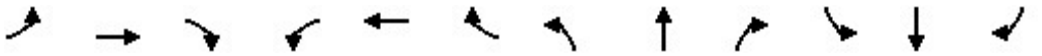
Intersection Summary												
HCM 6th Ctrl Delay			24.1									
HCM 6th LOS			C									



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	260	480	745	570	85	170
Future Volume (vph)	260	480	745	570	85	170
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	5.5	
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	
Frt	1.00	1.00	1.00	0.85	0.91	
Flt Protected	0.95	1.00	1.00	1.00	0.98	
Satd. Flow (prot)	1770	3539	3539	1583	1667	
Flt Permitted	0.33	1.00	1.00	1.00	0.98	
Satd. Flow (perm)	612	3539	3539	1583	1667	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	283	522	810	620	92	185
RTOR Reduction (vph)	0	0	0	266	80	0
Lane Group Flow (vph)	283	522	810	354	197	0
Turn Type	Perm	NA	NA	Perm	Prot	
Protected Phases		6	2		4	
Permitted Phases	6			2		
Actuated Green, G (s)	32.7	32.7	32.7	32.7	13.1	
Effective Green, g (s)	32.7	32.7	32.7	32.7	13.1	
Actuated g/C Ratio	0.57	0.57	0.57	0.57	0.23	
Clearance Time (s)	6.0	6.0	6.0	6.0	5.5	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	5.0	
Lane Grp Cap (vph)	349	2019	2019	903	381	
v/s Ratio Prot		0.15	0.23		c0.12	
v/s Ratio Perm	c0.46			0.22		
v/c Ratio	0.81	0.26	0.40	0.39	0.52	
Uniform Delay, d1	9.8	6.2	6.8	6.8	19.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	12.7	0.0	0.0	0.1	2.3	
Delay (s)	22.5	6.2	6.9	6.9	21.7	
Level of Service	C	A	A	A	C	
Approach Delay (s)		11.9	6.9		21.7	
Approach LOS		B	A		C	

Intersection Summary			
HCM 2000 Control Delay	10.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	57.3	Sum of lost time (s)	11.5
Intersection Capacity Utilization	64.7%	ICU Level of Service	C
Analysis Period (min)	15		

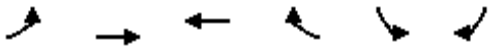
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	220	330	15	5	545	35	220	95	220	225	5	550
Future Volume (vph)	220	330	15	5	545	35	220	95	220	225	5	550
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.5		5.0	5.5			5.5	5.5	5.5	5.5	5.5
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00	0.95	0.95	1.00
Frt	1.00	0.99		1.00	0.99			1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.97	1.00	0.95	0.95	1.00
Satd. Flow (prot)	1770	3517		1770	3507			1800	1583	1681	1689	1583
Flt Permitted	0.14	1.00		0.53	1.00			0.97	1.00	0.95	0.95	1.00
Satd. Flow (perm)	270	3517		985	3507			1800	1583	1681	1689	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	239	359	16	5	592	38	239	103	239	245	5	598
RTOR Reduction (vph)	0	3	0	0	4	0	0	0	189	0	0	181
Lane Group Flow (vph)	239	372	0	5	626	0	0	342	50	125	125	417
Turn Type	pm+pt	NA		pm+pt	NA		Split	NA	Perm	Split	NA	Perm
Protected Phases	1	6		5	2		3	3		4	4	
Permitted Phases	6			2					3			4
Actuated Green, G (s)	44.6	38.6		27.7	26.7			25.2	25.2	33.7	33.7	33.7
Effective Green, g (s)	44.6	38.6		27.7	26.7			25.2	25.2	33.7	33.7	33.7
Actuated g/C Ratio	0.37	0.32		0.23	0.22			0.21	0.21	0.28	0.28	0.28
Clearance Time (s)	5.0	5.5		5.0	5.5			5.5	5.5	5.5	5.5	5.5
Vehicle Extension (s)	3.0	0.2		3.0	0.2			5.0	5.0	5.0	5.0	5.0
Lane Grp Cap (vph)	261	1131		233	780			378	332	472	474	444
v/s Ratio Prot	c0.10	0.11		0.00	0.18			c0.19		0.07	0.07	
v/s Ratio Perm	c0.24			0.00					0.03			c0.26
v/c Ratio	0.92	0.33		0.02	0.80			0.90	0.15	0.26	0.26	0.94
Uniform Delay, d1	29.9	30.9		35.6	44.2			46.2	38.7	33.5	33.5	42.2
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	33.9	0.8		0.0	8.6			25.5	0.4	0.6	0.6	28.9
Delay (s)	63.8	31.7		35.6	52.7			71.7	39.1	34.2	34.1	71.1
Level of Service	E	C		D	D			E	D	C	C	E
Approach Delay (s)		44.2			52.6			58.3			60.2	
Approach LOS		D			D			E			E	

Intersection Summary			
HCM 2000 Control Delay	54.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	21.5
Intersection Capacity Utilization	81.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑↑		↰↰↰	↱
Traffic Volume (veh/h)	0	1335	875	0	190	130
Future Volume (veh/h)	0	1335	875	0	190	130
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	0	1870	1870	0	1870	1870
Adj Flow Rate, veh/h	0	1451	951	0	207	141
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	2	2	0	2	2
Cap, veh/h	0	3889	4900	0	674	213
Arrive On Green	0.00	0.76	0.76	0.00	0.13	0.13
Sat Flow, veh/h	0	5443	6958	0	5023	1585
Grp Volume(v), veh/h	0	1451	951	0	207	141
Grp Sat Flow(s),veh/h/ln	0	1702	1609	0	1674	1585
Q Serve(g_s), s	0.0	11.4	5.0	0.0	4.5	10.1
Cycle Q Clear(g_c), s	0.0	11.4	5.0	0.0	4.5	10.1
Prop In Lane	0.00			0.00	1.00	1.00
Lane Grp Cap(c), veh/h	0	3889	4900	0	674	213
V/C Ratio(X)	0.00	0.37	0.19	0.00	0.31	0.66
Avail Cap(c_a), veh/h	0	3889	4900	0	1779	561
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.97	0.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	4.8	4.0	0.0	46.9	49.4
Incr Delay (d2), s/veh	0.0	0.3	0.1	0.0	0.9	12.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	3.4	1.4	0.0	1.9	4.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	5.0	4.1	0.0	47.8	61.5
LnGrp LOS	A	A	A	A	D	E
Approach Vol, veh/h		1451	951		348	
Approach Delay, s/veh		5.0	4.1		53.4	
Approach LOS		A	A		D	

Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		97.4		22.6		97.4
Change Period (Y+Rc), s		6.0		6.5		6.0
Max Green Setting (Gmax), s		65.0		42.5		65.0
Max Q Clear Time (g_c+I1), s		13.4		12.1		7.0
Green Ext Time (p_c), s		15.3		4.0		8.2

Intersection Summary		
HCM 6th Ctrl Delay		10.8
HCM 6th LOS		B



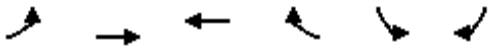
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1440	235	0	760	240	0
Future Volume (veh/h)	1440	235	0	760	240	0
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	0	1870	1870	0
Adj Flow Rate, veh/h	1565	0	0	826	261	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	0	2	2	0
Cap, veh/h	4885		0	4885	0	0
Arrive On Green	1.00	0.00	0.00	1.00	0.00	0.00
Sat Flow, veh/h	5443	0	0	5443	0	0
Grp Volume(v), veh/h	1565	0	0	826	0	0
Grp Sat Flow(s),veh/h/ln	1702	0	0	1702	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	0.0	0.0
Prop In Lane		0.00	0.00		0.00	0.00
Lane Grp Cap(c), veh/h	4885		0	4885	0	0
V/C Ratio(X)	0.32		0.00	0.17	0.00	0.00
Avail Cap(c_a), veh/h	4885		0	4885	0	0
HCM Platoon Ratio	2.00	2.00	1.00	2.00	1.00	1.00
Upstream Filter(I)	0.87	0.00	0.00	0.99	0.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.0	0.0	0.0	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.2	0.0	0.0	0.1	0.0	0.0
LnGrp LOS	A		A	A	A	A
Approach Vol, veh/h	1565	A		826	0	
Approach Delay, s/veh	0.2			0.1	0.0	
Approach LOS	A			A		

Timer - Assigned Phs	2			6	8
Phs Duration (G+Y+Rc), s	150.0			150.0	0.0
Change Period (Y+Rc), s	6.5			6.5	7.0
Max Green Setting (Gmax), s	105.5			105.5	31.0
Max Q Clear Time (g_c+I1), s	2.0			2.0	0.0
Green Ext Time (p_c), s	6.8			19.0	0.0

Intersection Summary		
HCM 6th Ctrl Delay	0.1	
HCM 6th LOS	A	

Notes

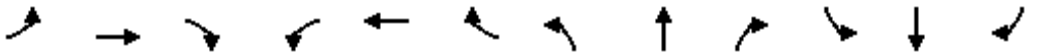
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	1335	875	0	190	130
Future Volume (vph)	0	1335	875	0	190	130
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	6.0		6.5	6.5
Lane Util. Factor		0.91	0.86		0.94	1.00
Frt		1.00	1.00		1.00	0.85
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		5085	6408		4990	1583
Flt Permitted		1.00	1.00		0.95	1.00
Satd. Flow (perm)		5085	6408		4990	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1451	951	0	207	141
RTOR Reduction (vph)	0	0	0	0	0	94
Lane Group Flow (vph)	0	1451	951	0	207	47
Turn Type		NA	NA		Prot	Prot
Protected Phases		2	6		4	4
Permitted Phases						
Actuated Green, G (s)		93.3	93.3		14.2	14.2
Effective Green, g (s)		93.3	93.3		14.2	14.2
Actuated g/C Ratio		0.78	0.78		0.12	0.12
Clearance Time (s)		6.0	6.0		6.5	6.5
Vehicle Extension (s)		3.0	3.0		6.0	6.0
Lane Grp Cap (vph)		3953	4982		590	187
v/s Ratio Prot		c0.29	0.15		c0.04	0.03
v/s Ratio Perm						
v/c Ratio		0.37	0.19		0.35	0.25
Uniform Delay, d1		4.2	3.5		48.7	48.1
Progression Factor		1.00	1.00		1.00	1.00
Incremental Delay, d2		0.3	0.1		1.0	2.0
Delay (s)		4.4	3.6		49.7	50.0
Level of Service		A	A		D	D
Approach Delay (s)		4.4	3.6		49.8	
Approach LOS		A	A		D	

Intersection Summary			
HCM 2000 Control Delay	9.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.5
Intersection Capacity Utilization	40.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1200	325	0	625	0	0	0	0	475	0	250
Future Volume (vph)	0	1200	325	0	625	0	0	0	0	475	0	250
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0					7.0		7.0
Lane Util. Factor		0.91			0.91					0.97		1.00
Frt		0.97			1.00					1.00		0.85
Flt Protected		1.00			1.00					0.95		1.00
Satd. Flow (prot)		4923			5085					3433		1583
Flt Permitted		1.00			1.00					0.95		1.00
Satd. Flow (perm)		4923			5085					3433		1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1304	353	0	679	0	0	0	0	516	0	272
RTOR Reduction (vph)	0	32	0	0	0	0	0	0	0	0	0	209
Lane Group Flow (vph)	0	1625	0	0	679	0	0	0	0	516	0	63
Turn Type		NA			NA					Prot		Prot
Protected Phases		2			6 1					4		4
Permitted Phases												
Actuated Green, G (s)		67.9			102.0					35.0		35.0
Effective Green, g (s)		67.9			102.0					35.0		35.0
Actuated g/C Ratio		0.45			0.68					0.23		0.23
Clearance Time (s)		6.0								7.0		7.0
Vehicle Extension (s)		0.2								3.0		3.0
Lane Grp Cap (vph)		2228			3457					801		369
v/s Ratio Prot		c0.33			c0.13					c0.15		0.04
v/s Ratio Perm												
v/c Ratio		0.73			0.20					0.64		0.17
Uniform Delay, d1		33.5			8.9					51.9		45.9
Progression Factor		1.00			0.62					1.00		1.00
Incremental Delay, d2		2.1			0.0					1.8		0.2
Delay (s)		35.7			5.5					53.7		46.1
Level of Service		D			A					D		D
Approach Delay (s)		35.7			5.5			0.0			51.1	
Approach LOS		D			A			A			D	

Intersection Summary			
HCM 2000 Control Delay	33.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	19.5
Intersection Capacity Utilization	52.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1675	0	375	625	0	0
Future Volume (vph)	1675	0	375	625	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0		6.5	6.5		
Lane Util. Factor	0.91		0.97	0.91		
Frt	1.00		1.00	1.00		
Flt Protected	1.00		0.95	1.00		
Satd. Flow (prot)	5085		3433	5085		
Flt Permitted	1.00		0.95	1.00		
Satd. Flow (perm)	5085		3433	5085		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1821	0	408	679	0	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	1821	0	408	679	0	0
Turn Type	NA		Prot	NA		
Protected Phases	2 4		1	1 4 6		
Permitted Phases						
Actuated Green, G (s)	108.9		27.6	150.0		
Effective Green, g (s)	108.9		27.6	137.0		
Actuated g/C Ratio	0.73		0.18	0.91		
Clearance Time (s)			6.5			
Vehicle Extension (s)			3.0			
Lane Grp Cap (vph)	3691		631	4644		
v/s Ratio Prot	c0.36		c0.12	0.13		
v/s Ratio Perm						
v/c Ratio	0.49		0.65	0.15		
Uniform Delay, d1	8.8		56.7	0.7		
Progression Factor	0.05		0.60	1.00		
Incremental Delay, d2	0.1		2.3	0.0		
Delay (s)	0.5		36.1	0.7		
Level of Service	A		D	A		
Approach Delay (s)	0.5			14.0	0.0	
Approach LOS	A			B	A	

Intersection Summary			
HCM 2000 Control Delay	5.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	19.5
Intersection Capacity Utilization	53.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1440	235	0	760	240	0
Future Volume (vph)	1440	235	0	760	240	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5			6.5	7.0	
Lane Util. Factor	0.91			0.91	0.97	
Frt	0.98			1.00	1.00	
Flt Protected	1.00			1.00	0.95	
Satd. Flow (prot)	4978			5085	3433	
Flt Permitted	1.00			1.00	0.95	
Satd. Flow (perm)	4978			5085	3433	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1565	255	0	826	261	0
RTOR Reduction (vph)	10	0	0	0	0	0
Lane Group Flow (vph)	1810	0	0	826	261	0
Turn Type	NA			NA	Prot	
Protected Phases	6			2	3	
Permitted Phases						
Actuated Green, G (s)	119.8			119.8	16.7	
Effective Green, g (s)	119.8			119.8	16.7	
Actuated g/C Ratio	0.80			0.80	0.11	
Clearance Time (s)	6.5			6.5	7.0	
Vehicle Extension (s)	3.0			3.0	3.0	
Lane Grp Cap (vph)	3975			4061	382	
v/s Ratio Prot	c0.36			0.16	c0.08	
v/s Ratio Perm						
v/c Ratio	0.46			0.20	0.68	
Uniform Delay, d1	4.8			3.6	64.1	
Progression Factor	0.00			0.32	1.00	
Incremental Delay, d2	0.3			0.1	5.0	
Delay (s)	0.3			1.3	69.1	
Level of Service	A			A	E	
Approach Delay (s)	0.3			1.3	69.1	
Approach LOS	A			A	E	

Intersection Summary			
HCM 2000 Control Delay	6.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	51.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1440	0	0	760	0	955
Future Volume (vph)	1440	0	0	760	0	955
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5			6.0		6.0
Lane Util. Factor	0.91			0.91		0.88
Frt	1.00			1.00		0.85
Flt Protected	1.00			1.00		1.00
Satd. Flow (prot)	5085			5085		2787
Flt Permitted	1.00			1.00		1.00
Satd. Flow (perm)	5085			5085		2787
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1565	0	0	826	0	1038
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	1565	0	0	826	0	1038
Turn Type	NA			NA		Prot
Protected Phases	2			4 6		4
Permitted Phases						
Actuated Green, G (s)	67.5			150.0		71.0
Effective Green, g (s)	67.5			144.5		71.0
Actuated g/C Ratio	0.45			0.96		0.47
Clearance Time (s)	5.5					6.0
Vehicle Extension (s)	3.0					3.0
Lane Grp Cap (vph)	2288			4898		1319
v/s Ratio Prot	c0.31			0.16		c0.37
v/s Ratio Perm						
v/c Ratio	0.68			0.17		0.79
Uniform Delay, d1	32.8			0.1		33.2
Progression Factor	0.55			1.00		1.00
Incremental Delay, d2	1.5			0.0		3.2
Delay (s)	19.7			0.1		36.3
Level of Service	B			A		D
Approach Delay (s)	19.7			0.1	36.3	
Approach LOS	B			A	D	

Intersection Summary			
HCM 2000 Control Delay	20.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	11.5
Intersection Capacity Utilization	70.8%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	80	820	875	620	235	105	150	755	0	405	145	0
Future Volume (vph)	80	820	875	620	235	105	150	755	0	405	145	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5	6.0	4.0	6.5	6.0	4.0	6.5		4.0	6.5	
Lane Util. Factor		0.97	0.91	1.00	1.00	0.91	1.00	1.00		1.00	0.97	
Frt		1.00	1.00	0.85	1.00	1.00	0.85	1.00		0.85	1.00	
Flt Protected		0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95	
Satd. Flow (prot)		3433	5085	1583	1770	5085	1583	1770		1583	3433	
Flt Permitted		0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95	
Satd. Flow (perm)		3433	5085	1583	1770	5085	1583	1770		1583	3433	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	87	891	951	674	255	114	163	821	0	440	158	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	978	951	674	255	114	163	821	0	440	158	0
Turn Type	Prot	Prot	NA	Free	Prot	NA	Free	Prot		Free	Prot	
Protected Phases	5	5	2		1	6		3			7	
Permitted Phases				Free			Free			Free		
Actuated Green, G (s)		40.5	37.0	150.0	26.5	23.0	150.0	67.5		150.0	67.5	
Effective Green, g (s)		40.5	37.0	150.0	26.5	23.0	150.0	67.5		150.0	67.5	
Actuated g/C Ratio		0.27	0.25	1.00	0.18	0.15	1.00	0.45		1.00	0.45	
Clearance Time (s)		6.5	6.0		6.5	6.0		6.5			6.5	
Vehicle Extension (s)		3.0	3.0		3.0	3.0		3.0			3.0	
Lane Grp Cap (vph)		926	1254	1583	312	779	1583	796		1583	1544	
v/s Ratio Prot		c0.28	0.19		c0.14	0.02		c0.46			0.05	
v/s Ratio Perm				c0.43			0.10			0.28		
v/c Ratio		1.06	0.76	0.43	0.82	0.15	0.10	1.03		0.28	0.10	
Uniform Delay, d1		54.8	52.4	0.0	59.4	55.0	0.0	41.2		0.0	23.8	
Progression Factor		0.82	0.83	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		41.0	3.1	0.6	15.2	0.4	0.1	40.2		0.4	0.0	
Delay (s)		86.2	46.3	0.6	74.6	55.4	0.1	81.5		0.4	23.8	
Level of Service		F	D	A	E	E	A	F		A	C	
Approach Delay (s)			49.4			47.7			53.2			10.6
Approach LOS			D			D			D			B

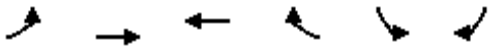
Intersection Summary			
HCM 2000 Control Delay	47.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.03		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	99.6%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



Movement	SBR
Lane Configurations	
Traffic Volume (vph)	185
Future Volume (vph)	185
Ideal Flow (vphpl)	1900
Total Lost time (s)	4.0
Lane Util. Factor	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1583
Flt Permitted	1.00
Satd. Flow (perm)	1583
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	201
RTOR Reduction (vph)	0
Lane Group Flow (vph)	201
Turn Type	Free
Protected Phases	
Permitted Phases	Free
Actuated Green, G (s)	150.0
Effective Green, g (s)	150.0
Actuated g/C Ratio	1.00
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	1583
v/s Ratio Prot	
v/s Ratio Perm	0.13
v/c Ratio	0.13
Uniform Delay, d1	0.0
Progression Factor	1.00
Incremental Delay, d2	0.2
Delay (s)	0.2
Level of Service	A
Approach Delay (s)	
Approach LOS	

Intersection Summary



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑↑		↰↰↰	↱
Traffic Volume (veh/h)	0	710	1715	0	275	130
Future Volume (veh/h)	0	710	1715	0	275	130
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	0	1870	1870	0	1870	1870
Adj Flow Rate, veh/h	0	772	1864	0	299	141
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	2	2	0	2	2
Cap, veh/h	0	3841	4840	0	721	228
Arrive On Green	0.00	0.75	0.75	0.00	0.14	0.14
Sat Flow, veh/h	0	5443	6958	0	5023	1585
Grp Volume(v), veh/h	0	772	1864	0	299	141
Grp Sat Flow(s),veh/h/ln	0	1702	1609	0	1674	1585
Q Serve(g_s), s	0.0	5.3	12.1	0.0	6.5	10.0
Cycle Q Clear(g_c), s	0.0	5.3	12.1	0.0	6.5	10.0
Prop In Lane	0.00			0.00	1.00	1.00
Lane Grp Cap(c), veh/h	0	3841	4840	0	721	228
V/C Ratio(X)	0.00	0.20	0.39	0.00	0.41	0.62
Avail Cap(c_a), veh/h	0	3841	4840	0	1821	575
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.63	0.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	4.3	5.2	0.0	46.8	48.3
Incr Delay (d2), s/veh	0.0	0.1	0.1	0.0	1.4	9.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	1.6	3.4	0.0	2.8	4.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	4.5	5.3	0.0	48.2	57.9
LnGrp LOS	A	A	A	A	D	E
Approach Vol, veh/h		772	1864		440	
Approach Delay, s/veh		4.5	5.3		51.3	
Approach LOS		A	A		D	

Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		96.3		23.7		96.3
Change Period (Y+Rc), s		6.0		6.5		6.0
Max Green Setting (Gmax), s		64.0		43.5		64.0
Max Q Clear Time (g_c+I1), s		7.3		12.0		14.1
Green Ext Time (p_c), s		6.2		5.2		22.9

Intersection Summary		
HCM 6th Ctrl Delay		11.7
HCM 6th LOS		B



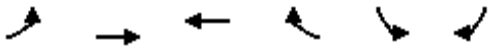
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1055	255	0	1305	210	0
Future Volume (veh/h)	1055	255	0	1305	210	0
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	0	1870	1870	0
Adj Flow Rate, veh/h	1147	0	0	1418	228	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	0	2	2	0
Cap, veh/h	4885		0	4885	0	0
Arrive On Green	1.00	0.00	0.00	0.96	0.00	0.00
Sat Flow, veh/h	5443	0	0	5443	0	0
Grp Volume(v), veh/h	1147	0	0	1418	0	0
Grp Sat Flow(s),veh/h/ln	1702	0	0	1702	0	0
Q Serve(g_s), s	0.0	0.0	0.0	2.5	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	2.5	0.0	0.0
Prop In Lane		0.00	0.00		0.00	0.00
Lane Grp Cap(c), veh/h	4885		0	4885	0	0
V/C Ratio(X)	0.23		0.00	0.29	0.00	0.00
Avail Cap(c_a), veh/h	4885		0	4885	0	0
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.94	0.00	0.00	0.97	0.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.2	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	0.1	0.0	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.1	0.0	0.0	0.3	0.0	0.0
LnGrp LOS	A		A	A	A	A
Approach Vol, veh/h	1147	A		1418	0	
Approach Delay, s/veh	0.1			0.3	0.0	
Approach LOS	A			A		

Timer - Assigned Phs	2			6	8
Phs Duration (G+Y+Rc), s	150.0			150.0	0.0
Change Period (Y+Rc), s	6.5			6.5	7.0
Max Green Setting (Gmax), s	102.5			102.5	34.0
Max Q Clear Time (g_c+I1), s	4.5			2.0	0.0
Green Ext Time (p_c), s	15.7			10.9	0.0

Intersection Summary	
HCM 6th Ctrl Delay	0.2
HCM 6th LOS	A

Notes

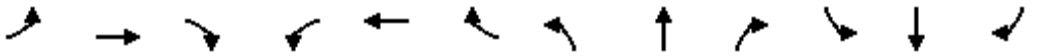
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	710	1715	0	275	130
Future Volume (vph)	0	710	1715	0	275	130
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	6.0		6.5	6.5
Lane Util. Factor		0.91	0.86		0.94	1.00
Frt		1.00	1.00		1.00	0.85
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		5085	6408		4990	1583
Flt Permitted		1.00	1.00		0.95	1.00
Satd. Flow (perm)		5085	6408		4990	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	772	1864	0	299	141
RTOR Reduction (vph)	0	0	0	0	0	8
Lane Group Flow (vph)	0	772	1864	0	299	133
Turn Type		NA	NA		Prot	Prot
Protected Phases		2	6		4	4
Permitted Phases						
Actuated Green, G (s)		88.1	88.1		19.4	19.4
Effective Green, g (s)		88.1	88.1		19.4	19.4
Actuated g/C Ratio		0.73	0.73		0.16	0.16
Clearance Time (s)		6.0	6.0		6.5	6.5
Vehicle Extension (s)		3.0	3.0		6.0	6.0
Lane Grp Cap (vph)		3733	4704		806	255
v/s Ratio Prot		0.15	c0.29		0.06	c0.08
v/s Ratio Perm						
v/c Ratio		0.21	0.40		0.37	0.52
Uniform Delay, d1		5.0	6.0		44.9	46.1
Progression Factor		1.00	1.00		1.00	1.00
Incremental Delay, d2		0.1	0.3		0.8	4.8
Delay (s)		5.1	6.2		45.7	50.9
Level of Service		A	A		D	D
Approach Delay (s)		5.1	6.2		47.3	
Approach LOS		A	A		D	

Intersection Summary			
HCM 2000 Control Delay	11.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.5
Intersection Capacity Utilization	43.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	875	110	0	990	0	0	0	0	435	0	725
Future Volume (vph)	0	875	110	0	990	0	0	0	0	435	0	725
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.5					7.0		7.0
Lane Util. Factor		0.91			0.91					0.97		1.00
Frt		0.98			1.00					1.00		0.85
Flt Protected		1.00			1.00					0.95		1.00
Satd. Flow (prot)		5000			5085					3433		1583
Flt Permitted		1.00			1.00					0.95		1.00
Satd. Flow (perm)		5000			5085					3433		1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	951	120	0	1076	0	0	0	0	473	0	788
RTOR Reduction (vph)	0	10	0	0	0	0	0	0	0	0	0	39
Lane Group Flow (vph)	0	1061	0	0	1076	0	0	0	0	473	0	749
Turn Type		NA			NA					Prot		Prot
Protected Phases		2			1 6					4		4
Permitted Phases												
Actuated Green, G (s)		39.6			71.1					65.9		65.9
Effective Green, g (s)		39.6			71.1					65.9		65.9
Actuated g/C Ratio		0.26			0.47					0.44		0.44
Clearance Time (s)		6.0								7.0		7.0
Vehicle Extension (s)		0.2								3.0		3.0
Lane Grp Cap (vph)		1320			2410					1508		695
v/s Ratio Prot		c0.21			c0.21					0.14		c0.47
v/s Ratio Perm												
v/c Ratio		0.80			0.45					0.31		1.08
Uniform Delay, d1		51.6			26.3					27.3		42.0
Progression Factor		1.00			0.75					1.00		1.00
Incremental Delay, d2		5.3			0.1					0.1		57.2
Delay (s)		56.8			19.9					27.5		99.2
Level of Service		E			B					C		F
Approach Delay (s)		56.8			19.9			0.0			72.3	
Approach LOS		E			B			A			E	

Intersection Summary			
HCM 2000 Control Delay	50.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	19.5
Intersection Capacity Utilization	75.3%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1310	0	525	990	0	0
Future Volume (vph)	1310	0	525	990	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0		6.5	6.5		
Lane Util. Factor	0.91		0.97	0.91		
Frt	1.00		1.00	1.00		
Flt Protected	1.00		0.95	1.00		
Satd. Flow (prot)	5085		3433	5085		
Flt Permitted	1.00		0.95	1.00		
Satd. Flow (perm)	5085		3433	5085		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1424	0	571	1076	0	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	1424	0	571	1076	0	0
Turn Type	NA		Prot	NA		
Protected Phases	2 4		1	1 4 6		
Permitted Phases						
Actuated Green, G (s)	112.5		25.0	150.0		
Effective Green, g (s)	105.5		25.0	137.0		
Actuated g/C Ratio	0.70		0.17	0.91		
Clearance Time (s)			6.5			
Vehicle Extension (s)			3.0			
Lane Grp Cap (vph)	3576		572	4644		
v/s Ratio Prot	c0.28		c0.17	0.21		
v/s Ratio Perm						
v/c Ratio	0.40		1.00	0.23		
Uniform Delay, d1	9.2		62.5	0.7		
Progression Factor	0.17		0.94	1.00		
Incremental Delay, d2	0.1		36.1	0.0		
Delay (s)	1.6		94.6	0.7		
Level of Service	A		F	A		
Approach Delay (s)	1.6			33.3	0.0	
Approach LOS	A			C	A	

Intersection Summary			
HCM 2000 Control Delay	18.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	19.5
Intersection Capacity Utilization	50.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1055	255	0	1305	210	0
Future Volume (vph)	1055	255	0	1305	210	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5			6.5	7.0	
Lane Util. Factor	0.91			0.91	0.97	
Frt	0.97			1.00	1.00	
Flt Protected	1.00			1.00	0.95	
Satd. Flow (prot)	4937			5085	3433	
Flt Permitted	1.00			1.00	0.95	
Satd. Flow (perm)	4937			5085	3433	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1147	277	0	1418	228	0
RTOR Reduction (vph)	17	0	0	0	0	0
Lane Group Flow (vph)	1407	0	0	1418	228	0
Turn Type	NA			NA	Prot	
Protected Phases	6			2	3	
Permitted Phases						
Actuated Green, G (s)	121.2			121.2	15.3	
Effective Green, g (s)	121.2			121.2	15.3	
Actuated g/C Ratio	0.81			0.81	0.10	
Clearance Time (s)	6.5			6.5	7.0	
Vehicle Extension (s)	3.0			3.0	3.0	
Lane Grp Cap (vph)	3989			4108	350	
v/s Ratio Prot	c0.29			0.28	c0.07	
v/s Ratio Perm						
v/c Ratio	0.35			0.35	0.65	
Uniform Delay, d1	3.9			3.8	64.8	
Progression Factor	0.24			1.00	1.00	
Incremental Delay, d2	0.2			0.2	4.3	
Delay (s)	1.1			4.1	69.1	
Level of Service	A			A	E	
Approach Delay (s)	1.1			4.1	69.1	
Approach LOS	A			A	E	

Intersection Summary			
HCM 2000 Control Delay	7.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	43.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1055	0	0	1305	0	525
Future Volume (vph)	1055	0	0	1305	0	525
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5			6.0		6.0
Lane Util. Factor	0.91			0.91		0.88
Frt	1.00			1.00		0.85
Flt Protected	1.00			1.00		1.00
Satd. Flow (prot)	5085			5085		2787
Flt Permitted	1.00			1.00		1.00
Satd. Flow (perm)	5085			5085		2787
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1147	0	0	1418	0	571
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	1147	0	0	1418	0	571
Turn Type	NA			NA		Prot
Protected Phases	2			4 6		4
Permitted Phases						
Actuated Green, G (s)	85.9			150.0		52.6
Effective Green, g (s)	85.9			144.5		52.6
Actuated g/C Ratio	0.57			0.96		0.35
Clearance Time (s)	5.5					6.0
Vehicle Extension (s)	3.0					3.0
Lane Grp Cap (vph)	2912			4898		977
v/s Ratio Prot	c0.23			0.28		c0.20
v/s Ratio Perm						
v/c Ratio	0.39			0.29		0.58
Uniform Delay, d1	17.7			0.1		39.8
Progression Factor	0.32			1.00		1.00
Incremental Delay, d2	0.4			0.0		0.9
Delay (s)	6.0			0.2		40.7
Level of Service	A			A		D
Approach Delay (s)	6.0			0.2	40.7	
Approach LOS	A			A	D	

Intersection Summary			
HCM 2000 Control Delay	9.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	11.5
Intersection Capacity Utilization	48.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	35	115	925	505	330	800	140	710	0	300	380	0
Future Volume (vph)	35	115	925	505	330	800	140	710	0	300	380	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5	6.0	4.0	6.5	6.0	4.0	6.5		4.0	6.5	
Lane Util. Factor		0.97	0.91	1.00	1.00	0.91	1.00	1.00		1.00	0.97	
Frt		1.00	1.00	0.85	1.00	1.00	0.85	1.00		0.85	1.00	
Flt Protected		0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95	
Satd. Flow (prot)		3433	5085	1583	1770	5085	1583	1770		1583	3433	
Flt Permitted		0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95	
Satd. Flow (perm)		3433	5085	1583	1770	5085	1583	1770		1583	3433	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	38	125	1005	549	359	870	152	772	0	326	413	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	163	1005	549	359	870	152	772	0	326	413	0
Turn Type	Prot	Prot	NA	Free	Prot	NA	Free	Prot		Free	Prot	
Protected Phases	5	5	2		1	6		8			4	
Permitted Phases				Free			Free			Free		
Actuated Green, G (s)		11.1	31.0	135.0	27.5	47.4	135.0	57.5		135.0	57.5	
Effective Green, g (s)		11.1	31.0	135.0	27.5	47.4	135.0	57.5		135.0	57.5	
Actuated g/C Ratio		0.08	0.23	1.00	0.20	0.35	1.00	0.43		1.00	0.43	
Clearance Time (s)		6.5	6.0		6.5	6.0		6.5			6.5	
Vehicle Extension (s)		3.0	3.0		3.0	3.0		3.0			3.0	
Lane Grp Cap (vph)		282	1167	1583	360	1785	1583	753		1583	1462	
v/s Ratio Prot		0.05	c0.20		c0.20	0.17		c0.44			0.12	
v/s Ratio Perm				0.35			0.10			0.21		
v/c Ratio		0.58	0.86	0.35	1.00	0.49	0.10	1.03		0.21	0.28	
Uniform Delay, d1		59.7	49.9	0.0	53.7	34.3	0.0	38.8		0.0	25.3	
Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		2.9	8.4	0.6	46.4	1.0	0.1	39.4		0.3	0.1	
Delay (s)		62.6	58.4	0.6	100.1	35.2	0.1	78.1		0.3	25.4	
Level of Service		E	E	A	F	D	A	E		A	C	
Approach Delay (s)			40.3			48.2			55.0			9.1
Approach LOS			D			D			E			A

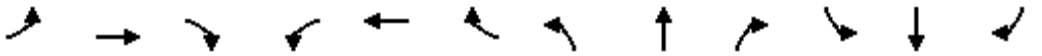
Intersection Summary			
HCM 2000 Control Delay	38.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	90.9%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Movement	SBR
Lane Configurations	
Traffic Volume (vph)	795
Future Volume (vph)	795
Ideal Flow (vphpl)	1900
Total Lost time (s)	4.0
Lane Util. Factor	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1583
Flt Permitted	1.00
Satd. Flow (perm)	1583
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	864
RTOR Reduction (vph)	0
Lane Group Flow (vph)	864
Turn Type	Free
Protected Phases	
Permitted Phases	Free
Actuated Green, G (s)	135.0
Effective Green, g (s)	135.0
Actuated g/C Ratio	1.00
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	1583
v/s Ratio Prot	
v/s Ratio Perm	0.55
v/c Ratio	0.55
Uniform Delay, d1	0.0
Progression Factor	1.00
Incremental Delay, d2	1.4
Delay (s)	1.4
Level of Service	A
Approach Delay (s)	
Approach LOS	

Intersection Summary



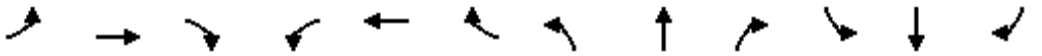
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	245	15	75	55	25	85	150	260	25	30	980	1335
Future Volume (veh/h)	245	15	75	55	25	85	150	260	25	30	980	1335
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1847	1847	1847	1864	1864	1864	1864	1864	1864	1776	1776	1776
Adj Flow Rate, veh/h	266	16	82	60	27	92	163	283	27	33	1065	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	328	237	201	77	141	120	357	1963	186	678	1931	
Arrive On Green	0.10	0.13	0.13	0.04	0.08	0.08	0.06	0.60	0.60	0.03	0.57	0.00
Sat Flow, veh/h	3412	1847	1565	1776	1864	1580	1776	3270	310	1692	3375	1505
Grp Volume(v), veh/h	266	16	82	60	27	92	163	152	158	33	1065	0
Grp Sat Flow(s),veh/h/ln	1706	1847	1565	1776	1864	1580	1776	1771	1809	1692	1687	1505
Q Serve(g_s), s	9.2	0.9	5.8	4.0	1.6	6.9	4.5	4.5	4.6	1.0	23.7	0.0
Cycle Q Clear(g_c), s	9.2	0.9	5.8	4.0	1.6	6.9	4.5	4.5	4.6	1.0	23.7	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.17	1.00		1.00
Lane Grp Cap(c), veh/h	328	237	201	77	141	120	357	1063	1086	678	1931	
V/C Ratio(X)	0.81	0.07	0.41	0.78	0.19	0.77	0.46	0.14	0.15	0.05	0.55	
Avail Cap(c_a), veh/h	446	400	339	126	292	248	458	1063	1086	703	1931	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.82	0.82	0.00
Uniform Delay (d), s/veh	53.2	46.0	48.1	56.8	52.0	54.4	12.5	10.5	10.5	9.8	16.0	0.0
Incr Delay (d2), s/veh	7.9	0.1	1.3	15.2	0.6	9.8	0.9	0.3	0.3	0.0	0.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.3	0.4	0.1	2.1	0.8	3.1	1.8	1.8	1.9	0.4	9.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	61.0	46.1	49.4	72.1	52.7	64.3	13.4	10.8	10.8	9.8	17.0	0.0
LnGrp LOS	E	D	D	E	D	E	B	B	B	A	B	
Approach Vol, veh/h		364			179			473			1098	A
Approach Delay, s/veh		57.7			65.1			11.7			16.8	
Approach LOS		E			E			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.8	78.5	17.0	15.6	12.2	75.2	10.7	21.9
Change Period (Y+Rc), s	5.5	6.5	5.5	6.5	5.5	6.5	5.5	6.5
Max Green Setting (Gmax), s	5.1	56.4	15.7	18.8	13.5	48.0	8.5	26.0
Max Q Clear Time (g_c+I1), s	3.0	6.6	11.2	8.9	6.5	25.7	6.0	7.8
Green Ext Time (p_c), s	0.0	0.3	0.4	0.2	0.2	1.7	0.0	0.3

Intersection Summary	
HCM 6th Ctrl Delay	26.8
HCM 6th LOS	C

Notes

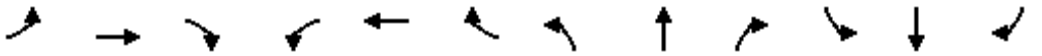
Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	245	15	75	55	25	85	150	260	25	30	980	1335
Future Volume (vph)	245	15	75	55	25	85	150	260	25	30	980	1335
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	11	10	11	11	10	10	11	12	10	12	11
Grade (%)		2%			1%			1%			4%	
Total Lost time (s)	5.5	6.5	6.5	5.5	6.5	6.5	5.5	6.5		5.5	6.5	4.0
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.95		1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3399	1783	1463	1702	1792	1470	1643	3360		1619	3468	1500
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.17	1.00		0.56	1.00	1.00
Satd. Flow (perm)	3399	1783	1463	1702	1792	1470	296	3360		960	3468	1500
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	266	16	82	60	27	92	163	283	27	33	1065	1451
RTOR Reduction (vph)	0	0	71	0	0	85	0	5	0	0	0	0
Lane Group Flow (vph)	266	16	11	60	27	7	163	305	0	33	1065	1451
Turn Type	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA		pm+pt	NA	Free
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases			8			4	2			6		Free
Actuated Green, G (s)	13.9	15.7	15.7	6.7	8.5	8.5	79.1	69.5		67.0	62.9	120.0
Effective Green, g (s)	13.9	15.7	15.7	6.7	8.5	8.5	79.1	69.5		67.0	62.9	120.0
Actuated g/C Ratio	0.12	0.13	0.13	0.06	0.07	0.07	0.66	0.58		0.56	0.52	1.00
Clearance Time (s)	5.5	6.5	6.5	5.5	6.5	6.5	5.5	6.5		5.5	6.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	0.2		3.0	0.2	
Lane Grp Cap (vph)	393	233	191	95	126	104	315	1946		558	1817	1500
v/s Ratio Prot	0.08	0.01		0.04	0.02		0.05	0.09		0.00	0.31	
v/s Ratio Perm			0.01			0.00	0.29			0.03		c0.97
v/c Ratio	0.68	0.07	0.06	0.63	0.21	0.06	0.52	0.16		0.06	0.59	0.97
Uniform Delay, d1	50.9	45.7	45.7	55.4	52.6	52.0	11.7	11.7		11.9	19.6	0.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	4.6	0.1	0.1	12.9	0.9	0.3	1.4	0.2		0.0	1.4	16.7
Delay (s)	55.5	45.9	45.8	68.3	53.5	52.3	13.1	11.9		12.0	21.0	16.7
Level of Service	E	D	D	E	D	D	B	B		B	C	B
Approach Delay (s)		52.9			57.8			12.3			18.4	
Approach LOS		D			E			B			B	

Intersection Summary			
HCM 2000 Control Delay	23.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	1.21		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	64.5%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	700	1000	0	0	0	0	155	435	0	1345	0
Future Volume (vph)	5	700	1000	0	0	0	0	155	435	0	1345	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	10	10	11	12	12	12
Grade (%)		5%			0%			4%			0%	
Total Lost time (s)		7.0	4.0					8.0	6.0		8.0	
Lane Util. Factor		0.95	1.00					0.95	0.88		0.91	
Frt		1.00	0.85					1.00	0.85		1.00	
Flt Protected		1.00	1.00					1.00	1.00		1.00	
Satd. Flow (prot)		3450	1544					3237	2640		5085	
Flt Permitted		1.00	1.00					1.00	1.00		1.00	
Satd. Flow (perm)		3450	1544					3237	2640		5085	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	761	1087	0	0	0	0	168	473	0	1462	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	766	1087	0	0	0	0	168	473	0	1462	0
Turn Type	Perm	NA	Free					NA	custom		NA	
Protected Phases		3						6	5 6		2 4	
Permitted Phases	3		Free									
Actuated Green, G (s)		39.7	160.0					18.5	81.5		105.3	
Effective Green, g (s)		39.7	160.0					18.5	81.5		100.8	
Actuated g/C Ratio		0.25	1.00					0.12	0.51		0.63	
Clearance Time (s)		7.0						8.0				
Vehicle Extension (s)		3.0						3.0				
Lane Grp Cap (vph)		856	1544					374	1344		3203	
v/s Ratio Prot								0.05	0.18		0.29	
v/s Ratio Perm		0.22	c0.70									
v/c Ratio		0.89	0.70					0.45	0.35		0.46	
Uniform Delay, d1		58.1	0.0					66.0	23.5		15.4	
Progression Factor		1.00	1.00					1.00	1.00		0.00	
Incremental Delay, d2		11.8	2.7					3.9	0.2		0.0	
Delay (s)		69.9	2.7					69.9	23.6		0.0	
Level of Service		E	A					E	C		A	
Approach Delay (s)		30.5			0.0			35.7			0.0	
Approach LOS		C			A			D			A	

Intersection Summary			
HCM 2000 Control Delay	20.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	25.5
Intersection Capacity Utilization	79.0%	ICU Level of Service	D
Analysis Period (min)	15		

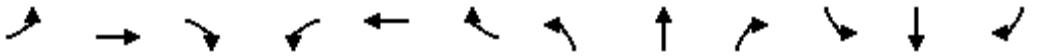
c Critical Lane Group



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	0	1345	650	160	0
Future Volume (vph)	0	0	1345	650	160	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	11	11	12	12
Grade (%)	0%			1%	0%	
Total Lost time (s)			4.5	4.5	7.0	
Lane Util. Factor			0.91	0.91	0.97	
Frt			1.00	1.00	1.00	
Flt Protected			0.95	0.98	0.95	
Satd. Flow (prot)			1549	3180	3433	
Flt Permitted			0.95	0.98	0.95	
Satd. Flow (perm)			1549	3180	3433	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	1462	707	174	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	731	1438	174	0
Turn Type			Split	NA	Prot	
Protected Phases			4 5	4 5	3 6	
Permitted Phases						
Actuated Green, G (s)			80.8	80.8	66.2	
Effective Green, g (s)			80.8	80.8	58.2	
Actuated g/C Ratio			0.50	0.50	0.36	
Clearance Time (s)						
Vehicle Extension (s)						
Lane Grp Cap (vph)			782	1605	1248	
v/s Ratio Prot			c0.47	0.45	c0.05	
v/s Ratio Perm						
v/c Ratio			0.93	0.90	0.14	
Uniform Delay, d1			37.1	35.8	34.1	
Progression Factor			1.00	1.00	0.01	
Incremental Delay, d2			18.1	6.9	0.0	
Delay (s)			55.3	42.7	0.2	
Level of Service			E	D	A	
Approach Delay (s)	0.0			46.9	0.2	
Approach LOS	A			D	A	

Intersection Summary			
HCM 2000 Control Delay	43.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	25.5
Intersection Capacity Utilization	87.3%	ICU Level of Service	E
Analysis Period (min)	15		

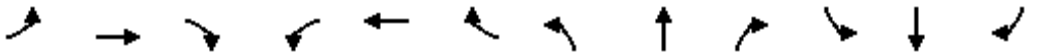
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	575	35	335	5	5	20	180	1105	5	40	2180	520
Future Volume (vph)	575	35	335	5	5	20	180	1105	5	40	2180	520
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	12	12	16	12	11	11	12	11	11	14
Grade (%)		1%			0%			2%			0%	
Total Lost time (s)	6.5	6.5	6.5		7.0		6.5	6.5		6.5	6.5	6.5
Lane Util. Factor	0.95	0.95	1.00		1.00		0.97	0.91		1.00	0.91	1.00
Frt	1.00	1.00	0.85		0.91		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	0.96	1.00		0.99		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1561	1574	1575		1900		3285	4864		1711	4916	1689
Flt Permitted	0.95	0.96	1.00		0.99		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1561	1574	1575		1900		3285	4864		1711	4916	1689
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	625	38	364	5	5	22	196	1201	5	43	2370	565
RTOR Reduction (vph)	0	0	87	0	21	0	0	0	0	0	0	175
Lane Group Flow (vph)	331	332	277	0	11	0	196	1206	0	43	2370	390
Turn Type	Split	NA	pm+ov	Split	NA		Prot	NA		Prot	NA	Perm
Protected Phases	4	4	6	3	3		6	2		1	5	
Permitted Phases			4									5
Actuated Green, G (s)	32.9	32.9	44.8		4.0		11.9	79.4		7.2	74.7	74.7
Effective Green, g (s)	32.9	32.9	44.8		4.0		11.9	79.4		7.2	74.7	74.7
Actuated g/C Ratio	0.22	0.22	0.30		0.03		0.08	0.53		0.05	0.50	0.50
Clearance Time (s)	6.5	6.5	6.5		7.0		6.5	6.5		6.5	6.5	6.5
Vehicle Extension (s)	3.0	3.0	3.0		3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	342	345	470		50		260	2574		82	2448	841
v/s Ratio Prot	c0.21	0.21	0.05		c0.01		c0.06	0.25		0.03	c0.48	
v/s Ratio Perm			0.13									0.23
v/c Ratio	0.97	0.96	0.59		0.21		0.75	0.47		0.52	0.97	0.46
Uniform Delay, d1	58.0	57.9	44.8		71.5		67.6	22.1		69.7	36.5	24.6
Progression Factor	1.00	1.00	1.00		1.00		1.00	1.00		1.03	0.99	1.33
Incremental Delay, d2	39.6	38.3	1.9		2.1		11.7	0.6		3.3	8.0	1.0
Delay (s)	97.7	96.2	46.7		73.6		79.3	22.7		74.8	44.2	33.8
Level of Service	F	F	D		E		E	C		E	D	C
Approach Delay (s)		79.1			73.6			30.6			42.7	
Approach LOS		E			E			C			D	

Intersection Summary			
HCM 2000 Control Delay	46.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	26.5
Intersection Capacity Utilization	87.0%	ICU Level of Service	E
Analysis Period (min)	15		

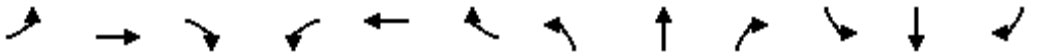
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	205	5	695	0	0	0	0	1515	185	235	2045	0
Future Volume (vph)	205	5	695	0	0	0	0	1515	185	235	2045	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	12	11	12	12	12	12	11	16	11	11	12
Grade (%)		3%			0%			1%			0%	
Total Lost time (s)	8.0	8.0	8.0					6.5		5.5	5.5	
Lane Util. Factor	0.95	0.95	*0.80					0.76		0.97	0.91	
Frt	1.00	1.00	0.85					0.98		1.00	1.00	
Flt Protected	0.95	0.95	1.00					1.00		0.95	1.00	
Satd. Flow (prot)	1601	1664	2412					8037		3319	4916	
Flt Permitted	0.95	0.95	1.00					1.00		0.95	1.00	
Satd. Flow (perm)	1601	1664	2412					8037		3319	4916	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	223	5	755	0	0	0	0	1647	201	255	2223	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	14	0	0	0	0
Lane Group Flow (vph)	114	114	755	0	0	0	0	1834	0	255	2223	0
Turn Type	Split	NA	Prot					NA		Prot	NA	
Protected Phases	4	4	4					6		5	2	
Permitted Phases												
Actuated Green, G (s)	54.1	54.1	54.1					55.2		20.7	82.4	
Effective Green, g (s)	54.1	54.1	54.1					55.2		20.7	82.4	
Actuated g/C Ratio	0.36	0.36	0.36					0.37		0.14	0.55	
Clearance Time (s)	8.0	8.0	8.0					6.5		5.5	5.5	
Vehicle Extension (s)	3.0	3.0	3.0					3.0		3.0	3.0	
Lane Grp Cap (vph)	577	600	869					2957		458	2700	
v/s Ratio Prot	0.07	0.07	c0.31					0.23		0.08	c0.45	
v/s Ratio Perm												
v/c Ratio	0.20	0.19	0.87					0.62		0.56	0.82	
Uniform Delay, d1	33.0	32.9	44.6					38.8		60.4	27.8	
Progression Factor	1.00	1.00	1.00					0.68		0.53	0.38	
Incremental Delay, d2	0.2	0.2	9.2					0.8		4.2	2.7	
Delay (s)	33.2	33.1	53.9					27.0		36.3	13.2	
Level of Service	C	C	D					C		D	B	
Approach Delay (s)		49.0			0.0			27.0			15.6	
Approach LOS		D			A			C			B	

Intersection Summary				
HCM 2000 Control Delay	25.8	HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio	0.88			
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	20.0	
Intersection Capacity Utilization	75.1%	ICU Level of Service	D	
Analysis Period (min)	15			

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	160	5	430	315	1405	0	0	2120	770
Future Volume (vph)	0	0	0	160	5	430	315	1405	0	0	2120	770
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	13	16	10	11	12	12	11	12
Grade (%)		0%			5%			0%			-1%	
Total Lost time (s)				8.0	8.0	4.0	6.5	6.0			6.0	4.0
Lane Util. Factor				0.95	0.95	1.00	0.97	0.86			0.81	1.00
Frt				1.00	1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	0.95	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				1639	1702	1750	3204	6194			7329	1591
Flt Permitted				0.95	0.95	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				1639	1702	1750	3204	6194			7329	1591
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	174	5	467	342	1527	0	0	2304	837
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	89	90	467	342	1527	0	0	2304	837
Turn Type				Split	NA	Free	Prot	NA			NA	Free
Protected Phases				4	4		1	6			2	
Permitted Phases						Free						Free
Actuated Green, G (s)				14.4	14.4	150.0	22.1	121.6			93.0	150.0
Effective Green, g (s)				14.4	14.4	150.0	22.1	121.6			93.0	150.0
Actuated g/C Ratio				0.10	0.10	1.00	0.15	0.81			0.62	1.00
Clearance Time (s)				8.0	8.0		6.5	6.0			6.0	
Vehicle Extension (s)				4.0	4.0		4.0	4.0			4.0	
Lane Grp Cap (vph)				157	163	1750	472	5021			4543	1591
v/s Ratio Prot				0.05	0.05		c0.11	0.25			0.31	
v/s Ratio Perm						0.27						c0.53
v/c Ratio				0.57	0.55	0.27	0.72	0.30			0.51	0.53
Uniform Delay, d1				64.8	64.7	0.0	61.0	3.6			15.8	0.0
Progression Factor				1.00	1.00	1.00	1.44	0.27			0.46	1.00
Incremental Delay, d2				5.6	4.9	0.4	4.6	0.1			0.0	0.1
Delay (s)				70.4	69.6	0.4	92.3	1.1			7.3	0.1
Level of Service				E	E	A	F	A			A	A
Approach Delay (s)		0.0			19.7			17.8			5.4	
Approach LOS		A			B			B			A	

Intersection Summary			
HCM 2000 Control Delay	11.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	20.5
Intersection Capacity Utilization	75.1%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



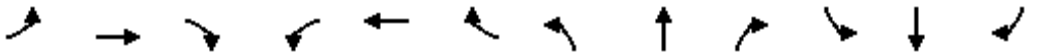
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	120	475	225	725	205	80	10	235	1100	490	35	1930
Future Volume (vph)	120	475	225	725	205	80	10	235	1100	490	35	1930
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	12	12	10	12	12	12	10	11	11	11	11
Grade (%)		3%			2%				0%			-1%
Total Lost time (s)	6.5	6.5		6.5	6.5	6.5		6.5	6.5	6.5	6.5	6.5
Lane Util. Factor	0.97	0.95		0.97	0.95	1.00		1.00	0.91	1.00	1.00	*0.80
Frt	1.00	0.95		1.00	1.00	0.85		1.00	1.00	0.85	1.00	0.99
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3156	3318		3172	3504	1567		1652	4916	1531	1719	4307
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.08	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3156	3318		3172	3504	1567		142	4916	1531	1719	4307
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	130	516	245	788	223	87	11	255	1196	533	38	2098
RTOR Reduction (vph)	0	0	0	0	0	69	0	0	0	281	0	4
Lane Group Flow (vph)	130	761	0	788	223	18	0	266	1196	252	38	2219
Turn Type	Split	NA		Split	NA	pt+ov	pm+pt	pm+pt	NA	Perm	Prot	NA
Protected Phases	4	4		3	3	3 5	1	1	6		5	2
Permitted Phases							6	6		6		
Actuated Green, G (s)	33.0	33.0		22.5	22.5	30.4		60.6	60.6	60.6	7.9	57.0
Effective Green, g (s)	33.0	33.0		22.5	22.5	30.4		60.6	60.6	60.6	7.9	57.0
Actuated g/C Ratio	0.22	0.22		0.15	0.15	0.20		0.40	0.40	0.40	0.05	0.38
Clearance Time (s)	6.5	6.5		6.5	6.5			6.5	6.5	6.5	6.5	6.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	694	729		475	525	317		173	1986	618	90	1636
v/s Ratio Prot	0.04	c0.23		c0.25	0.06	0.01		c0.12	0.24		0.02	c0.52
v/s Ratio Perm								c0.50		0.16		
v/c Ratio	0.19	1.04		1.66	0.42	0.06		1.54	0.60	0.41	0.42	1.36
Uniform Delay, d1	47.6	58.5		63.8	57.9	48.2		64.7	35.2	31.9	68.8	46.5
Progression Factor	1.00	1.00		1.00	1.00	1.00		0.60	0.45	0.57	1.00	1.00
Incremental Delay, d2	0.1	45.3		305.8	2.5	0.1		268.0	1.3	1.9	3.2	164.5
Delay (s)	47.7	103.8		369.5	60.4	48.3		306.7	17.2	20.0	72.0	211.0
Level of Service	D	F		F	E	D		F	B	C	E	F
Approach Delay (s)		95.6			281.3				56.5			208.7
Approach LOS		F			F				E			F

Intersection Summary			
HCM 2000 Control Delay	156.7	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.43		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	26.0
Intersection Capacity Utilization	116.1%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group



Movement	SBR
Lane Configurations	
Traffic Volume (vph)	115
Future Volume (vph)	115
Ideal Flow (vphpl)	1900
Lane Width	12
Grade (%)	
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	125
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	



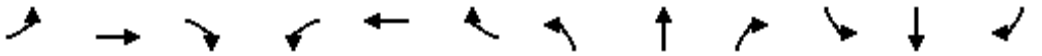
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	520	55	325	55	15	50	55	910	30	100	360	515
Future Volume (veh/h)	520	55	325	55	15	50	55	910	30	100	360	515
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1847	1847	1847	1864	1864	1864	1864	1864	1864	1776	1776	1776
Adj Flow Rate, veh/h	565	60	353	60	16	54	60	989	33	109	391	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	645	426	361	77	159	135	542	1668	56	284	1652	
Arrive On Green	0.19	0.23	0.23	0.04	0.09	0.09	0.04	0.48	0.48	0.05	0.49	0.00
Sat Flow, veh/h	3412	1847	1565	1776	1864	1580	1776	3498	117	1692	3375	1505
Grp Volume(v), veh/h	565	60	353	60	16	54	60	501	521	109	391	0
Grp Sat Flow(s),veh/h/ln	1706	1847	1565	1776	1864	1580	1776	1771	1843	1692	1687	1505
Q Serve(g_s), s	19.3	3.1	26.9	4.0	0.9	3.9	2.0	24.7	24.8	3.9	8.0	0.0
Cycle Q Clear(g_c), s	19.3	3.1	26.9	4.0	0.9	3.9	2.0	24.7	24.8	3.9	8.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.06	1.00		1.00
Lane Grp Cap(c), veh/h	645	426	361	77	159	135	542	844	879	284	1652	
V/C Ratio(X)	0.88	0.14	0.98	0.78	0.10	0.40	0.11	0.59	0.59	0.38	0.24	
Avail Cap(c_a), veh/h	816	426	361	146	159	135	557	844	879	358	1652	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.98	0.98	0.00
Uniform Delay (d), s/veh	47.3	36.7	45.8	56.8	50.6	52.0	14.9	22.9	22.9	17.7	17.7	0.0
Incr Delay (d2), s/veh	8.8	0.1	41.1	15.1	0.3	1.9	0.1	3.1	2.9	0.8	0.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.0	1.4	14.5	2.1	0.5	1.6	0.8	10.9	11.3	1.6	3.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	56.1	36.8	86.9	71.9	50.9	53.9	15.0	26.0	25.8	18.5	18.0	0.0
LnGrp LOS	E	D	F	E	D	D	B	C	C	B	B	
Approach Vol, veh/h		978			130			1082			500	A
Approach Delay, s/veh		66.1			61.8			25.3			18.1	
Approach LOS		E			E			C			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.4	63.7	28.2	16.8	9.8	65.3	10.7	34.2
Change Period (Y+Rc), s	5.5	6.5	5.5	6.5	5.5	6.5	5.5	6.5
Max Green Setting (Gmax), s	11.1	47.3	28.7	8.9	5.3	53.1	9.9	27.7
Max Q Clear Time (g_c+I1), s	5.9	26.8	21.3	5.9	4.0	10.0	6.0	28.9
Green Ext Time (p_c), s	0.1	1.1	1.4	0.0	0.0	0.6	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	40.6
HCM 6th LOS	D

Notes

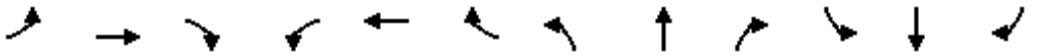
Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	520	55	325	55	15	50	55	910	30	100	360	515
Future Volume (vph)	520	55	325	55	15	50	55	910	30	100	360	515
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	11	10	11	11	10	10	11	12	10	12	11
Grade (%)		2%			1%			1%			4%	
Total Lost time (s)	5.5	6.5	6.5	5.5	6.5	6.5	5.5	6.5		5.5	6.5	4.0
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.95		1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3399	1783	1463	1702	1792	1470	1643	3388		1619	3468	1500
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.52	1.00		0.17	1.00	1.00
Satd. Flow (perm)	3399	1783	1463	1702	1792	1470	901	3388		289	3468	1500
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	565	60	353	60	16	54	60	989	33	109	391	560
RTOR Reduction (vph)	0	0	286	0	0	51	0	2	0	0	0	0
Lane Group Flow (vph)	565	60	67	60	16	3	60	1020	0	109	391	560
Turn Type	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA		pm+pt	NA	Free
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases			8			4	2			6		Free
Actuated Green, G (s)	24.6	22.7	22.7	7.5	5.6	5.6	62.4	56.8		69.2	60.2	120.0
Effective Green, g (s)	24.6	22.7	22.7	7.5	5.6	5.6	62.4	56.8		69.2	60.2	120.0
Actuated g/C Ratio	0.21	0.19	0.19	0.06	0.05	0.05	0.52	0.47		0.58	0.50	1.00
Clearance Time (s)	5.5	6.5	6.5	5.5	6.5	6.5	5.5	6.5		5.5	6.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	0.2		3.0	0.2	
Lane Grp Cap (vph)	696	337	276	106	83	68	503	1603		266	1739	1500
v/s Ratio Prot	c0.17	0.03		0.04	0.01		0.01	c0.30		0.03	0.11	
v/s Ratio Perm			0.05			0.00	0.06			0.21		c0.37
v/c Ratio	0.81	0.18	0.24	0.57	0.19	0.04	0.12	0.64		0.41	0.22	0.37
Uniform Delay, d1	45.5	40.8	41.3	54.7	55.0	54.6	14.3	23.8		14.6	16.8	0.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	7.2	0.3	0.5	6.8	1.1	0.2	0.1	1.9		1.0	0.3	0.7
Delay (s)	52.7	41.1	41.8	61.4	56.2	54.8	14.5	25.8		15.6	17.1	0.7
Level of Service	D	D	D	E	E	D	B	C		B	B	A
Approach Delay (s)		48.0			58.0			25.1			8.3	
Approach LOS		D			E			C			A	

Intersection Summary			
HCM 2000 Control Delay	27.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	68.6%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	585	495	0	0	0	0	480	1000	0	480	0
Future Volume (vph)	5	585	495	0	0	0	0	480	1000	0	480	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	10	10	11	12	12	12
Grade (%)		5%			0%			4%			0%	
Total Lost time (s)		7.0	4.0					8.0	6.0		8.0	
Lane Util. Factor		0.95	1.00					0.95	0.88		0.91	
Frt		1.00	0.85					1.00	0.85		1.00	
Flt Protected		1.00	1.00					1.00	1.00		1.00	
Satd. Flow (prot)		3449	1544					3237	2640		5085	
Flt Permitted		1.00	1.00					1.00	1.00		1.00	
Satd. Flow (perm)		3449	1544					3237	2640		5085	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	636	538	0	0	0	0	522	1087	0	522	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	641	538	0	0	0	0	522	1087	0	522	0
Turn Type	Perm	NA	Free					NA	custom		NA	
Protected Phases		3						6	5 6		2 4	
Permitted Phases	3		Free									
Actuated Green, G (s)		29.0	160.0					30.0	97.1		116.0	
Effective Green, g (s)		29.0	160.0					30.0	97.1		109.0	
Actuated g/C Ratio		0.18	1.00					0.19	0.61		0.68	
Clearance Time (s)		7.0						8.0				
Vehicle Extension (s)		3.0						3.0				
Lane Grp Cap (vph)		625	1544					606	1602		3464	
v/s Ratio Prot								c0.16	c0.41		0.10	
v/s Ratio Perm		0.19	c0.35									
v/c Ratio		1.03	0.35					0.86	0.68		0.15	
Uniform Delay, d1		65.5	0.0					63.0	21.0		9.1	
Progression Factor		1.00	1.00					1.00	1.00		0.00	
Incremental Delay, d2		42.7	0.6					14.9	1.2		0.0	
Delay (s)		108.2	0.6					77.9	22.2		0.0	
Level of Service		F	A					E	C		A	
Approach Delay (s)		59.1			0.0			40.2			0.0	
Approach LOS		E			A			D			A	

Intersection Summary			
HCM 2000 Control Delay	40.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	28.0
Intersection Capacity Utilization	93.3%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	0	480	1325	485	0
Future Volume (vph)	0	0	480	1325	485	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	11	11	12	12
Grade (%)	0%			1%	0%	
Total Lost time (s)			7.0	7.0	7.0	
Lane Util. Factor			0.91	0.91	0.97	
Frt			1.00	1.00	1.00	
Flt Protected			0.95	1.00	0.95	
Satd. Flow (prot)			1549	3255	3433	
Flt Permitted			0.95	1.00	0.95	
Satd. Flow (perm)			1549	3255	3433	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	522	1440	527	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	470	1492	527	0
Turn Type			Split	NA	Prot	
Protected Phases			4 5	4 5	3 6	
Permitted Phases						
Actuated Green, G (s)			80.0	80.0	67.0	
Effective Green, g (s)			80.0	80.0	59.0	
Actuated g/C Ratio			0.50	0.50	0.37	
Clearance Time (s)						
Vehicle Extension (s)						
Lane Grp Cap (vph)			774	1627	1265	
v/s Ratio Prot			0.30	c0.46	c0.15	
v/s Ratio Perm						
v/c Ratio			0.61	0.92	0.42	
Uniform Delay, d1			28.7	36.9	37.7	
Progression Factor			1.01	1.00	0.00	
Incremental Delay, d2			1.4	8.5	0.1	
Delay (s)			30.4	45.3	0.2	
Level of Service			C	D	A	
Approach Delay (s)	0.0			41.7	0.2	
Approach LOS	A			D	A	

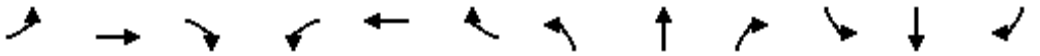
Intersection Summary			
HCM 2000 Control Delay	32.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	28.0
Intersection Capacity Utilization	101.7%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	675	60	180	5	25	150	195	2525	10	105	1600	225
Future Volume (vph)	675	60	180	5	25	150	195	2525	10	105	1600	225
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	12	12	16	12	11	11	12	11	11	14
Grade (%)		1%			0%			2%			0%	
Total Lost time (s)	6.5	6.5	6.5		7.0		6.5	6.5		6.5	6.5	6.5
Lane Util. Factor	0.95	0.95	1.00		1.00		0.97	0.91		1.00	0.91	1.00
Frt	1.00	1.00	0.85		0.89		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	0.96	1.00		1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1561	1577	1575		1870		3285	4864		1711	4916	1689
Flt Permitted	0.95	0.96	1.00		1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1561	1577	1575		1870		3285	4864		1711	4916	1689
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	734	65	196	5	27	163	212	2745	11	114	1739	245
RTOR Reduction (vph)	0	0	78	0	94	0	0	1	0	0	0	102
Lane Group Flow (vph)	396	403	118	0	101	0	212	2755	0	114	1739	144
Turn Type	Split	NA	pm+ov	Split	NA		Prot	NA		Prot	NA	Perm
Protected Phases	4	4	6	3	3		6	2		1	5	
Permitted Phases			4									5
Actuated Green, G (s)	34.5	34.5	55.5		5.0		21.0	74.5		9.5	63.0	63.0
Effective Green, g (s)	34.5	34.5	55.5		5.0		21.0	74.5		9.5	63.0	63.0
Actuated g/C Ratio	0.23	0.23	0.37		0.03		0.14	0.50		0.06	0.42	0.42
Clearance Time (s)	6.5	6.5	6.5		7.0		6.5	6.5		6.5	6.5	6.5
Vehicle Extension (s)	3.0	3.0	3.0		3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	359	362	582		62		459	2415		108	2064	709
v/s Ratio Prot	0.25	c0.26	0.03		c0.05		0.06	c0.57		0.07	c0.35	
v/s Ratio Perm			0.05									0.08
v/c Ratio	1.10	1.11	0.20		1.63		0.46	1.14		1.06	0.84	0.20
Uniform Delay, d1	57.8	57.8	32.2		72.5		59.3	37.8		70.2	39.0	27.6
Progression Factor	1.00	1.00	1.00		1.00		1.00	1.00		0.74	1.11	2.02
Incremental Delay, d2	78.2	81.5	0.2		346.3		0.7	69.0		94.5	3.7	0.5
Delay (s)	136.0	139.3	32.4		418.8		60.0	106.7		146.6	47.1	56.3
Level of Service	F	F	C		F		E	F		F	D	E
Approach Delay (s)		116.9			418.8			103.4			53.6	
Approach LOS		F			F			F			D	

Intersection Summary			
HCM 2000 Control Delay	98.7	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.16		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	26.5
Intersection Capacity Utilization	108.0%	ICU Level of Service	G
Analysis Period (min)	15		

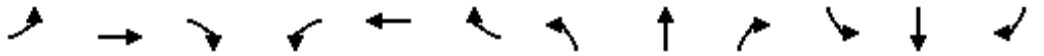
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	750	5	230	0	0	0	0	2975	375	110	1700	0
Future Volume (vph)	750	5	230	0	0	0	0	2975	375	110	1700	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	12	11	12	12	12	12	11	16	11	11	12
Grade (%)		3%			0%			1%			0%	
Total Lost time (s)	8.0	8.0	8.0					6.5		5.5	5.5	
Lane Util. Factor	0.95	0.95	*0.80					0.76		0.97	0.91	
Frt	1.00	1.00	0.85					0.98		1.00	1.00	
Flt Protected	0.95	0.95	1.00					1.00		0.95	1.00	
Satd. Flow (prot)	1601	1661	2412					8033		3319	4916	
Flt Permitted	0.95	0.95	1.00					1.00		0.95	1.00	
Satd. Flow (perm)	1601	1661	2412					8033		3319	4916	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	815	5	250	0	0	0	0	3234	408	120	1848	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	15	0	0	0	0
Lane Group Flow (vph)	407	413	250	0	0	0	0	3627	0	120	1848	0
Turn Type	Split	NA	Prot					NA		Prot	NA	
Protected Phases	4	4	4					6		5	2	
Permitted Phases												
Actuated Green, G (s)	41.8	41.8	41.8					68.7		19.5	94.7	
Effective Green, g (s)	41.8	41.8	41.8					68.7		19.5	94.7	
Actuated g/C Ratio	0.28	0.28	0.28					0.46		0.13	0.63	
Clearance Time (s)	8.0	8.0	8.0					6.5		5.5	5.5	
Vehicle Extension (s)	4.0	4.0	4.0					4.0		0.2	0.2	
Lane Grp Cap (vph)	446	462	672					3679		431	3103	
v/s Ratio Prot	c0.25	0.25	0.10					c0.45		0.04	c0.38	
v/s Ratio Perm												
v/c Ratio	0.91	0.89	0.37					0.99		0.28	0.60	
Uniform Delay, d1	52.3	52.0	43.5					40.2		58.9	16.3	
Progression Factor	1.00	1.00	1.00					0.65		0.45	1.08	
Incremental Delay, d2	23.2	19.7	0.5					2.3		1.3	0.7	
Delay (s)	75.5	71.6	44.0					28.4		27.6	18.4	
Level of Service	E	E	D					C		C	B	
Approach Delay (s)		66.7			0.0			28.4			19.0	
Approach LOS		E			A			C			B	

Intersection Summary			
HCM 2000 Control Delay	31.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	78.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	145	5	265	875	2850	0	0	1665	605
Future Volume (vph)	0	0	0	145	5	265	875	2850	0	0	1665	605
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	13	16	10	11	12	12	11	12
Grade (%)		0%			5%			0%			-1%	
Total Lost time (s)				8.0	8.0	4.0	6.5	6.0			6.0	4.0
Lane Util. Factor				0.95	0.95	1.00	0.97	0.86			0.81	1.00
Frt				1.00	1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	0.96	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				1639	1703	1750	3204	6194			7329	1591
Flt Permitted				0.95	0.96	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				1639	1703	1750	3204	6194			7329	1591
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	158	5	288	951	3098	0	0	1810	658
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	82	81	288	951	3098	0	0	1810	658
Turn Type				Split	NA	Free	Prot	NA			NA	Free
Protected Phases				4	4		1	6			2	
Permitted Phases						Free						Free
Actuated Green, G (s)				13.4	13.4	150.0	53.0	122.6			63.1	150.0
Effective Green, g (s)				13.4	13.4	150.0	53.0	122.6			63.1	150.0
Actuated g/C Ratio				0.09	0.09	1.00	0.35	0.82			0.42	1.00
Clearance Time (s)				8.0	8.0		6.5	6.0			6.0	
Vehicle Extension (s)				4.0	4.0		4.0	0.2			0.2	
Lane Grp Cap (vph)				146	152	1750	1132	5062			3083	1591
v/s Ratio Prot				0.05	0.05		c0.30	c0.50			0.25	
v/s Ratio Perm						0.16						c0.41
v/c Ratio				0.56	0.53	0.16	0.84	0.61			0.59	0.41
Uniform Delay, d1				65.5	65.3	0.0	44.6	5.0			33.4	0.0
Progression Factor				1.00	1.00	1.00	1.13	0.85			0.56	1.00
Incremental Delay, d2				5.9	4.5	0.2	1.6	0.2			0.1	0.1
Delay (s)				71.4	69.8	0.2	52.1	4.4			18.8	0.1
Level of Service				E	E	A	D	A			B	A
Approach Delay (s)		0.0			25.6			15.6			13.8	
Approach LOS		A			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	15.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	20.5
Intersection Capacity Utilization	78.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	330	280	150	485	335	110	20	255	2165	675	70	1615
Future Volume (vph)	330	280	150	485	335	110	20	255	2165	675	70	1615
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	12	12	10	12	12	12	10	11	11	11	11
Grade (%)		3%			2%				0%			-1%
Total Lost time (s)	6.5	6.5		6.5	6.5	6.5		6.5	6.5	6.5	6.5	6.5
Lane Util. Factor	0.97	0.95		0.97	0.95	1.00		1.00	0.91	1.00	1.00	*0.80
Frt	1.00	0.95		1.00	1.00	0.85		1.00	1.00	0.85	1.00	0.98
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3156	3304		3172	3504	1567		1652	4916	1531	1719	4241
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.07	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3156	3304		3172	3504	1567		129	4916	1531	1719	4241
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	359	304	163	527	364	120	22	277	2353	734	76	1755
RTOR Reduction (vph)	0	0	0	0	0	98	0	0	0	220	0	14
Lane Group Flow (vph)	359	467	0	527	364	22	0	299	2353	514	76	2067
Turn Type	Split	NA		Split	NA	pt+ov	pm+pt	pm+pt	NA	Perm	Prot	NA
Protected Phases	4	4		3	3	3 5	1	1	6		5	2
Permitted Phases							6	6		6		
Actuated Green, G (s)	27.8	27.8		17.5	17.5	27.7		68.5	68.5	68.5	10.2	64.2
Effective Green, g (s)	27.8	27.8		17.5	17.5	27.7		68.5	68.5	68.5	10.2	64.2
Actuated g/C Ratio	0.19	0.19		0.12	0.12	0.18		0.46	0.46	0.46	0.07	0.43
Clearance Time (s)	6.5	6.5		6.5	6.5			6.5	6.5	6.5	6.5	6.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	584	612		370	408	289		206	2244	699	116	1815
v/s Ratio Prot	0.11	c0.14		c0.17	0.10	0.01		c0.14	0.48		0.04	c0.49
v/s Ratio Perm								c0.52		0.34		
v/c Ratio	0.61	0.76		1.42	0.89	0.08		1.45	1.05	0.74	0.66	1.14
Uniform Delay, d1	56.2	58.0		66.2	65.3	50.6		63.2	40.8	33.4	68.2	42.9
Progression Factor	1.00	1.00		1.00	1.00	1.00		0.59	0.38	0.62	1.00	1.00
Incremental Delay, d2	1.9	5.6		206.1	21.0	0.1		224.2	31.7	5.7	12.5	69.8
Delay (s)	58.1	63.6		272.3	86.3	50.7		261.4	47.4	26.2	80.7	112.7
Level of Service	E	E		F	F	D		F	D	C	F	F
Approach Delay (s)		61.2			179.0				61.7			111.6
Approach LOS		E			F				E			F

Intersection Summary			
HCM 2000 Control Delay	92.3	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.28		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	26.0
Intersection Capacity Utilization	101.2%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group



Movement	SBR
Lane Configurations	
Traffic Volume (vph)	300
Future Volume (vph)	300
Ideal Flow (vphpl)	1900
Lane Width	12
Grade (%)	
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	326
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	20	1225	30	15	130	745	155	25	45	330	590	140
Future Volume (vph)	20	1225	30	15	130	745	155	25	45	330	590	140
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	12	12	12	12	12	11	11	11	16	9	10
Grade (%)		0%				-1%			2%			-3%
Total Lost time (s)	6.0	6.0			4.5	6.0	6.0	7.5	7.5	4.0	7.0	7.0
Lane Util. Factor	1.00	0.95			1.00	0.95	1.00	1.00	1.00	1.00	0.95	0.95
Frt	1.00	1.00			1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00			0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.97
Satd. Flow (prot)	1711	3526			1778	3557	1538	1694	1783	1776	1536	1621
Flt Permitted	0.35	1.00			0.06	1.00	1.00	0.95	1.00	1.00	0.95	0.97
Satd. Flow (perm)	623	3526			107	3557	1538	1694	1783	1776	1536	1621
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	22	1332	33	16	141	810	168	27	49	359	641	152
RTOR Reduction (vph)	0	1	0	0	0	0	76	0	0	0	0	1
Lane Group Flow (vph)	22	1364	0	0	157	810	92	27	49	359	404	399
Turn Type	Perm	NA		pm+pt	pm+pt	NA	Perm	Split	NA	Free	Split	NA
Protected Phases		6		5	5	2		3	3		4	4
Permitted Phases	6			2	2		2			Free		
Actuated Green, G (s)	65.8	65.8			81.9	81.9	81.9	4.6	4.6	150.0	43.0	43.0
Effective Green, g (s)	65.8	65.8			81.9	81.9	81.9	4.6	4.6	150.0	43.0	43.0
Actuated g/C Ratio	0.44	0.44			0.55	0.55	0.55	0.03	0.03	1.00	0.29	0.29
Clearance Time (s)	6.0	6.0			4.5	6.0	6.0	7.5	7.5		7.0	7.0
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	5.0	5.0		5.0	5.0
Lane Grp Cap (vph)	273	1546			187	1942	839	51	54	1776	440	464
v/s Ratio Prot		c0.39			c0.06	0.23		0.02	c0.03		c0.26	0.25
v/s Ratio Perm	0.04				0.39		0.06			0.20		
v/c Ratio	0.08	0.88			0.84	0.42	0.11	0.53	0.91	0.20	0.92	0.86
Uniform Delay, d1	24.5	38.6			42.3	20.0	16.4	71.6	72.5	0.0	51.8	50.7
Progression Factor	1.00	1.00			1.38	0.64	0.06	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.6	7.6			26.1	0.6	0.3	17.6	91.8	0.3	24.9	16.2
Delay (s)	25.1	46.2			84.7	13.5	1.2	89.2	164.3	0.3	76.7	66.9
Level of Service	C	D			F	B	A	F	F	A	E	E
Approach Delay (s)		45.8				21.6			24.3			71.8
Approach LOS		D				C			C			E

Intersection Summary			
HCM 2000 Control Delay	41.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	25.0
Intersection Capacity Utilization	84.4%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

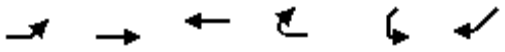


Movement	SBR
Lane Configurations	
Traffic Volume (vph)	10
Future Volume (vph)	10
Ideal Flow (vphpl)	1900
Lane Width	12
Grade (%)	
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	11
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	880	0	0	735	310	0
Future Volume (vph)	880	0	0	735	310	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	13	12
Total Lost time (s)	6.0			6.0	5.0	
Lane Util. Factor	0.95			0.95	0.97	
Frt	1.00			1.00	1.00	
Flt Protected	1.00			1.00	0.95	
Satd. Flow (prot)	3539			3539	3547	
Flt Permitted	1.00			1.00	0.95	
Satd. Flow (perm)	3539			3539	3547	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	957	0	0	799	337	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	957	0	0	799	337	0
Turn Type	NA			NA	Prot	
Protected Phases	6			2	4	
Permitted Phases						
Actuated Green, G (s)	117.4			117.4	21.6	
Effective Green, g (s)	117.4			117.4	21.6	
Actuated g/C Ratio	0.78			0.78	0.14	
Clearance Time (s)	6.0			6.0	5.0	
Vehicle Extension (s)	0.2			0.2	5.0	
Lane Grp Cap (vph)	2769			2769	510	
v/s Ratio Prot	c0.27			0.23	c0.09	
v/s Ratio Perm						
v/c Ratio	0.35			0.29	0.66	
Uniform Delay, d1	4.9			4.6	60.7	
Progression Factor	0.48			1.00	1.00	
Incremental Delay, d2	0.2			0.3	4.2	
Delay (s)	2.6			4.8	65.0	
Level of Service	A			A	E	
Approach Delay (s)	2.6			4.8	65.0	
Approach LOS	A			A	E	

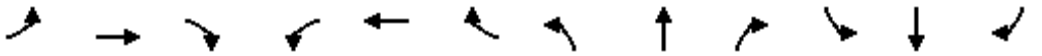
Intersection Summary			
HCM 2000 Control Delay	13.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	68.9%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	215	1380	1095	0	0	0
Future Volume (vph)	215	1380	1095	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	4.0	6.0			
Lane Util. Factor	1.00	0.91	0.95			
Frt	1.00	1.00	1.00			
Flt Protected	0.95	1.00	1.00			
Satd. Flow (prot)	1770	5085	3539			
Flt Permitted	0.24	1.00	1.00			
Satd. Flow (perm)	442	5085	3539			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	234	1500	1190	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	234	1500	1190	0	0	0
Turn Type	D.Pm	NA	NA			
Protected Phases		Free	2			
Permitted Phases	2					
Actuated Green, G (s)	150.0	150.0	150.0			
Effective Green, g (s)	150.0	150.0	150.0			
Actuated g/C Ratio	1.00	1.00	1.00			
Clearance Time (s)	6.0		6.0			
Vehicle Extension (s)	0.2		0.2			
Lane Grp Cap (vph)	442	5085	3539			
v/s Ratio Prot		0.29	0.34			
v/s Ratio Perm	c0.53					
v/c Ratio	0.53	0.29	0.34			
Uniform Delay, d1	0.0	0.0	0.0			
Progression Factor	1.00	1.00	1.00			
Incremental Delay, d2	4.4	0.1	0.3			
Delay (s)	4.4	0.1	0.3			
Level of Service	A	A	A			
Approach Delay (s)		0.7	0.3		0.0	
Approach LOS		A	A		A	

Intersection Summary			
HCM 2000 Control Delay	0.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	63.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	85	1930	25	5	1725	20	35	5	5	45	10	210
Future Volume (vph)	85	1930	25	5	1725	20	35	5	5	45	10	210
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	13	11	11	11	11	12	12	12	12	14	15
Grade (%)		2%			3%			-2%			-5%	
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0		6.5			6.5	6.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		1.00			1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85		0.99			1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.96			0.96	1.00
Satd. Flow (prot)	1694	3621	1515	1685	3370	1508		1784			1957	1785
Flt Permitted	0.07	1.00	1.00	0.06	1.00	1.00		0.73			0.76	1.00
Satd. Flow (perm)	117	3621	1515	103	3370	1508		1355			1542	1785
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	92	2098	27	5	1875	22	38	5	5	49	11	228
RTOR Reduction (vph)	0	0	6	0	0	6	0	3	0	0	0	80
Lane Group Flow (vph)	92	2098	21	5	1875	16	0	45	0	0	60	148
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA		Perm	NA	Perm
Protected Phases	1	6		5	2			4			8	
Permitted Phases	6		6	2		2	4			8		8
Actuated Green, G (s)	145.9	139.3	139.3	130.8	130.2	130.2		21.6			21.6	21.6
Effective Green, g (s)	145.9	139.3	139.3	130.8	130.2	130.2		21.6			21.6	21.6
Actuated g/C Ratio	0.81	0.77	0.77	0.73	0.72	0.72		0.12			0.12	0.12
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0		6.5			6.5	6.5
Vehicle Extension (s)	5.0	0.2	0.2	5.0	0.2	0.2		5.0			5.0	5.0
Lane Grp Cap (vph)	179	2802	1172	80	2437	1090		162			185	214
v/s Ratio Prot	c0.03	c0.58		0.00	c0.56							
v/s Ratio Perm	0.39		0.01	0.05		0.01		0.03			0.04	c0.08
v/c Ratio	0.51	0.75	0.02	0.06	0.77	0.01		0.28			0.32	0.69
Uniform Delay, d1	21.4	10.9	4.7	13.8	15.5	7.0		72.1			72.5	76.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00			1.00	1.00
Incremental Delay, d2	4.9	1.9	0.0	0.7	2.4	0.0		2.0			2.1	11.6
Delay (s)	26.3	12.8	4.7	14.4	17.9	7.0		74.1			74.7	87.6
Level of Service	C	B	A	B	B	A		E			E	F
Approach Delay (s)		13.3			17.8			74.1			84.9	
Approach LOS		B			B			E			F	

Intersection Summary			
HCM 2000 Control Delay	20.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	18.5
Intersection Capacity Utilization	81.3%	ICU Level of Service	D
Analysis Period (min)	15		

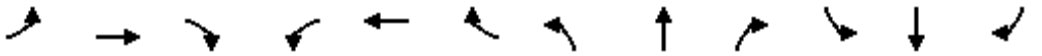
c Critical Lane Group



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	880	0	0	735	310	0
Future Volume (veh/h)	880	0	0	735	310	0
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	0	0	1870	1945	0
Adj Flow Rate, veh/h	957	0	0	799	337	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	0	0	2	2	0
Cap, veh/h	3412	0	0	3412	0	0
Arrive On Green	0.96	0.00	0.00	0.96	0.00	0.00
Sat Flow, veh/h	3741	0	0	3741	0	0
Grp Volume(v), veh/h	957	0	0	799	0	0
Grp Sat Flow(s),veh/h/ln	1777	0	0	1777	0	0
Q Serve(g_s), s	2.2	0.0	0.0	1.7	0.0	0.0
Cycle Q Clear(g_c), s	2.2	0.0	0.0	1.7	0.0	0.0
Prop In Lane		0.00	0.00		0.00	0.00
Lane Grp Cap(c), veh/h	3412	0	0	3412	0	0
V/C Ratio(X)	0.28	0.00	0.00	0.23	0.00	0.00
Avail Cap(c_a), veh/h	3412	0	0	3412	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.2	0.0	0.0	0.2	0.0	0.0
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.0	0.1	0.0	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.4	0.0	0.0	0.3	0.0	0.0
LnGrp LOS	A	A	A	A	A	A
Approach Vol, veh/h	957			799	0	
Approach Delay, s/veh	0.4			0.3	0.0	
Approach LOS	A			A		

Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		150.0		0.0		150.0
Change Period (Y+Rc), s		6.0		5.0		6.0
Max Green Setting (Gmax), s		98.0		41.0		98.0
Max Q Clear Time (g_c+I1), s		3.7		0.0		4.2
Green Ext Time (p_c), s		1.1		0.0		1.3

Intersection Summary	
HCM 6th Ctrl Delay	0.3
HCM 6th LOS	A



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	85	1930	25	5	1725	20	35	5	5	45	10	210
Future Volume (veh/h)	85	1930	25	5	1725	20	35	5	5	45	10	210
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1847	1921	1847	1817	1817	1817	1949	1949	1949	2067	2149	2149
Adj Flow Rate, veh/h	92	2098	27	5	1875	22	38	5	5	49	11	228
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	182	2751	1180	124	2529	1128	150	20	16	230	48	254
Arrive On Green	0.03	0.75	0.75	0.00	0.73	0.73	0.15	0.14	0.14	0.15	0.14	0.14
Sat Flow, veh/h	1759	3649	1565	1731	3453	1540	821	141	112	1388	346	1821
Grp Volume(v), veh/h	92	2098	27	5	1875	22	48	0	0	60	0	228
Grp Sat Flow(s),veh/h/ln	1759	1825	1565	1731	1726	1540	1074	0	0	1734	0	1821
Q Serve(g_s), s	2.4	59.9	0.8	0.1	57.2	0.7	5.3	0.0	0.0	0.0	0.0	22.2
Cycle Q Clear(g_c), s	2.4	59.9	0.8	0.1	57.2	0.7	10.6	0.0	0.0	5.2	0.0	22.2
Prop In Lane	1.00		1.00	1.00		1.00	0.79		0.10	0.82		1.00
Lane Grp Cap(c), veh/h	182	2751	1180	124	2529	1128	201	0	0	303	0	254
V/C Ratio(X)	0.51	0.76	0.02	0.04	0.74	0.02	0.24	0.00	0.00	0.20	0.00	0.90
Avail Cap(c_a), veh/h	235	2751	1180	147	2529	1128	232	0	0	344	0	299
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	20.5	12.8	5.5	15.3	14.1	6.5	71.7	0.0	0.0	67.9	0.0	76.2
Incr Delay (d2), s/veh	4.6	2.1	0.0	0.3	2.0	0.0	1.3	0.0	0.0	0.7	0.0	28.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	23.5	0.3	0.1	21.8	0.2	2.1	0.0	0.0	2.5	0.0	12.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.1	14.9	5.6	15.5	16.1	6.6	73.0	0.0	0.0	68.6	0.0	104.5
LnGrp LOS	C	B	A	B	B	A	E	A	A	E	A	F
Approach Vol, veh/h		2217			1902			48			288	
Approach Delay, s/veh		15.2			16.0			73.0			97.0	
Approach LOS		B			B			E			F	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.5	137.8		31.6	6.7	141.7		31.6				
Change Period (Y+Rc), s	6.0	6.0		6.5	6.0	6.0		6.5				
Max Green Setting (Gmax), s	10.0	122.0		29.5	3.0	129.0		29.5				
Max Q Clear Time (g_c+I1), s	4.4	59.2		12.6	2.1	61.9		24.2				
Green Ext Time (p_c), s	0.2	3.4		0.3	0.0	4.2		1.0				

Intersection Summary												
HCM 6th Ctrl Delay			21.5									
HCM 6th LOS			C									



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	25	680	25	15	265	1300	770	30	215	415	520	200
Future Volume (vph)	25	680	25	15	265	1300	770	30	215	415	520	200
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	12	12	12	12	12	11	11	11	16	9	10
Grade (%)		0%				-1%			2%			-3%
Total Lost time (s)	6.0	6.0			4.5	6.0	6.0	7.5	7.5	4.0	7.0	7.0
Lane Util. Factor	1.00	0.95			1.00	0.95	1.00	1.00	1.00	1.00	0.95	0.95
Frt	1.00	0.99			1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99
Flt Protected	0.95	1.00			0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.98
Satd. Flow (prot)	1711	3521			1778	3557	1538	1694	1783	1776	1536	1619
Flt Permitted	0.11	1.00			0.10	1.00	1.00	0.95	1.00	1.00	0.95	0.98
Satd. Flow (perm)	194	3521			180	3557	1538	1694	1783	1776	1536	1619
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	27	739	27	16	288	1413	837	33	234	451	565	217
RTOR Reduction (vph)	0	2	0	0	0	0	444	0	0	0	0	2
Lane Group Flow (vph)	27	764	0	0	304	1413	393	33	234	451	356	462
Turn Type	Perm	NA		pm+pt	pm+pt	NA	Perm	Split	NA	Free	Split	NA
Protected Phases		6		5	5	2		3	3		4	4
Permitted Phases	6			2	2		2			Free		
Actuated Green, G (s)	37.2	37.2			64.0	64.0	64.0	21.5	21.5	150.0	44.0	44.0
Effective Green, g (s)	37.2	37.2			64.0	64.0	64.0	21.5	21.5	150.0	44.0	44.0
Actuated g/C Ratio	0.25	0.25			0.43	0.43	0.43	0.14	0.14	1.00	0.29	0.29
Clearance Time (s)	6.0	6.0			4.5	6.0	6.0	7.5	7.5		7.0	7.0
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	5.0	5.0		5.0	5.0
Lane Grp Cap (vph)	48	873			314	1517	656	242	255	1776	450	474
v/s Ratio Prot		0.22			0.14	c0.40		0.02	c0.13		0.23	c0.29
v/s Ratio Perm	0.14				c0.27		0.26			0.25		
v/c Ratio	0.56	0.88			0.97	0.93	0.60	0.14	0.92	0.25	0.79	0.97
Uniform Delay, d1	49.3	54.2			46.7	40.9	33.1	56.1	63.4	0.0	48.8	52.4
Progression Factor	1.00	1.00			0.94	0.89	0.47	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	40.1	12.0			31.5	7.9	2.5	0.5	36.2	0.3	10.5	34.8
Delay (s)	89.4	66.1			75.2	44.5	18.1	56.7	99.6	0.3	59.3	87.3
Level of Service	F	E			E	D	B	E	F	A	E	F
Approach Delay (s)		66.9				39.5			35.3			75.1
Approach LOS		E				D			D			E

Intersection Summary			
HCM 2000 Control Delay	49.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	25.0
Intersection Capacity Utilization	95.9%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

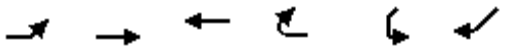


Movement	SBR
Lane Configurations	
Traffic Volume (vph)	35
Future Volume (vph)	35
Ideal Flow (vphpl)	1900
Lane Width	12
Grade (%)	
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	38
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1145	0	0	2065	285	0
Future Volume (vph)	1145	0	0	2065	285	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	13	12
Total Lost time (s)	6.0			6.0	5.0	
Lane Util. Factor	0.95			0.95	0.97	
Frt	1.00			1.00	1.00	
Flt Protected	1.00			1.00	0.95	
Satd. Flow (prot)	3539			3539	3547	
Flt Permitted	1.00			1.00	0.95	
Satd. Flow (perm)	3539			3539	3547	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1245	0	0	2245	310	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	1245	0	0	2245	310	0
Turn Type	NA			NA	Prot	
Protected Phases	6			2	4	
Permitted Phases						
Actuated Green, G (s)	121.3			121.3	17.7	
Effective Green, g (s)	121.3			121.3	17.7	
Actuated g/C Ratio	0.81			0.81	0.12	
Clearance Time (s)	6.0			6.0	5.0	
Vehicle Extension (s)	5.0			5.0	3.0	
Lane Grp Cap (vph)	2861			2861	418	
v/s Ratio Prot	0.35			c0.63	c0.09	
v/s Ratio Perm						
v/c Ratio	0.44			0.78	0.74	
Uniform Delay, d1	4.2			7.5	63.9	
Progression Factor	0.19			0.73	1.00	
Incremental Delay, d2	0.3			2.2	7.0	
Delay (s)	1.1			7.7	70.9	
Level of Service	A			A	E	
Approach Delay (s)	1.1			7.7	70.9	
Approach LOS	A			A	E	

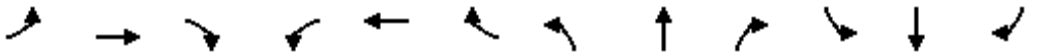
Intersection Summary			
HCM 2000 Control Delay	10.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	74.4%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	290	1500	1310	0	0	0
Future Volume (vph)	290	1500	1310	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	4.0	6.0			
Lane Util. Factor	1.00	0.91	0.95			
Frt	1.00	1.00	1.00			
Flt Protected	0.95	1.00	1.00			
Satd. Flow (prot)	1770	5085	3539			
Flt Permitted	0.16	1.00	1.00			
Satd. Flow (perm)	300	5085	3539			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	315	1630	1424	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	315	1630	1424	0	0	0
Turn Type	D.P+P	NA	NA			
Protected Phases	1	Free	2			
Permitted Phases	2					
Actuated Green, G (s)	139.0	150.0	118.3			
Effective Green, g (s)	139.0	150.0	118.3			
Actuated g/C Ratio	0.93	1.00	0.79			
Clearance Time (s)	5.0		6.0			
Vehicle Extension (s)	3.0		0.2			
Lane Grp Cap (vph)	480	5085	2791			
v/s Ratio Prot	c0.09	0.32	0.40			
v/s Ratio Perm	c0.52					
v/c Ratio	0.66	0.32	0.51			
Uniform Delay, d1	9.5	0.0	5.6			
Progression Factor	0.80	1.00	1.00			
Incremental Delay, d2	3.1	0.2	0.7			
Delay (s)	10.8	0.2	6.3			
Level of Service	B	A	A			
Approach Delay (s)		1.9	6.3		0.0	
Approach LOS		A	A		A	

Intersection Summary			
HCM 2000 Control Delay	3.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	125.5%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	255	1690	60	5	2235	55	25	5	5	45	10	135
Future Volume (vph)	255	1690	60	5	2235	55	25	5	5	45	10	135
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	13	11	11	11	11	12	12	12	12	14	15
Grade (%)		2%			3%			-2%			-5%	
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0		6.5			6.5	6.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		1.00			1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85		0.98			1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.96			0.96	1.00
Satd. Flow (prot)	1694	3621	1515	1685	3370	1508		1782			1957	1785
Flt Permitted	0.03	1.00	1.00	0.12	1.00	1.00		0.75			0.79	1.00
Satd. Flow (perm)	58	3621	1515	213	3370	1508		1378			1603	1785
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	277	1837	65	5	2429	60	27	5	5	49	11	147
RTOR Reduction (vph)	0	0	12	0	0	21	0	3	0	0	0	136
Lane Group Flow (vph)	277	1837	53	5	2429	39	0	34	0	0	60	11
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA		Perm	NA	Perm
Protected Phases	1	6		5	2			4			8	
Permitted Phases	6		6	2		2	4			8		8
Actuated Green, G (s)	153.6	147.0	147.0	117.8	117.2	117.2		13.9			13.9	13.9
Effective Green, g (s)	153.6	147.0	147.0	117.8	117.2	117.2		13.9			13.9	13.9
Actuated g/C Ratio	0.85	0.82	0.82	0.65	0.65	0.65		0.08			0.08	0.08
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0		6.5			6.5	6.5
Vehicle Extension (s)	5.0	0.2	0.2	5.0	0.2	0.2		5.0			5.0	5.0
Lane Grp Cap (vph)	325	2957	1237	144	2194	981		106			123	137
v/s Ratio Prot	c0.14	0.51		0.00	c0.72							
v/s Ratio Perm	0.58		0.04	0.02		0.03		0.02			c0.04	0.01
v/c Ratio	0.85	0.62	0.04	0.03	1.11	0.04		0.32			0.49	0.08
Uniform Delay, d1	66.4	6.1	3.1	11.9	31.4	11.2		78.6			79.6	77.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00			1.00	1.00
Incremental Delay, d2	20.5	1.0	0.1	0.2	55.6	0.1		3.7			6.2	0.5
Delay (s)	87.0	7.1	3.2	12.1	87.0	11.3		82.3			85.9	77.7
Level of Service	F	A	A	B	F	B		F			F	E
Approach Delay (s)		17.2			85.0			82.3			80.1	
Approach LOS		B			F			F			F	

Intersection Summary			
HCM 2000 Control Delay	54.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.01		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	18.5
Intersection Capacity Utilization	99.9%	ICU Level of Service	F
Analysis Period (min)	15		

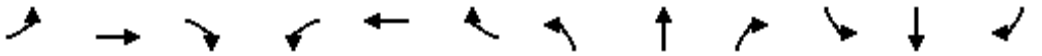
c Critical Lane Group



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1145	0	0	2065	285	0
Future Volume (veh/h)	1145	0	0	2065	285	0
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	0	0	1870	1945	0
Adj Flow Rate, veh/h	1245	0	0	2245	310	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	0	0	2	2	0
Cap, veh/h	3412	0	0	3412	0	0
Arrive On Green	0.96	0.00	0.00	0.96	0.00	0.00
Sat Flow, veh/h	3741	0	0	3741	0	0
Grp Volume(v), veh/h	1245	0	0	2245	0	0
Grp Sat Flow(s),veh/h/ln	1777	0	0	1777	0	0
Q Serve(g_s), s	3.2	0.0	0.0	10.3	0.0	0.0
Cycle Q Clear(g_c), s	3.2	0.0	0.0	10.3	0.0	0.0
Prop In Lane		0.00	0.00		0.00	0.00
Lane Grp Cap(c), veh/h	3412	0	0	3412	0	0
V/C Ratio(X)	0.36	0.00	0.00	0.66	0.00	0.00
Avail Cap(c_a), veh/h	3412	0	0	3412	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.2	0.0	0.0	0.3	0.0	0.0
Incr Delay (d2), s/veh	0.3	0.0	0.0	1.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.0	0.5	0.0	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.5	0.0	0.0	1.3	0.0	0.0
LnGrp LOS	A	A	A	A	A	A
Approach Vol, veh/h	1245			2245	0	
Approach Delay, s/veh	0.5			1.3	0.0	
Approach LOS	A			A		

Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		150.0		0.0		150.0
Change Period (Y+Rc), s		6.0		5.0		6.0
Max Green Setting (Gmax), s		119.0		20.0		119.0
Max Q Clear Time (g_c+I1), s		12.3		0.0		5.2
Green Ext Time (p_c), s		89.9		0.0		32.5

Intersection Summary		
HCM 6th Ctrl Delay		1.0
HCM 6th LOS		A



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	255	1690	60	5	2235	55	25	5	5	45	10	135
Future Volume (veh/h)	255	1690	60	5	2235	55	25	5	5	45	10	135
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1847	1921	1847	1817	1817	1817	1949	1949	1949	2067	2149	2149
Adj Flow Rate, veh/h	277	1837	65	5	2429	60	27	5	5	49	11	147
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	304	2924	1254	185	2261	1009	100	18	13	161	33	168
Arrive On Green	0.15	0.80	0.80	0.00	0.65	0.65	0.11	0.09	0.09	0.11	0.09	0.09
Sat Flow, veh/h	1759	3649	1565	1731	3453	1540	707	195	141	1356	355	1821
Grp Volume(v), veh/h	277	1837	65	5	2429	60	37	0	0	60	0	147
Grp Sat Flow(s),veh/h/ln	1759	1825	1565	1731	1726	1540	1043	0	0	1711	0	1821
Q Serve(g_s), s	23.7	36.2	1.5	0.2	117.9	2.5	3.5	0.0	0.0	0.0	0.0	14.3
Cycle Q Clear(g_c), s	23.7	36.2	1.5	0.2	117.9	2.5	9.3	0.0	0.0	5.7	0.0	14.3
Prop In Lane	1.00		1.00	1.00		1.00	0.73		0.14	0.82		1.00
Lane Grp Cap(c), veh/h	304	2924	1254	185	2261	1009	145	0	0	218	0	168
V/C Ratio(X)	0.91	0.63	0.05	0.03	1.07	0.06	0.25	0.00	0.00	0.28	0.00	0.88
Avail Cap(c_a), veh/h	392	2924	1254	207	2261	1009	157	0	0	232	0	183
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	68.6	7.1	3.7	10.8	31.1	11.2	78.7	0.0	0.0	75.8	0.0	80.7
Incr Delay (d2), s/veh	25.3	1.0	0.1	0.1	42.5	0.1	1.9	0.0	0.0	1.4	0.0	36.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	14.7	13.0	0.5	0.1	59.7	0.9	1.7	0.0	0.0	2.7	0.0	8.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	93.9	8.2	3.8	10.9	73.5	11.3	80.7	0.0	0.0	77.2	0.0	116.8
LnGrp LOS	F	A	A	B	F	B	F	A	A	E	A	F
Approach Vol, veh/h		2179			2494			37			207	
Approach Delay, s/veh		18.9			71.9			80.7			105.4	
Approach LOS		B			E			F			F	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	33.0	123.9		23.1	6.7	150.2		23.1				
Change Period (Y+Rc), s	6.0	6.0		6.5	6.0	6.0		6.5				
Max Green Setting (Gmax), s	36.0	107.4		18.1	3.0	140.4		18.1				
Max Q Clear Time (g_c+I1), s	25.7	119.9		11.3	2.2	38.2		16.3				
Green Ext Time (p_c), s	1.3	0.0		0.1	0.0	3.3		0.2				

Intersection Summary			
HCM 6th Ctrl Delay		49.9	
HCM 6th LOS		D	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	80	5	305	10	5	5	5	125	1335	5	5	2715
Future Volume (vph)	80	5	305	10	5	5	5	125	1335	5	5	2715
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.5	5.5		7.0			5.5	6.0	6.0	6.0	6.0
Lane Util. Factor		1.00	1.00		1.00			1.00	0.91	1.00	1.00	0.91
Frt		1.00	0.85		0.97			1.00	1.00	0.85	1.00	1.00
Flt Protected		0.95	1.00		0.97			0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)		1779	1583		1757			1770	5085	1583	1770	5069
Flt Permitted		0.72	1.00		0.83			0.04	1.00	1.00	0.17	1.00
Satd. Flow (perm)		1346	1583		1495			72	5085	1583	318	5069
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	87	5	332	11	5	5	5	136	1451	5	5	2951
RTOR Reduction (vph)	0	0	17	0	4	0	0	0	0	1	0	1
Lane Group Flow (vph)	0	92	315	0	17	0	0	141	1451	4	5	3015
Turn Type	Perm	NA	pm+ov	Perm	NA		custom	pm+pt	NA	Perm	Perm	NA
Protected Phases		4	1!		8			1	6			2
Permitted Phases	4		4	8			1!	6		6	2	
Actuated Green, G (s)		17.4	32.5		17.9			119.1	119.1	119.1	98.5	98.5
Effective Green, g (s)		17.4	32.5		17.9			119.1	119.1	119.1	98.5	98.5
Actuated g/C Ratio		0.12	0.22		0.12			0.79	0.79	0.79	0.66	0.66
Clearance Time (s)		7.5	5.5		7.0			5.5	6.0	6.0	6.0	6.0
Vehicle Extension (s)		5.0	3.0		5.0			3.0	0.2	0.2	0.2	0.2
Lane Grp Cap (vph)		156	342		178			228	4037	1256	208	3328
v/s Ratio Prot			c0.09					0.06	0.29			c0.59
v/s Ratio Perm		0.07	0.11		0.01			0.43		0.00	0.02	
v/c Ratio		0.59	0.92		0.09			0.62	0.36	0.00	0.02	0.91
Uniform Delay, d1		62.9	57.5		58.8			47.7	4.5	3.2	9.0	21.8
Progression Factor		1.00	1.00		1.00			0.71	0.70	1.00	1.00	1.00
Incremental Delay, d2		8.6	29.2		0.5			4.4	0.2	0.0	0.2	4.7
Delay (s)		71.5	86.7		59.3			38.5	3.4	3.2	9.2	26.5
Level of Service		E	F		E			D	A	A	A	C
Approach Delay (s)		83.4			59.3				6.5			26.5
Approach LOS		F			E				A			C

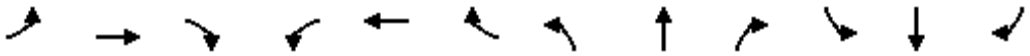
Intersection Summary			
HCM 2000 Control Delay	25.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	104.0%	ICU Level of Service	G
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group



Movement	SBR
Lane Configurations	
Traffic Volume (vph)	60
Future Volume (vph)	60
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	65
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

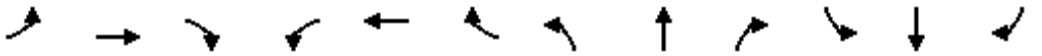
Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	175	5	330	390	1140	0	0	2390	645
Future Volume (vph)	0	0	0	175	5	330	390	1140	0	0	2390	645
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.5	6.5	6.5	6.0	5.5			6.0	
Lane Util. Factor				0.95	0.95	1.00	1.00	0.91			0.91	
Frt				1.00	1.00	0.85	1.00	1.00			0.97	
Flt Protected				0.95	0.95	1.00	0.95	1.00			1.00	
Satd. Flow (prot)				1681	1689	1583	1770	5085			4923	
Flt Permitted				0.95	0.95	1.00	0.05	1.00			1.00	
Satd. Flow (perm)				1681	1689	1583	84	5085			4923	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	190	5	359	424	1239	0	0	2598	701
RTOR Reduction (vph)	0	0	0	0	0	101	0	0	0	0	32	0
Lane Group Flow (vph)	0	0	0	97	98	258	424	1239	0	0	3267	0
Turn Type				Perm	NA	Perm	pm+pt	NA			NA	
Protected Phases					4		6	2			5	
Permitted Phases				4		4	2					
Actuated Green, G (s)				25.7	25.7	25.7	112.3	112.3			81.8	
Effective Green, g (s)				25.7	25.7	25.7	112.3	112.3			81.8	
Actuated g/C Ratio				0.17	0.17	0.17	0.75	0.75			0.55	
Clearance Time (s)				6.5	6.5	6.5	6.0	5.5			6.0	
Vehicle Extension (s)				4.0	4.0	4.0	3.0	0.2			0.2	
Lane Grp Cap (vph)				288	289	271	332	3806			2684	
v/s Ratio Prot							c0.20	0.24			0.66	
v/s Ratio Perm				0.06	0.06	c0.16	c0.75					
v/c Ratio				0.34	0.34	0.95	1.28	0.33			1.22	
Uniform Delay, d1				54.7	54.7	61.5	58.5	6.3			34.1	
Progression Factor				1.00	1.00	1.00	1.00	0.70			0.56	
Incremental Delay, d2				0.9	1.0	41.7	142.3	0.2			99.3	
Delay (s)				55.6	55.6	103.2	200.6	4.5			118.4	
Level of Service				E	E	F	F	A			F	
Approach Delay (s)		0.0			86.5			54.5			118.4	
Approach LOS		A			F			D			F	

Intersection Summary			
HCM 2000 Control Delay	96.0	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.25		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	18.5
Intersection Capacity Utilization	102.6%	ICU Level of Service	G
Analysis Period (min)	15		

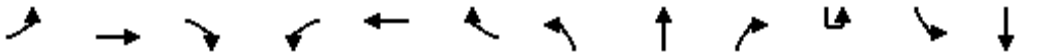
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	175	5	385	0	0	0	0	1355	145	200	2365	0
Future Volume (vph)	175	5	385	0	0	0	0	1355	145	200	2365	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5	4.0					6.0		6.0	5.5	
Lane Util. Factor	0.95	0.95	1.00					0.91		1.00	0.91	
Frt	1.00	1.00	0.85					0.99		1.00	1.00	
Flt Protected	0.95	0.95	1.00					1.00		0.95	1.00	
Satd. Flow (prot)	1681	1689	1583					5011		1770	5085	
Flt Permitted	0.95	0.95	1.00					1.00		0.10	1.00	
Satd. Flow (perm)	1681	1689	1583					5011		178	5085	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	190	5	418	0	0	0	0	1473	158	217	2571	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	7	0	0	0	0
Lane Group Flow (vph)	97	98	418	0	0	0	0	1624	0	217	2571	0
Turn Type	Split	NA	Free					NA		pm+pt	NA	
Protected Phases	4	4						5		6	2	
Permitted Phases			Free							2		
Actuated Green, G (s)	16.4	16.4	150.0					81.1		121.6	121.6	
Effective Green, g (s)	16.4	16.4	150.0					81.1		121.6	121.6	
Actuated g/C Ratio	0.11	0.11	1.00					0.54		0.81	0.81	
Clearance Time (s)	6.5	6.5						6.0		6.0	5.5	
Vehicle Extension (s)	5.0	5.0						0.2		3.0	0.2	
Lane Grp Cap (vph)	183	184	1583					2709		505	4122	
v/s Ratio Prot	0.06	c0.06						0.32		0.10	c0.51	
v/s Ratio Perm			0.26							0.25		
v/c Ratio	0.53	0.53	0.26					0.60		0.43	0.62	
Uniform Delay, d1	63.2	63.2	0.0					23.4		23.0	5.4	
Progression Factor	1.00	1.00	1.00					0.70		0.69	0.14	
Incremental Delay, d2	5.3	5.3	0.4					0.9		0.1	0.1	
Delay (s)	68.5	68.5	0.4					17.4		16.0	0.8	
Level of Service	E	E	A					B		B	A	
Approach Delay (s)		22.1			0.0			17.4			2.0	
Approach LOS		C			A			B			A	

Intersection Summary			
HCM 2000 Control Delay	9.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	18.5
Intersection Capacity Utilization	102.6%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	260	20	10	30	5	75	5	1155	15	10	110	2590
Future Volume (vph)	260	20	10	30	5	75	5	1155	15	10	110	2590
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5		6.5	6.5	6.5	5.5	6.5			5.5	6.5
Lane Util. Factor		1.00		1.00	1.00	1.00	1.00	0.91			1.00	0.91
Frt		1.00		1.00	1.00	0.85	1.00	1.00			1.00	1.00
Flt Protected		0.96		0.95	1.00	1.00	0.95	1.00			0.95	1.00
Satd. Flow (prot)		1775		1770	1863	1583	1770	5076			1770	5074
Flt Permitted		0.74		0.74	1.00	1.00	0.05	1.00			0.16	1.00
Satd. Flow (perm)		1381		1383	1863	1583	88	5076			293	5074
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	283	22	11	33	5	82	5	1255	16	11	120	2815
RTOR Reduction (vph)	0	1	0	0	0	62	0	1	0	0	0	1
Lane Group Flow (vph)	0	315	0	33	5	20	5	1270	0	0	131	2857
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA		custom	pm+pt	NA
Protected Phases		4			8		1	6			5	2
Permitted Phases	4			8		8	6			5	2	
Actuated Green, G (s)		36.9		36.9	36.9	36.9	85.8	85.1			100.1	93.9
Effective Green, g (s)		36.9		36.9	36.9	36.9	85.8	85.1			100.1	93.9
Actuated g/C Ratio		0.25		0.25	0.25	0.25	0.57	0.57			0.67	0.63
Clearance Time (s)		6.5		6.5	6.5	6.5	5.5	6.5			5.5	6.5
Vehicle Extension (s)		4.0		4.0	4.0	4.0	3.0	0.2			3.0	0.2
Lane Grp Cap (vph)		339		340	458	389	58	2879			289	3176
v/s Ratio Prot					0.00		0.00	0.25			c0.03	c0.56
v/s Ratio Perm		c0.23		0.02		0.01	0.05				0.27	
v/c Ratio		0.93		0.10	0.01	0.05	0.09	0.44			0.45	0.90
Uniform Delay, d1		55.3		43.7	42.8	43.2	27.1	18.7			11.3	24.0
Progression Factor		1.00		1.00	1.00	1.00	1.00	1.00			0.40	0.13
Incremental Delay, d2		31.4		0.2	0.0	0.1	0.6	0.5			0.9	3.9
Delay (s)		86.7		43.9	42.8	43.3	27.7	19.2			5.4	7.0
Level of Service		F		D	D	D	C	B			A	A
Approach Delay (s)		86.7			43.4			19.3				6.9
Approach LOS		F			D			B				A

Intersection Summary			
HCM 2000 Control Delay	16.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	18.5
Intersection Capacity Utilization	92.4%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



Movement	SBR
Lane Configurations	
Traffic Volume (vph)	40
Future Volume (vph)	40
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	43
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	120	5	95	10	5	5	5	170	2680	5	5	1940
Future Volume (vph)	120	5	95	10	5	5	5	170	2680	5	5	1940
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.5	5.5		7.0			5.5	6.0	6.0	6.0	6.0
Lane Util. Factor		1.00	1.00		1.00			1.00	0.91	1.00	1.00	0.91
Frt		1.00	0.85		0.97			1.00	1.00	0.85	1.00	0.99
Flt Protected		0.95	1.00		0.97			0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)		1777	1583		1757			1770	5085	1583	1770	5053
Flt Permitted		0.72	1.00		0.83			0.04	1.00	1.00	0.04	1.00
Satd. Flow (perm)		1339	1583		1495			77	5085	1583	80	5053
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	130	5	103	11	5	5	5	185	2913	5	5	2109
RTOR Reduction (vph)	0	0	17	0	3	0	0	0	0	1	0	3
Lane Group Flow (vph)	0	135	86	0	18	0	0	190	2913	4	5	2198
Turn Type	Perm	NA	pm+ov	Perm	NA		custom	pm+pt	NA	Perm	Perm	NA
Protected Phases		4	1!		8			1	6			2
Permitted Phases	4		4	8			1!	6		6	2	
Actuated Green, G (s)		21.6	37.4		22.1			114.9	114.9	114.9	93.6	93.6
Effective Green, g (s)		21.6	37.4		22.1			114.9	114.9	114.9	93.6	93.6
Actuated g/C Ratio		0.14	0.25		0.15			0.77	0.77	0.77	0.62	0.62
Clearance Time (s)		7.5	5.5		7.0			5.5	6.0	6.0	6.0	6.0
Vehicle Extension (s)		5.0	3.0		5.0			3.0	0.2	0.2	0.2	0.2
Lane Grp Cap (vph)		192	394		220			237	3895	1212	49	3153
v/s Ratio Prot			0.02					0.08	c0.57			0.44
v/s Ratio Perm		c0.10	0.03		0.01			c0.53		0.00	0.06	
v/c Ratio		0.70	0.22		0.08			0.80	0.75	0.00	0.10	0.70
Uniform Delay, d1		61.1	44.7		55.2			47.0	9.6	4.1	11.3	18.8
Progression Factor		1.00	1.00		1.00			0.66	1.58	1.00	1.00	1.00
Incremental Delay, d2		13.7	0.3		0.3			12.0	0.9	0.0	4.1	1.3
Delay (s)		74.8	45.0		55.5			43.0	16.1	4.1	15.5	20.1
Level of Service		E	D		E			D	B	A	B	C
Approach Delay (s)		61.9			55.5				17.7			20.1
Approach LOS		E			E				B			C

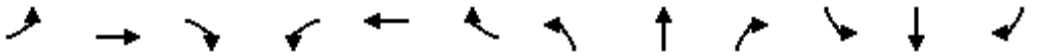
Intersection Summary			
HCM 2000 Control Delay	20.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	96.6%	ICU Level of Service	F
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group



Movement	SBR
Lane Configurations	
Traffic Volume (vph)	85
Future Volume (vph)	85
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	92
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

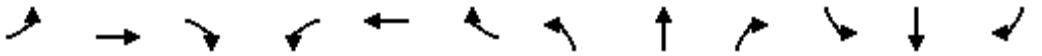
Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	130	5	245	160	2615	0	0	1570	480
Future Volume (vph)	0	0	0	130	5	245	160	2615	0	0	1570	480
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.5	6.5	6.5	6.0	5.5			6.0	
Lane Util. Factor				0.95	0.95	1.00	1.00	0.91			0.91	
Frt				1.00	1.00	0.85	1.00	1.00			0.96	
Flt Protected				0.95	0.96	1.00	0.95	1.00			1.00	
Satd. Flow (prot)				1681	1691	1583	1770	5085			4907	
Flt Permitted				0.95	0.96	1.00	0.04	1.00			1.00	
Satd. Flow (perm)				1681	1691	1583	83	5085			4907	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	141	5	266	174	2842	0	0	1707	522
RTOR Reduction (vph)	0	0	0	0	0	54	0	0	0	0	34	0
Lane Group Flow (vph)	0	0	0	73	73	212	174	2842	0	0	2195	0
Turn Type				Perm	NA	Perm	pm+pt	NA			NA	
Protected Phases					4		6	2			5	
Permitted Phases				4		4	2					
Actuated Green, G (s)				25.1	25.1	25.1	112.9	112.9			83.4	
Effective Green, g (s)				25.1	25.1	25.1	112.9	112.9			83.4	
Actuated g/C Ratio				0.17	0.17	0.17	0.75	0.75			0.56	
Clearance Time (s)				6.5	6.5	6.5	6.0	5.5			6.0	
Vehicle Extension (s)				4.0	4.0	4.0	3.0	0.2			0.2	
Lane Grp Cap (vph)				281	282	264	321	3827			2728	
v/s Ratio Prot							0.08	c0.56			c0.45	
v/s Ratio Perm				0.04	0.04	c0.13	0.33					
v/c Ratio				0.26	0.26	0.80	0.54	0.74			0.80	
Uniform Delay, d1				54.4	54.4	60.1	39.3	10.4			26.8	
Progression Factor				1.00	1.00	1.00	0.68	0.17			0.35	
Incremental Delay, d2				0.7	0.7	16.8	2.8	0.6			2.0	
Delay (s)				55.0	55.0	76.9	29.4	2.4			11.2	
Level of Service				E	E	E	C	A			B	
Approach Delay (s)		0.0			69.1			4.0			11.2	
Approach LOS		A			E			A			B	

Intersection Summary			
HCM 2000 Control Delay	11.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	18.5
Intersection Capacity Utilization	84.5%	ICU Level of Service	E
Analysis Period (min)	15		

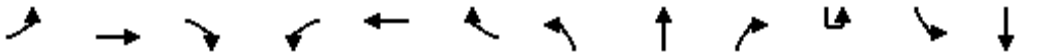
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	310	5	225	0	0	0	0	2465	100	190	1510	0
Future Volume (vph)	310	5	225	0	0	0	0	2465	100	190	1510	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5	4.0					6.0		6.0	5.5	
Lane Util. Factor	0.95	0.95	1.00					0.91		1.00	0.91	
Frt	1.00	1.00	0.85					0.99		1.00	1.00	
Flt Protected	0.95	0.95	1.00					1.00		0.95	1.00	
Satd. Flow (prot)	1681	1688	1583					5055		1770	5085	
Flt Permitted	0.95	0.95	1.00					1.00		0.04	1.00	
Satd. Flow (perm)	1681	1688	1583					5055		76	5085	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	337	5	245	0	0	0	0	2679	109	207	1641	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	3	0	0	0	0
Lane Group Flow (vph)	172	170	245	0	0	0	0	2785	0	207	1641	0
Turn Type	Split	NA	Free					NA		pm+pt	NA	
Protected Phases	4	4						5		6	2	
Permitted Phases			Free							2		
Actuated Green, G (s)	21.4	21.4	150.0					92.1		116.6	116.6	
Effective Green, g (s)	21.4	21.4	150.0					92.1		116.6	116.6	
Actuated g/C Ratio	0.14	0.14	1.00					0.61		0.78	0.78	
Clearance Time (s)	6.5	6.5						6.0		6.0	5.5	
Vehicle Extension (s)	5.0	5.0						0.2		3.0	0.2	
Lane Grp Cap (vph)	239	240	1583					3103		262	3952	
v/s Ratio Prot	c0.10	0.10						c0.55		c0.09	0.32	
v/s Ratio Perm			0.15							0.52		
v/c Ratio	0.72	0.71	0.15					0.90		0.79	0.42	
Uniform Delay, d1	61.4	61.3	0.0					24.9		49.6	5.5	
Progression Factor	1.00	1.00	1.00					0.59		0.92	0.34	
Incremental Delay, d2	12.2	11.4	0.2					3.4		9.0	0.2	
Delay (s)	73.6	72.7	0.2					17.9		54.9	2.1	
Level of Service	E	E	A					B		D	A	
Approach Delay (s)		42.7			0.0			17.9			8.0	
Approach LOS		D			A			B			A	

Intersection Summary			
HCM 2000 Control Delay	17.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	18.5
Intersection Capacity Utilization	84.5%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	55	5	10	10	5	35	10	2470	5	5	30	1615
Future Volume (vph)	55	5	10	10	5	35	10	2470	5	5	30	1615
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5		6.5	6.5	6.5	5.5	6.5			5.5	6.5
Lane Util. Factor		1.00		1.00	1.00	1.00	1.00	0.91			1.00	0.91
Frt		0.98		1.00	1.00	0.85	1.00	1.00			1.00	0.99
Flt Protected		0.96		0.95	1.00	1.00	0.95	1.00			0.95	1.00
Satd. Flow (prot)		1757		1770	1863	1583	1770	5084			1770	5047
Flt Permitted		0.77		0.74	1.00	1.00	0.10	1.00			0.04	1.00
Satd. Flow (perm)		1403		1374	1863	1583	185	5084			65	5047
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	60	5	11	11	5	38	11	2685	5	5	33	1755
RTOR Reduction (vph)	0	4	0	0	0	34	0	0	0	0	0	3
Lane Group Flow (vph)	0	72	0	11	5	4	11	2690	0	0	38	1844
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA		custom	pm+pt	NA
Protected Phases		4			8		1	6			5	2
Permitted Phases	4			8		8	6			5	2	
Actuated Green, G (s)		15.8		15.8	15.8	15.8	112.7	110.9			118.7	113.9
Effective Green, g (s)		15.8		15.8	15.8	15.8	112.7	110.9			118.7	113.9
Actuated g/C Ratio		0.11		0.11	0.11	0.11	0.75	0.74			0.79	0.76
Clearance Time (s)		6.5		6.5	6.5	6.5	5.5	6.5			5.5	6.5
Vehicle Extension (s)		4.0		4.0	4.0	4.0	3.0	0.2			3.0	0.2
Lane Grp Cap (vph)		147		144	196	166	158	3758			105	3832
v/s Ratio Prot					0.00		0.00	c0.53			c0.01	c0.37
v/s Ratio Perm		c0.05		0.01		0.00	0.05				0.27	
v/c Ratio		0.49		0.08	0.03	0.02	0.07	0.72			0.36	0.48
Uniform Delay, d1		63.3		60.5	60.2	60.2	5.2	10.8			13.3	6.8
Progression Factor		1.00		1.00	1.00	1.00	1.00	1.00			2.31	0.50
Incremental Delay, d2		3.4		0.3	0.1	0.1	0.2	1.2			2.0	0.4
Delay (s)		66.7		60.8	60.3	60.3	5.4	12.0			32.7	3.8
Level of Service		E		E	E	E	A	B			C	A
Approach Delay (s)		66.7			60.4			12.0				4.4
Approach LOS		E			E			B				A

Intersection Summary			
HCM 2000 Control Delay	10.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	18.5
Intersection Capacity Utilization	71.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



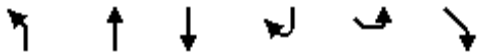
Movement	SBR
Lane Configurations	
Traffic Volume (vph)	85
Future Volume (vph)	85
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	92
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	



Movement	EBL	EBR2	WBL	WBT	WBR	SBT	SBR	NWR
Lane Configurations								
Traffic Volume (vph)	100	220	620	135	115	2125	110	1200
Future Volume (vph)	100	220	620	135	115	2125	110	1200
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	6.5	5.5	6.5		6.0	6.0	6.0
Lane Util. Factor	0.97	1.00	0.97	1.00		0.91	1.00	0.76
Frt	1.00	0.85	1.00	0.93		1.00	0.85	0.85
Flt Protected	0.95	1.00	0.95	1.00		1.00	1.00	1.00
Satd. Flow (prot)	3433	1583	3433	1734		5085	1583	3610
Flt Permitted	0.95	1.00	0.95	1.00		1.00	1.00	1.00
Satd. Flow (perm)	3433	1583	3433	1734		5085	1583	3610
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	109	239	674	147	125	2310	120	1304
RTOR Reduction (vph)	0	49	0	21	0	0	47	0
Lane Group Flow (vph)	109	190	674	251	0	2310	73	1304
Turn Type	Prot	Perm	Prot	NA		NA	Perm	Prot
Protected Phases	3		3 4	4		6		2
Permitted Phases		4					6	
Actuated Green, G (s)	17.7	31.1	54.3	31.1		83.2	83.2	83.2
Effective Green, g (s)	17.7	31.1	54.3	31.1		83.2	83.2	83.2
Actuated g/C Ratio	0.12	0.21	0.36	0.21		0.55	0.55	0.55
Clearance Time (s)	5.5	6.5		6.5		6.0	6.0	6.0
Vehicle Extension (s)	3.0	6.0		6.0		0.2	0.2	0.2
Lane Grp Cap (vph)	405	328	1242	359		2820	878	2002
v/s Ratio Prot	0.03		c0.20	c0.14		c0.45		0.36
v/s Ratio Perm		0.12					0.05	
v/c Ratio	0.27	0.58	0.54	0.70		0.82	0.08	0.65
Uniform Delay, d1	60.3	53.6	38.0	55.1		27.3	15.6	23.3
Progression Factor	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.4	4.9	0.5	8.8		2.8	0.2	1.7
Delay (s)	60.6	58.4	38.5	63.9		30.1	15.8	24.9
Level of Service	E	E	D	E		C	B	C
Approach Delay (s)				45.8		29.3		
Approach LOS				D		C		

Intersection Summary			
HCM 2000 Control Delay	33.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	87.4%	ICU Level of Service	E
Analysis Period (min)	15		

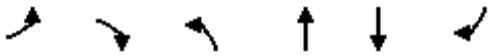
c Critical Lane Group



Movement	NBL	NBT	SBT	SBR	SEL	SER
Lane Configurations			↑↑↑↑			↱↱
Traffic Volume (vph)	0	0	3305	0	0	460
Future Volume (vph)	0	0	3305	0	0	460
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)			5.5			6.5
Lane Util. Factor			0.86			0.88
Frt			1.00			0.85
Flt Protected			1.00			1.00
Satd. Flow (prot)			6408			2787
Flt Permitted			1.00			1.00
Satd. Flow (perm)			6408			2787
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	3592	0	0	500
RTOR Reduction (vph)	0	0	0	0	0	1
Lane Group Flow (vph)	0	0	3592	0	0	499
Turn Type			NA			Prot
Protected Phases			2			4
Permitted Phases						
Actuated Green, G (s)			128.2			39.8
Effective Green, g (s)			128.2			39.8
Actuated g/C Ratio			0.71			0.22
Clearance Time (s)			5.5			6.5
Vehicle Extension (s)			0.2			6.0
Lane Grp Cap (vph)			4563			616
v/s Ratio Prot			c0.56			c0.18
v/s Ratio Perm						
v/c Ratio			0.79			0.81
Uniform Delay, d1			17.0			66.5
Progression Factor			1.00			1.00
Incremental Delay, d2			1.4			9.4
Delay (s)			18.4			75.9
Level of Service			B			E
Approach Delay (s)		0.0	18.4		75.9	
Approach LOS		A	B		E	

Intersection Summary			
HCM 2000 Control Delay	25.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	74.0%	ICU Level of Service	D
Analysis Period (min)	15		

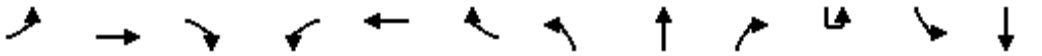
c Critical Lane Group



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	500	150	40	1875	3645	120
Future Volume (vph)	500	150	40	1875	3645	120
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.5	6.5	6.5	6.0
Lane Util. Factor	0.97	1.00	1.00	0.91	0.86	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	3433	1583	1770	5085	6408	1583
Flt Permitted	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	3433	1583	1770	5085	6408	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	543	163	43	2038	3962	130
RTOR Reduction (vph)	0	70	0	0	0	24
Lane Group Flow (vph)	543	93	43	2038	3962	106
Turn Type	Prot	Perm	Prot	NA	NA	pm+ov
Protected Phases	4		5	2	6	4
Permitted Phases		4				6
Actuated Green, G (s)	29.0	29.0	14.4	138.5	117.6	146.6
Effective Green, g (s)	29.0	29.0	14.4	138.5	117.6	146.6
Actuated g/C Ratio	0.16	0.16	0.08	0.77	0.65	0.81
Clearance Time (s)	6.0	6.0	6.5	6.5	6.5	6.0
Vehicle Extension (s)	6.0	6.0	3.0	3.0	0.2	6.0
Lane Grp Cap (vph)	553	255	141	3912	4186	1342
v/s Ratio Prot	c0.16		0.02	c0.40	c0.62	0.01
v/s Ratio Perm		0.06				0.05
v/c Ratio	0.98	0.37	0.30	0.52	0.95	0.08
Uniform Delay, d1	75.2	67.3	78.1	8.0	28.3	3.3
Progression Factor	1.00	1.00	1.03	0.41	0.60	0.53
Incremental Delay, d2	33.8	2.5	1.0	0.4	3.9	0.0
Delay (s)	109.1	69.8	81.1	3.7	21.0	1.8
Level of Service	F	E	F	A	C	A
Approach Delay (s)	100.0			5.3	20.4	
Approach LOS	F			A	C	

Intersection Summary			
HCM 2000 Control Delay	24.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	77.5%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	70	5	20	5	5	15	0	1515	5	315	5	3380
Future Volume (vph)	70	5	20	5	5	15	0	1515	5	315	5	3380
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0			5.0			4.5	5.0
Lane Util. Factor		1.00			1.00			0.91			1.00	0.91
Frt		0.97			0.92			1.00			1.00	1.00
Flt Protected		0.96			0.99			1.00			0.95	1.00
Satd. Flow (prot)		1745			1692			5083			1770	5064
Flt Permitted		0.77			0.95			1.00			0.10	1.00
Satd. Flow (perm)		1386			1625			5083			181	5064
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	76	5	22	5	5	16	0	1647	5	342	5	3674
RTOR Reduction (vph)	0	2	0	0	14	0	0	0	0	0	0	1
Lane Group Flow (vph)	0	101	0	0	12	0	0	1652	0	0	347	3776
Turn Type	Perm	NA		Perm	NA			NA		custom	pm+pt	NA
Protected Phases		8			4			6			5	2
Permitted Phases	8			4						5	2	
Actuated Green, G (s)		18.2			18.2			105.8			151.3	150.8
Effective Green, g (s)		18.2			18.2			105.8			151.3	150.8
Actuated g/C Ratio		0.10			0.10			0.59			0.84	0.84
Clearance Time (s)		6.0			6.0			5.0			4.5	5.0
Vehicle Extension (s)		3.0			3.0			0.2			3.0	0.2
Lane Grp Cap (vph)		140			164			2987			509	4242
v/s Ratio Prot								0.33			0.15	c0.75
v/s Ratio Perm		c0.07			0.01						0.42	
v/c Ratio		0.72			0.07			0.55			0.68	0.89
Uniform Delay, d1		78.5			73.2			22.7			28.5	9.3
Progression Factor		1.00			1.00			1.00			0.62	1.18
Incremental Delay, d2		16.8			0.2			0.7			1.5	1.3
Delay (s)		95.2			73.4			23.4			19.0	12.3
Level of Service		F			E			C			B	B
Approach Delay (s)		95.2			73.4			23.4				12.8
Approach LOS		F			E			C				B

Intersection Summary			
HCM 2000 Control Delay	17.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	15.5
Intersection Capacity Utilization	88.6%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Movement	SBR
Lane Configurations	
Traffic Volume (vph)	95
Future Volume (vph)	95
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	103
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

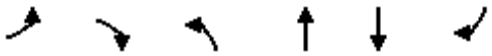
Intersection Summary



Movement	NBL	NBT	SBT	SBR	SEL	SER
Lane Configurations			↑↑↑↑			↱↱
Traffic Volume (veh/h)	0	0	3305	0	0	460
Future Volume (veh/h)	0	0	3305	0	0	460
Initial Q (Qb), veh			0	0	0	0
Ped-Bike Adj(A_pbT)				1.00	1.00	1.00
Parking Bus, Adj			1.00	1.00	1.00	1.00
Work Zone On Approach			No		No	
Adj Sat Flow, veh/h/ln			1870	0	0	1870
Adj Flow Rate, veh/h			3592	0	0	500
Peak Hour Factor			0.92	0.92	0.92	0.92
Percent Heavy Veh, %			2	0	0	2
Cap, veh/h			6237	0	0	0
Arrive On Green			0.97	0.00	0.00	0.00
Sat Flow, veh/h			6958	0	0	
Grp Volume(v), veh/h			3592	0	0.0	
Grp Sat Flow(s),veh/h/ln			1609	0		
Q Serve(g_s), s			7.0	0.0		
Cycle Q Clear(g_c), s			7.0	0.0		
Prop In Lane				0.00		
Lane Grp Cap(c), veh/h			6237	0		
V/C Ratio(X)			0.58	0.00		
Avail Cap(c_a), veh/h			6237	0		
HCM Platoon Ratio			1.00	1.00		
Upstream Filter(I)			1.00	0.00		
Uniform Delay (d), s/veh			0.2	0.0		
Incr Delay (d2), s/veh			0.4	0.0		
Initial Q Delay(d3),s/veh			0.0	0.0		
%ile BackOfQ(50%),veh/ln			0.2	0.0		
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh			0.6	0.0		
LnGrp LOS			A	A		
Approach Vol, veh/h			3592			
Approach Delay, s/veh			0.6			
Approach LOS			A			

Timer - Assigned Phs	2
Phs Duration (G+Y+Rc), s	180.0
Change Period (Y+Rc), s	5.5
Max Green Setting (Gmax), s	123.5
Max Q Clear Time (g_c+I1), s	9.0
Green Ext Time (p_c), s	10.8

Intersection Summary	
HCM 6th Ctrl Delay	0.6
HCM 6th LOS	A



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	500	150	40	1875	3645	120
Future Volume (veh/h)	500	150	40	1875	3645	120
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	543	0	43	2038	3962	130
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	557		178	3929	4075	1259
Arrive On Green	0.16	0.00	0.10	0.77	0.63	0.63
Sat Flow, veh/h	3456	1585	1781	5274	6696	1585
Grp Volume(v), veh/h	543	0	43	2038	3962	130
Grp Sat Flow(s),veh/h/ln	1728	1585	1781	1702	1609	1585
Q Serve(g_s), s	28.2	0.0	4.0	27.6	105.8	3.3
Cycle Q Clear(g_c), s	28.2	0.0	4.0	27.6	105.8	3.3
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	557		178	3929	4075	1259
V/C Ratio(X)	0.98		0.24	0.52	0.97	0.10
Avail Cap(c_a), veh/h	557		178	3929	4075	1259
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	75.1	0.0	74.7	8.0	31.5	4.1
Incr Delay (d2), s/veh	32.3	0.0	0.7	0.5	9.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	15.1	0.0	1.9	9.7	40.6	2.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	107.5	0.0	75.4	8.5	40.5	4.3
LnGrp LOS	F		E	A	D	A
Approach Vol, veh/h	543	A		2081	4092	
Approach Delay, s/veh	107.5			9.8	39.3	
Approach LOS	F			A	D	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		145.0		35.0	24.5	120.5
Change Period (Y+Rc), s		6.5		6.0	6.5	6.5
Max Green Setting (Gmax), s		138.5		29.0	18.0	114.0
Max Q Clear Time (g_c+I1), s		29.6		30.2	6.0	107.8
Green Ext Time (p_c), s		34.7		0.0	0.0	4.8

Intersection Summary	
HCM 6th Ctrl Delay	35.7
HCM 6th LOS	D

Notes

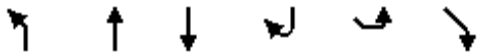
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBR2	WBL	WBT	WBR	SBT	SBR	NWR
Lane Configurations								
Traffic Volume (vph)	150	190	240	145	145	1710	120	1900
Future Volume (vph)	150	190	240	145	145	1710	120	1900
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	6.5	5.5	6.5		6.0	6.0	6.0
Lane Util. Factor	0.97	1.00	0.97	1.00		0.91	1.00	0.76
Frt	1.00	0.85	1.00	0.93		1.00	0.85	0.85
Flt Protected	0.95	1.00	0.95	1.00		1.00	1.00	1.00
Satd. Flow (prot)	3433	1583	3433	1723		5085	1583	3610
Flt Permitted	0.95	1.00	0.95	1.00		1.00	1.00	1.00
Satd. Flow (perm)	3433	1583	3433	1723		5085	1583	3610
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	163	207	261	158	158	1859	130	2065
RTOR Reduction (vph)	0	61	0	23	0	0	53	0
Lane Group Flow (vph)	163	147	261	293	0	1859	77	2065
Turn Type	Prot	Perm	Prot	NA		NA	Perm	Prot
Protected Phases	3		3 4	4		6		2
Permitted Phases		4					6	
Actuated Green, G (s)	13.7	29.0	48.2	29.0		89.3	89.3	89.3
Effective Green, g (s)	13.7	29.0	48.2	29.0		89.3	89.3	89.3
Actuated g/C Ratio	0.09	0.19	0.32	0.19		0.60	0.60	0.60
Clearance Time (s)	5.5	6.5		6.5		6.0	6.0	6.0
Vehicle Extension (s)	3.0	6.0		6.0		0.2	0.2	0.2
Lane Grp Cap (vph)	313	306	1103	333		3027	942	2149
v/s Ratio Prot	c0.05		0.08	c0.17		0.37		c0.57
v/s Ratio Perm		0.09					0.05	
v/c Ratio	0.52	0.48	0.24	0.88		0.61	0.08	0.96
Uniform Delay, d1	65.0	53.8	37.4	58.8		19.4	12.9	28.7
Progression Factor	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	1.6	3.3	0.1	24.4		0.9	0.2	12.2
Delay (s)	66.6	57.1	37.5	83.2		20.3	13.1	40.9
Level of Service	E	E	D	F		C	B	D
Approach Delay (s)				62.5		19.8		
Approach LOS				E		B		

Intersection Summary			
HCM 2000 Control Delay	36.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	78.8%	ICU Level of Service	D
Analysis Period (min)	15		

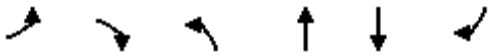
c Critical Lane Group



Movement	NBL	NBT	SBT	SBR	SEL	SER
Lane Configurations			↑↑↑↑			↱↱
Traffic Volume (vph)	0	0	2405	0	0	310
Future Volume (vph)	0	0	2405	0	0	310
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)			5.5			6.5
Lane Util. Factor			0.86			0.88
Frt			1.00			0.85
Flt Protected			1.00			1.00
Satd. Flow (prot)			6408			2787
Flt Permitted			1.00			1.00
Satd. Flow (perm)			6408			2787
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	2614	0	0	337
RTOR Reduction (vph)	0	0	0	0	0	8
Lane Group Flow (vph)	0	0	2614	0	0	329
Turn Type			NA			Prot
Protected Phases			2			4
Permitted Phases						
Actuated Green, G (s)			138.7			29.3
Effective Green, g (s)			138.7			29.3
Actuated g/C Ratio			0.77			0.16
Clearance Time (s)			5.5			6.5
Vehicle Extension (s)			0.2			6.0
Lane Grp Cap (vph)			4937			453
v/s Ratio Prot			c0.41			c0.12
v/s Ratio Perm						
v/c Ratio			0.53			0.73
Uniform Delay, d1			8.0			71.5
Progression Factor			1.00			1.00
Incremental Delay, d2			0.4			7.9
Delay (s)			8.4			79.5
Level of Service			A			E
Approach Delay (s)		0.0	8.4		79.5	
Approach LOS		A	A		E	

Intersection Summary			
HCM 2000 Control Delay	16.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	55.7%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	250	70	65	3305	2390	325
Future Volume (vph)	250	70	65	3305	2390	325
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.5	6.5	6.5	6.0
Lane Util. Factor	0.97	1.00	1.00	0.91	0.86	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	3433	1583	1770	5085	6408	1583
Flt Permitted	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	3433	1583	1770	5085	6408	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	272	76	71	3592	2598	353
RTOR Reduction (vph)	0	66	0	0	0	73
Lane Group Flow (vph)	272	10	71	3592	2598	280
Turn Type	Prot	Perm	Prot	NA	NA	pm+ov
Protected Phases	4		5	2	6	4
Permitted Phases		4				6
Actuated Green, G (s)	20.5	20.5	18.0	147.0	122.5	143.0
Effective Green, g (s)	20.5	20.5	18.0	147.0	122.5	143.0
Actuated g/C Ratio	0.11	0.11	0.10	0.82	0.68	0.79
Clearance Time (s)	6.0	6.0	6.5	6.5	6.5	6.0
Vehicle Extension (s)	6.0	6.0	3.0	3.0	0.2	6.0
Lane Grp Cap (vph)	390	180	177	4152	4361	1310
v/s Ratio Prot	c0.08		0.04	c0.71	0.41	0.02
v/s Ratio Perm		0.01				0.15
v/c Ratio	0.70	0.06	0.40	0.87	0.60	0.21
Uniform Delay, d1	76.8	71.1	75.9	10.3	15.4	4.6
Progression Factor	1.00	1.00	0.86	0.26	0.73	0.36
Incremental Delay, d2	7.9	0.4	0.5	0.9	0.5	0.2
Delay (s)	84.7	71.5	65.4	3.6	11.8	1.9
Level of Service	F	E	E	A	B	A
Approach Delay (s)	81.8			4.8	10.6	
Approach LOS	F			A	B	

Intersection Summary			
HCM 2000 Control Delay	11.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	81.4%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	90	5	15	10	5	5	5	10	3010	5	265	5
Future Volume (vph)	90	5	15	10	5	5	5	10	3010	5	265	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0			4.5	5.0			4.5
Lane Util. Factor		1.00			1.00			1.00	0.91			1.00
Frt		0.98			0.97			1.00	1.00			1.00
Flt Protected		0.96			0.97			0.95	1.00			0.95
Satd. Flow (prot)		1757			1757			1770	5084			1770
Flt Permitted		0.75			0.87			0.05	1.00			0.03
Satd. Flow (perm)		1370			1568			86	5084			60
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	98	5	16	11	5	5	5	11	3272	5	288	5
RTOR Reduction (vph)	0	4	0	0	4	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	115	0	0	17	0	0	16	3277	0	0	293
Turn Type	Perm	NA		Perm	NA		pm+pt	pm+pt	NA		custom	pm+pt
Protected Phases		8			4		1	1	6			5
Permitted Phases	8			4			6	6			5	2
Actuated Green, G (s)		19.7			19.7			122.5	119.5			149.8
Effective Green, g (s)		19.7			19.7			122.5	119.5			149.8
Actuated g/C Ratio		0.11			0.11			0.68	0.66			0.83
Clearance Time (s)		6.0			6.0			4.5	5.0			4.5
Vehicle Extension (s)		3.0			3.0			3.0	0.2			3.0
Lane Grp Cap (vph)		149			171			86	3375			290
v/s Ratio Prot								0.00	0.64			c0.14
v/s Ratio Perm		c0.08			0.01			0.12				c0.70
v/c Ratio		0.77			0.10			0.19	0.97			1.01
Uniform Delay, d1		78.0			72.1			25.2	28.6			72.0
Progression Factor		1.00			1.00			1.00	1.00			0.96
Incremental Delay, d2		21.8			0.2			1.0	10.1			50.3
Delay (s)		99.8			72.4			26.2	38.7			119.4
Level of Service		F			E			C	D			F
Approach Delay (s)		99.8			72.4				38.6			
Approach LOS		F			E				D			

Intersection Summary			
HCM 2000 Control Delay	29.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	1.00		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	15.5
Intersection Capacity Utilization	95.8%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	2050	140
Future Volume (vph)	2050	140
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	5.0	
Lane Util. Factor	0.91	
Frt	0.99	
Flt Protected	1.00	
Satd. Flow (prot)	5037	
Flt Permitted	1.00	
Satd. Flow (perm)	5037	
Peak-hour factor, PHF	0.92	0.92
Adj. Flow (vph)	2228	152
RTOR Reduction (vph)	4	0
Lane Group Flow (vph)	2376	0
Turn Type	NA	
Protected Phases	2	
Permitted Phases		
Actuated Green, G (s)	141.8	
Effective Green, g (s)	141.8	
Actuated g/C Ratio	0.79	
Clearance Time (s)	5.0	
Vehicle Extension (s)	0.2	
Lane Grp Cap (vph)	3968	
v/s Ratio Prot	0.47	
v/s Ratio Perm		
v/c Ratio	0.60	
Uniform Delay, d1	7.7	
Progression Factor	0.12	
Incremental Delay, d2	0.5	
Delay (s)	1.5	
Level of Service	A	
Approach Delay (s)	14.4	
Approach LOS	B	

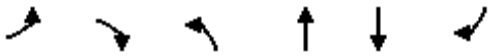
Intersection Summary



Movement	NBL	NBT	SBT	SBR	SEL	SER
Lane Configurations			↑↑↑↑			↱↱
Traffic Volume (veh/h)	0	0	2405	0	0	310
Future Volume (veh/h)	0	0	2405	0	0	310
Initial Q (Qb), veh			0	0	0	0
Ped-Bike Adj(A_pbT)				1.00	1.00	1.00
Parking Bus, Adj			1.00	1.00	1.00	1.00
Work Zone On Approach			No		No	
Adj Sat Flow, veh/h/ln			1870	0	0	1870
Adj Flow Rate, veh/h			2614	0	0	337
Peak Hour Factor			0.92	0.92	0.92	0.92
Percent Heavy Veh, %			2	0	0	2
Cap, veh/h			6237	0	0	0
Arrive On Green			0.97	0.00	0.00	0.00
Sat Flow, veh/h			6958	0	0	
Grp Volume(v), veh/h			2614	0	0.0	
Grp Sat Flow(s),veh/h/ln			1609	0		
Q Serve(g_s), s			3.8	0.0		
Cycle Q Clear(g_c), s			3.8	0.0		
Prop In Lane				0.00		
Lane Grp Cap(c), veh/h			6237	0		
V/C Ratio(X)			0.42	0.00		
Avail Cap(c_a), veh/h			6237	0		
HCM Platoon Ratio			1.00	1.00		
Upstream Filter(I)			1.00	0.00		
Uniform Delay (d), s/veh			0.1	0.0		
Incr Delay (d2), s/veh			0.2	0.0		
Initial Q Delay(d3),s/veh			0.0	0.0		
%ile BackOfQ(50%),veh/ln			0.1	0.0		
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh			0.3	0.0		
LnGrp LOS			A	A		
Approach Vol, veh/h			2614			
Approach Delay, s/veh			0.3			
Approach LOS			A			

Timer - Assigned Phs	2
Phs Duration (G+Y+Rc), s	180.0
Change Period (Y+Rc), s	5.5
Max Green Setting (Gmax), s	123.5
Max Q Clear Time (g_c+I1), s	5.8
Green Ext Time (p_c), s	4.7

Intersection Summary	
HCM 6th Ctrl Delay	0.3
HCM 6th LOS	A



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	250	70	65	3305	2390	325
Future Volume (veh/h)	250	70	65	3305	2390	325
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	272	0	71	3592	2598	353
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	326		218	4270	4361	1224
Arrive On Green	0.09	0.00	0.12	0.84	0.68	0.68
Sat Flow, veh/h	3456	1585	1781	5274	6696	1585
Grp Volume(v), veh/h	272	0	71	3592	2598	353
Grp Sat Flow(s),veh/h/ln	1728	1585	1781	1702	1609	1585
Q Serve(g_s), s	13.9	0.0	6.6	69.9	39.3	11.8
Cycle Q Clear(g_c), s	13.9	0.0	6.6	69.9	39.3	11.8
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	326		218	4270	4361	1224
V/C Ratio(X)	0.84		0.33	0.84	0.60	0.29
Avail Cap(c_a), veh/h	403		218	4270	4361	1224
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	80.1	0.0	72.2	8.1	15.7	6.0
Incr Delay (d2), s/veh	19.1	0.0	0.9	2.2	0.6	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.2	0.0	3.1	21.4	13.8	5.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	99.3	0.0	73.1	10.3	16.3	6.6
LnGrp LOS	F		E	B	B	A
Approach Vol, veh/h	272	A		3663	2951	
Approach Delay, s/veh	99.3			11.5	15.1	
Approach LOS	F			B	B	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		157.0		23.0	28.5	128.5
Change Period (Y+Rc), s		6.5		6.0	6.5	6.5
Max Green Setting (Gmax), s		146.5		21.0	18.0	122.0
Max Q Clear Time (g_c+I1), s		71.9		15.9	8.6	41.3
Green Ext Time (p_c), s		70.7		1.0	0.1	4.4

Intersection Summary		
HCM 6th Ctrl Delay		16.5
HCM 6th LOS		B

Notes

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

2045 PREFERRED ALTERNATIVE

SYNCHRO ANALYSIS OUTPUTS

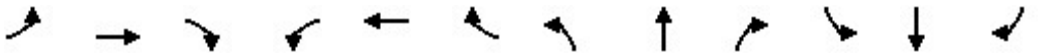


Movement	WBL	WBR	WBR2	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SER
Lane Configurations											
Traffic Volume (vph)	165	0	325	0	1740	360	410	1175	0	0	90
Future Volume (vph)	165	0	325	0	1740	360	410	1175	0	0	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5		6.5		7.0	7.0	7.0	7.0			7.0
Lane Util. Factor	0.97		0.88		0.91	1.00	0.97	0.91			1.00
Frt	1.00		0.85		1.00	0.85	1.00	1.00			0.86
Flt Protected	0.95		1.00		1.00	1.00	0.95	1.00			1.00
Satd. Flow (prot)	3433		2787		5085	1583	3433	5085			1611
Flt Permitted	0.95		1.00		1.00	1.00	0.95	1.00			1.00
Satd. Flow (perm)	3433		2787		5085	1583	3433	5085			1611
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	179	0	353	0	1891	391	446	1277	0	0	98
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	179	0	353	0	1891	391	446	1277	0	0	98
Turn Type	Prot		pt+ov		NA	Perm	Prot	NA			Prot
Protected Phases	4		4 1		2		1	6!			6!
Permitted Phases						2					
Actuated Green, G (s)	24.0		63.3		102.7	102.7	32.8	142.5			142.5
Effective Green, g (s)	24.0		63.3		102.7	102.7	32.8	142.5			142.5
Actuated g/C Ratio	0.13		0.35		0.57	0.57	0.18	0.79			0.79
Clearance Time (s)	6.5				7.0	7.0	7.0	7.0			7.0
Vehicle Extension (s)	4.0				2.0	2.0	5.0	2.0			2.0
Lane Grp Cap (vph)	457		980		2901	903	625	4025			1275
v/s Ratio Prot	0.05		c0.13		c0.37		c0.13	0.25			0.06
v/s Ratio Perm						0.25					
v/c Ratio	0.39		0.36		0.65	0.43	0.71	0.32			0.08
Uniform Delay, d1	71.3		43.3		26.4	22.0	69.2	5.2			4.2
Progression Factor	1.00		1.00		0.66	0.60	1.00	1.00			1.00
Incremental Delay, d2	0.8		0.3		0.9	1.2	4.8	0.2			0.1
Delay (s)	72.1		43.6		18.2	14.4	74.0	5.4			4.3
Level of Service	E		D		B	B	E	A			A
Approach Delay (s)	53.2				17.6			23.2		4.3	
Approach LOS	D				B			C		A	

Intersection Summary			
HCM 2000 Control Delay	23.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	20.5
Intersection Capacity Utilization	Err%	ICU Level of Service	H
Analysis Period (min)	15		

! Phase conflict between lane groups.

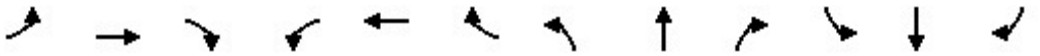
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	505	5	30	80	20	0	0	155	5
Future Volume (vph)	0	0	0	505	5	30	80	20	0	0	155	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				5.5	5.5	5.5	5.5	5.5			9.0	
Lane Util. Factor				0.95	0.95	1.00	1.00	1.00			0.95	
Frt				1.00	1.00	0.85	1.00	1.00			1.00	
Flt Protected				0.95	0.95	1.00	0.95	1.00			1.00	
Satd. Flow (prot)				1681	1687	1583	1770	1863			3524	
Flt Permitted				0.95	0.95	1.00	0.64	1.00			1.00	
Satd. Flow (perm)				1681	1687	1583	1197	1863			3524	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	549	5	33	87	22	0	0	168	5
RTOR Reduction (vph)	0	0	0	0	0	24	0	0	0	0	2	0
Lane Group Flow (vph)	0	0	0	274	280	9	87	22	0	0	171	0
Turn Type				Split	NA	Perm	custom	NA			NA	
Protected Phases				3	3		1 4	4 5			2	
Permitted Phases						3	5					
Actuated Green, G (s)				19.1	19.1	19.1	26.5	17.8			12.2	
Effective Green, g (s)				19.1	19.1	19.1	26.5	17.8			12.2	
Actuated g/C Ratio				0.27	0.27	0.27	0.38	0.26			0.18	
Clearance Time (s)				5.5	5.5	5.5					9.0	
Vehicle Extension (s)				5.0	5.0	5.0					2.0	
Lane Grp Cap (vph)				461	463	435	606	477			618	
v/s Ratio Prot				0.16	c0.17		c0.04	0.01			c0.05	
v/s Ratio Perm						0.01	0.02					
v/c Ratio				0.59	0.60	0.02	0.14	0.05			0.28	
Uniform Delay, d1				21.8	21.9	18.4	14.3	19.5			24.8	
Progression Factor				1.00	1.00	1.00	0.33	0.14			1.00	
Incremental Delay, d2				3.1	3.3	0.0	0.2	0.1			0.1	
Delay (s)				24.9	25.2	18.4	5.0	2.8			24.9	
Level of Service				C	C	B	A	A			C	
Approach Delay (s)		0.0			24.7			4.6			24.9	
Approach LOS		A			C			A			C	

Intersection Summary			
HCM 2000 Control Delay	22.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	69.5	Sum of lost time (s)	25.5
Intersection Capacity Utilization	39.7%	ICU Level of Service	A
Analysis Period (min)	15		

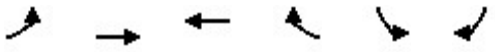
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	5	205	0	0	0	0	95	195	10	650	0
Future Volume (vph)	5	5	205	0	0	0	0	95	195	10	650	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5	5.5					9.0	9.0		9.0	
Lane Util. Factor		1.00	1.00					1.00	1.00		0.95	
Frt		1.00	0.85					1.00	0.85		1.00	
Flt Protected		0.98	1.00					1.00	1.00		1.00	
Satd. Flow (prot)		1817	1583					1863	1583		3537	
Flt Permitted		0.98	1.00					1.00	1.00		0.95	
Satd. Flow (perm)		1817	1583					1863	1583		3380	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	5	223	0	0	0	0	103	212	11	707	0
RTOR Reduction (vph)	0	0	193	0	0	0	0	0	187	0	0	0
Lane Group Flow (vph)	0	10	30	0	0	0	0	103	25	0	718	0
Turn Type	Split	NA	Perm					NA	Perm	custom	NA	
Protected Phases	4	4						5		3 6	2 3	
Permitted Phases			4						5	2		
Actuated Green, G (s)		9.5	9.5					8.3	8.3		39.4	
Effective Green, g (s)		9.5	9.5					8.3	8.3		39.4	
Actuated g/C Ratio		0.14	0.14					0.12	0.12		0.57	
Clearance Time (s)		5.5	5.5					9.0	9.0			
Vehicle Extension (s)		5.0	5.0					2.0	2.0			
Lane Grp Cap (vph)		248	216					222	189		1977	
v/s Ratio Prot		0.01						0.06			c0.14	
v/s Ratio Perm			c0.02						0.02		c0.06	
v/c Ratio		0.04	0.14					0.46	0.13		0.36	
Uniform Delay, d1		26.0	26.4					28.5	27.4		8.2	
Progression Factor		1.00	1.00					1.00	1.00		0.43	
Incremental Delay, d2		0.1	0.6					0.6	0.1		0.0	
Delay (s)		26.2	27.0					29.1	27.5		3.6	
Level of Service		C	C					C	C		A	
Approach Delay (s)		27.0			0.0			28.0			3.6	
Approach LOS		C			A			C			A	

Intersection Summary			
HCM 2000 Control Delay	14.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	69.5	Sum of lost time (s)	25.5
Intersection Capacity Utilization	54.1%	ICU Level of Service	A
Analysis Period (min)	15		

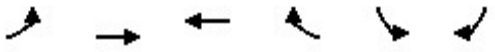
c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	2950	320	0	0	585
Future Volume (vph)	0	2950	320	0	0	585
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5	6.5			6.5
Lane Util. Factor		0.86	0.91			0.88
Frt		1.00	1.00			0.85
Flt Protected		1.00	1.00			1.00
Satd. Flow (prot)		6408	5085			2787
Flt Permitted		1.00	1.00			1.00
Satd. Flow (perm)		6408	5085			2787
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	3207	348	0	0	636
RTOR Reduction (vph)	0	0	0	0	0	127
Lane Group Flow (vph)	0	3207	348	0	0	509
Turn Type		NA	NA			custom
Protected Phases		1 2 4 6	2			1 4
Permitted Phases						
Actuated Green, G (s)		180.0	49.5			117.5
Effective Green, g (s)		180.0	49.5			117.5
Actuated g/C Ratio		1.00	0.28			0.65
Clearance Time (s)			6.5			
Vehicle Extension (s)			2.0			
Lane Grp Cap (vph)		6408	1398			1819
v/s Ratio Prot		c0.50	0.07			0.18
v/s Ratio Perm						
v/c Ratio		0.50	0.25			0.28
Uniform Delay, d1		0.0	50.8			13.3
Progression Factor		1.00	0.07			2.13
Incremental Delay, d2		0.2	0.4			0.2
Delay (s)		0.2	3.9			28.5
Level of Service		A	A			C
Approach Delay (s)		0.2	3.9		28.5	
Approach LOS		A	A		C	

Intersection Summary			
HCM 2000 Control Delay	4.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	19.5
Intersection Capacity Utilization	48.2%	ICU Level of Service	A
Analysis Period (min)	15		

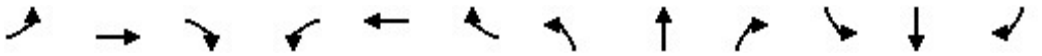
c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	1020	1930	320	0	425	0
Future Volume (vph)	1020	1930	320	0	425	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5	6.5		6.5	
Lane Util. Factor	0.97	0.95	0.91		0.97	
Frt	1.00	1.00	1.00		1.00	
Flt Protected	0.95	1.00	1.00		0.95	
Satd. Flow (prot)	3433	3539	5085		3433	
Flt Permitted	0.95	1.00	1.00		0.95	
Satd. Flow (perm)	3433	3539	5085		3433	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1109	2098	348	0	462	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	1109	2098	348	0	462	0
Turn Type	Prot	NA	NA		Prot	
Protected Phases	1	6	2		4	
Permitted Phases						
Actuated Green, G (s)	80.5	136.5	49.5		30.5	
Effective Green, g (s)	80.5	136.5	49.5		30.5	
Actuated g/C Ratio	0.45	0.76	0.28		0.17	
Clearance Time (s)	6.5	6.5	6.5		6.5	
Vehicle Extension (s)	6.0	2.0	2.0		4.0	
Lane Grp Cap (vph)	1535	2683	1398		581	
v/s Ratio Prot	0.32	c0.59	0.07		c0.13	
v/s Ratio Perm						
v/c Ratio	0.72	0.78	0.25		0.80	
Uniform Delay, d1	40.6	12.9	50.8		71.8	
Progression Factor	1.00	1.00	1.00		1.11	
Incremental Delay, d2	2.1	2.1	0.4		7.4	
Delay (s)	42.7	15.0	51.2		86.9	
Level of Service	D	B	D		F	
Approach Delay (s)		24.6	51.2		86.9	
Approach LOS		C	D		F	

Intersection Summary			
HCM 2000 Control Delay	34.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	19.5
Intersection Capacity Utilization	76.3%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	615	0	30	0	0	180	20	1305	95	90	980	360
Future Volume (vph)	615	0	30	0	0	180	20	1305	95	90	980	360
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0		8.0			5.0	5.0	7.0	4.0	5.0	7.0	4.0
Lane Util. Factor	0.97		1.00			0.88	1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00		0.85			0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95		1.00			1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433		1583			2787	1770	5085	1583	1770	5085	1583
Flt Permitted	0.95		1.00			1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433		1583			2787	1770	5085	1583	1770	5085	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	668	0	33	0	0	196	22	1418	103	98	1065	391
RTOR Reduction (vph)	0	0	26	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	668	0	7	0	0	196	22	1418	103	98	1065	391
Turn Type	Prot		Perm			pt+ov	Prot	NA	Free	Prot	NA	Free
Protected Phases	3					1 4	5	2		1	6	
Permitted Phases			3						Free			Free
Actuated Green, G (s)	39.8		39.8			37.2	5.4	83.0	180.0	15.3	92.9	180.0
Effective Green, g (s)	39.8		39.8			31.7	5.4	83.0	180.0	15.3	92.9	180.0
Actuated g/C Ratio	0.22		0.22			0.18	0.03	0.46	1.00	0.09	0.52	1.00
Clearance Time (s)	8.0		8.0				5.0	7.0		5.0	7.0	
Vehicle Extension (s)	3.0		3.0				3.0	2.0		3.0	2.0	
Lane Grp Cap (vph)	759		350			490	53	2344	1583	150	2624	1583
v/s Ratio Prot	c0.19					c0.07	0.01	c0.28		c0.06	0.21	
v/s Ratio Perm			0.00						0.07			0.25
v/c Ratio	0.88		0.02			0.40	0.42	0.60	0.07	0.65	0.41	0.25
Uniform Delay, d1	67.8		54.9			65.7	85.7	36.2	0.0	79.8	26.7	0.0
Progression Factor	1.00		1.00			1.00	1.45	0.30	1.00	1.20	0.86	1.00
Incremental Delay, d2	11.6		0.0			0.5	4.5	1.0	0.1	9.5	0.5	0.4
Delay (s)	79.4		54.9			66.3	128.8	11.9	0.1	105.0	23.4	0.4
Level of Service	E		D			E	F	B	A	F	C	A
Approach Delay (s)		78.2			66.3			12.7			22.7	
Approach LOS		E			E			B			C	

Intersection Summary			
HCM 2000 Control Delay	30.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	25.5
Intersection Capacity Utilization	62.4%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

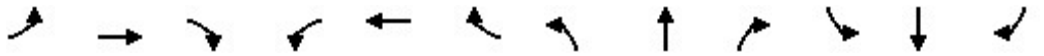


Movement	WBL	WBR	WBR2	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SER
Lane Configurations											
Traffic Volume (vph)	375	0	555	0	1685	285	550	2170	0	0	365
Future Volume (vph)	375	0	555	0	1685	285	550	2170	0	0	365
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5		6.5		7.0	7.0	7.0	7.0			7.0
Lane Util. Factor	0.97		0.88		0.91	1.00	0.97	0.91			1.00
Frt	1.00		0.85		1.00	0.85	1.00	1.00			0.86
Flt Protected	0.95		1.00		1.00	1.00	0.95	1.00			1.00
Satd. Flow (prot)	3433		2787		5085	1583	3433	5085			1611
Flt Permitted	0.95		1.00		1.00	1.00	0.95	1.00			1.00
Satd. Flow (perm)	3433		2787		5085	1583	3433	5085			1611
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	408	0	603	0	1832	310	598	2359	0	0	397
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	408	0	603	0	1832	310	598	2359	0	0	397
Turn Type	Prot		pt+ov		NA	Perm	Prot	NA			Prot
Protected Phases	4		4 1		2		1	6!			6!
Permitted Phases						2					
Actuated Green, G (s)	35.6		82.8		83.2	83.2	40.7	130.9			130.9
Effective Green, g (s)	35.6		82.8		83.2	83.2	40.7	130.9			130.9
Actuated g/C Ratio	0.20		0.46		0.46	0.46	0.23	0.73			0.73
Clearance Time (s)	6.5				7.0	7.0	7.0	7.0			7.0
Vehicle Extension (s)	4.0				2.0	2.0	5.0	2.0			2.0
Lane Grp Cap (vph)	678		1282		2350	731	776	3697			1171
v/s Ratio Prot	c0.12		0.22		c0.36		c0.17	0.46			0.25
v/s Ratio Perm						0.20					
v/c Ratio	0.60		0.47		0.78	0.42	0.77	0.64			0.34
Uniform Delay, d1	65.7		33.5		40.7	32.4	65.3	12.5			8.9
Progression Factor	1.00		1.00		0.70	0.69	1.00	1.00			1.00
Incremental Delay, d2	1.7		0.4		2.1	1.5	5.5	0.9			0.8
Delay (s)	67.5		33.9		30.8	23.8	70.8	13.3			9.7
Level of Service	E		C		C	C	E	B			A
Approach Delay (s)	47.4				29.8			25.0		9.7	
Approach LOS	D				C			C		A	

Intersection Summary			
HCM 2000 Control Delay	29.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	20.5
Intersection Capacity Utilization	Err%	ICU Level of Service	H
Analysis Period (min)	15		

! Phase conflict between lane groups.

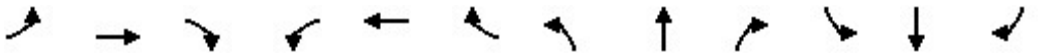
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	410	5	10	350	60	0	0	140	10
Future Volume (vph)	0	0	0	410	5	10	350	60	0	0	140	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				5.5	5.5	5.5	5.5	5.5			9.0	
Lane Util. Factor				0.95	0.95	1.00	1.00	1.00			0.95	
Frt				1.00	1.00	0.85	1.00	1.00			0.99	
Flt Protected				0.95	0.95	1.00	0.95	1.00			1.00	
Satd. Flow (prot)				1681	1687	1583	1770	1863			3503	
Flt Permitted				0.95	0.95	1.00	0.65	1.00			1.00	
Satd. Flow (perm)				1681	1687	1583	1208	1863			3503	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	446	5	11	380	65	0	0	152	11
RTOR Reduction (vph)	0	0	0	0	0	9	0	0	0	0	6	0
Lane Group Flow (vph)	0	0	0	227	224	2	380	65	0	0	157	0
Turn Type				Split	NA	Perm	custom	NA			NA	
Protected Phases				3	3		1 4	4 5			2	
Permitted Phases						3	5					
Actuated Green, G (s)				18.9	18.9	18.9	60.5	41.5			10.2	
Effective Green, g (s)				18.9	18.9	18.9	60.5	41.5			10.2	
Actuated g/C Ratio				0.21	0.21	0.21	0.67	0.46			0.11	
Clearance Time (s)				5.5	5.5	5.5					9.0	
Vehicle Extension (s)				5.0	5.0	5.0					2.0	
Lane Grp Cap (vph)				351	352	330	1065	855			395	
v/s Ratio Prot				c0.14	0.13		c0.16	0.03			0.04	
v/s Ratio Perm						0.00	c0.08					
v/c Ratio				0.65	0.64	0.01	0.36	0.08			0.40	
Uniform Delay, d1				32.7	32.6	28.3	7.2	13.7			37.2	
Progression Factor				1.00	1.00	1.00	0.36	0.24			1.00	
Incremental Delay, d2				5.5	5.2	0.0	0.3	0.0			0.2	
Delay (s)				38.2	37.8	28.3	2.8	3.4			37.5	
Level of Service				D	D	C	A	A			D	
Approach Delay (s)		0.0			37.8			2.9			37.5	
Approach LOS		A			D			A			D	

Intersection Summary			
HCM 2000 Control Delay	23.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	90.4	Sum of lost time (s)	25.5
Intersection Capacity Utilization	51.7%	ICU Level of Service	A
Analysis Period (min)	15		

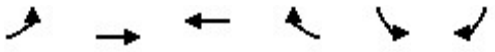
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	5	195	0	0	0	0	405	815	50	500	0
Future Volume (vph)	5	5	195	0	0	0	0	405	815	50	500	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5	5.5					9.0	9.0		9.0	
Lane Util. Factor		1.00	1.00					1.00	1.00		0.95	
Frt		1.00	0.85					1.00	0.85		1.00	
Flt Protected		0.98	1.00					1.00	1.00		1.00	
Satd. Flow (prot)		1817	1583					1863	1583		3523	
Flt Permitted		0.98	1.00					1.00	1.00		0.58	
Satd. Flow (perm)		1817	1583					1863	1583		2053	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	5	212	0	0	0	0	440	886	54	543	0
RTOR Reduction (vph)	0	0	178	0	0	0	0	0	620	0	0	0
Lane Group Flow (vph)	0	10	34	0	0	0	0	440	266	0	597	0
Turn Type	Split	NA	Perm					NA	Perm	custom	NA	
Protected Phases	4	4						5		3 6	2 3	
Permitted Phases			4						5	2		
Actuated Green, G (s)		14.4	14.4					27.1	27.1		34.6	
Effective Green, g (s)		14.4	14.4					27.1	27.1		34.6	
Actuated g/C Ratio		0.16	0.16					0.30	0.30		0.38	
Clearance Time (s)		5.5	5.5					9.0	9.0			
Vehicle Extension (s)		5.0	5.0					2.0	2.0			
Lane Grp Cap (vph)		289	252					558	474		1182	
v/s Ratio Prot		0.01						c0.24			c0.14	
v/s Ratio Perm			c0.02						0.17		0.06	
v/c Ratio		0.03	0.13					0.79	0.56		0.51	
Uniform Delay, d1		32.1	32.6					29.0	26.6		21.3	
Progression Factor		1.00	1.00					1.00	1.00		0.79	
Incremental Delay, d2		0.1	0.5					6.7	0.9		0.1	
Delay (s)		32.2	33.2					35.8	27.5		17.0	
Level of Service		C	C					D	C		B	
Approach Delay (s)		33.1			0.0			30.3			17.0	
Approach LOS		C			A			C			B	

Intersection Summary			
HCM 2000 Control Delay	26.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	90.4	Sum of lost time (s)	25.5
Intersection Capacity Utilization	89.5%	ICU Level of Service	E
Analysis Period (min)	15		

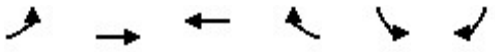
c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	1305	1495	0	0	1295
Future Volume (vph)	0	1305	1495	0	0	1295
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5	6.5			6.5
Lane Util. Factor		0.86	0.91			0.88
Frt		1.00	1.00			0.85
Flt Protected		1.00	1.00			1.00
Satd. Flow (prot)		6408	5085			2787
Flt Permitted		1.00	1.00			1.00
Satd. Flow (perm)		6408	5085			2787
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1418	1625	0	0	1408
RTOR Reduction (vph)	0	0	0	0	0	2
Lane Group Flow (vph)	0	1418	1625	0	0	1406
Turn Type		NA	NA			custom
Protected Phases		1 2 4 6	2			1 4
Permitted Phases						
Actuated Green, G (s)		180.0	67.3			99.7
Effective Green, g (s)		180.0	67.3			99.7
Actuated g/C Ratio		1.00	0.37			0.55
Clearance Time (s)			6.5			
Vehicle Extension (s)			2.0			
Lane Grp Cap (vph)		6408	1901			1543
v/s Ratio Prot		0.22	c0.32			c0.50
v/s Ratio Perm						
v/c Ratio		0.22	0.85			0.91
Uniform Delay, d1		0.0	51.9			36.2
Progression Factor		1.00	0.07			0.68
Incremental Delay, d2		0.0	2.6			7.0
Delay (s)		0.0	6.2			31.4
Level of Service		A	A			C
Approach Delay (s)		0.0	6.2		31.4	
Approach LOS		A	A		C	

Intersection Summary			
HCM 2000 Control Delay	12.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	19.5
Intersection Capacity Utilization	85.0%	ICU Level of Service	E
Analysis Period (min)	15		

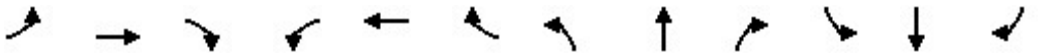
c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	750	555	1495	0	290	0
Future Volume (vph)	750	555	1495	0	290	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5	6.5		6.5	
Lane Util. Factor	0.97	0.95	0.91		0.97	
Frt	1.00	1.00	1.00		1.00	
Flt Protected	0.95	1.00	1.00		0.95	
Satd. Flow (prot)	3433	3539	5085		3433	
Flt Permitted	0.95	1.00	1.00		0.95	
Satd. Flow (perm)	3433	3539	5085		3433	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	815	603	1625	0	315	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	815	603	1625	0	315	0
Turn Type	Prot	NA	NA		Prot	
Protected Phases	1	6	2		4	
Permitted Phases						
Actuated Green, G (s)	72.5	146.3	67.3		20.7	
Effective Green, g (s)	72.5	146.3	67.3		20.7	
Actuated g/C Ratio	0.40	0.81	0.37		0.11	
Clearance Time (s)	6.5	6.5	6.5		6.5	
Vehicle Extension (s)	6.0	2.0	2.0		4.0	
Lane Grp Cap (vph)	1382	2876	1901		394	
v/s Ratio Prot	c0.24	0.17	c0.32		c0.09	
v/s Ratio Perm						
v/c Ratio	0.59	0.21	0.85		0.80	
Uniform Delay, d1	42.1	3.8	51.9		77.6	
Progression Factor	1.00	1.00	1.00		0.94	
Incremental Delay, d2	1.2	0.2	5.2		8.5	
Delay (s)	43.3	4.0	57.0		81.3	
Level of Service	D	A	E		F	
Approach Delay (s)		26.6	57.0		81.3	
Approach LOS		C	E		F	

Intersection Summary			
HCM 2000 Control Delay	46.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	19.5
Intersection Capacity Utilization	74.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	425	0	25	0	0	315	90	1230	185	155	1560	1195
Future Volume (vph)	425	0	25	0	0	315	90	1230	185	155	1560	1195
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0		8.0			5.0	5.0	7.0	4.0	5.0	7.0	4.0
Lane Util. Factor	0.97		1.00			0.88	1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00		0.85			0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95		1.00			1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433		1583			2787	1770	5085	1583	1770	5085	1583
Flt Permitted	0.95		1.00			1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433		1583			2787	1770	5085	1583	1770	5085	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	462	0	27	0	0	342	98	1337	201	168	1696	1299
RTOR Reduction (vph)	0	0	23	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	462	0	4	0	0	342	98	1337	201	168	1696	1299
Turn Type	Prot		Perm			pt+ov	Prot	NA	Free	Prot	NA	Free
Protected Phases	3					1 4	5	2		1	6	
Permitted Phases			3						Free			Free
Actuated Green, G (s)	28.8		28.8			51.2	15.0	80.0	180.0	22.0	87.0	180.0
Effective Green, g (s)	28.8		28.8			45.7	15.0	80.0	180.0	22.0	87.0	180.0
Actuated g/C Ratio	0.16		0.16			0.25	0.08	0.44	1.00	0.12	0.48	1.00
Clearance Time (s)	8.0		8.0				5.0	7.0		5.0	7.0	
Vehicle Extension (s)	3.0		3.0				3.0	2.0		3.0	2.0	
Lane Grp Cap (vph)	549		253			707	147	2260	1583	216	2457	1583
v/s Ratio Prot	0.13					0.12	0.06	0.26		0.09	0.33	
v/s Ratio Perm			0.00						0.13			c0.82
v/c Ratio	0.84		0.02			0.48	0.67	0.59	0.13	0.78	0.69	0.82
Uniform Delay, d1	73.4		63.7			57.1	80.1	37.7	0.0	76.6	36.1	0.0
Progression Factor	1.00		1.00			1.00	0.78	1.59	1.00	0.92	0.90	1.00
Incremental Delay, d2	11.2		0.0			0.5	10.6	1.1	0.2	13.4	1.3	4.0
Delay (s)	84.6		63.7			57.6	73.4	61.0	0.2	83.5	33.9	4.0
Level of Service	F		E			E	E	E	A	F	C	A
Approach Delay (s)		83.4			57.6			54.3			24.3	
Approach LOS		F			E			D			C	

Intersection Summary			
HCM 2000 Control Delay	40.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	25.5
Intersection Capacity Utilization	60.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	85	2055	200	20	255	545	105	10	65	60	130	260
Future Volume (vph)	85	2055	200	20	255	545	105	10	65	60	130	260
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	6.0	6.0		4.5	6.0	6.0	5.0	6.5	6.5	5.0	6.5
Lane Util. Factor	1.00	0.91	1.00		0.97	0.91	1.00	1.00	0.95	1.00	0.97	1.00
Frt	1.00	1.00	0.85		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	5085	1583		3433	5085	1583	1770	3539	1583	3433	1863
Flt Permitted	0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	5085	1583		3433	5085	1583	1770	3539	1583	3433	1863
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	92	2234	217	22	277	592	114	11	71	65	141	283
RTOR Reduction (vph)	0	0	102	0	0	0	50	0	0	55	0	0
Lane Group Flow (vph)	92	2234	115	0	299	592	64	11	71	10	141	283
Turn Type	Prot	NA	Perm	Prot	Prot	NA	Perm	Prot	NA	Perm	Prot	NA
Protected Phases	5	2		1	1	6		3	8		7	4
Permitted Phases			2				6			8		
Actuated Green, G (s)	12.9	79.6	79.6		17.8	84.5	84.5	1.6	22.6	22.6	8.0	29.0
Effective Green, g (s)	12.9	79.6	79.6		17.8	84.5	84.5	1.6	22.6	22.6	8.0	29.0
Actuated g/C Ratio	0.09	0.53	0.53		0.12	0.56	0.56	0.01	0.15	0.15	0.05	0.19
Clearance Time (s)	4.5	6.0	6.0		4.5	6.0	6.0	5.0	6.5	6.5	5.0	6.5
Vehicle Extension (s)	3.0	2.0	2.0		3.0	2.0	2.0	3.0	4.0	4.0	3.0	4.0
Lane Grp Cap (vph)	152	2698	840		407	2864	891	18	533	238	183	360
v/s Ratio Prot	0.05	c0.44			c0.09	0.12		0.01	0.02		c0.04	c0.15
v/s Ratio Perm			0.07				0.04			0.01		
v/c Ratio	0.61	0.83	0.14		0.73	0.21	0.07	0.61	0.13	0.04	0.77	0.79
Uniform Delay, d1	66.1	29.5	17.8		63.8	16.2	14.9	73.9	55.2	54.4	70.1	57.5
Progression Factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	6.7	3.1	0.3		6.7	0.2	0.2	48.7	0.2	0.1	17.9	11.4
Delay (s)	72.7	32.6	18.2		70.6	16.3	15.1	122.6	55.4	54.5	88.0	68.9
Level of Service	E	C	B		E	B	B	F	E	D	F	E
Approach Delay (s)		32.8				32.3			60.0			71.8
Approach LOS		C				C			E			E

Intersection Summary			
HCM 2000 Control Delay	38.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	75.4%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	SBR
Lane Configurations	
Traffic Volume (vph)	60
Future Volume (vph)	60
Ideal Flow (vphpl)	1900
Total Lost time (s)	6.5
Lane Util. Factor	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1583
Flt Permitted	1.00
Satd. Flow (perm)	1583
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	65
RTOR Reduction (vph)	52
Lane Group Flow (vph)	13
Turn Type	Perm
Protected Phases	
Permitted Phases	4
Actuated Green, G (s)	29.0
Effective Green, g (s)	29.0
Actuated g/C Ratio	0.19
Clearance Time (s)	6.5
Vehicle Extension (s)	4.0
Lane Grp Cap (vph)	306
v/s Ratio Prot	
v/s Ratio Perm	0.01
v/c Ratio	0.04
Uniform Delay, d1	49.2
Progression Factor	1.00
Incremental Delay, d2	0.1
Delay (s)	49.3
Level of Service	D
Approach Delay (s)	
Approach LOS	

Intersection Summary

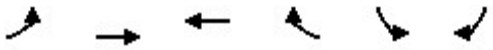
Intersection	
Int Delay, s/veh	8.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	215	140	185	0	0	875
Future Vol, veh/h	215	140	185	0	0	875
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	234	152	201	0	0	951

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	677	101	0	-	-	-
Stage 1	201	-	-	-	-	-
Stage 2	476	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	-	-
Pot Cap-1 Maneuver	386	935	-	0	0	-
Stage 1	813	-	-	0	0	-
Stage 2	591	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	386	935	-	-	-	-
Mov Cap-2 Maneuver	386	-	-	-	-	-
Stage 1	813	-	-	-	-	-
Stage 2	591	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	32.2	0	0
HCM LOS	D		

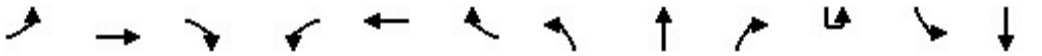
Minor Lane/Major Mvmt	NBT	WBLn1	SBT
Capacity (veh/h)	-	502	-
HCM Lane V/C Ratio	-	0.769	-
HCM Control Delay (s)	-	32.2	-
HCM Lane LOS	-	D	-
HCM 95th %tile Q(veh)	-	6.8	-



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	55	710	120	205	165	15
Future Volume (veh/h)	55	710	120	205	165	15
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	60	772	130	223	179	16
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	114	1856	542	484	438	303
Arrive On Green	0.06	0.52	0.31	0.31	0.13	0.13
Sat Flow, veh/h	1781	3647	1870	1585	3456	1585
Grp Volume(v), veh/h	60	772	130	223	179	16
Grp Sat Flow(s),veh/h/ln	1781	1777	1777	1585	1728	1585
Q Serve(g_s), s	1.1	4.3	1.8	3.7	1.6	0.3
Cycle Q Clear(g_c), s	1.1	4.3	1.8	3.7	1.6	0.3
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	114	1856	542	484	438	303
V/C Ratio(X)	0.52	0.42	0.24	0.46	0.41	0.05
Avail Cap(c_a), veh/h	653	5913	2034	1815	2532	1263
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	14.8	4.8	8.5	9.2	13.2	10.8
Incr Delay (d2), s/veh	3.7	0.1	0.1	0.3	0.6	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.6	0.5	0.9	0.5	0.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	18.5	4.8	8.6	9.5	13.8	10.9
LnGrp LOS	B	A	A	A	B	B
Approach Vol, veh/h		832	353		195	
Approach Delay, s/veh		5.8	9.1		13.5	
Approach LOS		A	A		B	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	7.1	15.5		10.2		22.6
Change Period (Y+Rc), s	5.0	5.5		6.0		5.5
Max Green Setting (Gmax), s	12.0	37.5		24.0		54.5
Max Q Clear Time (g_c+I1), s	3.1	5.7		3.6		6.3
Green Ext Time (p_c), s	0.1	1.4		0.6		3.8

Intersection Summary	
HCM 6th Ctrl Delay	7.8
HCM 6th LOS	A



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	95	10	10	25	5	45	5	1180	25	110	305	1750
Future Volume (vph)	95	10	10	25	5	45	5	1180	25	110	305	1750
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	11	10	12	11	11	11	11	12	12	10	11
Grade (%)		5%			0%			3%				1%
Total Lost time (s)	6.5	6.5	6.5		6.5	6.5	6.0	6.0			4.5	6.0
Lane Util. Factor	0.95	0.95	1.00		1.00	1.00	1.00	0.91			1.00	0.91
Frt	1.00	1.00	0.85		1.00	0.85	1.00	1.00			1.00	0.99
Flt Protected	0.95	0.96	1.00		0.96	1.00	0.95	1.00			0.95	1.00
Satd. Flow (prot)	1584	1603	1441		1728	1531	1685	4827			1643	4826
Flt Permitted	0.95	0.96	1.00		0.96	1.00	0.09	1.00			0.13	1.00
Satd. Flow (perm)	1584	1603	1441		1728	1531	153	4827			220	4826
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	103	11	11	27	5	49	5	1283	27	120	332	1902
RTOR Reduction (vph)	0	0	10	0	0	47	0	1	0	0	0	7
Lane Group Flow (vph)	57	57	1	0	32	2	5	1309	0	0	452	2080
Turn Type	Split	NA	Perm	Split	NA	Perm	Perm	NA		pm+pt	pm+pt	NA
Protected Phases	4	4		8	8			6		5	5	2
Permitted Phases			4			8	6			2	2	
Actuated Green, G (s)	10.0	10.0	10.0		6.0	6.0	71.1	71.1			115.0	115.0
Effective Green, g (s)	10.0	10.0	10.0		6.0	6.0	71.1	71.1			115.0	115.0
Actuated g/C Ratio	0.07	0.07	0.07		0.04	0.04	0.47	0.47			0.77	0.77
Clearance Time (s)	6.5	6.5	6.5		6.5	6.5	6.0	6.0			4.5	6.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	105	106	96		69	61	72	2287			542	3699
v/s Ratio Prot	c0.04	0.04			c0.02			0.27			c0.22	0.43
v/s Ratio Perm			0.00			0.00	0.03				c0.42	
v/c Ratio	0.54	0.54	0.01		0.46	0.03	0.07	0.57			0.83	0.56
Uniform Delay, d1	67.8	67.8	65.4		70.4	69.2	21.5	28.5			33.2	7.2
Progression Factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00			1.25	0.44
Incremental Delay, d2	5.6	5.2	0.0		4.9	0.2	1.9	1.0			8.1	0.5
Delay (s)	73.4	72.9	65.4		75.3	69.4	23.3	29.5			49.6	3.6
Level of Service	E	E	E		E	E	C	C			D	A
Approach Delay (s)		72.5			71.7			29.5				11.8
Approach LOS		E			E			C				B

Intersection Summary			
HCM 2000 Control Delay	20.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	23.5
Intersection Capacity Utilization	74.3%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	SBR
Lane Configurations	
Traffic Volume (vph)	170
Future Volume (vph)	170
Ideal Flow (vphpl)	1900
Lane Width	12
Grade (%)	
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	185
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	445	870	0	1025	1465	600
Future Volume (veh/h)	445	870	0	1025	1465	600
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1817	1817	0	1847	1817	1817
Adj Flow Rate, veh/h	484	946	0	1114	1592	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	0	2	2	2
Cap, veh/h	1297	1047	0	3454	2698	
Arrive On Green	0.39	0.39	0.00	0.54	1.00	0.00
Sat Flow, veh/h	3358	2711	0	6870	5125	1540
Grp Volume(v), veh/h	484	946	0	1114	1592	0
Grp Sat Flow(s),veh/h/ln	1679	1355	0	1588	1654	1540
Q Serve(g_s), s	15.5	49.4	0.0	14.6	0.0	0.0
Cycle Q Clear(g_c), s	15.5	49.4	0.0	14.6	0.0	0.0
Prop In Lane	1.00	1.00	0.00			1.00
Lane Grp Cap(c), veh/h	1297	1047	0	3454	2698	
V/C Ratio(X)	0.37	0.90	0.00	0.32	0.59	
Avail Cap(c_a), veh/h	1612	1301	0	3454	2698	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.84	0.00
Uniform Delay (d), s/veh	33.0	43.4	0.0	18.9	0.0	0.0
Incr Delay (d2), s/veh	0.2	7.8	0.0	0.2	0.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.5	17.8	0.0	5.4	0.2	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	33.2	51.2	0.0	19.2	0.8	0.0
LnGrp LOS	C	D	A	B	A	
Approach Vol, veh/h	1430			1114	1592	A
Approach Delay, s/veh	45.1			19.2	0.8	
Approach LOS	D			B	A	

Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		87.1		62.9		87.1
Change Period (Y+Rc), s		5.5		5.0		5.5
Max Green Setting (Gmax), s		67.5		72.0		67.5
Max Q Clear Time (g_c+I1), s		2.0		51.4		16.6
Green Ext Time (p_c), s		17.8		6.6		9.6

Intersection Summary		
HCM 6th Ctrl Delay		21.1
HCM 6th LOS		C

Notes

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	760	265	1130	340	0	1305
Future Volume (veh/h)	760	265	1130	340	0	1305
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1864	1939	1847	1847	0	1847
Adj Flow Rate, veh/h	826	0	1228	0	0	1418
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	0	2
Cap, veh/h	921		3324		0	4189
Arrive On Green	0.27	0.00	0.88	0.00	0.00	0.66
Sat Flow, veh/h	3445	1643	5208	1565	0	6870
Grp Volume(v), veh/h	826	0	1228	0	0	1418
Grp Sat Flow(s),veh/h/ln	1722	1643	1681	1565	0	1588
Q Serve(g_s), s	34.7	0.0	6.7	0.0	0.0	14.7
Cycle Q Clear(g_c), s	34.7	0.0	6.7	0.0	0.0	14.7
Prop In Lane	1.00	1.00		1.00	0.00	
Lane Grp Cap(c), veh/h	921		3324		0	4189
V/C Ratio(X)	0.90		0.37		0.00	0.34
Avail Cap(c_a), veh/h	1642		3324		0	4189
HCM Platoon Ratio	1.00	1.00	1.33	1.33	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.95	0.00	0.00	1.00
Uniform Delay (d), s/veh	53.0	0.0	3.6	0.0	0.0	11.2
Incr Delay (d2), s/veh	3.5	0.0	0.3	0.0	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	15.5	0.0	1.9	0.0	0.0	5.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	56.4	0.0	3.9	0.0	0.0	11.4
LnGrp LOS	E		A		A	B
Approach Vol, veh/h	826	A	1228	A		1418
Approach Delay, s/veh	56.4		3.9			11.4
Approach LOS	E		A			B

Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		104.4		45.6		104.4
Change Period (Y+Rc), s		5.5		5.5		5.5
Max Green Setting (Gmax), s		67.5		71.5		67.5
Max Q Clear Time (g_c+I1), s		16.7		36.7		8.7
Green Ext Time (p_c), s		13.9		3.4		11.3

Intersection Summary	
HCM 6th Ctrl Delay	19.5
HCM 6th LOS	B

Notes

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

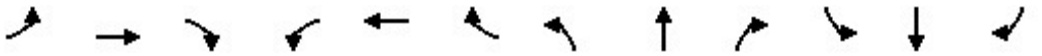
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	35	10	65	185	10	55	5	130	985	275	145	1445
Future Volume (vph)	35	10	65	185	10	55	5	130	985	275	145	1445
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	9	9	10	11	9	12	11	11	10	10	12
Grade (%)		3%			1%				1%			4%
Total Lost time (s)		6.5	5.0	6.5	6.5	6.5		5.0	6.0	6.0	5.0	6.0
Lane Util. Factor		0.95	0.95	0.95	0.95	1.00		1.00	0.91	1.00	1.00	0.91
Frt		0.97	0.85	1.00	1.00	0.85		1.00	1.00	0.85	1.00	1.00
Flt Protected		0.97	1.00	0.95	0.96	1.00		0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)		1472	1333	1561	1629	1418		1702	4891	1470	1619	4978
Flt Permitted		0.97	1.00	0.95	0.96	1.00		0.11	1.00	1.00	0.23	1.00
Satd. Flow (perm)		1472	1333	1561	1629	1418		191	4891	1470	388	4978
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	38	11	71	201	11	60	5	141	1071	299	158	1571
RTOR Reduction (vph)	0	7	48	0	0	54	0	0	0	121	0	0
Lane Group Flow (vph)	0	56	9	107	105	6	0	146	1071	178	158	1582
Turn Type	Split	NA	pm+ov	Split	NA	Perm	custom	pm+pt	NA	Perm	pm+pt	NA
Protected Phases	8	8	1!	4	4			1	6		5	2
Permitted Phases			8			4	1!	6		6	2	
Actuated Green, G (s)		10.5	22.7	15.5	15.5	15.5		101.6	89.4	89.4	98.4	87.8
Effective Green, g (s)		10.5	22.7	15.5	15.5	15.5		101.6	89.4	89.4	98.4	87.8
Actuated g/C Ratio		0.07	0.15	0.10	0.10	0.10		0.68	0.60	0.60	0.66	0.59
Clearance Time (s)		6.5	5.0	6.5	6.5	6.5		5.0	6.0	6.0	5.0	6.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		103	201	161	168	146		252	2915	876	341	2913
v/s Ratio Prot		c0.04	0.00	c0.07	0.06			c0.05	0.22		0.03	0.32
v/s Ratio Perm			0.00			0.00		c0.34		0.12	0.27	
v/c Ratio		0.54	0.04	0.66	0.62	0.04		0.58	0.37	0.20	0.46	0.54
Uniform Delay, d1		67.4	54.4	64.7	64.5	60.6		13.2	15.7	13.9	10.3	18.9
Progression Factor		1.00	1.00	1.00	1.00	1.00		2.40	0.93	1.98	1.00	1.00
Incremental Delay, d2		5.3	0.1	9.9	7.1	0.1		3.1	0.3	0.5	1.0	0.7
Delay (s)		72.8	54.5	74.6	71.5	60.7		34.7	14.8	28.1	11.3	19.6
Level of Service		E	D	E	E	E		C	B	C	B	B
Approach Delay (s)		64.1			70.4				19.4			18.9
Approach LOS		E			E				B			B

Intersection Summary			
HCM 2000 Control Delay	24.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	63.9%	ICU Level of Service	B
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group



Movement	SBR
Lane Configurations	
Traffic Volume (vph)	10
Future Volume (vph)	10
Ideal Flow (vphpl)	1900
Lane Width	12
Grade (%)	
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	11
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	115	45	170	0	25	0	50	60	80	355	0
Future Volume (veh/h)	30	115	45	170	0	25	0	50	60	80	355	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	0	1870	0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	33	125	49	185	0	27	0	54	65	87	386	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	0	2	0	2	2	2	2	0
Cap, veh/h	941	1336	501	0	0	0	0	440	373	212	669	0
Arrive On Green	0.53	0.53	0.53	0.00	0.00	0.00	0.00	0.24	0.24	0.24	0.24	0.00
Sat Flow, veh/h	1781	2528	948		0		0	1870	1585	440	2926	0
Grp Volume(v), veh/h	33	86	88		0.0		0	54	65	254	219	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1700				0	1870	1585	1664	1617	0
Q Serve(g_s), s	0.4	1.1	1.1				0.0	1.0	1.5	3.8	5.3	0.0
Cycle Q Clear(g_c), s	0.4	1.1	1.1				0.0	1.0	1.5	5.9	5.3	0.0
Prop In Lane	1.00		0.56				0.00		1.00	0.34		0.00
Lane Grp Cap(c), veh/h	941	939	898				0	440	373	501	381	0
V/C Ratio(X)	0.04	0.09	0.10				0.00	0.12	0.17	0.51	0.58	0.00
Avail Cap(c_a), veh/h	941	939	898				0	925	784	918	800	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	5.0	5.2	5.2				0.0	13.4	13.6	15.2	15.0	0.0
Incr Delay (d2), s/veh	0.1	0.2	0.2				0.0	0.1	0.2	0.8	1.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.3	0.3				0.0	0.4	0.5	2.1	1.9	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	5.1	5.4	5.4				0.0	13.5	13.8	16.0	16.4	0.0
LnGrp LOS	A	A	A				A	B	B	B	B	A
Approach Vol, veh/h		207						119			473	
Approach Delay, s/veh		5.4						13.7			16.2	
Approach LOS		A						B			B	

Timer - Assigned Phs				4		6		8				
Phs Duration (G+Y+Rc), s				15.5		29.0		15.5				
Change Period (Y+Rc), s				5.0		5.5		5.0				
Max Green Setting (Gmax), s				22.0		23.5		22.0				
Max Q Clear Time (g_c+I1), s				7.9		3.1		3.5				
Green Ext Time (p_c), s				2.5		1.0		0.4				

Intersection Summary												
HCM 6th Ctrl Delay			13.0									
HCM 6th LOS			B									

Notes

User approved pedestrian interval to be less than phase max green.



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	85	795	30	20	75	2115	215	165	360	335	110	110
Future Volume (vph)	85	795	30	20	75	2115	215	165	360	335	110	110
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	6.0	6.0		4.5	6.0	6.0	5.0	6.5	6.5	5.0	6.5
Lane Util. Factor	1.00	0.91	1.00		0.97	0.91	1.00	1.00	0.95	1.00	0.97	1.00
Frt	1.00	1.00	0.85		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	5085	1583		3433	5085	1583	1770	3539	1583	3433	1863
Flt Permitted	0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	5085	1583		3433	5085	1583	1770	3539	1583	3433	1863
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	92	864	33	22	82	2299	234	179	391	364	120	120
RTOR Reduction (vph)	0	0	15	0	0	0	109	0	0	132	0	0
Lane Group Flow (vph)	92	864	18	0	104	2299	125	179	391	232	120	120
Turn Type	Prot	NA	Perm	Prot	Prot	NA	Perm	Prot	NA	Perm	Prot	NA
Protected Phases	5	2		1	1	6		3	8		7	4
Permitted Phases			2				6			8		
Actuated Green, G (s)	11.2	82.7	82.7		8.7	80.2	80.2	17.9	29.0	29.0	7.6	18.7
Effective Green, g (s)	11.2	82.7	82.7		8.7	80.2	80.2	17.9	29.0	29.0	7.6	18.7
Actuated g/C Ratio	0.07	0.55	0.55		0.06	0.53	0.53	0.12	0.19	0.19	0.05	0.12
Clearance Time (s)	4.5	6.0	6.0		4.5	6.0	6.0	5.0	6.5	6.5	5.0	6.5
Vehicle Extension (s)	3.0	2.0	2.0		3.0	2.0	2.0	3.0	4.0	4.0	3.0	4.0
Lane Grp Cap (vph)	132	2803	872		199	2718	846	211	684	306	173	232
v/s Ratio Prot	c0.05	0.17			0.03	c0.45		c0.10	0.11		0.03	0.06
v/s Ratio Perm			0.01				0.08			c0.15		
v/c Ratio	0.70	0.31	0.02		0.52	0.85	0.15	0.85	0.57	0.76	0.69	0.52
Uniform Delay, d1	67.7	18.2	15.3		68.6	29.6	17.6	64.7	54.9	57.2	70.1	61.4
Progression Factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	14.8	0.3	0.0		2.5	3.5	0.4	25.8	1.4	10.8	11.4	2.6
Delay (s)	82.6	18.5	15.3		71.1	33.1	18.0	90.5	56.3	68.0	81.5	64.0
Level of Service	F	B	B		E	C	B	F	E	E	F	E
Approach Delay (s)		24.3				33.3			67.4			69.7
Approach LOS		C				C			E			E

Intersection Summary			
HCM 2000 Control Delay	41.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	78.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	SBR
Lane Configurations	
Traffic Volume (vph)	205
Future Volume (vph)	205
Ideal Flow (vphpl)	1900
Total Lost time (s)	6.5
Lane Util. Factor	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1583
Flt Permitted	1.00
Satd. Flow (perm)	1583
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	223
RTOR Reduction (vph)	111
Lane Group Flow (vph)	112
Turn Type	Perm
Protected Phases	
Permitted Phases	4
Actuated Green, G (s)	18.7
Effective Green, g (s)	18.7
Actuated g/C Ratio	0.12
Clearance Time (s)	6.5
Vehicle Extension (s)	4.0
Lane Grp Cap (vph)	197
v/s Ratio Prot	
v/s Ratio Perm	0.07
v/c Ratio	0.57
Uniform Delay, d1	61.8
Progression Factor	1.00
Incremental Delay, d2	4.5
Delay (s)	66.3
Level of Service	E
Approach Delay (s)	
Approach LOS	

Intersection Summary

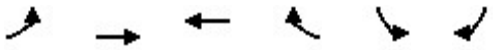
Intersection	
Int Delay, s/veh	6.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	25	125	1555	0	0	440
Future Vol, veh/h	25	125	1555	0	0	440
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	27	136	1690	0	0	478

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1929	845	0	-	-	-
Stage 1	1690	-	-	-	-	-
Stage 2	239	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	-	-
Pot Cap-1 Maneuver	58	306	-	0	0	-
Stage 1	135	-	-	0	0	-
Stage 2	778	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	58	306	-	-	-	-
Mov Cap-2 Maneuver	58	-	-	-	-	-
Stage 1	135	-	-	-	-	-
Stage 2	778	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	98	0	0
HCM LOS	F		

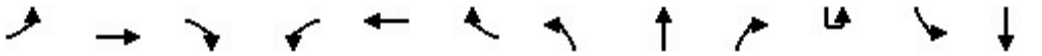
Minor Lane/Major Mvmt	NBT	WBLn1	SBT
Capacity (veh/h)	-	179	-
HCM Lane V/C Ratio	-	0.911	-
HCM Control Delay (s)	-	98	-
HCM Lane LOS	-	F	-
HCM 95th %tile Q(veh)	-	6.9	-



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	20	195	1170	510	245	85
Future Volume (veh/h)	20	195	1170	510	245	85
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	22	212	1272	554	266	92
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	44	2573	1545	637	400	223
Arrive On Green	0.02	0.72	0.63	0.63	0.12	0.12
Sat Flow, veh/h	1781	3647	2548	1011	3456	1585
Grp Volume(v), veh/h	22	212	901	925	266	92
Grp Sat Flow(s),veh/h/ln	1781	1777	1777	1688	1728	1585
Q Serve(g_s), s	0.9	1.3	27.4	32.2	5.3	3.8
Cycle Q Clear(g_c), s	0.9	1.3	27.4	32.2	5.3	3.8
Prop In Lane	1.00			0.60	1.00	1.00
Lane Grp Cap(c), veh/h	44	2573	1119	1063	400	223
V/C Ratio(X)	0.50	0.08	0.81	0.87	0.66	0.41
Avail Cap(c_a), veh/h	124	3389	1447	1375	962	481
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.6	2.9	10.0	10.9	30.4	28.2
Incr Delay (d2), s/veh	8.5	0.0	2.0	4.2	1.9	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.3	8.5	10.0	2.3	0.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	43.1	2.9	12.0	15.1	32.3	29.4
LnGrp LOS	D	A	B	B	C	C
Approach Vol, veh/h		234	1826		358	
Approach Delay, s/veh		6.7	13.6		31.6	
Approach LOS		A	B		C	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	6.8	50.7		14.3		57.5
Change Period (Y+Rc), s	5.0	5.5		6.0		5.5
Max Green Setting (Gmax), s	5.0	58.5		20.0		68.5
Max Q Clear Time (g_c+I1), s	2.9	34.2		7.3		3.3
Green Ext Time (p_c), s	0.0	11.0		1.0		0.9

Intersection Summary	
HCM 6th Ctrl Delay	15.6
HCM 6th LOS	B



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	160	5	25	65	5	305	15	1655	35	20	85	730
Future Volume (vph)	160	5	25	65	5	305	15	1655	35	20	85	730
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	11	10	12	11	11	11	11	12	12	10	11
Grade (%)		5%			0%			3%				1%
Total Lost time (s)	6.0	6.0	6.0		5.5	5.5	6.0	6.0			4.5	6.0
Lane Util. Factor	0.95	0.95	1.00		1.00	1.00	1.00	0.91			1.00	0.91
Frt	1.00	1.00	0.85		1.00	0.85	1.00	1.00			1.00	0.98
Flt Protected	0.95	0.95	1.00		0.96	1.00	0.95	1.00			0.95	1.00
Satd. Flow (prot)	1584	1593	1441		1720	1531	1685	4827			1643	4807
Flt Permitted	0.95	0.95	1.00		0.96	1.00	0.31	1.00			0.06	1.00
Satd. Flow (perm)	1584	1593	1441		1720	1531	542	4827			102	4807
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	174	5	27	71	5	332	16	1799	38	22	92	793
RTOR Reduction (vph)	0	0	25	0	0	116	0	1	0	0	0	9
Lane Group Flow (vph)	89	90	2	0	76	216	16	1836	0	0	114	887
Turn Type	Split	NA	Perm	Split	NA	Perm	Perm	NA		pm+pt	pm+pt	NA
Protected Phases	4	4		8	8			6		5	5	2
Permitted Phases			4			8	6			2	2	
Actuated Green, G (s)	12.3	12.3	12.3		25.2	25.2	80.0	80.0			95.0	95.0
Effective Green, g (s)	12.3	12.3	12.3		25.2	25.2	80.0	80.0			95.0	95.0
Actuated g/C Ratio	0.08	0.08	0.08		0.17	0.17	0.53	0.53			0.63	0.63
Clearance Time (s)	6.0	6.0	6.0		5.5	5.5	6.0	6.0			4.5	6.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	129	130	118		288	257	289	2574			172	3044
v/s Ratio Prot	0.06	c0.06			0.04			c0.38			c0.05	0.18
v/s Ratio Perm			0.00			c0.14	0.03				0.37	
v/c Ratio	0.69	0.69	0.02		0.26	0.84	0.06	0.71			0.66	0.29
Uniform Delay, d1	67.0	67.0	63.3		54.3	60.4	16.8	26.4			26.9	12.4
Progression Factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00			1.70	0.44
Incremental Delay, d2	14.3	14.8	0.1		0.5	20.6	0.4	1.7			8.9	0.2
Delay (s)	81.3	81.8	63.4		54.8	81.1	17.2	28.1			54.6	5.7
Level of Service	F	F	E		D	F	B	C			D	A
Approach Delay (s)		79.2			76.2			28.0				11.2
Approach LOS		E			E			C				B

Intersection Summary			
HCM 2000 Control Delay	31.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	80.4%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	SBR
Lane Configurations	
Traffic Volume (vph)	95
Future Volume (vph)	95
Ideal Flow (vphpl)	1900
Lane Width	12
Grade (%)	
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	103
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	315	310	0	1315	620	840
Future Volume (veh/h)	315	310	0	1315	620	840
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1817	1817	0	1847	1817	1817
Adj Flow Rate, veh/h	342	337	0	1429	674	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	0	2	2	2
Cap, veh/h	502	405	0	4959	3873	
Arrive On Green	0.15	0.15	0.00	0.78	1.00	0.00
Sat Flow, veh/h	3358	2711	0	6870	5125	1540
Grp Volume(v), veh/h	342	337	0	1429	674	0
Grp Sat Flow(s),veh/h/ln	1679	1355	0	1588	1654	1540
Q Serve(g_s), s	14.5	18.1	0.0	9.6	0.0	0.0
Cycle Q Clear(g_c), s	14.5	18.1	0.0	9.6	0.0	0.0
Prop In Lane	1.00	1.00	0.00			1.00
Lane Grp Cap(c), veh/h	502	405	0	4959	3873	
V/C Ratio(X)	0.68	0.83	0.00	0.29	0.17	
Avail Cap(c_a), veh/h	739	596	0	4959	3873	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.67	1.67
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.95	0.00
Uniform Delay (d), s/veh	60.4	62.0	0.0	4.7	0.0	0.0
Incr Delay (d2), s/veh	1.6	6.5	0.0	0.1	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.4	6.7	0.0	2.7	0.0	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	62.1	68.4	0.0	4.8	0.1	0.0
LnGrp LOS	E	E	A	A	A	
Approach Vol, veh/h	679			1429	674	A
Approach Delay, s/veh	65.2			4.8	0.1	
Approach LOS	E			A	A	

Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		122.6		27.4		122.6
Change Period (Y+Rc), s		5.5		5.0		5.5
Max Green Setting (Gmax), s		106.5		33.0		106.5
Max Q Clear Time (g_c+I1), s		2.0		20.1		11.6
Green Ext Time (p_c), s		5.1		2.3		15.0

Intersection Summary		
HCM 6th Ctrl Delay		18.4
HCM 6th LOS		B

Notes

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	245	615	980	650	0	1215
Future Volume (veh/h)	245	615	980	650	0	1215
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1864	1939	1847	1847	0	1847
Adj Flow Rate, veh/h	266	0	1065	0	0	1321
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	0	2
Cap, veh/h	325		4196		0	5288
Arrive On Green	0.09	0.00	1.00	0.00	0.00	0.83
Sat Flow, veh/h	3445	1643	5208	1565	0	6870
Grp Volume(v), veh/h	266	0	1065	0	0	1321
Grp Sat Flow(s),veh/h/ln	1722	1643	1681	1565	0	1588
Q Serve(g_s), s	11.4	0.0	0.0	0.0	0.0	6.6
Cycle Q Clear(g_c), s	11.4	0.0	0.0	0.0	0.0	6.6
Prop In Lane	1.00	1.00		1.00	0.00	
Lane Grp Cap(c), veh/h	325		4196		0	5288
V/C Ratio(X)	0.82		0.25		0.00	0.25
Avail Cap(c_a), veh/h	655		4196		0	5288
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.94	0.00	0.00	1.00
Uniform Delay (d), s/veh	66.7	0.0	0.0	0.0	0.0	2.7
Incr Delay (d2), s/veh	5.1	0.0	0.1	0.0	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.3	0.0	0.1	0.0	0.0	1.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	71.7	0.0	0.1	0.0	0.0	2.8
LnGrp LOS	E		A		A	A
Approach Vol, veh/h	266	A	1065	A		1321
Approach Delay, s/veh	71.7		0.1			2.8
Approach LOS	E		A			A

Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		130.4		19.6		130.4
Change Period (Y+Rc), s		5.5		5.5		5.5
Max Green Setting (Gmax), s		110.5		28.5		110.5
Max Q Clear Time (g_c+I1), s		8.6		13.4		2.0
Green Ext Time (p_c), s		13.0		0.8		9.2

Intersection Summary	
HCM 6th Ctrl Delay	8.6
HCM 6th LOS	A

Notes

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

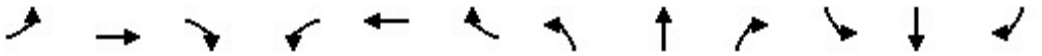
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	110	30	195	495	20	130	5	165	1195	230	85	1455
Future Volume (vph)	110	30	195	495	20	130	5	165	1195	230	85	1455
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	9	9	10	11	9	12	11	11	10	10	12
Grade (%)		3%			1%				1%			4%
Total Lost time (s)		6.5	5.0	6.5	6.5	6.5		5.0	6.0	6.0	5.0	6.0
Lane Util. Factor		0.95	0.95	0.95	0.95	1.00		1.00	0.91	1.00	1.00	0.91
Frt		0.97	0.85	1.00	1.00	0.85		1.00	1.00	0.85	1.00	1.00
Flt Protected		0.97	1.00	0.95	0.96	1.00		0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)		1476	1333	1561	1627	1418		1702	4891	1470	1619	4978
Flt Permitted		0.97	1.00	0.95	0.96	1.00		0.06	1.00	1.00	0.14	1.00
Satd. Flow (perm)		1476	1333	1561	1627	1418		113	4891	1470	234	4978
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	120	33	212	538	22	141	5	179	1299	250	92	1582
RTOR Reduction (vph)	0	6	52	0	0	112	0	0	0	130	0	1
Lane Group Flow (vph)	0	185	122	280	280	29	0	184	1299	120	92	1592
Turn Type	Split	NA	pm+ov	Split	NA	Perm	custom	pm+pt	NA	Perm	pm+pt	NA
Protected Phases	8	8	1!	4	4			1	6		5	2
Permitted Phases			8			4	1!	6		6	2	
Actuated Green, G (s)		21.7	36.9	30.5	30.5	30.5		78.8	64.8	64.8	67.6	58.6
Effective Green, g (s)		21.7	36.9	30.5	30.5	30.5		78.8	64.8	64.8	67.6	58.6
Actuated g/C Ratio		0.14	0.25	0.20	0.20	0.20		0.53	0.43	0.43	0.45	0.39
Clearance Time (s)		6.5	5.0	6.5	6.5	6.5		5.0	6.0	6.0	5.0	6.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		213	327	317	330	288		220	2112	635	188	1944
v/s Ratio Prot		c0.13	0.04	c0.18	0.17			c0.08	0.27		0.03	0.32
v/s Ratio Perm			0.05			0.02		c0.36		0.08	0.19	
v/c Ratio		0.87	0.37	0.88	0.85	0.10		0.84	0.62	0.19	0.49	0.82
Uniform Delay, d1		62.8	46.9	58.0	57.5	48.6		43.1	33.0	26.3	25.5	41.0
Progression Factor		1.00	1.00	1.00	1.00	1.00		1.49	0.67	0.32	1.00	1.00
Incremental Delay, d2		29.1	0.7	23.9	18.0	0.2		22.5	1.3	0.6	2.0	4.0
Delay (s)		91.8	47.7	81.9	75.5	48.7		86.7	23.3	9.0	27.5	44.9
Level of Service		F	D	F	E	D		F	C	A	C	D
Approach Delay (s)		70.8			72.7				28.0			44.0
Approach LOS		E			E				C			D

Intersection Summary			
HCM 2000 Control Delay	44.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	78.8%	ICU Level of Service	D
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group



Movement	SBR
Lane Configurations	
Traffic Volume (vph)	10
Future Volume (vph)	10
Ideal Flow (vphpl)	1900
Lane Width	12
Grade (%)	
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	11
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	



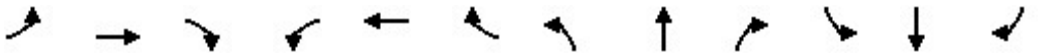
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	210	10	75	0	85	0	260	285	45	110	0
Future Volume (veh/h)	25	210	10	75	0	85	0	260	285	45	110	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	0	1870	0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	27	228	11	82	0	92	0	283	310	49	120	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	0	2	0	2	2	2	2	0
Cap, veh/h	913	1769	85	0	0	0	0	464	393	207	500	0
Arrive On Green	0.51	0.51	0.51	0.00	0.00	0.00	0.00	0.25	0.25	0.25	0.25	0.00
Sat Flow, veh/h	1781	3452	166		0		0	1870	1585	298	2099	0
Grp Volume(v), veh/h	27	117	122		0.0		0	283	310	79	90	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1841				0	1870	1585	694	1617	0
Q Serve(g_s), s	0.3	1.5	1.5				0.0	5.9	8.0	0.8	1.9	0.0
Cycle Q Clear(g_c), s	0.3	1.5	1.5				0.0	5.9	8.0	6.7	1.9	0.0
Prop In Lane	1.00		0.09				0.00		1.00	0.62		0.00
Lane Grp Cap(c), veh/h	913	911	943				0	464	393	305	401	0
V/C Ratio(X)	0.03	0.13	0.13				0.00	0.61	0.79	0.26	0.22	0.00
Avail Cap(c_a), veh/h	913	911	943				0	554	469	355	479	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	5.3	5.6	5.6				0.0	14.6	15.4	13.8	13.1	0.0
Incr Delay (d2), s/veh	0.1	0.3	0.3				0.0	1.4	7.4	0.4	0.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.5	0.5				0.0	2.3	3.2	0.6	0.6	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	5.4	5.9	5.9				0.0	16.0	22.8	14.3	13.4	0.0
LnGrp LOS	A	A	A				A	B	C	B	B	A
Approach Vol, veh/h		266						593			169	
Approach Delay, s/veh		5.8						19.6			13.8	
Approach LOS		A						B			B	

Timer - Assigned Phs				4		6		8				
Phs Duration (G+Y+Rc), s				15.9		28.0		15.9				
Change Period (Y+Rc), s				5.0		5.5		5.0				
Max Green Setting (Gmax), s				13.0		22.5		13.0				
Max Q Clear Time (g_c+I1), s				8.7		3.5		10.0				
Green Ext Time (p_c), s				0.4		1.4		0.9				

Intersection Summary												
HCM 6th Ctrl Delay			15.1									
HCM 6th LOS			B									

Notes

User approved pedestrian interval to be less than phase max green.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	885	110	485	815	325	10	245	240	355	425	5
Future Volume (veh/h)	15	885	110	485	815	325	10	245	240	355	425	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	16	962	120	527	886	353	11	266	261	386	462	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	32	995	444	830	1838	820	186	348	536	456	780	8
Arrive On Green	0.02	0.28	0.28	0.48	1.00	1.00	0.01	0.10	0.10	0.13	0.22	0.22
Sat Flow, veh/h	1781	3554	1585	3456	3554	1585	1781	3554	1585	3456	3601	39
Grp Volume(v), veh/h	16	962	120	527	886	353	11	266	261	386	228	239
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1728	1777	1585	1781	1777	1585	1728	1777	1863
Q Serve(g_s), s	0.9	26.7	4.8	11.4	0.0	0.0	0.6	7.3	3.7	10.9	11.5	11.5
Cycle Q Clear(g_c), s	0.9	26.7	4.8	11.4	0.0	0.0	0.6	7.3	3.7	10.9	11.5	11.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.02
Lane Grp Cap(c), veh/h	32	995	444	830	1838	820	186	348	536	456	385	404
V/C Ratio(X)	0.50	0.97	0.27	0.63	0.48	0.43	0.06	0.76	0.49	0.85	0.59	0.59
Avail Cap(c_a), veh/h	89	995	444	830	1838	820	252	391	555	622	418	438
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.48	0.48	0.48	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	48.7	35.5	18.9	22.7	0.0	0.0	39.8	44.0	9.0	42.4	35.2	35.2
Incr Delay (d2), s/veh	11.6	21.6	1.5	0.6	0.4	0.8	0.0	7.8	0.7	6.1	1.9	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	13.9	2.4	3.7	0.1	0.2	0.2	3.6	2.1	5.0	5.1	5.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	60.3	57.1	20.4	23.3	0.4	0.8	39.8	51.8	9.7	48.5	37.1	37.1
LnGrp LOS	E	E	C	C	A	A	D	D	A	D	D	D
Approach Vol, veh/h		1098			1766			538			853	
Approach Delay, s/veh		53.1			7.3			31.1			42.3	
Approach LOS		D			A			C			D	

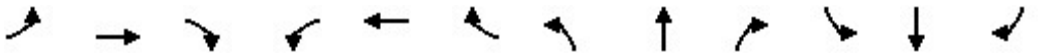
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.3	58.7	6.8	28.2	31.0	34.0	18.7	16.3
Change Period (Y+Rc), s	4.5	* 7	5.5	6.5	7.0	6.0	5.5	* 6.5
Max Green Setting (Gmax), s	5.0	* 44	5.0	23.5	18.5	28.0	18.0	* 11
Max Q Clear Time (g_c+I1), s	2.9	2.0	2.6	13.5	13.4	28.7	12.9	9.3
Green Ext Time (p_c), s	0.0	19.3	0.0	1.9	0.6	0.0	0.3	0.5

Intersection Summary	
HCM 6th Ctrl Delay	29.2
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

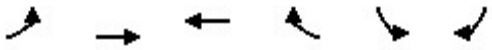
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	80	1100	300	225	1105	110	435	0	420	220	0	85
Future Volume (vph)	80	1100	300	225	1105	110	435	0	420	220	0	85
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	6.0	5.0	5.0	6.0		5.0		5.0	5.0		5.0
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95		1.00		1.00	1.00		1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00		0.85	1.00		0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95		1.00	0.95		1.00
Satd. Flow (prot)	1770	3539	1583	3433	3491		1770		1583	1770		1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95		1.00	0.95		1.00
Satd. Flow (perm)	1770	3539	1583	3433	3491		1770		1583	1770		1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	87	1196	326	245	1201	120	473	0	457	239	0	92
RTOR Reduction (vph)	0	0	105	0	7	0	0	0	123	0	0	84
Lane Group Flow (vph)	87	1196	221	245	1314	0	473	0	334	239	0	8
Turn Type	Prot	NA	pm+ov	Prot	NA		Prot		Over	Prot		Over
Protected Phases	5	2	8	1	6		8		1	4		5
Permitted Phases			2									
Actuated Green, G (s)	8.4	34.6	61.6	22.4	48.6		27.0		22.4	27.0		8.4
Effective Green, g (s)	8.4	34.6	61.6	22.4	48.6		27.0		22.4	27.0		8.4
Actuated g/C Ratio	0.08	0.35	0.62	0.22	0.49		0.27		0.22	0.27		0.08
Clearance Time (s)	5.0	6.0	5.0	5.0	6.0		5.0		5.0	5.0		5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0		3.0	3.0		3.0
Lane Grp Cap (vph)	148	1224	975	768	1696		477		354	477		132
v/s Ratio Prot	0.05	c0.34	0.06	0.07	0.38		c0.27		c0.21	0.14		0.00
v/s Ratio Perm			0.08									
v/c Ratio	0.59	0.98	0.23	0.32	0.77		0.99		0.94	0.50		0.06
Uniform Delay, d1	44.1	32.3	8.6	32.4	21.2		36.4		38.2	30.8		42.2
Progression Factor	1.10	0.68	0.38	0.79	0.84		1.00		1.00	1.00		1.00
Incremental Delay, d2	3.8	15.9	0.1	0.2	2.6		38.9		33.5	0.8		0.2
Delay (s)	52.2	38.0	3.4	25.9	20.4		75.2		71.7	31.6		42.3
Level of Service	D	D	A	C	C		E		E	C		D
Approach Delay (s)		31.7			21.3			73.5			34.6	
Approach LOS		C			C			E			C	

Intersection Summary			
HCM 2000 Control Delay	37.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	81.1%	ICU Level of Service	D
Analysis Period (min)	15		

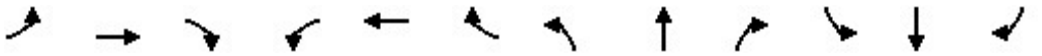
c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	420	1320	1185	115	50	255
Future Volume (veh/h)	420	1320	1185	115	50	255
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	457	1435	1288	125	54	277
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	477	2578	1745	778	293	553
Arrive On Green	0.37	1.00	0.49	0.49	0.16	0.16
Sat Flow, veh/h	1781	3647	3647	1585	1781	1585
Grp Volume(v), veh/h	457	1435	1288	125	54	277
Grp Sat Flow(s),veh/h/ln	1781	1777	1777	1585	1781	1585
Q Serve(g_s), s	16.1	0.0	28.9	4.4	2.6	13.8
Cycle Q Clear(g_c), s	16.1	0.0	28.9	4.4	2.6	13.8
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	477	2578	1745	778	293	553
V/C Ratio(X)	0.96	0.56	0.74	0.16	0.18	0.50
Avail Cap(c_a), veh/h	541	2578	1745	778	410	657
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.29	0.29	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.6	0.0	20.3	14.1	36.0	25.7
Incr Delay (d2), s/veh	11.2	0.3	2.8	0.4	0.3	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.4	0.1	11.6	1.6	1.2	12.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	27.7	0.3	23.1	14.5	36.3	26.4
LnGrp LOS	C	A	C	B	D	C
Approach Vol, veh/h		1892	1413		331	
Approach Delay, s/veh		6.9	22.4		28.0	
Approach LOS		A	C		C	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	23.4	55.1		21.5		78.5
Change Period (Y+Rc), s	5.0	6.0		5.0		6.0
Max Green Setting (Gmax), s	22.0	39.0		23.0		66.0
Max Q Clear Time (g_c+I1), s	18.1	30.9		15.8		2.0
Green Ext Time (p_c), s	0.3	4.0		0.7		9.5

Intersection Summary	
HCM 6th Ctrl Delay	14.8
HCM 6th LOS	B



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	865	10	355	1000	240	155	275	420	385	160	25
Future Volume (veh/h)	5	865	10	355	1000	240	155	275	420	385	160	25
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	5	940	11	386	1087	261	168	299	457	418	174	27
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	12	1116	498	672	1838	820	337	375	476	487	517	79
Arrive On Green	0.01	0.31	0.31	0.39	1.00	1.00	0.08	0.11	0.11	0.14	0.17	0.17
Sat Flow, veh/h	1781	3554	1585	3456	3554	1585	1781	3554	1585	3456	3091	472
Grp Volume(v), veh/h	5	940	11	386	1087	261	168	299	457	418	99	102
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1728	1777	1585	1781	1777	1585	1728	1777	1785
Q Serve(g_s), s	0.3	24.7	0.3	8.8	0.0	0.0	7.9	8.2	7.9	11.8	4.9	5.1
Cycle Q Clear(g_c), s	0.3	24.7	0.3	8.8	0.0	0.0	7.9	8.2	7.9	11.8	4.9	5.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.26
Lane Grp Cap(c), veh/h	12	1116	498	672	1838	820	337	375	476	487	297	299
V/C Ratio(X)	0.43	0.84	0.02	0.57	0.59	0.32	0.50	0.80	0.96	0.86	0.33	0.34
Avail Cap(c_a), veh/h	89	1116	498	672	1838	820	337	391	483	622	366	368
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.43	0.43	0.43	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	49.5	32.0	12.2	27.3	0.0	0.0	36.7	43.7	12.5	42.0	36.7	36.8
Incr Delay (d2), s/veh	23.5	7.8	0.1	0.5	0.6	0.4	0.4	10.7	30.9	7.9	0.6	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	11.2	0.2	3.1	0.2	0.1	3.7	4.1	8.9	5.5	2.1	2.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	73.0	39.8	12.3	27.8	0.6	0.4	37.1	54.3	43.4	49.9	37.4	37.4
LnGrp LOS	E	D	B	C	A	A	D	D	D	D	D	D
Approach Vol, veh/h		956			1734			924			619	
Approach Delay, s/veh		39.6			6.6			45.8			45.8	
Approach LOS		D			A			D			D	

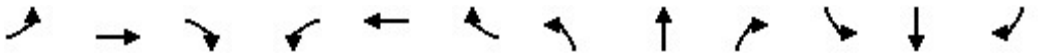
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.1	58.2	13.4	23.2	26.0	37.4	19.6	17.1
Change Period (Y+Rc), s	4.5	6.5	5.5	6.5	6.5	* 6	5.5	* 6.5
Max Green Setting (Gmax), s	5.0	43.5	7.9	20.6	17.6	* 31	18.0	* 11
Max Q Clear Time (g_c+I1), s	2.3	2.0	9.9	7.1	10.8	26.7	13.8	10.2
Green Ext Time (p_c), s	0.0	22.4	0.0	0.8	0.8	3.4	0.3	0.3

Intersection Summary	
HCM 6th Ctrl Delay	28.4
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

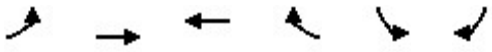
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	130	1235	305	470	1215	110	360	0	270	290	0	20
Future Volume (vph)	130	1235	305	470	1215	110	360	0	270	290	0	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	6.0	5.0	5.0	6.0		5.0		5.0	5.0		5.0
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95		1.00		1.00	1.00		1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00		0.85	1.00		0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95		1.00	0.95		1.00
Satd. Flow (prot)	1770	3539	1583	3433	3495		1770		1583	1770		1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95		1.00	0.95		1.00
Satd. Flow (perm)	1770	3539	1583	3433	3495		1770		1583	1770		1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	141	1342	332	511	1321	120	391	0	293	315	0	22
RTOR Reduction (vph)	0	0	25	0	7	0	0	0	72	0	0	20
Lane Group Flow (vph)	141	1342	307	511	1434	0	391	0	221	315	0	2
Turn Type	Prot	NA	pm+ov	Prot	NA		Prot		Over	Prot		Over
Protected Phases	5	2	8	1	6		8		1	4		5
Permitted Phases			2									
Actuated Green, G (s)	10.5	43.0	67.2	16.8	49.3		24.2		16.8	24.2		10.5
Effective Green, g (s)	10.5	43.0	67.2	16.8	49.3		24.2		16.8	24.2		10.5
Actuated g/C Ratio	0.10	0.43	0.67	0.17	0.49		0.24		0.17	0.24		0.10
Clearance Time (s)	5.0	6.0	5.0	5.0	6.0		5.0		5.0	5.0		5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0		3.0	3.0		3.0
Lane Grp Cap (vph)	185	1521	1063	576	1723		428		265	428		166
v/s Ratio Prot	0.08	c0.38	0.07	c0.15	0.41		c0.22		0.14	0.18		0.00
v/s Ratio Perm			0.12									
v/c Ratio	0.76	0.88	0.29	0.89	0.83		0.91		0.83	0.74		0.01
Uniform Delay, d1	43.5	26.2	6.7	40.7	21.8		36.9		40.2	35.0		40.1
Progression Factor	1.00	0.63	1.22	0.74	1.20		1.00		1.00	1.00		1.00
Incremental Delay, d2	11.2	5.2	0.1	8.0	2.3		23.7		19.5	6.5		0.0
Delay (s)	54.6	21.7	8.2	37.9	28.5		60.5		59.8	41.4		40.1
Level of Service	D	C	A	D	C		E		E	D		D
Approach Delay (s)		21.8			31.0			60.2			41.3	
Approach LOS		C			C			E			D	

Intersection Summary			
HCM 2000 Control Delay	32.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	80.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	340	1455	1215	20	165	580
Future Volume (veh/h)	340	1455	1215	20	165	580
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	370	1582	1321	22	179	630
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	404	2274	1499	668	445	663
Arrive On Green	0.11	0.43	0.42	0.42	0.25	0.25
Sat Flow, veh/h	1781	3647	3647	1585	1781	1585
Grp Volume(v), veh/h	370	1582	1321	22	179	630
Grp Sat Flow(s),veh/h/ln	1781	1777	1777	1585	1781	1585
Q Serve(g_s), s	14.6	36.2	34.2	0.8	8.4	25.0
Cycle Q Clear(g_c), s	14.6	36.2	34.2	0.8	8.4	25.0
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	404	2274	1499	668	445	663
V/C Ratio(X)	0.92	0.70	0.88	0.03	0.40	0.95
Avail Cap(c_a), veh/h	461	2274	1499	668	445	663
HCM Platoon Ratio	0.67	0.67	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.40	0.40	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.0	20.6	26.6	17.0	31.3	28.1
Incr Delay (d2), s/veh	9.8	0.7	7.8	0.1	0.6	23.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.3	15.8	15.0	0.3	3.6	32.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	39.8	21.4	34.4	17.0	31.9	51.5
LnGrp LOS	D	C	C	B	C	D
Approach Vol, veh/h		1952	1343		809	
Approach Delay, s/veh		24.8	34.1		47.1	
Approach LOS		C	C		D	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	21.8	48.2		30.0		70.0
Change Period (Y+Rc), s	5.0	6.0		5.0		6.0
Max Green Setting (Gmax), s	20.0	39.0		25.0		64.0
Max Q Clear Time (g_c+I1), s	16.6	36.2		27.0		38.2
Green Ext Time (p_c), s	0.2	1.7		0.0		9.6

Intersection Summary	
HCM 6th Ctrl Delay	32.3
HCM 6th LOS	C



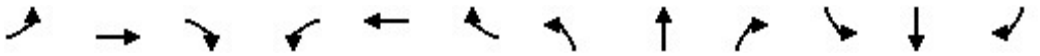
Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	5	1975	335	20	140	2170	50	70	5	180	15	5
Future Volume (vph)	5	1975	335	20	140	2170	50	70	5	180	15	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	14	13	13	12	9	12	12	10	10	10	11	11
Grade (%)		-2%				1%			0%			-7%
Total Lost time (s)	6.0	6.0			6.5	6.0			6.5	6.5	6.5	6.5
Lane Util. Factor	1.00	0.91			1.00	0.91			1.00	1.00	1.00	1.00
Frt	1.00	0.98			1.00	1.00			1.00	0.85	1.00	0.93
Flt Protected	0.95	1.00			0.95	1.00			0.96	1.00	0.95	1.00
Satd. Flow (prot)	1906	5192			1585	5043			1661	1478	1770	1724
Flt Permitted	0.06	1.00			0.95	1.00			0.73	1.00	0.70	1.00
Satd. Flow (perm)	121	5192			1585	5043			1273	1478	1313	1724
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	2147	364	22	152	2359	54	76	5	196	16	5
RTOR Reduction (vph)	0	18	0	0	0	2	0	0	0	174	0	4
Lane Group Flow (vph)	5	2493	0	0	174	2411	0	0	81	22	16	6
Turn Type	Perm	NA		Prot	Prot	NA		Perm	NA	Perm	Perm	NA
Protected Phases		6		5	5	2			4			8
Permitted Phases	6							4		4	8	
Actuated Green, G (s)	69.7	69.7			18.1	94.3			13.2	13.2	13.2	13.2
Effective Green, g (s)	69.7	69.7			18.1	94.3			13.2	13.2	13.2	13.2
Actuated g/C Ratio	0.58	0.58			0.15	0.79			0.11	0.11	0.11	0.11
Clearance Time (s)	6.0	6.0			6.5	6.0			6.5	6.5	6.5	6.5
Vehicle Extension (s)	0.2	0.2			5.0	0.2			4.0	4.0	4.0	4.0
Lane Grp Cap (vph)	70	3015			239	3962			140	162	144	189
v/s Ratio Prot		c0.48			0.11	c0.48						0.00
v/s Ratio Perm	0.04								c0.06	0.01	0.01	
v/c Ratio	0.07	0.83			0.73	0.61			0.58	0.13	0.11	0.03
Uniform Delay, d1	11.0	20.3			48.6	5.3			50.8	48.2	48.1	47.7
Progression Factor	1.00	1.00			1.20	0.59			1.00	1.00	1.00	1.00
Incremental Delay, d2	2.0	2.8			9.7	0.5			6.8	0.5	0.5	0.1
Delay (s)	13.0	23.0			68.3	3.6			57.5	48.7	48.6	47.8
Level of Service	B	C			E	A			E	D	D	D
Approach Delay (s)		23.0				8.0			51.3			48.3
Approach LOS		C				A			D			D

Intersection Summary			
HCM 2000 Control Delay	17.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	90.2%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Movement	SBR
Lane Configurations	
Traffic Volume (vph)	5
Future Volume (vph)	5
Ideal Flow (vphpl)	1900
Lane Width	11
Grade (%)	
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	5
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	



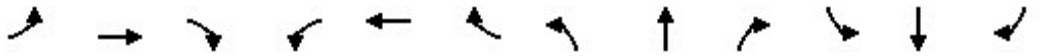
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↱		↑↑↑					↰↰		↱
Traffic Volume (veh/h)	0	1135	1055	0	2195	0	0	0	0	280	0	185
Future Volume (veh/h)	0	1135	1055	0	2195	0	0	0	0	280	0	185
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1847	1921	0	1817	0				1939	0	1790
Adj Flow Rate, veh/h	0	1234	0	0	2386	0				304	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				0.92	0.92	0.92
Percent Heavy Veh, %	0	2	2	0	2	0				2	0	2
Cap, veh/h	0	2796		0	3953	0				385	0	
Arrive On Green	0.00	1.00	0.00	0.00	0.80	0.00				0.11	0.00	0.00
Sat Flow, veh/h	0	3601	1628	0	5288	0				3583	0	1517
Grp Volume(v), veh/h	0	1234	0	0	2386	0				304	0	0
Grp Sat Flow(s),veh/h/ln	0	1754	1628	0	1654	0				1791	0	1517
Q Serve(g_s), s	0.0	0.0	0.0	0.0	22.6	0.0				9.9	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	22.6	0.0				9.9	0.0	0.0
Prop In Lane	0.00		1.00	0.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	2796		0	3953	0				385	0	
V/C Ratio(X)	0.00	0.44		0.00	0.60	0.00				0.79	0.00	
Avail Cap(c_a), veh/h	0	2796		0	3953	0				851	0	
HCM Platoon Ratio	1.00	2.00	2.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.49	0.00	0.00	1.00	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	4.8	0.0				52.2	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.2	0.0	0.0	0.7	0.0				3.7	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.1	0.0	0.0	5.2	0.0				4.7	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.2	0.0	0.0	5.5	0.0				55.9	0.0	0.0
LnGrp LOS	A	A		A	A	A				E	A	
Approach Vol, veh/h		1234	A		2386						304	A
Approach Delay, s/veh		0.2			5.5						55.9	
Approach LOS		A			A						E	

Timer - Assigned Phs		2		4		6						
Phs Duration (G+Y+Rc), s		101.6		18.4		101.6						
Change Period (Y+Rc), s		6.0		5.5		6.0						
Max Green Setting (Gmax), s		80.0		28.5		80.0						
Max Q Clear Time (g_c+I1), s		24.6		11.9		2.0						
Green Ext Time (p_c), s		4.0		0.9		1.5						

Intersection Summary												
HCM 6th Ctrl Delay			7.7									
HCM 6th LOS			A									

Notes

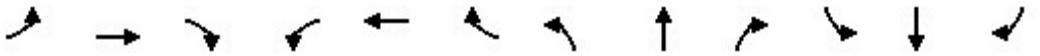
Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	335	985	0	0	850	15	0	120	220	30	0	270
Future Volume (vph)	335	985	0	0	850	15	0	120	220	30	0	270
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	12	12	12	12	12	13	13	13	13	13	13
Grade (%)		2%			-3%			6%			5%	
Total Lost time (s)	4.5	6.5			6.5			6.0	6.0	6.0		4.5
Lane Util. Factor	1.00	0.95			0.91			1.00	1.00	1.00		1.00
Frt	1.00	1.00			1.00			1.00	0.85	1.00		0.85
Flt Protected	0.95	1.00			1.00			1.00	1.00	0.95		1.00
Satd. Flow (prot)	1694	3504			5148			1867	1587	1783		1595
Flt Permitted	0.20	1.00			1.00			1.00	1.00	0.95		1.00
Satd. Flow (perm)	354	3504			5148			1867	1587	1783		1595
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	364	1071	0	0	924	16	0	130	239	33	0	293
RTOR Reduction (vph)	0	0	0	0	1	0	0	0	113	0	0	18
Lane Group Flow (vph)	364	1071	0	0	939	0	0	130	126	33	0	275
Turn Type	pm+pt	NA			NA			NA	Perm	Prot		custom
Protected Phases	1	6			2			4		3		1 3 4
Permitted Phases	6								4			
Actuated Green, G (s)	74.0	74.0			44.8			20.7	20.7	6.8		64.2
Effective Green, g (s)	74.0	74.0			44.8			20.7	20.7	6.8		52.2
Actuated g/C Ratio	0.62	0.62			0.37			0.17	0.17	0.06		0.44
Clearance Time (s)	4.5	6.5			6.5			6.0	6.0	6.0		
Vehicle Extension (s)	5.0	0.2			0.2			6.0	6.0	6.0		
Lane Grp Cap (vph)	494	2160			1921			322	273	101		693
v/s Ratio Prot	c0.15	0.31			0.18			0.07		0.02		c0.17
v/s Ratio Perm	c0.30								c0.08			
v/c Ratio	0.74	0.50			0.49			0.40	0.46	0.33		0.40
Uniform Delay, d1	15.3	12.7			28.8			44.2	44.7	54.4		23.1
Progression Factor	0.89	0.38			0.90			1.00	1.00	1.00		1.00
Incremental Delay, d2	6.2	0.7			0.7			2.3	3.5	5.3		0.8
Delay (s)	19.9	5.5			26.7			46.5	48.1	59.7		23.9
Level of Service	B	A			C			D	D	E		C
Approach Delay (s)		9.2			26.7			47.6			27.5	
Approach LOS		A			C			D			C	

Intersection Summary			
HCM 2000 Control Delay	21.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	23.0
Intersection Capacity Utilization	57.9%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	1225	5	5	825	10	10	5	10	80	5	30
Future Volume (vph)	5	1225	5	5	825	10	10	5	10	80	5	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	12	12	12	11	11	12	12	11	10	10	10
Grade (%)		1%			-2%			0%			-3%	
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0	4.0		4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00	1.00		1.00	
Frt	1.00	1.00		1.00	1.00			1.00	0.85		0.96	
Flt Protected	0.95	1.00		0.95	1.00			0.97	1.00		0.97	
Satd. Flow (prot)	1702	1852		1787	1815			1801	1531		1645	
Flt Permitted	0.26	1.00		0.08	1.00			0.85	1.00		0.78	
Satd. Flow (perm)	471	1852		148	1815			1588	1531		1332	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	1332	5	5	897	11	11	5	11	87	5	33
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	10	0	11	0
Lane Group Flow (vph)	5	1337	0	5	908	0	0	16	1	0	114	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		6			2			4			8	
Permitted Phases	6			2			4		4	8		
Actuated Green, G (s)	97.1	97.1		97.1	97.1			14.9	14.9		14.9	
Effective Green, g (s)	97.1	97.1		97.1	97.1			14.9	14.9		14.9	
Actuated g/C Ratio	0.81	0.81		0.81	0.81			0.12	0.12		0.12	
Clearance Time (s)	4.0	4.0		4.0	4.0			4.0	4.0		4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0		3.0	
Lane Grp Cap (vph)	381	1498		119	1468			197	190		165	
v/s Ratio Prot		c0.72			0.50							
v/s Ratio Perm	0.01			0.03				0.01	0.00		c0.09	
v/c Ratio	0.01	0.89		0.04	0.62			0.08	0.01		0.69	
Uniform Delay, d1	2.2	7.9		2.3	4.4			46.5	46.1		50.3	
Progression Factor	0.47	1.00		1.00	1.00			1.00	1.00		1.00	
Incremental Delay, d2	0.0	6.3		0.7	2.0			0.2	0.0		11.3	
Delay (s)	1.1	14.2		2.9	6.3			46.7	46.1		61.7	
Level of Service	A	B		A	A			D	D		E	
Approach Delay (s)		14.1			6.3			46.4			61.7	
Approach LOS		B			A			D			E	

Intersection Summary			
HCM 2000 Control Delay	14.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	84.6%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



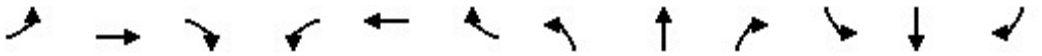
Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	5	2070	75	20	290	2340	20	90	5	145	35	5
Future Volume (vph)	5	2070	75	20	290	2340	20	90	5	145	35	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	14	13	13	12	9	12	12	10	10	10	11	11
Grade (%)		-2%				1%			0%			-7%
Total Lost time (s)	6.0	6.0			6.5	6.0			6.5	6.5	6.5	6.5
Lane Util. Factor	1.00	0.91			1.00	0.91			1.00	1.00	1.00	1.00
Frt	1.00	0.99			1.00	1.00			1.00	0.85	1.00	0.90
Flt Protected	0.95	1.00			0.95	1.00			0.95	1.00	0.95	1.00
Satd. Flow (prot)	1906	5279			1585	5053			1660	1478	1770	1671
Flt Permitted	0.07	1.00			0.95	1.00			0.72	1.00	0.69	1.00
Satd. Flow (perm)	138	5279			1585	5053			1260	1478	1287	1671
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	2250	82	22	315	2543	22	98	5	158	38	5
RTOR Reduction (vph)	0	3	0	0	0	1	0	0	0	139	0	10
Lane Group Flow (vph)	5	2329	0	0	337	2564	0	0	103	19	38	6
Turn Type	Perm	NA		Prot	Prot	NA		Perm	NA	Perm	Perm	NA
Protected Phases		6		5	5	2			4			8
Permitted Phases	6							4		4	8	
Actuated Green, G (s)	58.2	58.2			28.6	93.3			14.2	14.2	14.2	14.2
Effective Green, g (s)	58.2	58.2			28.6	93.3			14.2	14.2	14.2	14.2
Actuated g/C Ratio	0.49	0.49			0.24	0.78			0.12	0.12	0.12	0.12
Clearance Time (s)	6.0	6.0			6.5	6.0			6.5	6.5	6.5	6.5
Vehicle Extension (s)	0.2	0.2			5.0	0.2			4.0	4.0	4.0	4.0
Lane Grp Cap (vph)	66	2560			377	3928			149	174	152	197
v/s Ratio Prot		c0.44			c0.21	0.51						0.00
v/s Ratio Perm	0.04								c0.08	0.01	0.03	
v/c Ratio	0.08	0.91			0.89	0.65			0.69	0.11	0.25	0.03
Uniform Delay, d1	16.5	28.5			44.2	6.0			50.8	47.2	48.1	46.8
Progression Factor	1.00	1.00			1.30	0.75			1.00	1.00	1.00	1.00
Incremental Delay, d2	2.2	6.2			16.1	0.5			13.9	0.4	1.2	0.1
Delay (s)	18.7	34.6			73.6	5.0			64.7	47.6	49.2	46.9
Level of Service	B	C			E	A			E	D	D	D
Approach Delay (s)		34.6				13.0			54.4			48.6
Approach LOS		C				B			D			D

Intersection Summary			
HCM 2000 Control Delay	24.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	92.4%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



Movement	SBR
Lane Configurations	
Traffic Volume (vph)	10
Future Volume (vph)	10
Ideal Flow (vphpl)	1900
Lane Width	11
Grade (%)	
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	11
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	



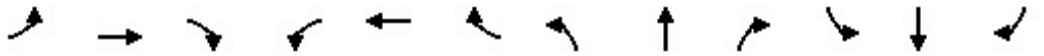
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↱		↑↑↑					↰↰		↱
Traffic Volume (veh/h)	0	1050	1220	0	2430	0	0	0	0	495	0	240
Future Volume (veh/h)	0	1050	1220	0	2430	0	0	0	0	495	0	240
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1847	1921	0	1817	0				1939	0	1790
Adj Flow Rate, veh/h	0	1141	0	0	2641	0				538	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				0.92	0.92	0.92
Percent Heavy Veh, %	0	2	2	0	2	0				2	0	2
Cap, veh/h	0	2551		0	3606	0				635	0	
Arrive On Green	0.00	0.24	0.00	0.00	0.73	0.00				0.18	0.00	0.00
Sat Flow, veh/h	0	3601	1628	0	5288	0				3583	0	1517
Grp Volume(v), veh/h	0	1141	0	0	2641	0				538	0	0
Grp Sat Flow(s),veh/h/ln	0	1754	1628	0	1654	0				1791	0	1517
Q Serve(g_s), s	0.0	33.2	0.0	0.0	37.3	0.0				17.4	0.0	0.0
Cycle Q Clear(g_c), s	0.0	33.2	0.0	0.0	37.3	0.0				17.4	0.0	0.0
Prop In Lane	0.00		1.00	0.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	2551		0	3606	0				635	0	
V/C Ratio(X)	0.00	0.45		0.00	0.73	0.00				0.85	0.00	
Avail Cap(c_a), veh/h	0	2551		0	3606	0				1060	0	
HCM Platoon Ratio	1.00	0.33	0.33	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.36	0.00	0.00	1.00	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	25.1	0.0	0.0	9.6	0.0				47.8	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.2	0.0	0.0	1.4	0.0				3.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	15.5	0.0	0.0	10.9	0.0				8.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	25.3	0.0	0.0	10.9	0.0				51.2	0.0	0.0
LnGrp LOS	A	C		A	B	A				D	A	
Approach Vol, veh/h		1141	A		2641						538	A
Approach Delay, s/veh		25.3			10.9						51.2	
Approach LOS		C			B						D	

Timer - Assigned Phs		2		4		6						
Phs Duration (G+Y+Rc), s		93.2		26.8		93.2						
Change Period (Y+Rc), s		6.0		5.5		6.0						
Max Green Setting (Gmax), s		73.0		35.5		73.0						
Max Q Clear Time (g_c+I1), s		39.3		19.4		35.2						
Green Ext Time (p_c), s		4.8		1.8		1.3						

Intersection Summary												
HCM 6th Ctrl Delay			19.7									
HCM 6th LOS			B									

Notes

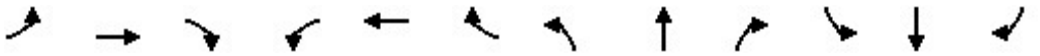
Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	225	1180	0	0	1055	45	0	275	165	35	0	415
Future Volume (vph)	225	1180	0	0	1055	45	0	275	165	35	0	415
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	12	12	12	12	12	13	13	13	13	13	13
Grade (%)		2%			-3%			6%			5%	
Total Lost time (s)	4.5	6.5			6.5			6.0	6.0	6.0		4.5
Lane Util. Factor	1.00	0.95			0.91			1.00	1.00	1.00		1.00
Frt	1.00	1.00			0.99			1.00	0.85	1.00		0.85
Flt Protected	0.95	1.00			1.00			1.00	1.00	0.95		1.00
Satd. Flow (prot)	1694	3504			5130			1867	1587	1783		1595
Flt Permitted	0.12	1.00			1.00			1.00	1.00	0.95		1.00
Satd. Flow (perm)	209	3504			5130			1867	1587	1783		1595
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	245	1283	0	0	1147	49	0	299	179	38	0	451
RTOR Reduction (vph)	0	0	0	0	4	0	0	0	98	0	0	18
Lane Group Flow (vph)	245	1283	0	0	1192	0	0	299	81	38	0	433
Turn Type	pm+pt	NA			NA			NA	Perm	Prot		custom
Protected Phases	1	6			2			4		3		1 3 4
Permitted Phases	6								4			
Actuated Green, G (s)	67.5	67.5			43.2			27.6	27.6	6.4		65.8
Effective Green, g (s)	67.5	67.5			43.2			27.6	27.6	6.4		53.8
Actuated g/C Ratio	0.56	0.56			0.36			0.23	0.23	0.05		0.45
Clearance Time (s)	4.5	6.5			6.5			6.0	6.0	6.0		
Vehicle Extension (s)	5.0	0.2			0.2			6.0	6.0	6.0		
Lane Grp Cap (vph)	362	1971			1846			429	365	95		715
v/s Ratio Prot	0.11	c0.37			0.23			c0.16		0.02		c0.27
v/s Ratio Perm	c0.27								0.05			
v/c Ratio	0.68	0.65			0.65			0.70	0.22	0.40		0.61
Uniform Delay, d1	22.3	18.1			32.0			42.4	37.5	54.9		25.1
Progression Factor	1.04	0.39			0.88			1.00	1.00	1.00		1.00
Incremental Delay, d2	5.7	1.5			1.2			7.2	0.9	7.6		2.1
Delay (s)	29.0	8.6			29.3			49.6	38.4	62.6		27.2
Level of Service	C	A			C			D	D	E		C
Approach Delay (s)		11.9			29.3			45.4			30.0	
Approach LOS		B			C			D			C	

Intersection Summary			
HCM 2000 Control Delay	24.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	23.0
Intersection Capacity Utilization	69.2%	ICU Level of Service	C
Analysis Period (min)	15		

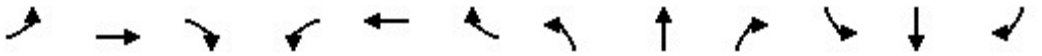
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	1330	15	5	1035	10	5	5	10	25	5	60
Future Volume (vph)	35	1330	15	5	1035	10	5	5	10	25	5	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	12	12	12	11	11	12	12	11	10	10	10
Grade (%)		1%			-2%			0%			-3%	
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0	4.0		4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00	1.00		1.00	
Frt	1.00	1.00		1.00	1.00			1.00	0.85		0.91	
Flt Protected	0.95	1.00		0.95	1.00			0.98	1.00		0.99	
Satd. Flow (prot)	1702	1850		1787	1816			1817	1531		1583	
Flt Permitted	0.20	1.00		0.05	1.00			0.86	1.00		0.91	
Satd. Flow (perm)	350	1850		101	1816			1609	1531		1455	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	38	1446	16	5	1125	11	5	5	11	27	5	65
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	10	0	60	0
Lane Group Flow (vph)	38	1462	0	5	1136	0	0	10	1	0	37	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		6			2			4			8	
Permitted Phases	6			2			4		4	8		
Actuated Green, G (s)	102.0	102.0		102.0	102.0			10.0	10.0		10.0	
Effective Green, g (s)	102.0	102.0		102.0	102.0			10.0	10.0		10.0	
Actuated g/C Ratio	0.85	0.85		0.85	0.85			0.08	0.08		0.08	
Clearance Time (s)	4.0	4.0		4.0	4.0			4.0	4.0		4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0		3.0	
Lane Grp Cap (vph)	297	1572		85	1543			134	127		121	
v/s Ratio Prot		c0.79			0.63							
v/s Ratio Perm	0.11			0.05				0.01	0.00		c0.03	
v/c Ratio	0.13	0.93		0.06	0.74			0.07	0.01		0.31	
Uniform Delay, d1	1.5	6.4		1.4	3.6			50.7	50.4		51.8	
Progression Factor	0.12	1.77		1.00	1.00			1.00	1.00		1.00	
Incremental Delay, d2	0.2	8.3		1.3	3.2			0.2	0.0		1.5	
Delay (s)	0.3	19.7		2.7	6.8			51.0	50.5		53.2	
Level of Service	A	B		A	A			D	D		D	
Approach Delay (s)		19.2			6.8			50.7			53.2	
Approach LOS		B			A			D			D	

Intersection Summary			
HCM 2000 Control Delay	15.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	89.6%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	105	930	60	390	500	105	90	125	370	460	715	290
Future Volume (vph)	105	930	60	390	500	105	90	125	370	460	715	290
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		4%			-4%			-3%			-2%	
Total Lost time (s)	6.5	7.5	6.5	7.0	7.5	7.0	6.5	4.5	7.0	7.0	4.5	4.0
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1734	3468	1552	3502	3610	1615	1796	3592	1607	1787	3575	1599
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.20	1.00	1.00	0.47	1.00	1.00
Satd. Flow (perm)	1734	3468	1552	3502	3610	1615	382	3592	1607	884	3575	1599
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	114	1011	65	424	543	114	98	136	402	500	777	315
RTOR Reduction (vph)	0	0	37	0	0	46	0	0	133	0	0	0
Lane Group Flow (vph)	114	1011	28	424	543	68	98	136	269	500	777	315
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	pm+pt	NA	custom	pm+pt	NA	Free
Protected Phases	1	6	3	5	2	7	3	8	5	7	4	
Permitted Phases			6			2	8		6	4		Free
Actuated Green, G (s)	14.6	52.5	63.5	22.2	60.6	90.1	30.8	19.8	74.7	56.3	38.8	150.0
Effective Green, g (s)	14.6	52.5	63.5	22.2	60.6	90.1	30.8	19.8	74.7	56.3	38.8	150.0
Actuated g/C Ratio	0.10	0.35	0.42	0.15	0.40	0.60	0.21	0.13	0.50	0.38	0.26	1.00
Clearance Time (s)	6.5	7.5	6.5	7.0	7.5	7.0	6.5	4.5	7.0	7.0	4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	168	1213	657	518	1458	970	182	474	875	509	924	1599
v/s Ratio Prot	0.07	c0.29	0.00	c0.12	0.15	0.01	0.04	0.04	0.05	c0.19	0.22	
v/s Ratio Perm			0.01			0.03	0.07		0.12	c0.18		0.20
v/c Ratio	0.68	0.83	0.04	0.82	0.37	0.07	0.54	0.29	0.31	0.98	0.84	0.20
Uniform Delay, d1	65.4	44.7	25.4	61.9	31.4	12.5	50.4	58.7	22.3	42.8	52.7	0.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	10.4	6.8	0.0	9.7	0.7	0.0	3.0	0.3	0.2	35.1	7.0	0.3
Delay (s)	75.8	51.5	25.4	71.7	32.1	12.5	53.5	59.1	22.5	77.9	59.7	0.3
Level of Service	E	D	C	E	C	B	D	E	C	E	E	A
Approach Delay (s)		52.4			45.6			35.1			53.7	
Approach LOS		D			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	48.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	26.0
Intersection Capacity Utilization	89.9%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	5	325	875	35	10	555	80	50	5	10	40	5
Future Volume (vph)	5	325	875	35	10	555	80	50	5	10	40	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	11	11	11	11	11
Grade (%)			0%			-4%			-3%			0%
Total Lost time (s)		6.0	6.0		6.0	6.0		6.5	6.5			6.5
Lane Util. Factor		1.00	1.00		1.00	0.95		1.00	1.00			1.00
Frt		1.00	0.99		1.00	0.98		1.00	0.90			1.00
Flt Protected		0.95	1.00		0.95	1.00		0.95	1.00			0.96
Satd. Flow (prot)		1770	1852		1805	3542		1736	1639			1723
Flt Permitted		0.26	1.00		0.30	1.00		0.73	1.00			0.74
Satd. Flow (perm)		487	1852		578	3542		1326	1639			1327
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	353	951	38	11	603	87	54	5	11	43	5
RTOR Reduction (vph)	0	0	1	0	0	8	0	0	10	0	0	0
Lane Group Flow (vph)	0	358	988	0	11	682	0	54	6	0	0	48
Turn Type	pm+pt	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA
Protected Phases	1!	1	6			2			8			4
Permitted Phases	6!	6			2			8			4	
Actuated Green, G (s)		88.8	88.8		44.4	44.4		8.7	8.7			8.7
Effective Green, g (s)		88.8	88.8		44.4	44.4		8.7	8.7			8.7
Actuated g/C Ratio		0.81	0.81		0.40	0.40		0.08	0.08			0.08
Clearance Time (s)		6.0	6.0		6.0	6.0		6.5	6.5			6.5
Vehicle Extension (s)		3.0	3.0		3.0	3.0		3.0	3.0			3.0
Lane Grp Cap (vph)		841	1495		233	1429		104	129			104
v/s Ratio Prot		0.15	c0.53			0.19			0.00			
v/s Ratio Perm		0.20			0.02			0.04				0.04
v/c Ratio		0.43	0.66		0.05	0.48		0.52	0.05			0.46
Uniform Delay, d1		5.0	4.4		19.9	24.2		48.6	46.8			48.4
Progression Factor		0.85	0.55		1.00	1.00		1.00	1.00			1.00
Incremental Delay, d2		0.3	2.1		0.4	1.1		4.3	0.1			3.2
Delay (s)		4.6	4.5		20.3	25.4		53.0	47.0			51.6
Level of Service		A	A		C	C		D	D			D
Approach Delay (s)			4.5			25.3			51.6			38.4
Approach LOS			A			C			D			D

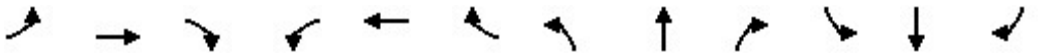
Intersection Summary			
HCM 2000 Control Delay	18.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	18.5
Intersection Capacity Utilization	93.1%	ICU Level of Service	F
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group



Movement	SBR
Lane Configurations	
Traffic Volume (vph)	535
Future Volume (vph)	535
Ideal Flow (vphpl)	1900
Lane Width	11
Grade (%)	
Total Lost time (s)	6.0
Lane Util. Factor	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1531
Flt Permitted	1.00
Satd. Flow (perm)	1531
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	582
RTOR Reduction (vph)	32
Lane Group Flow (vph)	550
Turn Type	pm+ov
Protected Phases	1!
Permitted Phases	4
Actuated Green, G (s)	47.1
Effective Green, g (s)	47.1
Actuated g/C Ratio	0.43
Clearance Time (s)	6.0
Vehicle Extension (s)	3.0
Lane Grp Cap (vph)	655
v/s Ratio Prot	c0.29
v/s Ratio Perm	0.07
v/c Ratio	0.84
Uniform Delay, d1	28.1
Progression Factor	1.00
Incremental Delay, d2	9.3
Delay (s)	37.4
Level of Service	D
Approach Delay (s)	
Approach LOS	

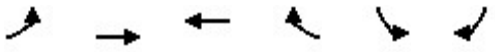
Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	0	460	0	0	1090	0	0	0	0
Future Volume (vph)	0	0	0	0	460	0	0	1090	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.5			4.5				
Lane Util. Factor					0.95			0.95				
Frt					1.00			1.00				
Flt Protected					1.00			1.00				
Satd. Flow (prot)					3539			3539				
Flt Permitted					1.00			1.00				
Satd. Flow (perm)					3539			3539				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	500	0	0	1185	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	500	0	0	1185	0	0	0	0
Turn Type					NA			NA				
Protected Phases					8			2				
Permitted Phases												
Actuated Green, G (s)					30.5			64.5				
Effective Green, g (s)					30.5			64.5				
Actuated g/C Ratio					0.28			0.59				
Clearance Time (s)					4.5			4.5				
Vehicle Extension (s)					3.0			3.0				
Lane Grp Cap (vph)					981			2075				
v/s Ratio Prot					c0.14			c0.33				
v/s Ratio Perm												
v/c Ratio					0.51			0.57				
Uniform Delay, d1					33.5			14.1				
Progression Factor					0.60			1.00				
Incremental Delay, d2					1.7			1.1				
Delay (s)					21.9			15.3				
Level of Service					C			B				
Approach Delay (s)		0.0			21.9			15.3			0.0	
Approach LOS		A			C			B			A	

Intersection Summary			
HCM 2000 Control Delay	17.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	50.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	1090	0	0	190	0
Future Volume (vph)	0	1090	0	0	190	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5	
Lane Util. Factor		0.95			0.97	
Frt		1.00			1.00	
Flt Protected		1.00			0.95	
Satd. Flow (prot)		3539			3433	
Flt Permitted		1.00			0.95	
Satd. Flow (perm)		3539			3433	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1185	0	0	207	0
RTOR Reduction (vph)	0	0	0	0	132	0
Lane Group Flow (vph)	0	1185	0	0	75	0
Turn Type		NA			Prot	
Protected Phases		2 12			4	
Permitted Phases						
Actuated Green, G (s)		73.0			30.5	
Effective Green, g (s)		73.0			30.5	
Actuated g/C Ratio		0.66			0.28	
Clearance Time (s)					4.5	
Vehicle Extension (s)					3.0	
Lane Grp Cap (vph)		2348			951	
v/s Ratio Prot		c0.33			c0.02	
v/s Ratio Perm						
v/c Ratio		0.50			0.08	
Uniform Delay, d1		9.4			29.4	
Progression Factor		0.02			1.00	
Incremental Delay, d2		0.6			0.0	
Delay (s)		0.9			29.4	
Level of Service		A			C	
Approach Delay (s)		0.9	0.0		29.4	
Approach LOS		A	A		C	

Intersection Summary			
HCM 2000 Control Delay	5.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	43.1%	ICU Level of Service	A
Analysis Period (min)	15		

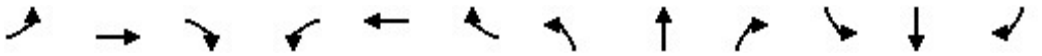
c Critical Lane Group



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	0	0	1000	110	0
Future Volume (vph)	0	0	0	1000	110	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.5	4.5	
Lane Util. Factor				0.95	0.97	
Frt				1.00	1.00	
Flt Protected				1.00	0.95	
Satd. Flow (prot)				3539	3433	
Flt Permitted				1.00	0.95	
Satd. Flow (perm)				3539	3433	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	1087	120	0
RTOR Reduction (vph)	0	0	0	0	74	0
Lane Group Flow (vph)	0	0	0	1087	46	0
Turn Type				NA	Prot	
Protected Phases				6 16	8	
Permitted Phases						
Actuated Green, G (s)				61.0	42.5	
Effective Green, g (s)				61.0	42.5	
Actuated g/C Ratio				0.55	0.39	
Clearance Time (s)					4.5	
Vehicle Extension (s)					3.0	
Lane Grp Cap (vph)				1962	1326	
v/s Ratio Prot				c0.31	c0.01	
v/s Ratio Perm						
v/c Ratio				0.55	0.03	
Uniform Delay, d1				15.8	21.0	
Progression Factor				0.00	1.00	
Incremental Delay, d2				0.9	0.0	
Delay (s)				0.9	21.0	
Level of Service				A	C	
Approach Delay (s)	0.0			0.9	21.0	
Approach LOS	A			A	C	

Intersection Summary			
HCM 2000 Control Delay	2.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	39.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑									↑↑	
Traffic Volume (vph)	0	640	0	0	0	0	0	0	0	0	1000	0
Future Volume (vph)	0	640	0	0	0	0	0	0	0	0	1000	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5									4.5	
Lane Util. Factor		0.95									0.95	
Frt		1.00									1.00	
Flt Protected		1.00									1.00	
Satd. Flow (prot)		3539									3539	
Flt Permitted		1.00									1.00	
Satd. Flow (perm)		3539									3539	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	696	0	0	0	0	0	0	0	0	1087	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	696	0	0	0	0	0	0	0	0	1087	0
Turn Type		NA									NA	
Protected Phases		4									6	
Permitted Phases												
Actuated Green, G (s)		36.5									52.5	
Effective Green, g (s)		36.5									52.5	
Actuated g/C Ratio		0.33									0.48	
Clearance Time (s)		4.5									4.5	
Vehicle Extension (s)		3.0									3.0	
Lane Grp Cap (vph)		1174									1689	
v/s Ratio Prot		c0.20									c0.31	
v/s Ratio Perm												
v/c Ratio		0.59									0.64	
Uniform Delay, d1		30.6									21.7	
Progression Factor		0.85									0.93	
Incremental Delay, d2		2.0									1.6	
Delay (s)		28.1									21.7	
Level of Service		C									C	
Approach Delay (s)		28.1			0.0			0.0			21.7	
Approach LOS		C			A			A			C	

Intersection Summary			
HCM 2000 Control Delay	24.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	52.8%	ICU Level of Service	A
Analysis Period (min)	15		

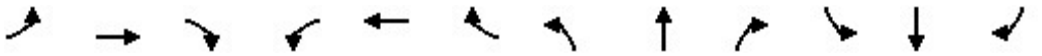
c Critical Lane Group



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	640	0	0	0	0	600
Future Volume (vph)	640	0	0	0	0	600
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5					4.5
Lane Util. Factor	0.95					0.88
Frt	1.00					0.85
Flt Protected	1.00					1.00
Satd. Flow (prot)	3539					2787
Flt Permitted	1.00					1.00
Satd. Flow (perm)	3539					2787
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	696	0	0	0	0	652
RTOR Reduction (vph)	0	0	0	0	0	82
Lane Group Flow (vph)	696	0	0	0	0	570
Turn Type	NA					Prot
Protected Phases	4 10					2
Permitted Phases						
Actuated Green, G (s)	45.0					58.5
Effective Green, g (s)	45.0					58.5
Actuated g/C Ratio	0.41					0.53
Clearance Time (s)						4.5
Vehicle Extension (s)						3.0
Lane Grp Cap (vph)	1447					1482
v/s Ratio Prot	c0.20					c0.20
v/s Ratio Perm						
v/c Ratio	0.48					0.38
Uniform Delay, d1	23.9					15.2
Progression Factor	0.00					1.00
Incremental Delay, d2	0.9					0.2
Delay (s)	0.9					15.3
Level of Service	A					B
Approach Delay (s)	0.9			0.0	15.3	
Approach LOS	A			A	B	

Intersection Summary			
HCM 2000 Control Delay	7.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	52.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	175	500	160	265	870	285	50	790	485	100	260	125
Future Volume (vph)	175	500	160	265	870	285	50	790	485	100	260	125
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		4%			-4%			-3%			-2%	
Total Lost time (s)	6.5	7.5	6.5	7.0	7.5	7.0	6.5	4.5	7.0	7.0	4.5	4.0
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1734	3468	1552	3502	3610	1615	1796	3592	1607	1787	3575	1599
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.55	1.00	1.00	0.09	1.00	1.00
Satd. Flow (perm)	1734	3468	1552	3502	3610	1615	1033	3592	1607	176	3575	1599
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	190	543	174	288	946	310	54	859	527	109	283	136
RTOR Reduction (vph)	0	0	100	0	0	44	0	0	266	0	0	0
Lane Group Flow (vph)	190	543	74	288	946	266	54	859	261	109	283	136
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	pm+pt	NA	custom	pm+pt	NA	Free
Protected Phases	1	6	3	5	2	7	3	8	5	7	4	
Permitted Phases			6			2	8		6	4		Free
Actuated Green, G (s)	20.1	56.9	64.2	17.5	54.8	64.6	47.1	39.8	74.4	52.6	42.8	150.0
Effective Green, g (s)	20.1	56.9	64.2	17.5	54.8	64.6	47.1	39.8	74.4	52.6	42.8	150.0
Actuated g/C Ratio	0.13	0.38	0.43	0.12	0.37	0.43	0.31	0.27	0.50	0.35	0.29	1.00
Clearance Time (s)	6.5	7.5	6.5	7.0	7.5	7.0	6.5	4.5	7.0	7.0	4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	232	1315	664	408	1318	695	361	953	872	166	1020	1599
v/s Ratio Prot	c0.11	0.16	0.01	0.08	c0.26	0.02	0.01	c0.24	c0.03	c0.04	0.08	
v/s Ratio Perm			0.04			0.14	0.04		0.13	c0.19		0.09
v/c Ratio	0.82	0.41	0.11	0.71	0.72	0.38	0.15	0.90	0.30	0.66	0.28	0.09
Uniform Delay, d1	63.2	34.3	25.8	63.8	40.9	29.1	36.4	53.2	22.4	38.4	41.6	0.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	19.7	1.0	0.1	5.5	3.4	0.4	0.2	11.5	0.2	9.0	0.1	0.1
Delay (s)	82.9	35.2	25.9	69.3	44.3	29.5	36.6	64.7	22.6	47.4	41.7	0.1
Level of Service	F	D	C	E	D	C	D	E	C	D	D	A
Approach Delay (s)		43.4			46.0			48.2			32.2	
Approach LOS		D			D			D			C	

Intersection Summary			
HCM 2000 Control Delay	44.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	26.0
Intersection Capacity Utilization	81.9%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	10	355	905	55	5	830	25	50	5	5	10	10
Future Volume (vph)	10	355	905	55	5	830	25	50	5	5	10	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	11	11	11	11	11
Grade (%)			0%			-4%			-3%			0%
Total Lost time (s)		6.0	6.0		6.0	6.0		6.5	6.5			6.5
Lane Util. Factor		1.00	1.00		1.00	0.95		1.00	1.00			1.00
Frt		1.00	0.99		1.00	1.00		1.00	0.93			1.00
Flt Protected		0.95	1.00		0.95	1.00		0.95	1.00			0.98
Satd. Flow (prot)		1770	1847		1805	3594		1736	1691			1757
Flt Permitted		0.20	1.00		0.29	1.00		0.74	1.00			0.84
Satd. Flow (perm)		367	1847		549	3594		1358	1691			1507
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	11	386	984	60	5	902	27	54	5	5	11	11
RTOR Reduction (vph)	0	0	1	0	0	2	0	0	5	0	0	0
Lane Group Flow (vph)	0	397	1043	0	5	927	0	54	5	0	0	22
Turn Type	pm+pt	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA
Protected Phases	1!	1	6			2			8			4
Permitted Phases	6!	6			2			8			4	
Actuated Green, G (s)		98.5	98.5		58.1	58.1		9.0	9.0			9.0
Effective Green, g (s)		98.5	98.5		58.1	58.1		9.0	9.0			9.0
Actuated g/C Ratio		0.82	0.82		0.48	0.48		0.08	0.08			0.08
Clearance Time (s)		6.0	6.0		6.0	6.0		6.5	6.5			6.5
Vehicle Extension (s)		3.0	3.0		3.0	3.0		3.0	3.0			3.0
Lane Grp Cap (vph)		703	1516		265	1740		101	126			113
v/s Ratio Prot		0.16	c0.56			0.26			0.00			
v/s Ratio Perm		0.30			0.01			0.04				0.01
v/c Ratio		0.56	0.69		0.02	0.53		0.53	0.04			0.19
Uniform Delay, d1		10.7	4.4		16.1	21.5		53.5	51.5			52.1
Progression Factor		0.93	0.63		1.00	1.00		1.00	1.00			1.00
Incremental Delay, d2		0.9	2.3		0.1	1.2		5.4	0.1			0.8
Delay (s)		10.9	5.1		16.2	22.7		58.8	51.6			52.9
Level of Service		B	A		B	C		E	D			D
Approach Delay (s)			6.7			22.7			57.7			45.6
Approach LOS			A			C			E			D

Intersection Summary			
HCM 2000 Control Delay	19.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.5
Intersection Capacity Utilization	95.0%	ICU Level of Service	F
Analysis Period (min)	15		

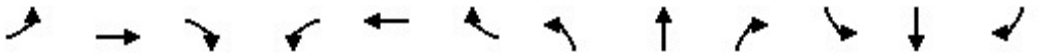
! Phase conflict between lane groups.

c Critical Lane Group



Movement	SBR
Lane Configurations	
Traffic Volume (vph)	440
Future Volume (vph)	440
Ideal Flow (vphpl)	1900
Lane Width	11
Grade (%)	
Total Lost time (s)	6.0
Lane Util. Factor	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1531
Flt Permitted	1.00
Satd. Flow (perm)	1531
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	478
RTOR Reduction (vph)	19
Lane Group Flow (vph)	459
Turn Type	pm+ov
Protected Phases	1!
Permitted Phases	4
Actuated Green, G (s)	43.4
Effective Green, g (s)	43.4
Actuated g/C Ratio	0.36
Clearance Time (s)	6.0
Vehicle Extension (s)	3.0
Lane Grp Cap (vph)	553
v/s Ratio Prot	c0.24
v/s Ratio Perm	0.06
v/c Ratio	0.83
Uniform Delay, d1	35.0
Progression Factor	1.00
Incremental Delay, d2	10.3
Delay (s)	45.2
Level of Service	D
Approach Delay (s)	
Approach LOS	

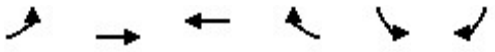
Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	0	725	0	0	960	0	0	0	0
Future Volume (vph)	0	0	0	0	725	0	0	960	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.5			4.5				
Lane Util. Factor					0.95			0.95				
Frt					1.00			1.00				
Flt Protected					1.00			1.00				
Satd. Flow (prot)					3539			3539				
Flt Permitted					1.00			1.00				
Satd. Flow (perm)					3539			3539				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	788	0	0	1043	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	788	0	0	1043	0	0	0	0
Turn Type					NA			NA				
Protected Phases					8			2				
Permitted Phases												
Actuated Green, G (s)					45.5			59.5				
Effective Green, g (s)					45.5			59.5				
Actuated g/C Ratio					0.38			0.50				
Clearance Time (s)					4.5			4.5				
Vehicle Extension (s)					3.0			3.0				
Lane Grp Cap (vph)					1341			1754				
v/s Ratio Prot					c0.22			c0.29				
v/s Ratio Perm												
v/c Ratio					0.59			0.59				
Uniform Delay, d1					29.8			21.6				
Progression Factor					0.86			1.00				
Incremental Delay, d2					1.7			1.5				
Delay (s)					27.4			23.1				
Level of Service					C			C				
Approach Delay (s)		0.0			27.4			23.1			0.0	
Approach LOS		A			C			C			A	

Intersection Summary			
HCM 2000 Control Delay	25.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	54.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	960	0	0	305	0
Future Volume (vph)	0	960	0	0	305	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5	
Lane Util. Factor		0.95			0.97	
Frt		1.00			1.00	
Flt Protected		1.00			0.95	
Satd. Flow (prot)		3539			3433	
Flt Permitted		1.00			0.95	
Satd. Flow (perm)		3539			3433	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1043	0	0	332	0
RTOR Reduction (vph)	0	0	0	0	104	0
Lane Group Flow (vph)	0	1043	0	0	228	0
Turn Type		NA			Prot	
Protected Phases		2 12			4	
Permitted Phases						
Actuated Green, G (s)		68.0			45.5	
Effective Green, g (s)		68.0			45.5	
Actuated g/C Ratio		0.57			0.38	
Clearance Time (s)					4.5	
Vehicle Extension (s)					3.0	
Lane Grp Cap (vph)		2005			1301	
v/s Ratio Prot		c0.29			c0.07	
v/s Ratio Perm						
v/c Ratio		0.52			0.18	
Uniform Delay, d1		16.0			24.8	
Progression Factor		0.02			1.00	
Incremental Delay, d2		0.8			0.1	
Delay (s)		1.1			24.8	
Level of Service		A			C	
Approach Delay (s)		1.1	0.0		24.8	
Approach LOS		A	A		C	

Intersection Summary			
HCM 2000 Control Delay	6.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	42.7%	ICU Level of Service	A
Analysis Period (min)	15		

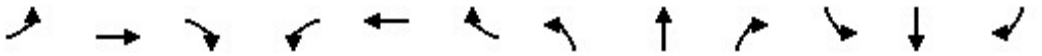
c Critical Lane Group



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	0	0	1015	365	0
Future Volume (vph)	0	0	0	1015	365	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.5	4.5	
Lane Util. Factor				0.95	0.97	
Frt				1.00	1.00	
Flt Protected				1.00	0.95	
Satd. Flow (prot)				3539	3433	
Flt Permitted				1.00	0.95	
Satd. Flow (perm)				3539	3433	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	1103	397	0
RTOR Reduction (vph)	0	0	0	0	65	0
Lane Group Flow (vph)	0	0	0	1103	332	0
Turn Type				NA	Prot	
Protected Phases				6 16	8	
Permitted Phases						
Actuated Green, G (s)				63.0	50.5	
Effective Green, g (s)				63.0	50.5	
Actuated g/C Ratio				0.52	0.42	
Clearance Time (s)					4.5	
Vehicle Extension (s)					3.0	
Lane Grp Cap (vph)				1857	1444	
v/s Ratio Prot				c0.31	c0.10	
v/s Ratio Perm						
v/c Ratio				0.59	0.23	
Uniform Delay, d1				19.7	22.3	
Progression Factor				0.00	1.00	
Incremental Delay, d2				1.0	0.1	
Delay (s)				1.0	22.4	
Level of Service				A	C	
Approach Delay (s)	0.0			1.0	22.4	
Approach LOS	A			A	C	

Intersection Summary			
HCM 2000 Control Delay	6.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	46.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑									↑↑	
Traffic Volume (vph)	0	785	0	0	0	0	0	0	0	0	1015	0
Future Volume (vph)	0	785	0	0	0	0	0	0	0	0	1015	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5									4.5	
Lane Util. Factor		0.95									0.95	
Frt		1.00									1.00	
Flt Protected		1.00									1.00	
Satd. Flow (prot)		3539									3539	
Flt Permitted		1.00									1.00	
Satd. Flow (perm)		3539									3539	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	853	0	0	0	0	0	0	0	0	1103	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	853	0	0	0	0	0	0	0	0	1103	0
Turn Type		NA									NA	
Protected Phases		4									6	
Permitted Phases												
Actuated Green, G (s)		44.5									54.5	
Effective Green, g (s)		44.5									54.5	
Actuated g/C Ratio		0.37									0.45	
Clearance Time (s)		4.5									4.5	
Vehicle Extension (s)		3.0									3.0	
Lane Grp Cap (vph)		1312									1607	
v/s Ratio Prot		c0.24									c0.31	
v/s Ratio Perm												
v/c Ratio		0.65									0.69	
Uniform Delay, d1		31.3									26.0	
Progression Factor		0.76									0.85	
Incremental Delay, d2		2.3									2.0	
Delay (s)		26.2									24.0	
Level of Service		C									C	
Approach Delay (s)		26.2			0.0			0.0			24.0	
Approach LOS		C			A			A			C	

Intersection Summary			
HCM 2000 Control Delay	25.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	57.3%	ICU Level of Service	B
Analysis Period (min)	15		

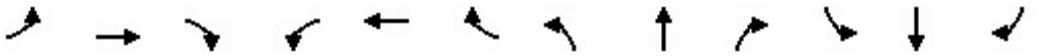
c Critical Lane Group



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	785	0	0	0	0	540
Future Volume (vph)	785	0	0	0	0	540
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5					4.5
Lane Util. Factor	0.95					0.88
Frt	1.00					0.85
Flt Protected	1.00					1.00
Satd. Flow (prot)	3539					2787
Flt Permitted	1.00					1.00
Satd. Flow (perm)	3539					2787
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	853	0	0	0	0	587
RTOR Reduction (vph)	0	0	0	0	0	64
Lane Group Flow (vph)	853	0	0	0	0	523
Turn Type	NA					Prot
Protected Phases	4 10					2
Permitted Phases						
Actuated Green, G (s)	53.0					60.5
Effective Green, g (s)	53.0					60.5
Actuated g/C Ratio	0.44					0.50
Clearance Time (s)						4.5
Vehicle Extension (s)						3.0
Lane Grp Cap (vph)	1563					1405
v/s Ratio Prot	c0.24					c0.19
v/s Ratio Perm						
v/c Ratio	0.55					0.37
Uniform Delay, d1	24.6					18.2
Progression Factor	0.00					1.00
Incremental Delay, d2	1.0					0.2
Delay (s)	1.0					18.3
Level of Service	A					B
Approach Delay (s)	1.0			0.0	18.3	
Approach LOS	A			A	B	

Intersection Summary			
HCM 2000 Control Delay	8.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	57.3%	ICU Level of Service	B
Analysis Period (min)	15		

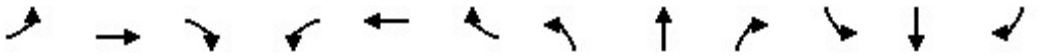
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	455	660	635	255	60	230	10	325	25	25	10
Future Volume (vph)	20	455	660	635	255	60	230	10	325	25	25	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	6.0	6.5	6.0	6.0		6.5	6.5	4.0		6.5	6.5
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95		0.95	0.95	1.00		1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.97		1.00	1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	0.96	1.00		0.98	1.00
Satd. Flow (prot)	1770	3539	1583	3433	3438		1681	1692	1583		1817	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	0.96	1.00		0.98	1.00
Satd. Flow (perm)	1770	3539	1583	3433	3438		1681	1692	1583		1817	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	22	495	717	690	277	65	250	11	353	27	27	11
RTOR Reduction (vph)	0	0	382	0	17	0	0	0	0	0	0	10
Lane Group Flow (vph)	22	495	335	690	325	0	130	131	353	0	54	1
Turn Type	Prot	NA	pm+ov	Prot	NA		Split	NA	Free	Split	NA	Perm
Protected Phases	1	6	3	5	2		3	3		4	4	
Permitted Phases			6						Free			4
Actuated Green, G (s)	3.1	22.8	39.4	19.4	40.6		16.6	16.6	90.0		6.2	6.2
Effective Green, g (s)	3.1	22.8	39.4	19.4	40.6		16.6	16.6	90.0		6.2	6.2
Actuated g/C Ratio	0.03	0.25	0.44	0.22	0.45		0.18	0.18	1.00		0.07	0.07
Clearance Time (s)	4.5	6.0	6.5	6.0	6.0		6.5	6.5			6.5	6.5
Vehicle Extension (s)	3.0	3.0	4.0	2.0	3.0		4.0	4.0			2.0	2.0
Lane Grp Cap (vph)	60	896	693	740	1550		310	312	1583		125	109
v/s Ratio Prot	0.01	c0.14	c0.09	c0.20	0.09		0.08	0.08			0.03	
v/s Ratio Perm			0.12						c0.22			0.00
v/c Ratio	0.37	0.55	0.48	0.93	0.21		0.42	0.42	0.22		0.43	0.01
Uniform Delay, d1	42.5	29.2	18.0	34.7	15.0		32.4	32.4	0.0		40.2	39.0
Progression Factor	1.00	1.00	1.00	0.81	0.60		1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	3.8	2.5	0.7	17.0	0.3		1.3	1.2	0.3		0.9	0.0
Delay (s)	46.3	31.6	18.8	45.1	9.3		33.7	33.7	0.3		41.1	39.0
Level of Service	D	C	B	D	A		C	C	A		D	D
Approach Delay (s)		24.4			33.2			14.5			40.7	
Approach LOS		C			C			B			D	

Intersection Summary			
HCM 2000 Control Delay	25.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	25.0
Intersection Capacity Utilization	79.0%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	835	240	565	865	20	175	20	280	10	25	75
Future Volume (veh/h)	25	835	240	565	865	20	175	20	280	10	25	75
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	27	908	0	614	940	22	190	22	0	11	27	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	49	1275		653	1829	816	354	553		200	245	
Arrive On Green	0.05	0.72	0.00	0.19	0.51	0.51	0.11	0.16	0.00	0.01	0.07	0.00
Sat Flow, veh/h	1781	3554	1585	3456	3554	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	27	908	0	614	940	22	190	22	0	11	27	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1728	1777	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	1.3	13.3	0.0	15.8	15.7	0.6	8.6	0.5	0.0	0.5	0.6	0.0
Cycle Q Clear(g_c), s	1.3	13.3	0.0	15.8	15.7	0.6	8.6	0.5	0.0	0.5	0.6	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	49	1275		653	1829	816	354	553		200	245	
V/C Ratio(X)	0.56	0.71		0.94	0.51	0.03	0.54	0.04		0.06	0.11	
Avail Cap(c_a), veh/h	99	1275		653	1829	816	354	592		354	592	
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	42.0	10.0	0.0	36.0	14.4	10.7	32.5	32.3	0.0	38.1	39.3	0.0
Incr Delay (d2), s/veh	3.7	3.4	0.0	21.8	1.0	0.1	0.9	0.0	0.0	0.0	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	3.5	0.0	8.3	5.9	0.2	3.7	0.2	0.0	0.2	0.3	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	45.7	13.4	0.0	57.8	15.4	10.8	33.4	32.3	0.0	38.2	39.5	0.0
LnGrp LOS	D	B		E	B	B	C	C		D	D	
Approach Vol, veh/h		935	A		1576			212	A		38	A
Approach Delay, s/veh		14.4			31.9			33.3			39.1	
Approach LOS		B			C			C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.0	52.8	7.2	20.0	24.0	38.8	15.0	12.2
Change Period (Y+Rc), s	7.5	* 6.5	6.0	6.0	7.0	6.5	5.5	6.0
Max Green Setting (Gmax), s	5.0	* 36	9.0	15.0	17.0	23.5	9.5	15.0
Max Q Clear Time (g_c+I1), s	3.3	17.7	2.5	2.5	17.8	15.3	10.6	2.6
Green Ext Time (p_c), s	0.0	6.1	0.0	0.0	0.0	3.7	0.0	0.1

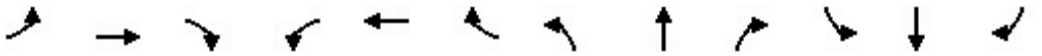
Intersection Summary	
HCM 6th Ctrl Delay	26.2
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

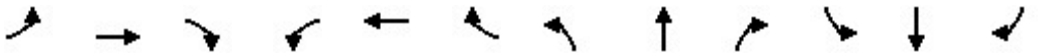
Unsignalized Delay for [NBR, EBR, SBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	240	480	85	325	685	105	55	0	455	165	0	210
Future Volume (vph)	240	480	85	325	685	105	55	0	455	165	0	210
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5		4.5	4.5		4.5
Lane Util. Factor	1.00	0.95		0.97	0.95		1.00		1.00	1.00		1.00
Frt	1.00	0.98		1.00	0.98		1.00		0.85	1.00		0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95		1.00	0.95		1.00
Satd. Flow (prot)	1770	3460		3433	3469		1770		1583	1770		1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95		1.00	0.95		1.00
Satd. Flow (perm)	1770	3460		3433	3469		1770		1583	1770		1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	261	522	92	353	745	114	60	0	495	179	0	228
RTOR Reduction (vph)	0	13	0	0	11	0	0	0	141	0	0	182
Lane Group Flow (vph)	261	601	0	353	848	0	60	0	354	179	0	46
Turn Type	Prot	NA		Prot	NA		Prot		Over	Prot		Over
Protected Phases	5	2		1	6		4		1	8		5
Permitted Phases												
Actuated Green, G (s)	18.0	37.7		24.8	44.5		14.0		24.8	14.0		18.0
Effective Green, g (s)	18.0	37.7		24.8	44.5		14.0		24.8	14.0		18.0
Actuated g/C Ratio	0.20	0.42		0.28	0.49		0.16		0.28	0.16		0.20
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5		4.5	4.5		4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0		3.0	3.0		3.0
Lane Grp Cap (vph)	354	1449		945	1715		275		436	275		316
v/s Ratio Prot	0.15	0.17		0.10	c0.24		0.03		c0.22	c0.10		0.03
v/s Ratio Perm												
v/c Ratio	0.74	0.41		0.37	0.49		0.22		0.81	0.65		0.14
Uniform Delay, d1	33.8	18.4		26.3	15.2		33.2		30.4	35.7		29.7
Progression Factor	0.70	1.07		1.23	0.75		1.00		1.00	1.00		1.00
Incremental Delay, d2	7.3	0.8		0.2	0.9		0.4		10.9	5.4		0.2
Delay (s)	31.0	20.4		32.6	12.4		33.6		41.4	41.1		29.9
Level of Service	C	C		C	B		C		D	D		C
Approach Delay (s)		23.6			18.3			40.5			34.8	
Approach LOS		C			B			D			C	

Intersection Summary			
HCM 2000 Control Delay	26.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	64.1%	ICU Level of Service	C
Analysis Period (min)	15		

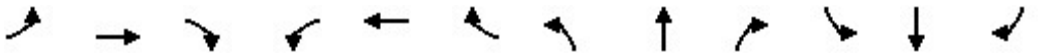
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	375	295	290	475	15	875	10	480	20	10	10
Future Volume (vph)	5	375	295	290	475	15	875	10	480	20	10	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	6.0	6.5	6.0	6.0		6.5	6.5	4.0		6.5	6.5
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95		0.95	0.95	1.00		1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	0.95	1.00		0.97	1.00
Satd. Flow (prot)	1770	3539	1583	3433	3523		1681	1687	1583		1803	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	0.95	1.00		0.97	1.00
Satd. Flow (perm)	1770	3539	1583	3433	3523		1681	1687	1583		1803	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	408	321	315	516	16	951	11	522	22	11	11
RTOR Reduction (vph)	0	0	160	0	2	0	0	0	0	0	0	10
Lane Group Flow (vph)	5	408	161	315	530	0	485	477	522	0	33	1
Turn Type	Prot	NA	pm+ov	Prot	NA		Split	NA	Free	Split	NA	Perm
Protected Phases	1	6	3	5	2		3	3		4	4	
Permitted Phases			6						Free			4
Actuated Green, G (s)	1.3	17.7	45.2	15.5	33.4		27.5	27.5	90.0		4.3	4.3
Effective Green, g (s)	1.3	17.7	45.2	15.5	33.4		27.5	27.5	90.0		4.3	4.3
Actuated g/C Ratio	0.01	0.20	0.50	0.17	0.37		0.31	0.31	1.00		0.05	0.05
Clearance Time (s)	4.5	6.0	6.5	6.0	6.0		6.5	6.5			6.5	6.5
Vehicle Extension (s)	3.0	3.0	4.0	2.0	3.0		4.0	4.0			2.0	2.0
Lane Grp Cap (vph)	25	696	795	591	1307		513	515	1583		86	75
v/s Ratio Prot	0.00	c0.12	0.06	c0.09	0.15		c0.29	0.28			0.02	
v/s Ratio Perm			0.04						c0.33			0.00
v/c Ratio	0.20	0.59	0.20	0.53	0.41		0.95	0.93	0.33		0.38	0.01
Uniform Delay, d1	43.8	32.8	12.4	34.0	21.0		30.5	30.3	0.0		41.6	40.8
Progression Factor	1.00	1.00	1.00	1.13	1.09		1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	3.9	3.6	0.2	0.4	0.9		26.7	23.0	0.6		1.0	0.0
Delay (s)	47.8	36.4	12.6	39.0	23.6		57.2	53.3	0.6		42.6	40.8
Level of Service	D	D	B	D	C		E	D	A		D	D
Approach Delay (s)		26.1			29.3			36.0			42.2	
Approach LOS		C			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	31.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	25.0
Intersection Capacity Utilization	67.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	65	1020	190	320	1070	10	185	5	690	50	25	75
Future Volume (veh/h)	65	1020	190	320	1070	10	185	5	690	50	25	75
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	71	1109	0	348	1163	11	201	5	0	54	27	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	91	1636		307	1750	781	347	449		264	279	
Arrive On Green	0.05	0.46	0.00	0.09	0.49	0.49	0.09	0.13	0.00	0.04	0.08	0.00
Sat Flow, veh/h	1781	3554	1585	3456	3554	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	71	1109	0	348	1163	11	201	5	0	54	27	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1728	1777	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	3.5	22.0	0.0	8.0	22.2	0.3	8.5	0.1	0.0	2.5	0.6	0.0
Cycle Q Clear(g_c), s	3.5	22.0	0.0	8.0	22.2	0.3	8.5	0.1	0.0	2.5	0.6	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	91	1636		307	1750	781	347	449		264	279	
V/C Ratio(X)	0.78	0.68		1.13	0.66	0.01	0.58	0.01		0.20	0.10	
Avail Cap(c_a), veh/h	99	1636		307	1750	781	347	1027		349	1027	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	42.2	19.0	0.0	41.0	17.2	11.7	34.1	34.4	0.0	36.0	38.5	0.0
Incr Delay (d2), s/veh	26.4	2.3	0.0	92.2	2.0	0.0	1.6	0.0	0.0	0.1	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	8.7	0.0	7.2	8.5	0.1	4.1	0.0	0.0	1.1	0.3	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	68.6	21.3	0.0	133.2	19.2	11.7	35.7	34.4	0.0	36.1	38.7	0.0
LnGrp LOS	E	C		F	B	B	D	C		D	D	
Approach Vol, veh/h		1180	A		1522			206	A		81	A
Approach Delay, s/veh		24.2			45.2			35.7			37.0	
Approach LOS		C			D			D			D	

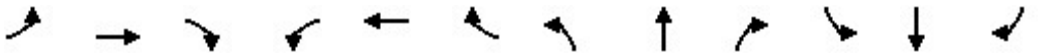
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.1	50.8	9.7	17.4	15.0	47.9	14.0	13.1
Change Period (Y+Rc), s	7.5	* 6.5	6.0	6.0	7.0	6.5	5.5	6.0
Max Green Setting (Gmax), s	5.0	* 26	8.0	26.0	8.0	22.5	8.5	26.0
Max Q Clear Time (g_c+I1), s	5.5	24.2	4.5	2.1	10.0	24.0	10.5	2.6
Green Ext Time (p_c), s	0.0	1.2	0.0	0.0	0.0	0.0	0.0	0.1

Intersection Summary	
HCM 6th Ctrl Delay	36.0
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

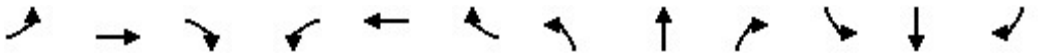
Unsignalized Delay for [NBR, EBR, SBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	160	670	45	650	495	185	130	0	385	220	0	155
Future Volume (vph)	160	670	45	650	495	185	130	0	385	220	0	155
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5		4.5	4.5		4.5
Lane Util. Factor	1.00	0.95		0.97	0.95		1.00		1.00	1.00		1.00
Frt	1.00	0.99		1.00	0.96		1.00		0.85	1.00		0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95		1.00	0.95		1.00
Satd. Flow (prot)	1770	3506		3433	3395		1770		1583	1770		1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95		1.00	0.95		1.00
Satd. Flow (perm)	1770	3506		3433	3395		1770		1583	1770		1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	174	728	49	707	538	201	141	0	418	239	0	168
RTOR Reduction (vph)	0	5	0	0	38	0	0	0	96	0	0	143
Lane Group Flow (vph)	174	772	0	707	701	0	141	0	322	239	0	25
Turn Type	Prot	NA		Prot	NA		Prot		Over	Prot		Over
Protected Phases	5	2		1	6		4		1	8		5
Permitted Phases												
Actuated Green, G (s)	13.5	35.1		25.0	46.6		16.4		25.0	16.4		13.5
Effective Green, g (s)	13.5	35.1		25.0	46.6		16.4		25.0	16.4		13.5
Actuated g/C Ratio	0.15	0.39		0.28	0.52		0.18		0.28	0.18		0.15
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5		4.5	4.5		4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0		3.0	3.0		3.0
Lane Grp Cap (vph)	265	1367		953	1757		322		439	322		237
v/s Ratio Prot	0.10	c0.22		c0.21	0.21		0.08		0.20	c0.14		0.02
v/s Ratio Perm												
v/c Ratio	0.66	0.56		0.74	0.40		0.44		0.73	0.74		0.11
Uniform Delay, d1	36.1	21.5		29.6	13.2		32.7		29.5	34.8		33.0
Progression Factor	1.08	0.58		0.89	0.53		1.00		1.00	1.00		1.00
Incremental Delay, d2	5.4	1.6		2.5	0.5		1.0		6.2	8.9		0.2
Delay (s)	44.2	14.1		28.9	7.6		33.7		35.7	43.7		33.2
Level of Service	D	B		C	A		C		D	D		C
Approach Delay (s)		19.6			18.0			35.2			39.4	
Approach LOS		B			B			D			D	

Intersection Summary			
HCM 2000 Control Delay	23.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	66.8%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	70	235	55	395	200	120	15	220	595	430	700	70
Future Volume (vph)	70	235	55	395	200	120	15	220	595	430	700	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	11	11	11	12	12	9	11	13	12	11	11
Grade (%)		-4%			2%			-1%			-2%	
Total Lost time (s)	5.5	5.5		6.0	6.0	5.5	5.5	5.5	4.0	5.5	5.5	
Lane Util. Factor	1.00	0.95		0.91	0.91	1.00	1.00	0.95	1.00	*0.99	0.95	
Frt	1.00	0.97		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00		0.95	0.98	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1805	3390		1541	3275	1567	1601	3438	1644	3539	3408	
Flt Permitted	0.95	1.00		0.95	0.98	1.00	0.34	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1805	3390		1541	3275	1567	568	3438	1644	3539	3408	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	76	255	60	429	217	130	16	239	647	467	761	76
RTOR Reduction (vph)	0	17	0	0	0	74	0	0	0	0	6	0
Lane Group Flow (vph)	76	298	0	214	432	56	16	239	647	467	831	0
Turn Type	Split	NA		Split	NA	pt+ov	Perm	NA	Free	Prot	NA	
Protected Phases	3	3		4	4	1 4		2		1	6	
Permitted Phases							2		Free			
Actuated Green, G (s)	17.5	17.5		31.0	31.0	57.5	28.5	28.5	120.0	20.5	54.5	
Effective Green, g (s)	17.5	17.5		31.0	31.0	51.5	28.5	28.5	120.0	20.5	54.5	
Actuated g/C Ratio	0.15	0.15		0.26	0.26	0.43	0.24	0.24	1.00	0.17	0.45	
Clearance Time (s)	5.5	5.5		6.0	6.0		5.5	5.5		5.5	5.5	
Vehicle Extension (s)	4.0	4.0		4.0	4.0		0.2	0.2		3.0	0.2	
Lane Grp Cap (vph)	263	494		398	846	672	134	816	1644	604	1547	
v/s Ratio Prot	0.04	c0.09		c0.14	0.13	0.04		0.07		c0.13	c0.24	
v/s Ratio Perm							0.03		0.39			
v/c Ratio	0.29	0.60		0.54	0.51	0.08	0.12	0.29	0.39	0.77	0.54	
Uniform Delay, d1	45.7	48.0		38.3	38.0	20.3	35.9	37.5	0.0	47.5	23.6	
Progression Factor	1.00	1.00		0.83	0.83	0.69	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	2.8	5.4		4.8	2.0	0.0	1.8	0.9	0.7	6.1	1.3	
Delay (s)	48.5	53.4		36.7	33.7	14.1	37.7	38.4	0.7	53.6	25.0	
Level of Service	D	D		D	C	B	D	D	A	D	C	
Approach Delay (s)		52.4			31.3			11.4			35.2	
Approach LOS		D			C			B			D	

Intersection Summary			
HCM 2000 Control Delay	29.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	22.5
Intersection Capacity Utilization	64.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	3.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	1235	25	0	595	240	0	0	210	0	0	120
Future Vol, veh/h	0	1235	25	0	595	240	0	0	210	0	0	120
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	2	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	1342	27	0	647	261	0	0	228	0	0	130

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	-	-	0	-	-	685	-	-	454
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	-	-	-	7.14	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	-	-	-	3.92	-	-	3.92
Pot Cap-1 Maneuver	0	-	-	0	-	-	0	0	335	0	0	473
Stage 1	0	-	-	0	-	-	0	0	-	0	0	-
Stage 2	0	-	-	0	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	-	-	-	-	-	-	-	-	335	-	-	473
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	35.9	15.5
HCM LOS			E	C

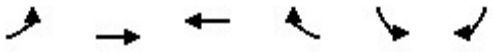
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT	WBR	SBLn1
Capacity (veh/h)	335	-	-	-	-	473
HCM Lane V/C Ratio	0.681	-	-	-	-	0.276
HCM Control Delay (s)	35.9	-	-	-	-	15.5
HCM Lane LOS	E	-	-	-	-	C
HCM 95th %tile Q(veh)	4.7	-	-	-	-	1.1



Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBR	SBR2	NEL	NER
Lane Configurations											
Traffic Volume (vph)	65	1425	0	0	2240	125	190	0	475	0	620
Future Volume (vph)	65	1425	0	0	2240	125	190	0	475	0	620
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	11	12	12	11	12	12	12	12	12	12
Grade (%)		0%			-3%		-4%			0%	
Total Lost time (s)	4.5	6.5			6.5	6.5	6.0		6.0		4.5
Lane Util. Factor	1.00	0.95			0.91	1.00	0.97		0.88		1.00
Frt	1.00	1.00			1.00	0.85	1.00		0.85		0.86
Flt Protected	0.95	1.00			1.00	1.00	0.95		1.00		1.00
Satd. Flow (prot)	1711	3421			4990	1607	3502		2842		1611
Flt Permitted	0.05	1.00			1.00	1.00	0.95		1.00		1.00
Satd. Flow (perm)	91	3421			4990	1607	3502		2842		1611
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	71	1549	0	0	2435	136	207	0	516	0	674
RTOR Reduction (vph)	0	0	0	0	0	51	0	0	301	0	0
Lane Group Flow (vph)	71	1549	0	0	2435	85	207	0	215	0	674
Turn Type	pm+pt	NA			NA	Perm	Prot		Perm		Perm
Protected Phases	1	6			2		4				
Permitted Phases	6					2			4		1 2 4 6
Actuated Green, G (s)	92.5	92.5			74.8	74.8	15.0		15.0		120.0
Effective Green, g (s)	92.5	92.5			74.8	74.8	15.0		15.0		107.5
Actuated g/C Ratio	0.77	0.77			0.62	0.62	0.12		0.12		0.90
Clearance Time (s)	4.5	6.5			6.5	6.5	6.0		6.0		
Vehicle Extension (s)	6.0	0.2			0.2	0.2	3.0		3.0		
Lane Grp Cap (vph)	248	2637			3110	1001	437		355		1443
v/s Ratio Prot	0.03	c0.45			c0.49		0.06				
v/s Ratio Perm	0.19					0.05			c0.08		0.42
v/c Ratio	0.29	0.59			0.78	0.08	0.47		0.61		0.47
Uniform Delay, d1	15.1	5.8			16.6	9.0	48.8		49.7		1.1
Progression Factor	1.03	0.84			1.00	1.00	1.00		1.00		1.00
Incremental Delay, d2	1.8	1.0			2.0	0.2	3.7		7.5		0.7
Delay (s)	17.3	5.8			18.7	9.2	52.5		57.2		1.8
Level of Service	B	A			B	A	D		E		A
Approach Delay (s)		6.3			18.2		55.8			1.8	
Approach LOS		A			B		E			A	

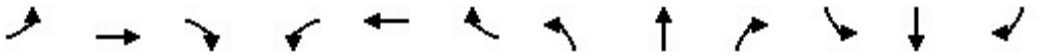
Intersection Summary			
HCM 2000 Control Delay	17.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	Err%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑↱			↱
Traffic Volume (vph)	0	2235	2360	5	0	5
Future Volume (vph)	0	2235	2360	5	0	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)		1%	-3%		0%	
Total Lost time (s)		5.0	5.0			4.0
Lane Util. Factor		0.91	0.91			1.00
Frt		1.00	1.00			0.86
Flt Protected		1.00	1.00			1.00
Satd. Flow (prot)		5060	5160			1611
Flt Permitted		1.00	1.00			1.00
Satd. Flow (perm)		5060	5160			1611
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	2429	2565	5	0	5
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	2429	2570	0	0	5
Turn Type		NA	NA			Free
Protected Phases		2	6			
Permitted Phases						Free
Actuated Green, G (s)		95.7	95.7			109.7
Effective Green, g (s)		95.7	95.7			109.7
Actuated g/C Ratio		0.87	0.87			1.00
Clearance Time (s)		5.0	5.0			
Vehicle Extension (s)		5.0	5.0			
Lane Grp Cap (vph)		4414	4501			1611
v/s Ratio Prot		0.48	c0.50			
v/s Ratio Perm						c0.00
v/c Ratio		0.55	0.57			0.00
Uniform Delay, d1		1.7	1.8			0.0
Progression Factor		1.00	1.00			1.00
Incremental Delay, d2		0.3	0.3			0.0
Delay (s)		2.0	2.1			0.0
Level of Service		A	A			A
Approach Delay (s)		2.0	2.1		0.0	
Approach LOS		A	A		A	

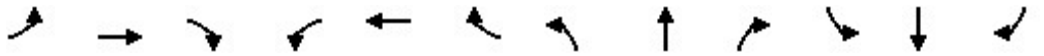
Intersection Summary			
HCM 2000 Control Delay	2.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	109.7	Sum of lost time (s)	9.0
Intersection Capacity Utilization	49.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	2150	80	10	2175	10	125	5	30	35	5	65
Future Volume (veh/h)	5	2150	80	10	2175	10	125	5	30	35	5	65
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1864	1864	1864	1908	1988	1988	1870	1945	1945	1864	1864	1864
Adj Flow Rate, veh/h	5	2337	87	11	2364	11	136	5	33	38	5	71
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	145	3202	119	145	3575	17	243	36	241	279	17	246
Arrive On Green	0.01	0.64	0.64	0.01	0.64	0.64	0.16	0.16	0.16	0.16	0.16	0.16
Sat Flow, veh/h	1776	5038	187	1818	5575	26	1323	221	1461	1365	105	1491
Grp Volume(v), veh/h	5	1570	854	11	1534	841	136	0	38	38	0	76
Grp Sat Flow(s),veh/h/ln	1776	1697	1831	1818	1809	1983	1323	0	1682	1365	0	1596
Q Serve(g_s), s	0.1	28.2	28.7	0.2	23.8	23.8	9.0	0.0	1.7	2.2	0.0	3.8
Cycle Q Clear(g_c), s	0.1	28.2	28.7	0.2	23.8	23.8	12.8	0.0	1.7	3.9	0.0	3.8
Prop In Lane	1.00		0.10	1.00		0.01	1.00		0.87	1.00		0.93
Lane Grp Cap(c), veh/h	145	2157	1164	145	2320	1272	243	0	277	279	0	263
V/C Ratio(X)	0.03	0.73	0.73	0.08	0.66	0.66	0.56	0.00	0.14	0.14	0.00	0.29
Avail Cap(c_a), veh/h	217	2157	1164	209	2320	1272	253	0	290	289	0	275
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.85	0.85	0.85	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	8.9	11.1	11.2	10.6	10.1	10.1	38.6	0.0	32.1	33.8	0.0	33.0
Incr Delay (d2), s/veh	0.1	1.9	3.5	0.2	1.5	2.7	2.6	0.0	0.2	0.2	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	9.0	10.4	0.1	8.0	9.2	3.1	0.0	0.7	0.7	0.0	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	9.0	13.0	14.7	10.8	11.6	12.8	41.1	0.0	32.3	34.0	0.0	33.6
LnGrp LOS	A	B	B	B	B	B	D	A	C	C	A	C
Approach Vol, veh/h		2429			2386			174			114	
Approach Delay, s/veh		13.6			12.0			39.2			33.7	
Approach LOS		B			B			D			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.0	62.7		21.3	6.5	62.2		21.3				
Change Period (Y+Rc), s	5.5	5.0		6.5	5.5	5.0		6.5				
Max Green Setting (Gmax), s	4.1	53.4		15.5	4.1	53.4		15.5				
Max Q Clear Time (g_c+I1), s	2.1	25.8		5.9	2.2	30.7		14.8				
Green Ext Time (p_c), s	0.0	20.4		0.3	0.0	17.9		0.0				

Intersection Summary												
HCM 6th Ctrl Delay			14.2									
HCM 6th LOS			B									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	605	40	20	155	15	570	15	55	5	5	5
Future Volume (vph)	20	605	40	20	155	15	570	15	55	5	5	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			5.5		6.0	6.0	6.0		6.0	
Lane Util. Factor		0.95			0.95		0.95	0.95	1.00		1.00	
Frt		0.99			0.99		1.00	1.00	0.85		0.95	
Flt Protected		1.00			0.99		0.95	0.95	1.00		0.98	
Satd. Flow (prot)		3502			3479		1681	1689	1583		1750	
Flt Permitted		0.94			0.86		0.95	0.95	1.00		0.98	
Satd. Flow (perm)		3300			2995		1681	1689	1583		1750	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	22	658	43	22	168	16	620	16	60	5	5	5
RTOR Reduction (vph)	0	6	0	0	8	0	0	0	40	0	5	0
Lane Group Flow (vph)	0	717	0	0	198	0	316	320	20	0	10	0
Turn Type	Perm	NA		Perm	NA		Split	NA	Perm	Split	NA	
Protected Phases		8			4		2	2		6	6	
Permitted Phases	8			4					2			
Actuated Green, G (s)		19.5			20.0		19.4	19.4	19.4		0.9	
Effective Green, g (s)		19.5			20.0		19.4	19.4	19.4		0.9	
Actuated g/C Ratio		0.34			0.35		0.34	0.34	0.34		0.02	
Clearance Time (s)		6.0			5.5		6.0	6.0	6.0		6.0	
Vehicle Extension (s)		4.0			4.0		2.0	2.0	2.0		2.0	
Lane Grp Cap (vph)		1113			1036		564	566	531		27	
v/s Ratio Prot							0.19	c0.19			c0.01	
v/s Ratio Perm		c0.22			0.07				0.01			
v/c Ratio		0.64			0.19		0.56	0.57	0.04		0.37	
Uniform Delay, d1		16.2			13.2		15.7	15.7	12.9		28.2	
Progression Factor		1.00			1.00		1.00	1.00	1.00		1.00	
Incremental Delay, d2		1.4			0.1		4.0	4.1	0.1		3.1	
Delay (s)		17.7			13.4		19.7	19.8	13.1		31.3	
Level of Service		B			B		B	B	B		C	
Approach Delay (s)		17.7			13.4			19.2			31.3	
Approach LOS		B			B			B			C	

Intersection Summary			
HCM 2000 Control Delay	17.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	57.8	Sum of lost time (s)	18.0
Intersection Capacity Utilization	65.4%	ICU Level of Service	C
Analysis Period (min)	15		

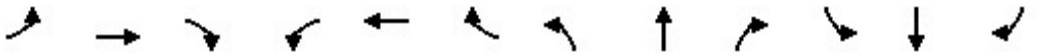
c Critical Lane Group



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	5	5	670	60	50	660
Future Volume (vph)	5	5	670	60	50	660
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0		6.0	6.0	6.0	6.0
Lane Util. Factor	0.97		0.95	1.00	1.00	0.91
Frt	0.93		1.00	0.85	1.00	1.00
Flt Protected	0.98		1.00	1.00	0.95	1.00
Satd. Flow (prot)	3261		3539	1583	1770	5085
Flt Permitted	0.98		1.00	1.00	0.37	1.00
Satd. Flow (perm)	3261		3539	1583	698	5085
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	5	728	65	54	717
RTOR Reduction (vph)	5	0	0	23	0	0
Lane Group Flow (vph)	5	0	728	42	54	717
Turn Type	Prot		NA	Perm	pm+pt	NA
Protected Phases	4		2		1	6
Permitted Phases				2	6	
Actuated Green, G (s)	1.0		42.3	42.3	51.7	51.7
Effective Green, g (s)	1.0		42.3	42.3	51.7	51.7
Actuated g/C Ratio	0.02		0.65	0.65	0.80	0.80
Clearance Time (s)	6.0		6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	50		2313	1034	614	4063
v/s Ratio Prot	c0.00		c0.21		0.00	c0.14
v/s Ratio Perm				0.03	0.07	
v/c Ratio	0.10		0.31	0.04	0.09	0.18
Uniform Delay, d1	31.4		4.9	4.0	1.4	1.5
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	0.9		0.4	0.1	0.1	0.1
Delay (s)	32.3		5.2	4.1	1.5	1.6
Level of Service	C		A	A	A	A
Approach Delay (s)	32.3		5.1			1.6
Approach LOS	C		A			A

Intersection Summary			
HCM 2000 Control Delay	3.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.31		
Actuated Cycle Length (s)	64.7	Sum of lost time (s)	18.0
Intersection Capacity Utilization	41.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	70	310	40	740	640	540	75	645	485	160	420	90
Future Volume (vph)	70	310	40	740	640	540	75	645	485	160	420	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	11	11	11	12	12	9	11	13	12	11	11
Grade (%)		-4%			2%			-1%			-2%	
Total Lost time (s)	5.5	5.5		6.0	6.0	5.5	5.5	5.5	4.0	5.5	5.5	
Lane Util. Factor	1.00	0.95		0.91	0.91	1.00	1.00	0.95	1.00	*0.99	0.95	
Frt	1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.97	
Flt Protected	0.95	1.00		0.95	0.98	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1805	3430		1541	3305	1567	1601	3438	1644	3539	3364	
Flt Permitted	0.95	1.00		0.95	0.98	1.00	0.44	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1805	3430		1541	3305	1567	748	3438	1644	3539	3364	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	76	337	43	804	696	587	82	701	527	174	457	98
RTOR Reduction (vph)	0	8	0	0	0	98	0	0	0	0	15	0
Lane Group Flow (vph)	76	372	0	490	1010	489	82	701	527	174	540	0
Turn Type	Split	NA		Split	NA	pt+ov	Perm	NA	Free	Prot	NA	
Protected Phases	3	3		4	4	1 4		2		1	6	
Permitted Phases							2		Free			
Actuated Green, G (s)	14.5	14.5		44.0	44.0	61.1	27.9	27.9	120.0	11.1	44.5	
Effective Green, g (s)	14.5	14.5		44.0	44.0	55.1	27.9	27.9	120.0	11.1	44.5	
Actuated g/C Ratio	0.12	0.12		0.37	0.37	0.46	0.23	0.23	1.00	0.09	0.37	
Clearance Time (s)	5.5	5.5		6.0	6.0		5.5	5.5		5.5	5.5	
Vehicle Extension (s)	4.0	4.0		4.0	4.0		0.2	0.2		3.0	0.2	
Lane Grp Cap (vph)	218	414		565	1211	719	173	799	1644	327	1247	
v/s Ratio Prot	0.04	c0.11		c0.32	0.31	c0.31		c0.20		0.05	0.16	
v/s Ratio Perm							0.11		0.32			
v/c Ratio	0.35	0.90		0.87	0.83	0.68	0.47	0.88	0.32	0.53	0.43	
Uniform Delay, d1	48.4	52.0		35.3	34.7	25.5	39.7	44.4	0.0	52.0	28.3	
Progression Factor	1.00	1.00		0.84	0.84	0.56	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	4.4	24.9		14.8	6.1	2.4	0.7	10.4	0.5	1.7	1.1	
Delay (s)	52.8	77.0		44.6	35.3	16.7	40.5	54.8	0.5	53.6	29.4	
Level of Service	D	E		D	D	B	D	D	A	D	C	
Approach Delay (s)		72.9			32.3			32.1			35.2	
Approach LOS		E			C			C			D	

Intersection Summary			
HCM 2000 Control Delay	36.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	22.5
Intersection Capacity Utilization	77.1%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	11.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	930	25	0	1710	190	0	0	145	0	0	210
Future Vol, veh/h	0	930	25	0	1710	190	0	0	145	0	0	210
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	2	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	1011	27	0	1859	207	0	0	158	0	0	228

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	-	-	0	-	-	519	-	-	1033
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	-	-	-	7.14	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	-	-	-	3.92	-	-	3.92
Pot Cap-1 Maneuver	0	-	-	0	-	-	0	0	429	0	0	~ 197
Stage 1	0	-	-	0	-	-	0	0	-	0	0	-
Stage 2	0	-	-	0	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	-	-	-	-	-	-	-	-	429	-	-	~ 197
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	18.2	162.9
HCM LOS			C	F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT	WBR	SBLn1
Capacity (veh/h)	429	-	-	-	-	197
HCM Lane V/C Ratio	0.367	-	-	-	-	1.159
HCM Control Delay (s)	18.2	-	-	-	-	162.9
HCM Lane LOS	C	-	-	-	-	F
HCM 95th %tile Q(veh)	1.7	-	-	-	-	11.4

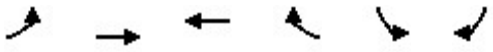
Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon



Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBR	SBR2	NEL	NER
Lane Configurations											
Traffic Volume (vph)	60	1570	0	0	2785	165	165	0	375	0	520
Future Volume (vph)	60	1570	0	0	2785	165	165	0	375	0	520
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	11	12	12	11	12	12	12	12	12	12
Grade (%)		0%			-3%		-4%			0%	
Total Lost time (s)	4.5	6.5			6.5	6.5	6.0		6.0		4.5
Lane Util. Factor	1.00	0.95			0.91	1.00	0.97		0.88		1.00
Frt	1.00	1.00			1.00	0.85	1.00		0.85		0.86
Flt Protected	0.95	1.00			1.00	1.00	0.95		1.00		1.00
Satd. Flow (prot)	1711	3421			4990	1607	3502		2842		1611
Flt Permitted	0.05	1.00			1.00	1.00	0.95		1.00		1.00
Satd. Flow (perm)	86	3421			4990	1607	3502		2842		1611
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	65	1707	0	0	3027	179	179	0	408	0	565
RTOR Reduction (vph)	0	0	0	0	0	60	0	0	146	0	0
Lane Group Flow (vph)	65	1707	0	0	3027	119	179	0	262	0	565
Turn Type	pm+pt	NA			NA	Perm	Prot		Perm		Perm
Protected Phases	1	6			2		4				
Permitted Phases	6					2			4		1 2 4 6
Actuated Green, G (s)	91.5	91.5			79.5	79.5	16.0		16.0		120.0
Effective Green, g (s)	91.5	91.5			79.5	79.5	16.0		16.0		107.5
Actuated g/C Ratio	0.76	0.76			0.66	0.66	0.13		0.13		0.90
Clearance Time (s)	4.5	6.5			6.5	6.5	6.0		6.0		
Vehicle Extension (s)	6.0	0.2			0.2	0.2	3.0		3.0		
Lane Grp Cap (vph)	167	2608			3305	1064	466		378		1443
v/s Ratio Prot	0.02	c0.50			c0.61		0.05				
v/s Ratio Perm	0.27					0.07			c0.09		0.35
v/c Ratio	0.39	0.65			0.92	0.11	0.38		0.69		0.39
Uniform Delay, d1	23.9	6.8			17.4	7.4	47.5		49.7		1.0
Progression Factor	0.79	1.12			0.57	0.02	1.00		1.00		1.00
Incremental Delay, d2	4.2	1.3			3.7	0.1	2.4		10.1		0.5
Delay (s)	23.0	8.9			13.7	0.3	49.9		59.7		1.5
Level of Service	C	A			B	A	D		E		A
Approach Delay (s)		9.4			13.0		56.7			1.5	
Approach LOS		A			B		E			A	

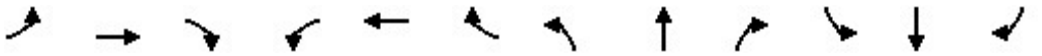
Intersection Summary			
HCM 2000 Control Delay	15.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	Err%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑↱			↱
Traffic Volume (vph)	0	2255	2945	5	0	5
Future Volume (vph)	0	2255	2945	5	0	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)		1%	-3%		0%	
Total Lost time (s)		5.0	5.0			4.0
Lane Util. Factor		0.91	0.91			1.00
Frt		1.00	1.00			0.86
Flt Protected		1.00	1.00			1.00
Satd. Flow (prot)		5060	5160			1611
Flt Permitted		1.00	1.00			1.00
Satd. Flow (perm)		5060	5160			1611
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	2451	3201	5	0	5
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	2451	3206	0	0	5
Turn Type		NA	NA			Free
Protected Phases		2	6			
Permitted Phases						Free
Actuated Green, G (s)		99.8	99.8			120.0
Effective Green, g (s)		99.8	99.8			120.0
Actuated g/C Ratio		0.83	0.83			1.00
Clearance Time (s)		5.0	5.0			
Vehicle Extension (s)		5.0	5.0			
Lane Grp Cap (vph)		4208	4291			1611
v/s Ratio Prot		0.48	c0.62			
v/s Ratio Perm						c0.00
v/c Ratio		0.58	0.75			0.00
Uniform Delay, d1		3.3	4.5			0.0
Progression Factor		0.62	1.00			1.00
Incremental Delay, d2		0.5	1.2			0.0
Delay (s)		2.5	5.7			0.0
Level of Service		A	A			A
Approach Delay (s)		2.5	5.7		0.0	
Approach LOS		A	A		A	

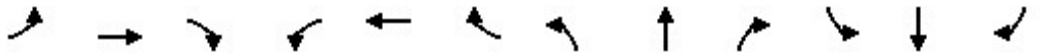
Intersection Summary			
HCM 2000 Control Delay	4.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	61.2%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	2150	95	15	2860	25	70	10	25	25	5	20
Future Volume (veh/h)	10	2150	95	15	2860	25	70	10	25	25	5	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1864	1864	1864	1908	1988	1988	1870	1945	1945	1864	1864	1864
Adj Flow Rate, veh/h	11	2337	103	16	3109	27	76	11	27	27	5	22
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	122	3531	155	170	3941	34	184	45	111	175	27	120
Arrive On Green	0.01	0.71	0.71	0.01	0.71	0.71	0.09	0.09	0.09	0.09	0.09	0.09
Sat Flow, veh/h	1776	4999	219	1818	5549	48	1383	499	1225	1365	301	1325
Grp Volume(v), veh/h	11	1581	859	16	2024	1112	76	0	38	27	0	27
Grp Sat Flow(s),veh/h/ln	1776	1697	1825	1818	1809	1979	1383	0	1725	1365	0	1626
Q Serve(g_s), s	0.2	23.1	23.5	0.2	33.1	33.4	4.8	0.0	1.8	1.7	0.0	1.4
Cycle Q Clear(g_c), s	0.2	23.1	23.5	0.2	33.1	33.4	6.2	0.0	1.8	3.5	0.0	1.4
Prop In Lane	1.00		0.12	1.00		0.02	1.00		0.71	1.00		0.81
Lane Grp Cap(c), veh/h	122	2396	1289	170	2570	1406	184	0	156	175	0	147
V/C Ratio(X)	0.09	0.66	0.67	0.09	0.79	0.79	0.41	0.00	0.24	0.15	0.00	0.18
Avail Cap(c_a), veh/h	184	2396	1289	226	2570	1406	196	0	171	187	0	161
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.81	0.81	0.81	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	10.9	7.3	7.3	7.0	8.6	8.6	40.8	0.0	38.1	39.7	0.0	37.9
Incr Delay (d2), s/veh	0.3	1.2	2.2	0.2	2.5	4.6	1.5	0.0	0.8	0.4	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	6.3	7.3	0.1	9.9	11.7	1.7	0.0	0.8	0.6	0.0	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	11.1	8.4	9.6	7.2	11.1	13.2	42.2	0.0	38.9	40.1	0.0	38.5
LnGrp LOS	B	A	A	A	B	B	D	A	D	D	A	D
Approach Vol, veh/h		2451			3152			114			54	
Approach Delay, s/veh		8.8			11.8			41.1			39.3	
Approach LOS		A			B			D			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.5	68.9		14.6	6.8	68.6		14.6				
Change Period (Y+Rc), s	5.5	5.0		6.5	5.5	5.0		6.5				
Max Green Setting (Gmax), s	4.1	60.0		8.9	4.1	60.0		8.9				
Max Q Clear Time (g_c+I1), s	2.2	35.4		5.5	2.2	25.5		8.2				
Green Ext Time (p_c), s	0.0	22.6		0.0	0.0	24.8		0.0				

Intersection Summary			
HCM 6th Ctrl Delay		11.4	
HCM 6th LOS		B	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	515	230	75	145	5	390	5	15	10	20	15
Future Volume (vph)	5	515	230	75	145	5	390	5	15	10	20	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			5.5		6.0	6.0	6.0		6.0	
Lane Util. Factor		0.95			0.95		0.95	0.95	1.00		1.00	
Frt		0.95			1.00		1.00	1.00	0.85		0.96	
Flt Protected		1.00			0.98		0.95	0.95	1.00		0.99	
Satd. Flow (prot)		3375			3470		1681	1687	1583		1761	
Flt Permitted		0.95			0.60		0.95	0.95	1.00		0.99	
Satd. Flow (perm)		3218			2099		1681	1687	1583		1761	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	560	250	82	158	5	424	5	16	11	22	16
RTOR Reduction (vph)	0	62	0	0	2	0	0	0	11	0	15	0
Lane Group Flow (vph)	0	753	0	0	243	0	216	213	5	0	34	0
Turn Type	Perm	NA		Perm	NA		Split	NA	Perm	Split	NA	
Protected Phases		8			4		2	2		6	6	
Permitted Phases	8			4					2			
Actuated Green, G (s)		22.0			22.5		19.7	19.7	19.7		3.6	
Effective Green, g (s)		22.0			22.5		19.7	19.7	19.7		3.6	
Actuated g/C Ratio		0.35			0.36		0.31	0.31	0.31		0.06	
Clearance Time (s)		6.0			5.5		6.0	6.0	6.0		6.0	
Vehicle Extension (s)		4.0			4.0		2.0	2.0	2.0		2.0	
Lane Grp Cap (vph)		1118			746		523	525	492		100	
v/s Ratio Prot							c0.13	0.13			c0.02	
v/s Ratio Perm		c0.23			0.12				0.00			
v/c Ratio		0.67			0.33		0.41	0.41	0.01		0.34	
Uniform Delay, d1		17.6			14.9		17.2	17.2	15.1		28.7	
Progression Factor		1.00			1.00		1.00	1.00	1.00		1.00	
Incremental Delay, d2		1.8			0.3		2.4	2.3	0.0		0.7	
Delay (s)		19.4			15.2		19.6	19.5	15.1		29.4	
Level of Service		B			B		B	B	B		C	
Approach Delay (s)		19.4			15.2			19.4			29.4	
Approach LOS		B			B			B			C	

Intersection Summary			
HCM 2000 Control Delay	19.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	63.3	Sum of lost time (s)	18.0
Intersection Capacity Utilization	66.4%	ICU Level of Service	C
Analysis Period (min)	15		

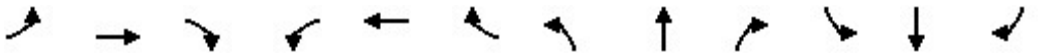
c Critical Lane Group



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	45	30	535	15	30	705
Future Volume (vph)	45	30	535	15	30	705
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0		6.0	6.0	6.0	6.0
Lane Util. Factor	0.97		0.95	1.00	1.00	0.91
Frt	0.94		1.00	0.85	1.00	1.00
Flt Protected	0.97		1.00	1.00	0.95	1.00
Satd. Flow (prot)	3297		3539	1583	1770	5085
Flt Permitted	0.97		1.00	1.00	0.43	1.00
Satd. Flow (perm)	3297		3539	1583	806	5085
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	49	33	582	16	33	766
RTOR Reduction (vph)	31	0	0	6	0	0
Lane Group Flow (vph)	51	0	582	10	33	766
Turn Type	Prot		NA	Perm	pm+pt	NA
Protected Phases	4		2		1	6
Permitted Phases				2	6	
Actuated Green, G (s)	3.1		39.9	39.9	48.2	48.2
Effective Green, g (s)	3.1		39.9	39.9	48.2	48.2
Actuated g/C Ratio	0.05		0.63	0.63	0.76	0.76
Clearance Time (s)	6.0		6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	161		2230	997	648	3871
v/s Ratio Prot	c0.02		c0.16		0.00	c0.15
v/s Ratio Perm				0.01	0.04	
v/c Ratio	0.31		0.26	0.01	0.05	0.20
Uniform Delay, d1	29.1		5.2	4.4	1.9	2.1
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	1.1		0.3	0.0	0.0	0.1
Delay (s)	30.2		5.5	4.4	1.9	2.2
Level of Service	C		A	A	A	A
Approach Delay (s)	30.2		5.4			2.2
Approach LOS	C		A			A

Intersection Summary			
HCM 2000 Control Delay	5.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.27		
Actuated Cycle Length (s)	63.3	Sum of lost time (s)	18.0
Intersection Capacity Utilization	38.1%	ICU Level of Service	A
Analysis Period (min)	15		

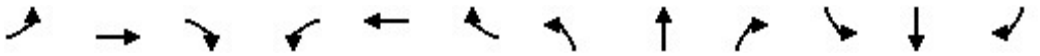
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	90	550	15	150	255	325	5	20	30	30	5	60
Future Volume (veh/h)	90	550	15	150	255	325	5	20	30	30	5	60
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	98	598	16	163	277	353	5	22	33	33	5	65
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	635	2554	68	672	1454	1297	107	52	79	123	9	115
Arrive On Green	0.72	0.72	0.72	0.04	0.82	0.82	0.08	0.08	0.08	0.08	0.08	0.08
Sat Flow, veh/h	796	3536	95	1781	1777	1585	1331	675	1013	1349	114	1488
Grp Volume(v), veh/h	98	300	314	163	277	353	5	0	55	33	0	70
Grp Sat Flow(s),veh/h/ln	796	1777	1853	1781	1777	1585	1331	0	1688	1349	0	1603
Q Serve(g_s), s	4.7	6.8	6.8	2.7	4.0	6.2	0.4	0.0	3.7	2.9	0.0	5.1
Cycle Q Clear(g_c), s	4.7	6.8	6.8	2.7	4.0	6.2	5.5	0.0	3.7	6.6	0.0	5.1
Prop In Lane	1.00		0.05	1.00		1.00	1.00		0.60	1.00		0.93
Lane Grp Cap(c), veh/h	635	1283	1339	672	1454	1297	107	0	131	123	0	124
V/C Ratio(X)	0.15	0.23	0.23	0.24	0.19	0.27	0.05	0.00	0.42	0.27	0.00	0.56
Avail Cap(c_a), veh/h	635	1283	1339	932	1454	1297	314	0	394	333	0	374
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.81	0.81	0.81	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	5.3	5.6	5.6	3.6	2.3	2.6	56.0	0.0	52.8	55.9	0.0	53.4
Incr Delay (d2), s/veh	0.5	0.4	0.4	0.1	0.2	0.4	0.4	0.0	4.5	2.5	0.0	8.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	2.5	2.6	0.8	1.1	1.6	0.2	0.0	1.7	1.1	0.0	2.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	5.8	6.0	6.0	3.7	2.6	3.0	56.4	0.0	57.3	58.4	0.0	61.7
LnGrp LOS	A	A	A	A	A	A	E	A	E	E	A	E
Approach Vol, veh/h		712			793			60			103	
Approach Delay, s/veh		6.0			3.0			57.2			60.6	
Approach LOS		A			A			E			E	

Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		104.7		15.3	11.5	93.2		15.3				
Change Period (Y+Rc), s		6.5		6.0	6.5	6.5		6.0				
Max Green Setting (Gmax), s		79.5		28.0	22.5	50.5		28.0				
Max Q Clear Time (g_c+I1), s		8.2		8.6	4.7	8.8		7.5				
Green Ext Time (p_c), s		0.8		0.8	0.4	0.8		0.4				

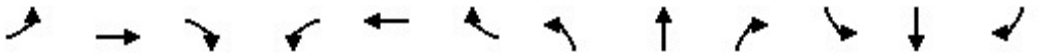
Intersection Summary												
HCM 6th Ctrl Delay			9.8									
HCM 6th LOS			A									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	155	425	30	170	495	140	80	0	190	350	0	155
Future Volume (vph)	155	425	30	170	495	140	80	0	190	350	0	155
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	6.0		4.5	6.0	6.0		5.5			5.5	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00		1.00			1.00	
Frt	1.00	0.99		1.00	1.00	0.85		0.90			0.96	
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.99			0.97	
Satd. Flow (prot)	1770	3504		1770	3539	1583		1661			1726	
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.78			0.60	
Satd. Flow (perm)	1770	3504		1770	3539	1583		1312			1076	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	168	462	33	185	538	152	87	0	207	380	0	168
RTOR Reduction (vph)	0	5	0	0	0	110	0	88	0	0	81	0
Lane Group Flow (vph)	168	490	0	185	538	42	0	206	0	0	467	0
Turn Type	Prot	NA		Prot	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	1	6		5	2			8			4	
Permitted Phases						2	8			4		
Actuated Green, G (s)	11.5	26.6		12.3	27.4	27.4		45.1			45.1	
Effective Green, g (s)	11.5	26.6		12.3	27.4	27.4		45.1			45.1	
Actuated g/C Ratio	0.12	0.27		0.12	0.27	0.27		0.45			0.45	
Clearance Time (s)	4.5	6.0		4.5	6.0	6.0		5.5			5.5	
Vehicle Extension (s)	3.0	0.2		3.0	0.2	0.2		0.2			5.0	
Lane Grp Cap (vph)	203	932		217	969	433		591			485	
v/s Ratio Prot	c0.09	c0.14		c0.10	0.15							
v/s Ratio Perm						0.03		0.16			c0.43	
v/c Ratio	0.83	0.53		0.85	0.56	0.10		0.35			0.96	
Uniform Delay, d1	43.3	31.3		43.0	31.1	27.1		17.9			26.7	
Progression Factor	1.00	1.00		0.77	0.69	0.32		1.00			1.00	
Incremental Delay, d2	23.3	2.1		21.5	1.8	0.3		0.1			31.9	
Delay (s)	66.6	33.4		54.6	23.4	8.9		18.0			58.6	
Level of Service	E	C		D	C	A		B			E	
Approach Delay (s)		41.8			27.5			18.0			58.6	
Approach LOS		D			C			B			E	

Intersection Summary			
HCM 2000 Control Delay	37.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	85.2%	ICU Level of Service	E
Analysis Period (min)	15		

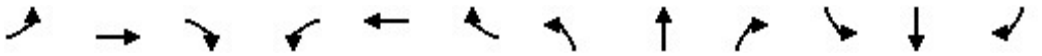
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	375	375	215	145	360	210	10	5	5	120	355	435
Future Volume (vph)	375	375	215	145	360	210	10	5	5	120	355	435
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.5		5.0	5.5			5.5	5.5	5.5	5.5	5.5
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00	0.95	0.95	1.00
Frt	1.00	0.95		1.00	0.94			1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.97	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3346		1770	3344			1801	1583	1681	1767	1583
Flt Permitted	0.17	1.00		0.41	1.00			0.97	1.00	0.95	1.00	1.00
Satd. Flow (perm)	308	3346		760	3344			1801	1583	1681	1767	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	408	408	234	158	391	228	11	5	5	130	386	473
RTOR Reduction (vph)	0	73	0	0	87	0	0	0	5	0	0	308
Lane Group Flow (vph)	408	569	0	158	532	0	0	16	0	117	399	165
Turn Type	pm+pt	NA		pm+pt	NA		Split	NA	Perm	Split	NA	Perm
Protected Phases	1	6		5	2		3	3		4	4	
Permitted Phases	6			2					3			4
Actuated Green, G (s)	44.8	30.8		28.2	19.2			3.8	3.8	34.9	34.9	34.9
Effective Green, g (s)	44.8	30.8		28.2	19.2			3.8	3.8	34.9	34.9	34.9
Actuated g/C Ratio	0.45	0.31		0.28	0.19			0.04	0.04	0.35	0.35	0.35
Clearance Time (s)	5.0	5.5		5.0	5.5			5.5	5.5	5.5	5.5	5.5
Vehicle Extension (s)	3.0	0.2		3.0	0.2			5.0	5.0	5.0	5.0	5.0
Lane Grp Cap (vph)	439	1030		305	642			68	60	586	616	552
v/s Ratio Prot	c0.19	0.17		0.05	0.16			c0.01		0.07	c0.23	
v/s Ratio Perm	c0.22			0.10					0.00			0.10
v/c Ratio	0.93	0.55		0.52	0.83			0.24	0.00	0.20	0.65	0.30
Uniform Delay, d1	26.4	28.9		28.3	38.8			46.7	46.3	22.8	27.4	23.7
Progression Factor	0.81	0.91		1.00	1.00			1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	21.1	1.6		1.5	11.7			3.7	0.0	0.4	3.2	0.6
Delay (s)	42.6	27.9		29.8	50.6			50.4	46.3	23.1	30.6	24.3
Level of Service	D	C		C	D			D	D	C	C	C
Approach Delay (s)		33.6			46.3			49.4			26.7	
Approach LOS		C			D			D			C	

Intersection Summary			
HCM 2000 Control Delay	34.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	21.5
Intersection Capacity Utilization	70.1%	ICU Level of Service	C
Analysis Period (min)	15		

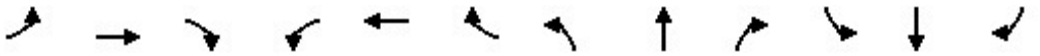
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	45	400	10	230	540	140	45	10	235	235	15	50
Future Volume (veh/h)	45	400	10	230	540	140	45	10	235	235	15	50
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	49	435	11	250	587	152	49	11	255	255	16	54
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	315	1257	32	504	1449	374	525	25	577	342	142	478
Arrive On Green	0.35	0.35	0.35	0.22	1.00	1.00	0.38	0.38	0.38	0.38	0.38	0.38
Sat Flow, veh/h	720	3542	89	1781	2795	722	1331	66	1529	1113	375	1267
Grp Volume(v), veh/h	49	218	228	250	373	366	49	0	266	255	0	70
Grp Sat Flow(s),veh/h/ln	720	1777	1854	1781	1777	1740	1331	0	1595	1113	0	1642
Q Serve(g_s), s	5.7	10.8	10.9	10.7	0.0	0.0	3.0	0.0	14.9	26.6	0.0	3.3
Cycle Q Clear(g_c), s	5.7	10.8	10.9	10.7	0.0	0.0	6.3	0.0	14.9	41.6	0.0	3.3
Prop In Lane	1.00		0.05	1.00		0.41	1.00		0.96	1.00		0.77
Lane Grp Cap(c), veh/h	315	631	658	504	921	902	525	0	602	342	0	620
V/C Ratio(X)	0.16	0.35	0.35	0.50	0.40	0.41	0.09	0.00	0.44	0.75	0.00	0.11
Avail Cap(c_a), veh/h	315	631	658	614	921	902	600	0	691	404	0	712
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.78	0.78	0.78	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	26.8	28.5	28.5	17.4	0.0	0.0	26.3	0.0	27.9	43.4	0.0	24.3
Incr Delay (d2), s/veh	1.0	1.5	1.4	0.6	1.0	1.1	0.2	0.0	1.1	8.7	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	4.9	5.1	3.7	0.3	0.3	1.0	0.0	5.9	8.1	0.0	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	27.8	30.0	29.9	18.0	1.0	1.1	26.5	0.0	29.0	52.1	0.0	24.5
LnGrp LOS	C	C	C	B	A	A	C	A	C	D	A	C
Approach Vol, veh/h		495			989			315			325	
Approach Delay, s/veh		29.7			5.3			28.6			46.2	
Approach LOS		C			A			C			D	

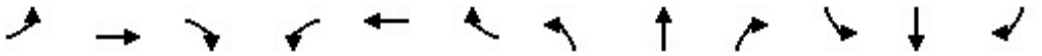
Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		68.7		51.3	19.6	49.1		51.3				
Change Period (Y+Rc), s		6.5		6.0	6.5	6.5		6.0				
Max Green Setting (Gmax), s		55.5		52.0	20.5	28.5		52.0				
Max Q Clear Time (g_c+I1), s		2.0		43.6	12.7	12.9		16.9				
Green Ext Time (p_c), s		0.8		1.7	0.4	0.5		4.0				

Intersection Summary												
HCM 6th Ctrl Delay			20.7									
HCM 6th LOS			C									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	360	435	75	190	650	530	55	0	105	125	0	205
Future Volume (vph)	360	435	75	190	650	530	55	0	105	125	0	205
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	16	12	12	12	12
Total Lost time (s)	4.5	6.0		4.5	6.0	6.0		5.0			5.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00		1.00			1.00	
Frt	1.00	0.98		1.00	1.00	0.85		0.91			0.92	
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.98			0.98	
Satd. Flow (prot)	1770	3461		1770	3539	1583		1892			1675	
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.70			0.75	
Satd. Flow (perm)	1770	3461		1770	3539	1583		1356			1277	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	391	473	82	207	707	576	60	0	114	136	0	223
RTOR Reduction (vph)	0	10	0	0	0	379	0	94	0	0	94	0
Lane Group Flow (vph)	391	545	0	207	707	197	0	80	0	0	265	0
Turn Type	Prot	NA		Prot	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	1	6		5	2			8			4	
Permitted Phases						2	8			4		
Actuated Green, G (s)	35.5	57.8		18.7	41.0	41.0		28.0			28.0	
Effective Green, g (s)	35.5	57.8		18.7	41.0	41.0		28.0			28.0	
Actuated g/C Ratio	0.30	0.48		0.16	0.34	0.34		0.23			0.23	
Clearance Time (s)	4.5	6.0		4.5	6.0	6.0		5.0			5.0	
Vehicle Extension (s)	3.0	2.0		3.0	2.0	2.0		3.0			3.0	
Lane Grp Cap (vph)	523	1667		275	1209	540		316			297	
v/s Ratio Prot	c0.22	0.16		c0.12	c0.20							
v/s Ratio Perm						0.12		0.06			c0.21	
v/c Ratio	0.75	0.33		0.75	0.58	0.36		0.25			0.89	
Uniform Delay, d1	38.2	19.1		48.4	32.5	29.7		37.5			44.5	
Progression Factor	0.90	0.85		0.85	0.78	0.58		1.00			1.00	
Incremental Delay, d2	5.4	0.5		5.3	1.0	0.9		0.4			26.5	
Delay (s)	39.9	16.8		46.3	26.2	18.2		37.9			71.1	
Level of Service	D	B		D	C	B		D			E	
Approach Delay (s)		26.3			25.9			37.9			71.1	
Approach LOS		C			C			D			E	

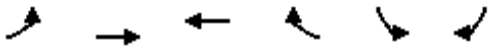
Intersection Summary			
HCM 2000 Control Delay	32.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	15.5
Intersection Capacity Utilization	77.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	260	390	15	5	570	35	230	95	220	225	5	570
Future Volume (vph)	260	390	15	5	570	35	230	95	220	225	5	570
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.5		5.0	5.5			5.5	5.5	5.5	5.5	5.5
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00	0.95	0.95	1.00
Frt	1.00	0.99		1.00	0.99			1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.97	1.00	0.95	0.95	1.00
Satd. Flow (prot)	1770	3520		1770	3509			1799	1583	1681	1689	1583
Flt Permitted	0.13	1.00		0.50	1.00			0.97	1.00	0.95	0.95	1.00
Satd. Flow (perm)	240	3520		925	3509			1799	1583	1681	1689	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	283	424	16	5	620	38	250	103	239	245	5	620
RTOR Reduction (vph)	0	2	0	0	4	0	0	0	183	0	0	271
Lane Group Flow (vph)	283	438	0	5	654	0	0	353	56	125	125	349
Turn Type	pm+pt	NA		pm+pt	NA		Split	NA	Perm	Split	NA	Perm
Protected Phases	1	6		5	2		3	3		4	4	
Permitted Phases	6			2					3			4
Actuated Green, G (s)	47.9	41.6		28.2	26.9			25.5	25.5	30.1	30.1	30.1
Effective Green, g (s)	47.9	41.6		28.2	26.9			25.5	25.5	30.1	30.1	30.1
Actuated g/C Ratio	0.40	0.35		0.23	0.22			0.21	0.21	0.25	0.25	0.25
Clearance Time (s)	5.0	5.5		5.0	5.5			5.5	5.5	5.5	5.5	5.5
Vehicle Extension (s)	3.0	0.2		3.0	0.2			5.0	5.0	5.0	5.0	5.0
Lane Grp Cap (vph)	299	1220		226	786			382	336	421	423	397
v/s Ratio Prot	c0.13	0.12		0.00	0.19			c0.20		0.07	0.07	
v/s Ratio Perm	c0.25			0.00					0.04			c0.22
v/c Ratio	0.95	0.36		0.02	0.83			0.92	0.17	0.30	0.30	0.88
Uniform Delay, d1	32.4	29.3		35.2	44.4			46.3	38.6	36.4	36.4	43.2
Progression Factor	0.91	0.90		1.00	1.00			1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	35.8	0.8		0.0	10.0			28.7	0.5	0.8	0.8	20.6
Delay (s)	65.2	27.0		35.3	54.4			75.0	39.1	37.2	37.2	63.8
Level of Service	E	C		D	D			E	D	D	D	E
Approach Delay (s)		42.0			54.3			60.5			56.1	
Approach LOS		D			D			E			E	

Intersection Summary			
HCM 2000 Control Delay	53.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	21.5
Intersection Capacity Utilization	83.6%	ICU Level of Service	E
Analysis Period (min)	15		

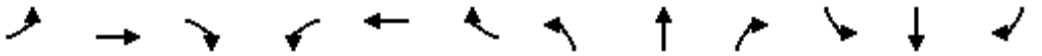
c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	1390	900	0	200	130
Future Volume (veh/h)	0	1390	900	0	200	130
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	0	1870	1870	0	1870	1870
Adj Flow Rate, veh/h	0	1511	978	0	217	141
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	2	2	0	2	2
Cap, veh/h	0	3885	4896	0	678	214
Arrive On Green	0.00	0.76	0.76	0.00	0.13	0.13
Sat Flow, veh/h	0	5443	6958	0	5023	1585
Grp Volume(v), veh/h	0	1511	978	0	217	141
Grp Sat Flow(s),veh/h/ln	0	1702	1609	0	1674	1585
Q Serve(g_s), s	0.0	12.1	5.1	0.0	4.7	10.1
Cycle Q Clear(g_c), s	0.0	12.1	5.1	0.0	4.7	10.1
Prop In Lane	0.00			0.00	1.00	1.00
Lane Grp Cap(c), veh/h	0	3885	4896	0	678	214
V/C Ratio(X)	0.00	0.39	0.20	0.00	0.32	0.66
Avail Cap(c_a), veh/h	0	3885	4896	0	1737	548
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.98	0.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	4.9	4.0	0.0	46.9	49.3
Incr Delay (d2), s/veh	0.0	0.3	0.1	0.0	1.0	11.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	3.6	1.4	0.0	2.0	4.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	5.2	4.1	0.0	47.9	61.2
LnGrp LOS	A	A	A	A	D	E
Approach Vol, veh/h		1511	978		358	
Approach Delay, s/veh		5.2	4.1		53.1	
Approach LOS		A	A		D	

Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		97.3		22.7		97.3
Change Period (Y+Rc), s		6.0		6.5		6.0
Max Green Setting (Gmax), s		66.0		41.5		66.0
Max Q Clear Time (g_c+I1), s		14.1		12.1		7.1
Green Ext Time (p_c), s		16.3		4.1		8.5

Intersection Summary		
HCM 6th Ctrl Delay		10.8
HCM 6th LOS		B



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1220	370	295	765	0	0	0	0	445	0	135
Future Volume (veh/h)	0	1220	370	295	765	0	0	0	0	445	0	135
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0				1870	0	1870
Adj Flow Rate, veh/h	0	1326	0	321	832	0				484	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				0.92	0.92	0.92
Percent Heavy Veh, %	0	2	2	2	2	0				2	0	2
Cap, veh/h	0	2553		740	3851	0				550	0	
Arrive On Green	0.00	0.50	0.00	0.43	1.00	0.00				0.16	0.00	0.00
Sat Flow, veh/h	0	5443	0	3456	5274	0				3456	0	1585
Grp Volume(v), veh/h	0	1326	0	321	832	0				484	0	0
Grp Sat Flow(s),veh/h/ln	0	1702	0	1728	1702	0				1728	0	1585
Q Serve(g_s), s	0.0	26.3	0.0	9.8	0.0	0.0				20.5	0.0	0.0
Cycle Q Clear(g_c), s	0.0	26.3	0.0	9.8	0.0	0.0				20.5	0.0	0.0
Prop In Lane	0.00		0.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	2553		740	3851	0				550	0	
V/C Ratio(X)	0.00	0.52		0.43	0.22	0.00				0.88	0.00	
Avail Cap(c_a), veh/h	0	2553		740	3851	0				760	0	
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.93	0.00	0.95	0.95	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	25.3	0.0	36.5	0.0	0.0				61.7	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.7	0.0	0.4	0.1	0.0				8.9	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	10.7	0.0	3.7	0.0	0.0				9.7	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	26.0	0.0	36.9	0.1	0.0				70.5	0.0	0.0
LnGrp LOS	A	C		D	A	A				E	A	
Approach Vol, veh/h		1326	A		1153						484	A
Approach Delay, s/veh		26.0			10.4						70.5	
Approach LOS		C			B						E	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	38.1	81.0		30.9		119.1
Change Period (Y+Rc), s	6.0	* 6		7.0		6.0
Max Green Setting (Gmax), s	24.5	* 75		33.0		104.0
Max Q Clear Time (g_c+I1), s	11.8	28.3		22.5		2.0
Green Ext Time (p_c), s	0.9	2.1		1.3		1.2

Intersection Summary		
HCM 6th Ctrl Delay		27.2
HCM 6th LOS		C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.



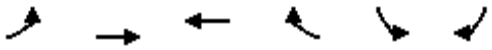
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1495	170	0	770	290	0
Future Volume (veh/h)	1495	170	0	770	290	0
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	0	1870	1870	0
Adj Flow Rate, veh/h	1625	0	0	837	315	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	0	2	2	0
Cap, veh/h	4885		0	4885	0	0
Arrive On Green	1.00	0.00	0.00	1.00	0.00	0.00
Sat Flow, veh/h	5443	0	0	5443	0	0
Grp Volume(v), veh/h	1625	0	0	837	0	0
Grp Sat Flow(s),veh/h/ln	1702	0	0	1702	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	0.0	0.0
Prop In Lane		0.00	0.00		0.00	0.00
Lane Grp Cap(c), veh/h	4885		0	4885	0	0
V/C Ratio(X)	0.33		0.00	0.17	0.00	0.00
Avail Cap(c_a), veh/h	4885		0	4885	0	0
HCM Platoon Ratio	2.00	2.00	1.00	2.00	1.00	1.00
Upstream Filter(I)	0.68	0.00	0.00	0.99	0.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.0	0.0	0.0	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.1	0.0	0.0	0.1	0.0	0.0
LnGrp LOS	A		A	A	A	A
Approach Vol, veh/h	1625	A		837	0	
Approach Delay, s/veh	0.1			0.1	0.0	
Approach LOS	A			A		

Timer - Assigned Phs	2			6	8
Phs Duration (G+Y+Rc), s	150.0			150.0	0.0
Change Period (Y+Rc), s	6.5			6.5	7.0
Max Green Setting (Gmax), s	101.5			101.5	35.0
Max Q Clear Time (g_c+I1), s	2.0			2.0	0.0
Green Ext Time (p_c), s	7.0			20.5	0.0

Intersection Summary	
HCM 6th Ctrl Delay	0.1
HCM 6th LOS	A

Notes

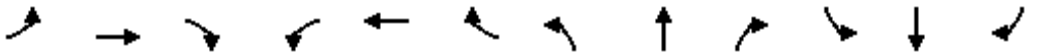
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑↑		↰↰↰	↱
Traffic Volume (vph)	0	1390	900	0	200	130
Future Volume (vph)	0	1390	900	0	200	130
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	6.0		6.5	6.5
Lane Util. Factor		0.91	0.86		0.94	1.00
Frt		1.00	1.00		1.00	0.85
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		5085	6408		4990	1583
Flt Permitted		1.00	1.00		0.95	1.00
Satd. Flow (perm)		5085	6408		4990	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1511	978	0	217	141
RTOR Reduction (vph)	0	0	0	0	0	91
Lane Group Flow (vph)	0	1511	978	0	217	50
Turn Type		NA	NA		Prot	Prot
Protected Phases		2	6		4	4
Permitted Phases						
Actuated Green, G (s)		93.0	93.0		14.5	14.5
Effective Green, g (s)		93.0	93.0		14.5	14.5
Actuated g/C Ratio		0.78	0.78		0.12	0.12
Clearance Time (s)		6.0	6.0		6.5	6.5
Vehicle Extension (s)		3.0	3.0		6.0	6.0
Lane Grp Cap (vph)		3940	4966		602	191
v/s Ratio Prot		c0.30	0.15		c0.04	0.03
v/s Ratio Perm						
v/c Ratio		0.38	0.20		0.36	0.26
Uniform Delay, d1		4.3	3.6		48.5	47.9
Progression Factor		1.00	1.00		1.00	1.00
Incremental Delay, d2		0.3	0.1		1.0	2.1
Delay (s)		4.6	3.7		49.5	50.0
Level of Service		A	A		D	D
Approach Delay (s)		4.6	3.7		49.7	
Approach LOS		A	A		D	

Intersection Summary			
HCM 2000 Control Delay	10.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.5
Intersection Capacity Utilization	41.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1220	370	295	765	0	0	0	0	445	0	135
Future Volume (vph)	0	1220	370	295	765	0	0	0	0	445	0	135
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0		4.5	6.0					7.0		7.0
Lane Util. Factor		0.91		0.97	0.91					0.97		1.00
Frt		0.97		1.00	1.00					1.00		0.85
Flt Protected		1.00		0.95	1.00					0.95		1.00
Satd. Flow (prot)		4908		3433	5085					3433		1583
Flt Permitted		1.00		0.95	1.00					0.95		1.00
Satd. Flow (perm)		4908		3433	5085					3433		1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1326	402	321	832	0	0	0	0	484	0	147
RTOR Reduction (vph)	0	33	0	0	0	0	0	0	0	0	0	121
Lane Group Flow (vph)	0	1695	0	321	832	0	0	0	0	484	0	26
Turn Type		NA		Prot	NA					Prot		Prot
Protected Phases		2		1	6					4		4
Permitted Phases												
Actuated Green, G (s)		81.5		24.5	110.5					26.5		26.5
Effective Green, g (s)		81.5		24.5	110.5					26.5		26.5
Actuated g/C Ratio		0.54		0.16	0.74					0.18		0.18
Clearance Time (s)		6.0		4.5	6.0					7.0		7.0
Vehicle Extension (s)		0.2		3.0	0.2					3.0		3.0
Lane Grp Cap (vph)		2666		560	3745					606		279
v/s Ratio Prot		c0.35		c0.09	0.16					c0.14		0.02
v/s Ratio Perm												
v/c Ratio		0.64		0.57	0.22					0.80		0.09
Uniform Delay, d1		23.9		57.9	6.2					59.2		51.7
Progression Factor		1.00		0.73	0.30					1.00		1.00
Incremental Delay, d2		1.2		1.4	0.1					7.3		0.1
Delay (s)		25.1		44.0	2.0					66.5		51.8
Level of Service		C		D	A					E		D
Approach Delay (s)		25.1			13.7			0.0			63.1	
Approach LOS		C			B			A			E	

Intersection Summary			
HCM 2000 Control Delay	28.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	17.5
Intersection Capacity Utilization	65.0%	ICU Level of Service	C
Analysis Period (min)	15		
Description:			
c Critical Lane Group			



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1495	170	0	770	290	0
Future Volume (vph)	1495	170	0	770	290	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5			6.5	7.0	
Lane Util. Factor	0.91			0.91	0.97	
Frt	0.98			1.00	1.00	
Flt Protected	1.00			1.00	0.95	
Satd. Flow (prot)	5007			5085	3433	
Flt Permitted	1.00			1.00	0.95	
Satd. Flow (perm)	5007			5085	3433	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1625	185	0	837	315	0
RTOR Reduction (vph)	6	0	0	0	0	0
Lane Group Flow (vph)	1804	0	0	837	315	0
Turn Type	NA			NA	Prot	
Protected Phases	6			2	3	
Permitted Phases						
Actuated Green, G (s)	117.4			117.4	19.1	
Effective Green, g (s)	117.4			117.4	19.1	
Actuated g/C Ratio	0.78			0.78	0.13	
Clearance Time (s)	6.5			6.5	7.0	
Vehicle Extension (s)	3.0			3.0	3.0	
Lane Grp Cap (vph)	3918			3979	437	
v/s Ratio Prot	c0.36			0.16	c0.09	
v/s Ratio Perm						
v/c Ratio	0.46			0.21	0.72	
Uniform Delay, d1	5.5			4.2	62.9	
Progression Factor	1.20			0.68	1.00	
Incremental Delay, d2	0.3			0.1	5.8	
Delay (s)	7.0			3.0	68.7	
Level of Service	A			A	E	
Approach Delay (s)	7.0			3.0	68.7	
Approach LOS	A			A	E	

Intersection Summary			
HCM 2000 Control Delay	12.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	52.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1495	0	0	770	0	910
Future Volume (vph)	1495	0	0	770	0	910
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5			6.0		6.0
Lane Util. Factor	0.91			0.91		0.88
Frt	1.00			1.00		0.85
Flt Protected	1.00			1.00		1.00
Satd. Flow (prot)	5085			5085		2787
Flt Permitted	1.00			1.00		1.00
Satd. Flow (perm)	5085			5085		2787
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1625	0	0	837	0	989
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	1625	0	0	837	0	989
Turn Type	NA			NA		Prot
Protected Phases	2			4 6		4
Permitted Phases						
Actuated Green, G (s)	71.1			150.0		67.4
Effective Green, g (s)	71.1			144.5		67.4
Actuated g/C Ratio	0.47			0.96		0.45
Clearance Time (s)	5.5					6.0
Vehicle Extension (s)	3.0					3.0
Lane Grp Cap (vph)	2410			4898		1252
v/s Ratio Prot	c0.32			0.16		c0.35
v/s Ratio Perm						
v/c Ratio	0.67			0.17		0.79
Uniform Delay, d1	30.5			0.1		35.3
Progression Factor	0.32			1.00		1.00
Incremental Delay, d2	1.4			0.0		3.4
Delay (s)	11.1			0.1		38.7
Level of Service	B			A		D
Approach Delay (s)	11.1			0.1	38.7	
Approach LOS	B			A	D	

Intersection Summary			
HCM 2000 Control Delay	16.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	11.5
Intersection Capacity Utilization	70.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	80	820	880	625	235	105	150	715	0	405	145	0
Future Volume (vph)	80	820	880	625	235	105	150	715	0	405	145	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5	6.0	4.0	6.5	6.0	4.0	6.5		4.0	6.5	
Lane Util. Factor		0.97	0.91	1.00	1.00	0.91	1.00	1.00		1.00	0.97	
Frt		1.00	1.00	0.85	1.00	1.00	0.85	1.00		0.85	1.00	
Flt Protected		0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95	
Satd. Flow (prot)		3433	5085	1583	1770	5085	1583	1770		1583	3433	
Flt Permitted		0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95	
Satd. Flow (perm)		3433	5085	1583	1770	5085	1583	1770		1583	3433	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	87	891	957	679	255	114	163	777	0	440	158	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	978	957	679	255	114	163	777	0	440	158	0
Turn Type	Prot	Prot	NA	Free	Prot	NA	Free	Prot		Free	Prot	
Protected Phases	5	5	2		1	6		3			7	
Permitted Phases				Free			Free			Free		
Actuated Green, G (s)		42.5	39.8	150.0	26.7	24.0	150.0	64.5		150.0	64.5	
Effective Green, g (s)		42.5	39.8	150.0	26.7	24.0	150.0	64.5		150.0	64.5	
Actuated g/C Ratio		0.28	0.27	1.00	0.18	0.16	1.00	0.43		1.00	0.43	
Clearance Time (s)		6.5	6.0		6.5	6.0		6.5			6.5	
Vehicle Extension (s)		3.0	3.0		3.0	3.0		3.0			3.0	
Lane Grp Cap (vph)		972	1349	1583	315	813	1583	761		1583	1476	
v/s Ratio Prot		c0.28	0.19		c0.14	0.02		c0.44			0.05	
v/s Ratio Perm				c0.43			0.10			0.28		
v/c Ratio		1.01	0.71	0.43	0.81	0.14	0.10	1.02		0.28	0.11	
Uniform Delay, d1		53.8	49.9	0.0	59.2	54.1	0.0	42.8		0.0	25.5	
Progression Factor		0.76	0.75	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		25.8	2.3	0.6	14.2	0.4	0.1	38.0		0.4	0.0	
Delay (s)		66.6	39.6	0.6	73.4	54.5	0.1	80.8		0.4	25.6	
Level of Service		E	D	A	E	D	A	F		A	C	
Approach Delay (s)			39.6			46.9			51.7			11.7
Approach LOS			D			D			D			B

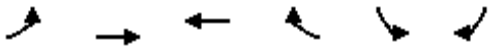
Intersection Summary			
HCM 2000 Control Delay	41.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.00		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	97.4%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



Movement	SBR
Lane Configurations	
Traffic Volume (vph)	175
Future Volume (vph)	175
Ideal Flow (vphpl)	1900
Total Lost time (s)	4.0
Lane Util. Factor	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1583
Flt Permitted	1.00
Satd. Flow (perm)	1583
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	190
RTOR Reduction (vph)	0
Lane Group Flow (vph)	190
Turn Type	Free
Protected Phases	
Permitted Phases	Free
Actuated Green, G (s)	150.0
Effective Green, g (s)	150.0
Actuated g/C Ratio	1.00
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	1583
v/s Ratio Prot	
v/s Ratio Perm	0.12
v/c Ratio	0.12
Uniform Delay, d1	0.0
Progression Factor	1.00
Incremental Delay, d2	0.2
Delay (s)	0.2
Level of Service	A
Approach Delay (s)	
Approach LOS	

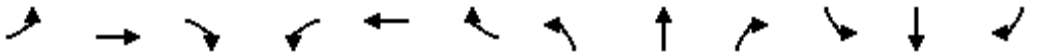
Intersection Summary



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	690	1990	0	265	130
Future Volume (veh/h)	0	690	1990	0	265	130
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	0	1870	1870	0	1870	1870
Adj Flow Rate, veh/h	0	750	2163	0	288	141
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	2	2	0	2	2
Cap, veh/h	0	3852	4854	0	710	224
Arrive On Green	0.00	0.75	0.75	0.00	0.14	0.14
Sat Flow, veh/h	0	5443	6958	0	5023	1585
Grp Volume(v), veh/h	0	750	2163	0	288	141
Grp Sat Flow(s),veh/h/ln	0	1702	1609	0	1674	1585
Q Serve(g_s), s	0.0	5.1	14.9	0.0	6.3	10.1
Cycle Q Clear(g_c), s	0.0	5.1	14.9	0.0	6.3	10.1
Prop In Lane	0.00			0.00	1.00	1.00
Lane Grp Cap(c), veh/h	0	3852	4854	0	710	224
V/C Ratio(X)	0.00	0.19	0.45	0.00	0.41	0.63
Avail Cap(c_a), veh/h	0	3852	4854	0	1695	535
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.66	0.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	4.2	5.5	0.0	46.9	48.5
Incr Delay (d2), s/veh	0.0	0.1	0.2	0.0	1.4	10.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	1.5	4.2	0.0	2.7	4.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	4.4	5.6	0.0	48.3	58.7
LnGrp LOS	A	A	A	A	D	E
Approach Vol, veh/h		750	2163		429	
Approach Delay, s/veh		4.4	5.6		51.7	
Approach LOS		A	A		D	

Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		96.5		23.5		96.5
Change Period (Y+Rc), s		6.0		6.5		6.0
Max Green Setting (Gmax), s		67.0		40.5		67.0
Max Q Clear Time (g_c+I1), s		7.1		12.1		16.9
Green Ext Time (p_c), s		6.0		4.9		29.2

Intersection Summary		
HCM 6th Ctrl Delay		11.3
HCM 6th LOS		B



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	880	75	440	1405	0	0	0	0	445	0	585
Future Volume (veh/h)	0	880	75	440	1405	0	0	0	0	445	0	585
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0				1870	0	1870
Adj Flow Rate, veh/h	0	957	0	478	1527	0				484	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				0.92	0.92	0.92
Percent Heavy Veh, %	0	2	2	2	2	0				2	0	2
Cap, veh/h	0	1260		1595	3820	0				559	0	
Arrive On Green	0.00	0.25	0.00	0.31	0.50	0.00				0.16	0.00	0.00
Sat Flow, veh/h	0	5443	0	3456	5274	0				3456	0	1585
Grp Volume(v), veh/h	0	957	0	478	1527	0				484	0	0
Grp Sat Flow(s),veh/h/ln	0	1702	0	1728	1702	0				1728	0	1585
Q Serve(g_s), s	0.0	26.1	0.0	15.8	28.0	0.0				20.5	0.0	0.0
Cycle Q Clear(g_c), s	0.0	26.1	0.0	15.8	28.0	0.0				20.5	0.0	0.0
Prop In Lane	0.00		0.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1260		1595	3820	0				559	0	
V/C Ratio(X)	0.00	0.76		0.30	0.40	0.00				0.87	0.00	
Avail Cap(c_a), veh/h	0	1260		1595	3820	0				1544	0	
HCM Platoon Ratio	1.00	1.00	1.00	0.67	0.67	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.98	0.00	0.87	0.87	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	52.4	0.0	33.4	16.4	0.0				61.3	0.0	0.0
Incr Delay (d2), s/veh	0.0	4.3	0.0	0.1	0.3	0.0				4.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	11.6	0.0	7.1	12.0	0.0				9.3	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	56.6	0.0	33.5	16.7	0.0				65.4	0.0	0.0
LnGrp LOS	A	E		C	B	A				E	A	
Approach Vol, veh/h		957	A		2005						484	A
Approach Delay, s/veh		56.6			20.7						65.4	
Approach LOS		E			C						E	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	75.7	43.0		31.3		118.7
Change Period (Y+Rc), s	6.5	6.0		7.0		* 6.5
Max Green Setting (Gmax), s	26.5	37.0		67.0		* 70
Max Q Clear Time (g_c+I1), s	17.8	28.1		22.5		30.0
Green Ext Time (p_c), s	1.2	1.2		1.8		2.5

Intersection Summary		
HCM 6th Ctrl Delay		36.9
HCM 6th LOS		D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.



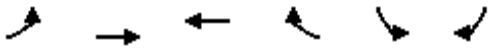
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1190	135	0	1465	380	0
Future Volume (veh/h)	1190	135	0	1465	380	0
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	0	1870	1870	0
Adj Flow Rate, veh/h	1293	0	0	1592	413	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	0	2	2	0
Cap, veh/h	4885		0	4885	0	0
Arrive On Green	0.64	0.00	0.00	0.64	0.00	0.00
Sat Flow, veh/h	5443	0	0	5443	0	0
Grp Volume(v), veh/h	1293	0	0	1592	0	0
Grp Sat Flow(s),veh/h/ln	1702	0	0	1702	0	0
Q Serve(g_s), s	16.4	0.0	0.0	21.2	0.0	0.0
Cycle Q Clear(g_c), s	16.4	0.0	0.0	21.2	0.0	0.0
Prop In Lane		0.00	0.00		0.00	0.00
Lane Grp Cap(c), veh/h	4885		0	4885	0	0
V/C Ratio(X)	0.26		0.00	0.33	0.00	0.00
Avail Cap(c_a), veh/h	4885		0	4885	0	0
HCM Platoon Ratio	0.67	0.67	1.00	0.67	1.00	1.00
Upstream Filter(I)	0.76	0.00	0.00	0.96	0.00	0.00
Uniform Delay (d), s/veh	4.1	0.0	0.0	5.0	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	0.0	0.0	5.0	0.0	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	4.2	0.0	0.0	5.1	0.0	0.0
LnGrp LOS	A		A	A	A	A
Approach Vol, veh/h	1293	A		1592	0	
Approach Delay, s/veh	4.2			5.1	0.0	
Approach LOS	A			A		

Timer - Assigned Phs	2				6	8
Phs Duration (G+Y+Rc), s	150.0				150.0	0.0
Change Period (Y+Rc), s	6.5				6.5	7.0
Max Green Setting (Gmax), s	93.5				93.5	43.0
Max Q Clear Time (g_c+I1), s	23.2				18.4	0.0
Green Ext Time (p_c), s	19.0				13.2	0.0

Intersection Summary	
HCM 6th Ctrl Delay	4.7
HCM 6th LOS	A

Notes

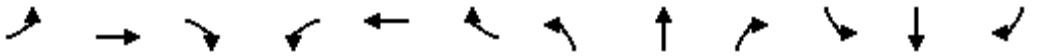
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	690	1990	0	265	130
Future Volume (vph)	0	690	1990	0	265	130
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	6.0		6.5	6.5
Lane Util. Factor		0.91	0.86		0.94	1.00
Frt		1.00	1.00		1.00	0.85
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		5085	6408		4990	1583
Flt Permitted		1.00	1.00		0.95	1.00
Satd. Flow (perm)		5085	6408		4990	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	750	2163	0	288	141
RTOR Reduction (vph)	0	0	0	0	0	4
Lane Group Flow (vph)	0	750	2163	0	288	137
Turn Type		NA	NA		Prot	Prot
Protected Phases		2	6		4	4
Permitted Phases						
Actuated Green, G (s)		88.0	88.0		19.5	19.5
Effective Green, g (s)		88.0	88.0		19.5	19.5
Actuated g/C Ratio		0.73	0.73		0.16	0.16
Clearance Time (s)		6.0	6.0		6.5	6.5
Vehicle Extension (s)		3.0	3.0		6.0	6.0
Lane Grp Cap (vph)		3729	4699		810	257
v/s Ratio Prot		0.15	c0.34		0.06	c0.09
v/s Ratio Perm						
v/c Ratio		0.20	0.46		0.36	0.53
Uniform Delay, d1		5.0	6.4		44.7	46.1
Progression Factor		1.00	1.00		1.00	1.00
Incremental Delay, d2		0.1	0.3		0.8	5.0
Delay (s)		5.1	6.8		45.4	51.0
Level of Service		A	A		D	D
Approach Delay (s)		5.1	6.8		47.3	
Approach LOS		A	A		D	

Intersection Summary			
HCM 2000 Control Delay	11.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.5
Intersection Capacity Utilization	47.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	880	75	440	1405	0	0	0	0	445	0	585
Future Volume (vph)	0	880	75	440	1405	0	0	0	0	445	0	585
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0		6.5	6.0					7.0		7.0
Lane Util. Factor		0.91		0.97	0.91					0.97		1.00
Frt		0.99		1.00	1.00					1.00		0.85
Flt Protected		1.00		0.95	1.00					0.95		1.00
Satd. Flow (prot)		5025		3433	5085					3433		1583
Flt Permitted		1.00		0.95	1.00					0.95		1.00
Satd. Flow (perm)		5025		3433	5085					3433		1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	957	82	478	1527	0	0	0	0	484	0	636
RTOR Reduction (vph)	0	6	0	0	0	0	0	0	0	0	0	41
Lane Group Flow (vph)	0	1033	0	478	1527	0	0	0	0	484	0	595
Turn Type		NA		Prot	NA					Prot		Prot
Protected Phases		2		1	6					4		4
Permitted Phases												
Actuated Green, G (s)		42.6		26.5	75.6					61.4		61.4
Effective Green, g (s)		42.6		26.5	75.6					61.4		61.4
Actuated g/C Ratio		0.28		0.18	0.50					0.41		0.41
Clearance Time (s)		6.0		6.5	6.0					7.0		7.0
Vehicle Extension (s)		0.2		3.0	0.2					3.0		3.0
Lane Grp Cap (vph)		1427		606	2562					1405		647
v/s Ratio Prot		c0.21		c0.14	0.30					0.14		c0.38
v/s Ratio Perm												
v/c Ratio		0.72		0.79	0.60					0.34		0.92
Uniform Delay, d1		48.4		59.1	26.4					30.5		42.0
Progression Factor		1.00		0.88	0.70					1.00		1.00
Incremental Delay, d2		3.2		6.3	1.0					0.1		18.4
Delay (s)		51.6		58.4	19.4					30.6		60.4
Level of Service		D		E	B					C		E
Approach Delay (s)		51.6			28.7			0.0			47.5	
Approach LOS		D			C			A			D	

Intersection Summary			
HCM 2000 Control Delay	39.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	19.5
Intersection Capacity Utilization	74.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1190	135	0	1465	380	0
Future Volume (vph)	1190	135	0	1465	380	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5			6.5	7.0	
Lane Util. Factor	0.91			0.91	0.97	
Frt	0.98			1.00	1.00	
Flt Protected	1.00			1.00	0.95	
Satd. Flow (prot)	5007			5085	3433	
Flt Permitted	1.00			1.00	0.95	
Satd. Flow (perm)	5007			5085	3433	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1293	147	0	1592	413	0
RTOR Reduction (vph)	6	0	0	0	0	0
Lane Group Flow (vph)	1434	0	0	1592	413	0
Turn Type	NA			NA	Prot	
Protected Phases	6			2	3	
Permitted Phases						
Actuated Green, G (s)	113.0			113.0	23.5	
Effective Green, g (s)	113.0			113.0	23.5	
Actuated g/C Ratio	0.75			0.75	0.16	
Clearance Time (s)	6.5			6.5	7.0	
Vehicle Extension (s)	3.0			3.0	3.0	
Lane Grp Cap (vph)	3771			3830	537	
v/s Ratio Prot	0.29			c0.31	c0.12	
v/s Ratio Perm						
v/c Ratio	0.38			0.42	0.77	
Uniform Delay, d1	6.4			6.6	60.6	
Progression Factor	0.34			1.00	1.00	
Incremental Delay, d2	0.2			0.3	6.6	
Delay (s)	2.4			7.0	67.2	
Level of Service	A			A	E	
Approach Delay (s)	2.4			7.0	67.2	
Approach LOS	A			A	E	

Intersection Summary			
HCM 2000 Control Delay	12.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	50.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1190	0	0	1465	0	455
Future Volume (vph)	1190	0	0	1465	0	455
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5			6.0		6.0
Lane Util. Factor	0.91			0.91		0.88
Frt	1.00			1.00		0.85
Flt Protected	1.00			1.00		1.00
Satd. Flow (prot)	5085			5085		2787
Flt Permitted	1.00			1.00		1.00
Satd. Flow (perm)	5085			5085		2787
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1293	0	0	1592	0	495
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	1293	0	0	1592	0	495
Turn Type	NA			NA		Prot
Protected Phases	2			4 6		4
Permitted Phases						
Actuated Green, G (s)	87.8			150.0		50.7
Effective Green, g (s)	87.8			144.5		50.7
Actuated g/C Ratio	0.59			0.96		0.34
Clearance Time (s)	5.5					6.0
Vehicle Extension (s)	3.0					3.0
Lane Grp Cap (vph)	2976			4898		942
v/s Ratio Prot	c0.25			0.31		c0.18
v/s Ratio Perm						
v/c Ratio	0.43			0.33		0.53
Uniform Delay, d1	17.3			0.1		40.0
Progression Factor	0.33			1.00		1.00
Incremental Delay, d2	0.4			0.0		0.5
Delay (s)	6.1			0.2		40.5
Level of Service	A			A		D
Approach Delay (s)	6.1			0.2	40.5	
Approach LOS	A			A	D	

Intersection Summary			
HCM 2000 Control Delay	8.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	11.5
Intersection Capacity Utilization	48.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	40	120	960	525	330	890	140	790	0	300	380	0
Future Volume (vph)	40	120	960	525	330	890	140	790	0	300	380	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5	6.0	4.0	6.5	6.0	4.0	6.5		4.0	6.5	
Lane Util. Factor		0.97	0.91	1.00	1.00	0.91	1.00	1.00		1.00	0.97	
Frt		1.00	1.00	0.85	1.00	1.00	0.85	1.00		0.85	1.00	
Flt Protected		0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95	
Satd. Flow (prot)		3433	5085	1583	1770	5085	1583	1770		1583	3433	
Flt Permitted		0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95	
Satd. Flow (perm)		3433	5085	1583	1770	5085	1583	1770		1583	3433	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	43	130	1043	571	359	967	152	859	0	326	413	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	173	1043	571	359	967	152	859	0	326	413	0
Turn Type	Prot	Prot	NA	Free	Prot	NA	Free	Prot		Free	Prot	
Protected Phases	5	5	2		1	6		8			4	
Permitted Phases				Free			Free			Free		
Actuated Green, G (s)		11.3	26.0	135.0	26.5	41.2	135.0	63.5		135.0	63.5	
Effective Green, g (s)		11.3	26.0	135.0	26.5	41.2	135.0	63.5		135.0	63.5	
Actuated g/C Ratio		0.08	0.19	1.00	0.20	0.31	1.00	0.47		1.00	0.47	
Clearance Time (s)		6.5	6.0		6.5	6.0		6.5			6.5	
Vehicle Extension (s)		3.0	3.0		3.0	3.0		3.0			3.0	
Lane Grp Cap (vph)		287	979	1583	347	1551	1583	832		1583	1614	
v/s Ratio Prot		0.05	c0.21		c0.20	0.19		c0.49			0.12	
v/s Ratio Perm				0.36			0.10			0.21		
v/c Ratio		0.60	1.07	0.36	1.03	0.62	0.10	1.03		0.21	0.26	
Uniform Delay, d1		59.7	54.5	0.0	54.2	40.2	0.0	35.8		0.0	21.5	
Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		3.5	47.8	0.6	57.5	1.9	0.1	39.8		0.3	0.1	
Delay (s)		63.2	102.3	0.6	111.8	42.1	0.1	75.6		0.3	21.6	
Level of Service		E	F	A	F	D	A	E		A	C	
Approach Delay (s)			66.1			54.7			54.9			7.7
Approach LOS			E			D			D			A

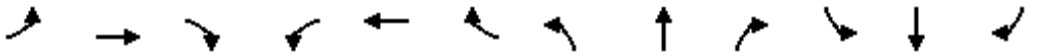
Intersection Summary			
HCM 2000 Control Delay	47.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.04		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	96.0%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



Movement	SBR
Lane Configurations	
Traffic Volume (vph)	890
Future Volume (vph)	890
Ideal Flow (vphpl)	1900
Total Lost time (s)	4.0
Lane Util. Factor	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1583
Flt Permitted	1.00
Satd. Flow (perm)	1583
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	967
RTOR Reduction (vph)	0
Lane Group Flow (vph)	967
Turn Type	Free
Protected Phases	
Permitted Phases	Free
Actuated Green, G (s)	135.0
Effective Green, g (s)	135.0
Actuated g/C Ratio	1.00
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	1583
v/s Ratio Prot	
v/s Ratio Perm	0.61
v/c Ratio	0.61
Uniform Delay, d1	0.0
Progression Factor	1.00
Incremental Delay, d2	1.8
Delay (s)	1.8
Level of Service	A
Approach Delay (s)	
Approach LOS	

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	250	15	75	55	25	85	150	265	25	30	945	1290
Future Volume (veh/h)	250	15	75	55	25	85	150	265	25	30	945	1290
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1847	1847	1847	1864	1864	1864	1864	1864	1864	1776	1776	1776
Adj Flow Rate, veh/h	272	16	82	60	27	92	163	288	27	33	1027	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	334	240	204	77	141	120	369	1961	182	673	1924	
Arrive On Green	0.10	0.13	0.13	0.04	0.08	0.08	0.06	0.60	0.60	0.03	0.57	0.00
Sat Flow, veh/h	3412	1847	1565	1776	1864	1580	1776	3276	305	1692	3375	1505
Grp Volume(v), veh/h	272	16	82	60	27	92	163	155	160	33	1027	0
Grp Sat Flow(s),veh/h/ln	1706	1847	1565	1776	1864	1580	1776	1771	1810	1692	1687	1505
Q Serve(g_s), s	9.4	0.9	5.8	4.0	1.6	6.9	4.5	4.6	4.7	1.0	22.6	0.0
Cycle Q Clear(g_c), s	9.4	0.9	5.8	4.0	1.6	6.9	4.5	4.6	4.7	1.0	22.6	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.17	1.00		1.00
Lane Grp Cap(c), veh/h	334	240	204	77	141	120	369	1060	1083	673	1924	
V/C Ratio(X)	0.81	0.07	0.40	0.78	0.19	0.77	0.44	0.15	0.15	0.05	0.53	
Avail Cap(c_a), veh/h	446	400	339	126	292	248	469	1060	1083	698	1924	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.81	0.81	0.00
Uniform Delay (d), s/veh	53.1	45.8	47.9	56.8	52.0	54.4	12.2	10.6	10.6	9.9	15.9	0.0
Incr Delay (d2), s/veh	8.3	0.1	1.3	15.2	0.6	9.8	0.8	0.3	0.3	0.0	0.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.4	0.4	2.3	2.1	0.8	3.1	1.8	1.9	1.9	0.4	8.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	61.4	45.9	49.2	72.1	52.7	64.3	13.1	10.9	10.9	9.9	16.8	0.0
LnGrp LOS	E	D	D	E	D	E	B	B	B	A	B	
Approach Vol, veh/h		370			179			478			1060	A
Approach Delay, s/veh		58.0			65.1			11.6			16.6	
Approach LOS		E			E			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.8	78.3	17.2	15.6	12.2	74.9	10.7	22.1
Change Period (Y+Rc), s	5.5	6.5	5.5	6.5	5.5	6.5	5.5	6.5
Max Green Setting (Gmax), s	5.1	56.4	15.7	18.8	13.5	48.0	8.5	26.0
Max Q Clear Time (g_c+I1), s	3.0	6.7	11.4	8.9	6.5	24.6	6.0	7.8
Green Ext Time (p_c), s	0.0	0.3	0.4	0.2	0.2	1.6	0.0	0.3

Intersection Summary	
HCM 6th Ctrl Delay	27.0
HCM 6th LOS	C

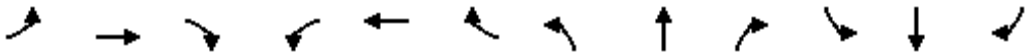
Notes

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	250	15	75	55	25	85	150	265	25	30	945	1290
Future Volume (vph)	250	15	75	55	25	85	150	265	25	30	945	1290
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	11	10	11	11	10	10	11	12	10	12	11
Grade (%)		2%			1%			1%			4%	
Total Lost time (s)	5.5	6.5	6.5	5.5	6.5	6.5	5.5	6.5		5.5	6.5	4.0
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.95		1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3399	1783	1463	1702	1792	1470	1643	3360		1619	3468	1500
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.18	1.00		0.56	1.00	1.00
Satd. Flow (perm)	3399	1783	1463	1702	1792	1470	318	3360		955	3468	1500
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	272	16	82	60	27	92	163	288	27	33	1027	1402
RTOR Reduction (vph)	0	0	71	0	0	85	0	5	0	0	0	0
Lane Group Flow (vph)	272	16	11	60	27	7	163	310	0	33	1027	1402
Turn Type	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA		pm+pt	NA	Free
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases			8			4	2			6		Free
Actuated Green, G (s)	14.0	15.8	15.8	6.7	8.5	8.5	79.0	69.4		67.3	63.2	120.0
Effective Green, g (s)	14.0	15.8	15.8	6.7	8.5	8.5	79.0	69.4		67.3	63.2	120.0
Actuated g/C Ratio	0.12	0.13	0.13	0.06	0.07	0.07	0.66	0.58		0.56	0.53	1.00
Clearance Time (s)	5.5	6.5	6.5	5.5	6.5	6.5	5.5	6.5		5.5	6.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	0.2		3.0	0.2	
Lane Grp Cap (vph)	396	234	192	95	126	104	323	1943		558	1826	1500
v/s Ratio Prot	0.08	0.01		0.04	0.02		0.04	0.09		0.00	0.30	
v/s Ratio Perm			0.01			0.00	0.29			0.03		c0.93
v/c Ratio	0.69	0.07	0.06	0.63	0.21	0.06	0.50	0.16		0.06	0.56	0.93
Uniform Delay, d1	50.9	45.7	45.6	55.4	52.6	52.0	11.2	11.8		11.8	19.1	0.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	4.9	0.1	0.1	12.9	0.9	0.3	1.2	0.2		0.0	1.3	12.1
Delay (s)	55.8	45.8	45.7	68.3	53.5	52.3	12.5	11.9		11.9	20.4	12.1
Level of Service	E	D	D	E	D	D	B	B		B	C	B
Approach Delay (s)		53.1			57.8			12.1			15.6	
Approach LOS		D			E			B			B	

Intersection Summary			
HCM 2000 Control Delay	21.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	1.17		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	63.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	755	1030	0	0	0	0	210	390	0	1235	0
Future Volume (vph)	5	755	1030	0	0	0	0	210	390	0	1235	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	10	10	11	12	12	12
Grade (%)		5%			0%			4%			0%	
Total Lost time (s)		7.0	4.0					8.0	6.0		8.0	
Lane Util. Factor		0.95	1.00					0.95	0.88		0.91	
Frt		1.00	0.85					1.00	0.85		1.00	
Flt Protected		1.00	1.00					1.00	1.00		1.00	
Satd. Flow (prot)		3450	1544					3237	2640		5085	
Flt Permitted		1.00	1.00					1.00	1.00		1.00	
Satd. Flow (perm)		3450	1544					3237	2640		5085	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	821	1120	0	0	0	0	228	424	0	1342	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	826	1120	0	0	0	0	228	424	0	1342	0
Turn Type	Perm	NA	Free					NA	custom		NA	
Protected Phases		3						6	5 6		2 4	
Permitted Phases	3		Free									
Actuated Green, G (s)		42.8	160.0					18.7	78.5		102.2	
Effective Green, g (s)		42.8	160.0					18.7	78.5		97.7	
Actuated g/C Ratio		0.27	1.00					0.12	0.49		0.61	
Clearance Time (s)		7.0						8.0				
Vehicle Extension (s)		3.0						3.0				
Lane Grp Cap (vph)		922	1544					378	1295		3105	
v/s Ratio Prot								0.07	0.16		0.26	
v/s Ratio Perm		0.24	c0.73									
v/c Ratio		0.90	0.73					0.60	0.33		0.43	
Uniform Delay, d1		56.5	0.0					67.1	24.7		16.5	
Progression Factor		1.00	1.00					1.00	1.00		0.00	
Incremental Delay, d2		11.2	3.0					7.0	0.1		0.1	
Delay (s)		67.6	3.0					74.1	24.9		0.1	
Level of Service		E	A					E	C		A	
Approach Delay (s)		30.4			0.0			42.1			0.1	
Approach LOS		C			A			D			A	

Intersection Summary			
HCM 2000 Control Delay	22.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	25.5
Intersection Capacity Utilization	75.4%	ICU Level of Service	D
Analysis Period (min)	15		

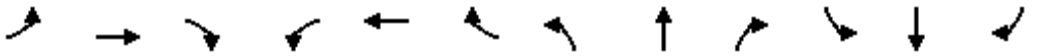
c Critical Lane Group



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	0	1235	575	215	0
Future Volume (vph)	0	0	1235	575	215	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	11	11	12	12
Grade (%)	0%			1%	0%	
Total Lost time (s)			4.5	4.5	7.0	
Lane Util. Factor			0.91	0.91	0.97	
Frt			1.00	1.00	1.00	
Flt Protected			0.95	0.97	0.95	
Satd. Flow (prot)			1549	3179	3433	
Flt Permitted			0.95	0.97	0.95	
Satd. Flow (perm)			1549	3179	3433	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	1342	625	234	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	671	1296	234	0
Turn Type			Split	NA	Prot	
Protected Phases			4 5	4 5	3 6	
Permitted Phases						
Actuated Green, G (s)			77.5	77.5	69.5	
Effective Green, g (s)			77.5	77.5	61.5	
Actuated g/C Ratio			0.48	0.48	0.38	
Clearance Time (s)						
Vehicle Extension (s)						
Lane Grp Cap (vph)			750	1539	1319	
v/s Ratio Prot			c0.43	0.41	c0.07	
v/s Ratio Perm						
v/c Ratio			0.89	0.84	0.18	
Uniform Delay, d1			37.5	35.9	32.5	
Progression Factor			1.00	1.00	0.00	
Incremental Delay, d2			13.1	4.4	0.1	
Delay (s)			50.7	40.2	0.2	
Level of Service			D	D	A	
Approach Delay (s)	0.0			43.8	0.2	
Approach LOS	A			D	A	

Intersection Summary			
HCM 2000 Control Delay	39.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	25.5
Intersection Capacity Utilization	83.8%	ICU Level of Service	E
Analysis Period (min)	15		

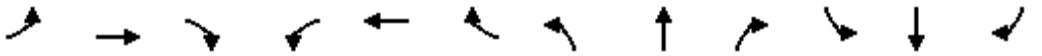
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	570	35	335	5	5	20	180	1095	5	45	2295	550
Future Volume (vph)	570	35	335	5	5	20	180	1095	5	45	2295	550
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	12	12	16	12	11	11	12	11	11	14
Grade (%)		1%			0%			2%			0%	
Total Lost time (s)	6.5	6.5	6.5		7.0		6.5	6.5		6.5	6.5	6.5
Lane Util. Factor	0.95	0.95	1.00		1.00		0.97	0.91		1.00	0.91	1.00
Frt	1.00	1.00	0.85		0.91		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	0.96	1.00		0.99		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1561	1574	1575		1900		3285	4864		1711	4916	1689
Flt Permitted	0.95	0.96	1.00		0.99		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1561	1574	1575		1900		3285	4864		1711	4916	1689
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	620	38	364	5	5	22	196	1190	5	49	2495	598
RTOR Reduction (vph)	0	0	88	0	21	0	0	0	0	0	0	177
Lane Group Flow (vph)	329	329	276	0	11	0	196	1195	0	49	2495	421
Turn Type	Split	NA	pm+ov	Split	NA		Prot	NA		Prot	NA	Perm
Protected Phases	4	4	6	3	3		6	2		1	5	
Permitted Phases			4									5
Actuated Green, G (s)	32.7	32.7	44.1		4.0		11.4	79.2		7.6	75.4	75.4
Effective Green, g (s)	32.7	32.7	44.1		4.0		11.4	79.2		7.6	75.4	75.4
Actuated g/C Ratio	0.22	0.22	0.29		0.03		0.08	0.53		0.05	0.50	0.50
Clearance Time (s)	6.5	6.5	6.5		7.0		6.5	6.5		6.5	6.5	6.5
Vehicle Extension (s)	3.0	3.0	3.0		3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	340	343	463		50		249	2568		86	2471	849
v/s Ratio Prot	c0.21	0.21	0.05		c0.01		c0.06	0.25		0.03	c0.51	
v/s Ratio Perm			0.13									0.25
v/c Ratio	0.97	0.96	0.60		0.21		0.79	0.47		0.57	1.01	0.50
Uniform Delay, d1	58.1	58.0	45.3		71.5		68.1	22.1		69.6	37.3	24.7
Progression Factor	1.00	1.00	1.00		1.00		1.00	1.00		1.04	0.93	1.15
Incremental Delay, d2	39.7	37.4	2.1		2.1		15.1	0.6		4.2	15.1	1.0
Delay (s)	97.9	95.4	47.4		73.6		83.2	22.8		76.6	49.8	29.4
Level of Service	F	F	D		E		F	C		E	D	C
Approach Delay (s)		79.1			73.6			31.3			46.3	
Approach LOS		E			E			C			D	

Intersection Summary			
HCM 2000 Control Delay	48.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	26.5
Intersection Capacity Utilization	89.1%	ICU Level of Service	E
Analysis Period (min)	15		

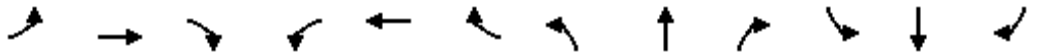
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	290	5	665	0	0	0	0	1510	175	220	2225	0
Future Volume (vph)	290	5	665	0	0	0	0	1510	175	220	2225	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	12	11	12	12	12	12	11	16	11	11	12
Grade (%)		3%			0%			1%			0%	
Total Lost time (s)	8.0	8.0	8.0					6.5		5.5	5.5	
Lane Util. Factor	0.95	0.95	*0.80					0.76		0.97	0.91	
Frt	1.00	1.00	0.85					0.98		1.00	1.00	
Flt Protected	0.95	0.95	1.00					1.00		0.95	1.00	
Satd. Flow (prot)	1601	1663	2412					8043		3319	4916	
Flt Permitted	0.95	0.95	1.00					1.00		0.95	1.00	
Satd. Flow (perm)	1601	1663	2412					8043		3319	4916	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	315	5	723	0	0	0	0	1641	190	239	2418	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	13	0	0	0	0
Lane Group Flow (vph)	161	159	723	0	0	0	0	1818	0	239	2418	0
Turn Type	Split	NA	Prot					NA		Prot	NA	
Protected Phases	4	4	4					6		5	2	
Permitted Phases												
Actuated Green, G (s)	50.6	50.6	50.6					59.5		19.9	85.9	
Effective Green, g (s)	50.6	50.6	50.6					59.5		19.9	85.9	
Actuated g/C Ratio	0.34	0.34	0.34					0.40		0.13	0.57	
Clearance Time (s)	8.0	8.0	8.0					6.5		5.5	5.5	
Vehicle Extension (s)	3.0	3.0	3.0					3.0		3.0	3.0	
Lane Grp Cap (vph)	540	560	813					3190		440	2815	
v/s Ratio Prot	0.10	0.10	c0.30					0.23		0.07	c0.49	
v/s Ratio Perm												
v/c Ratio	0.30	0.28	0.89					0.57		0.54	0.86	
Uniform Delay, d1	36.6	36.4	47.0					35.3		60.8	27.0	
Progression Factor	1.00	1.00	1.00					0.67		0.52	0.44	
Incremental Delay, d2	0.3	0.3	11.6					0.6		4.1	3.2	
Delay (s)	36.9	36.7	58.7					24.1		35.8	15.0	
Level of Service	D	D	E					C		D	B	
Approach Delay (s)		52.0			0.0			24.1			16.9	
Approach LOS		D			A			C			B	

Intersection Summary			
HCM 2000 Control Delay	25.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	77.5%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	275	5	420	270	1530	0	0	2170	730
Future Volume (vph)	0	0	0	275	5	420	270	1530	0	0	2170	730
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	13	16	10	11	12	12	11	12
Grade (%)		0%			5%			0%			-1%	
Total Lost time (s)				8.0	8.0	4.0	6.5	6.0			6.0	4.0
Lane Util. Factor				0.95	0.95	1.00	0.97	0.86			0.81	1.00
Frt				1.00	1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	0.95	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				1639	1701	1750	3204	6194			7329	1591
Flt Permitted				0.95	0.95	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				1639	1701	1750	3204	6194			7329	1591
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	299	5	457	293	1663	0	0	2359	793
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	152	152	457	293	1663	0	0	2359	793
Turn Type				Split	NA	Free	Prot	NA			NA	Free
Protected Phases				4	4		1	6			2	
Permitted Phases						Free						Free
Actuated Green, G (s)				20.2	20.2	150.0	19.9	115.8			89.4	150.0
Effective Green, g (s)				20.2	20.2	150.0	19.9	115.8			89.4	150.0
Actuated g/C Ratio				0.13	0.13	1.00	0.13	0.77			0.60	1.00
Clearance Time (s)				8.0	8.0		6.5	6.0			6.0	
Vehicle Extension (s)				4.0	4.0		4.0	4.0			4.0	
Lane Grp Cap (vph)				220	229	1750	425	4781			4368	1591
v/s Ratio Prot				0.09	0.09		c0.09	0.27			c0.32	
v/s Ratio Perm						0.26						c0.50
v/c Ratio				0.69	0.66	0.26	0.69	0.35			0.54	0.50
Uniform Delay, d1				61.9	61.7	0.0	62.1	5.3			18.1	0.0
Progression Factor				1.00	1.00	1.00	1.54	0.40			0.46	1.00
Incremental Delay, d2				9.7	7.7	0.4	4.2	0.2			0.0	0.1
Delay (s)				71.6	69.4	0.4	99.6	2.3			8.4	0.1
Level of Service				E	E	A	F	A			A	A
Approach Delay (s)		0.0			28.4			16.9			6.3	
Approach LOS		A			C			B			A	

Intersection Summary			
HCM 2000 Control Delay	12.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	20.5
Intersection Capacity Utilization	77.5%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



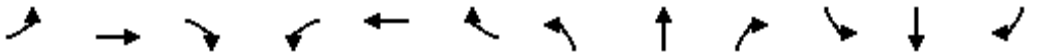
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	120	475	225	725	205	80	10	250	1170	520	35	1940
Future Volume (vph)	120	475	225	725	205	80	10	250	1170	520	35	1940
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	12	12	10	12	12	12	10	11	11	11	11
Grade (%)		3%			2%				0%			-1%
Total Lost time (s)	6.5	6.5		6.5	6.5	6.5		6.5	6.5	6.5	6.5	6.5
Lane Util. Factor	0.97	0.95		0.97	0.95	1.00		1.00	0.91	1.00	1.00	*0.80
Frt	1.00	0.95		1.00	1.00	0.85		1.00	1.00	0.85	1.00	0.99
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3156	3318		3172	3504	1567		1652	4916	1531	1719	4307
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.08	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3156	3318		3172	3504	1567		142	4916	1531	1719	4307
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	130	516	245	788	223	87	11	272	1272	565	38	2109
RTOR Reduction (vph)	0	0	0	0	0	69	0	0	0	281	0	4
Lane Group Flow (vph)	130	761	0	788	223	18	0	283	1272	284	38	2230
Turn Type	Split	NA		Split	NA	pt+ov	pm+pt	pm+pt	NA	Perm	Prot	NA
Protected Phases	4	4		3	3	3 5	1	1	6		5	2
Permitted Phases							6	6		6		
Actuated Green, G (s)	33.0	33.0		22.5	22.5	30.4		60.6	60.6	60.6	7.9	57.0
Effective Green, g (s)	33.0	33.0		22.5	22.5	30.4		60.6	60.6	60.6	7.9	57.0
Actuated g/C Ratio	0.22	0.22		0.15	0.15	0.20		0.40	0.40	0.40	0.05	0.38
Clearance Time (s)	6.5	6.5		6.5	6.5			6.5	6.5	6.5	6.5	6.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	694	729		475	525	317		173	1986	618	90	1636
v/s Ratio Prot	0.04	c0.23		c0.25	0.06	0.01		c0.13	0.26		0.02	c0.52
v/s Ratio Perm								c0.54		0.19		
v/c Ratio	0.19	1.04		1.66	0.42	0.06		1.64	0.64	0.46	0.42	1.36
Uniform Delay, d1	47.6	58.5		63.8	57.9	48.2		64.7	35.9	32.7	68.8	46.5
Progression Factor	1.00	1.00		1.00	1.00	1.00		0.64	0.45	0.41	1.00	1.00
Incremental Delay, d2	0.1	45.3		305.8	2.5	0.1		309.9	1.5	2.4	3.2	167.5
Delay (s)	47.7	103.8		369.5	60.4	48.3		351.5	17.9	15.9	72.0	214.0
Level of Service	D	F		F	E	D		F	B	B	E	F
Approach Delay (s)		95.6			281.3				61.9			211.6
Approach LOS		F			F				E			F

Intersection Summary			
HCM 2000 Control Delay	157.7	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.48		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	26.0
Intersection Capacity Utilization	117.1%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group



Movement	SBR
Lane Configurations	
Traffic Volume (vph)	115
Future Volume (vph)	115
Ideal Flow (vphpl)	1900
Lane Width	12
Grade (%)	
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	125
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	



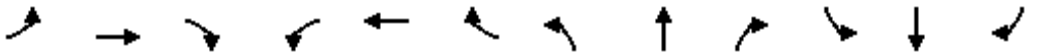
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	510	55	325	55	15	50	55	890	30	115	415	600
Future Volume (veh/h)	510	55	325	55	15	50	55	890	30	115	415	600
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1847	1847	1847	1864	1864	1864	1864	1864	1864	1776	1776	1776
Adj Flow Rate, veh/h	554	60	353	60	16	54	60	967	33	125	451	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	633	414	351	77	153	130	516	1671	57	301	1675	
Arrive On Green	0.19	0.22	0.22	0.04	0.08	0.08	0.04	0.48	0.48	0.05	0.50	0.00
Sat Flow, veh/h	3412	1847	1565	1776	1864	1580	1776	3495	119	1692	3375	1505
Grp Volume(v), veh/h	554	60	353	60	16	54	60	490	510	125	451	0
Grp Sat Flow(s),veh/h/ln	1706	1847	1565	1776	1864	1580	1776	1771	1843	1692	1687	1505
Q Serve(g_s), s	18.9	3.1	26.9	4.0	1.0	3.9	2.0	24.0	24.0	4.5	9.3	0.0
Cycle Q Clear(g_c), s	18.9	3.1	26.9	4.0	1.0	3.9	2.0	24.0	24.0	4.5	9.3	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.06	1.00		1.00
Lane Grp Cap(c), veh/h	633	414	351	77	153	130	516	847	881	301	1675	
V/C Ratio(X)	0.88	0.14	1.01	0.78	0.10	0.42	0.12	0.58	0.58	0.42	0.27	
Avail Cap(c_a), veh/h	802	414	351	144	153	130	533	847	881	388	1675	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.00
Uniform Delay (d), s/veh	47.5	37.3	46.5	56.8	51.0	52.3	14.9	22.6	22.6	17.3	17.6	0.0
Incr Delay (d2), s/veh	8.9	0.2	49.6	15.2	0.3	2.1	0.1	2.9	2.8	0.9	0.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.8	1.4	15.2	2.1	0.5	1.6	0.8	10.5	10.9	1.8	3.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	56.4	37.5	96.2	72.0	51.3	54.4	15.0	25.5	25.4	18.2	17.9	0.0
LnGrp LOS	E	D	F	E	D	D	B	C	C	B	B	
Approach Vol, veh/h		967			130			1060			576	A
Approach Delay, s/veh		69.7			62.1			24.8			18.0	
Approach LOS		E			E			C			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.0	63.9	27.8	16.4	9.8	66.1	10.7	33.4
Change Period (Y+Rc), s	5.5	6.5	5.5	6.5	5.5	6.5	5.5	6.5
Max Green Setting (Gmax), s	12.7	46.7	28.2	8.4	5.5	53.9	9.7	26.9
Max Q Clear Time (g_c+I1), s	6.5	26.0	20.9	5.9	4.0	11.3	6.0	28.9
Green Ext Time (p_c), s	0.1	1.1	1.3	0.0	0.0	0.6	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	41.1
HCM 6th LOS	D

Notes

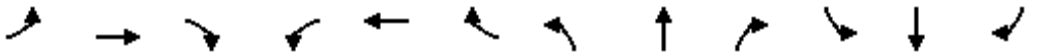
Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	510	55	325	55	15	50	55	890	30	115	415	600
Future Volume (vph)	510	55	325	55	15	50	55	890	30	115	415	600
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	11	10	11	11	10	10	11	12	10	12	11
Grade (%)		2%			1%			1%			4%	
Total Lost time (s)	5.5	6.5	6.5	5.5	6.5	6.5	5.5	6.5		5.5	6.5	4.0
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.95		1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3399	1783	1463	1702	1792	1470	1643	3387		1619	3468	1500
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.49	1.00		0.17	1.00	1.00
Satd. Flow (perm)	3399	1783	1463	1702	1792	1470	850	3387		297	3468	1500
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	554	60	353	60	16	54	60	967	33	125	451	652
RTOR Reduction (vph)	0	0	287	0	0	51	0	2	0	0	0	0
Lane Group Flow (vph)	554	60	66	60	16	3	60	998	0	125	451	652
Turn Type	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA		pm+pt	NA	Free
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases			8			4	2			6		Free
Actuated Green, G (s)	24.2	22.4	22.4	7.4	5.6	5.6	62.1	56.6		70.3	60.7	120.0
Effective Green, g (s)	24.2	22.4	22.4	7.4	5.6	5.6	62.1	56.6		70.3	60.7	120.0
Actuated g/C Ratio	0.20	0.19	0.19	0.06	0.05	0.05	0.52	0.47		0.59	0.51	1.00
Clearance Time (s)	5.5	6.5	6.5	5.5	6.5	6.5	5.5	6.5		5.5	6.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	0.2		3.0	0.2	
Lane Grp Cap (vph)	685	332	273	104	83	68	476	1597		279	1754	1500
v/s Ratio Prot	c0.16	0.03		0.04	0.01		0.01	c0.29		0.04	0.13	
v/s Ratio Perm			0.05			0.00	0.06			0.23		c0.43
v/c Ratio	0.81	0.18	0.24	0.58	0.19	0.04	0.13	0.63		0.45	0.26	0.43
Uniform Delay, d1	45.7	41.1	41.6	54.8	55.0	54.6	14.5	23.8		14.3	16.8	0.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	7.0	0.3	0.5	7.5	1.1	0.2	0.1	1.9		1.1	0.4	0.9
Delay (s)	52.7	41.3	42.0	62.3	56.2	54.8	14.6	25.6		15.5	17.2	0.9
Level of Service	D	D	D	E	E	D	B	C		B	B	A
Approach Delay (s)		48.1			58.5			25.0			8.4	
Approach LOS		D			E			C			A	

Intersection Summary			
HCM 2000 Control Delay	26.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	68.6%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	595	675	0	0	0	0	535	915	0	455	0
Future Volume (vph)	5	595	675	0	0	0	0	535	915	0	455	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	10	10	11	12	12	12
Grade (%)		5%			0%			4%			0%	
Total Lost time (s)		7.0	4.0					8.0	6.0		8.0	
Lane Util. Factor		0.95	1.00					0.95	0.88		0.91	
Frt		1.00	0.85					1.00	0.85		1.00	
Flt Protected		1.00	1.00					1.00	1.00		1.00	
Satd. Flow (prot)		3449	1544					3237	2640		5085	
Flt Permitted		1.00	1.00					1.00	1.00		1.00	
Satd. Flow (perm)		3449	1544					3237	2640		5085	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	647	734	0	0	0	0	582	995	0	495	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	652	734	0	0	0	0	582	995	0	495	0
Turn Type	Perm	NA	Free					NA	custom		NA	
Protected Phases		3						6	5 6		2 4	
Permitted Phases	3		Free									
Actuated Green, G (s)		35.9	160.0					31.0	89.8		109.1	
Effective Green, g (s)		35.9	160.0					31.0	89.8		102.1	
Actuated g/C Ratio		0.22	1.00					0.19	0.56		0.64	
Clearance Time (s)		7.0						8.0				
Vehicle Extension (s)		3.0						3.0				
Lane Grp Cap (vph)		773	1544					627	1481		3244	
v/s Ratio Prot								c0.18	c0.38		0.10	
v/s Ratio Perm		0.19	c0.48									
v/c Ratio		0.84	0.48					0.93	0.67		0.15	
Uniform Delay, d1		59.4	0.0					63.4	24.7		11.6	
Progression Factor		1.00	1.00					1.00	1.00		0.00	
Incremental Delay, d2		8.3	1.1					22.1	1.2		0.0	
Delay (s)		67.7	1.1					85.5	25.9		0.0	
Level of Service		E	A					F	C		A	
Approach Delay (s)		32.4			0.0			47.9			0.0	
Approach LOS		C			A			D			A	

Intersection Summary			
HCM 2000 Control Delay	34.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	28.0
Intersection Capacity Utilization	87.0%	ICU Level of Service	E
Analysis Period (min)	15		

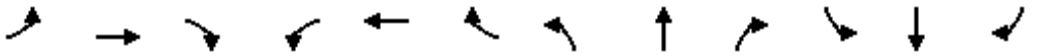
c Critical Lane Group



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	0	455	1155	540	0
Future Volume (vph)	0	0	455	1155	540	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	11	11	12	12
Grade (%)	0%			1%	0%	
Total Lost time (s)			7.0	7.0	7.0	
Lane Util. Factor			0.91	0.91	0.97	
Frt			1.00	1.00	1.00	
Flt Protected			0.95	1.00	0.95	
Satd. Flow (prot)			1549	3255	3433	
Flt Permitted			0.95	1.00	0.95	
Satd. Flow (perm)			1549	3255	3433	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	495	1255	587	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	445	1305	587	0
Turn Type			Split	NA	Prot	
Protected Phases			4 5	4 5	3 6	
Permitted Phases						
Actuated Green, G (s)			72.1	72.1	74.9	
Effective Green, g (s)			72.1	72.1	66.9	
Actuated g/C Ratio			0.45	0.45	0.42	
Clearance Time (s)						
Vehicle Extension (s)						
Lane Grp Cap (vph)			698	1466	1435	
v/s Ratio Prot			0.29	c0.40	c0.17	
v/s Ratio Perm						
v/c Ratio			0.64	0.89	0.41	
Uniform Delay, d1			33.9	40.3	32.7	
Progression Factor			1.01	1.00	0.01	
Incremental Delay, d2			1.9	7.2	0.1	
Delay (s)			36.1	47.3	0.5	
Level of Service			D	D	A	
Approach Delay (s)	0.0			44.5	0.5	
Approach LOS	A			D	A	

Intersection Summary			
HCM 2000 Control Delay	33.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	28.0
Intersection Capacity Utilization	95.4%	ICU Level of Service	F
Analysis Period (min)	15		

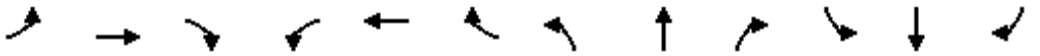
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	665	60	180	5	25	150	195	2490	10	110	1620	230
Future Volume (vph)	665	60	180	5	25	150	195	2490	10	110	1620	230
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	12	12	16	12	11	11	12	11	11	14
Grade (%)		1%			0%			2%			0%	
Total Lost time (s)	6.5	6.5	6.5		7.0		6.5	6.5		6.5	6.5	6.5
Lane Util. Factor	0.95	0.95	1.00		1.00		0.97	0.91		1.00	0.91	1.00
Frt	1.00	1.00	0.85		0.89		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	0.96	1.00		1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1561	1577	1575		1870		3285	4864		1711	4916	1689
Flt Permitted	0.95	0.96	1.00		1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1561	1577	1575		1870		3285	4864		1711	4916	1689
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	723	65	196	5	27	163	212	2707	11	120	1761	250
RTOR Reduction (vph)	0	0	78	0	94	0	0	1	0	0	0	102
Lane Group Flow (vph)	390	398	118	0	101	0	212	2717	0	120	1761	148
Turn Type	Split	NA	pm+ov	Split	NA		Prot	NA		Prot	NA	Perm
Protected Phases	4	4	6	3	3		6	2		1	5	
Permitted Phases			4									5
Actuated Green, G (s)	34.5	34.5	56.2		5.0		21.7	74.5		9.5	62.3	62.3
Effective Green, g (s)	34.5	34.5	56.2		5.0		21.7	74.5		9.5	62.3	62.3
Actuated g/C Ratio	0.23	0.23	0.37		0.03		0.14	0.50		0.06	0.42	0.42
Clearance Time (s)	6.5	6.5	6.5		7.0		6.5	6.5		6.5	6.5	6.5
Vehicle Extension (s)	3.0	3.0	3.0		3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	359	362	590		62		475	2415		108	2041	701
v/s Ratio Prot	0.25	c0.25	0.03		c0.05		0.06	c0.56		0.07	c0.36	
v/s Ratio Perm			0.05									0.09
v/c Ratio	1.09	1.10	0.20		1.63		0.45	1.13		1.11	0.86	0.21
Uniform Delay, d1	57.8	57.8	31.7		72.5		58.7	37.8		70.2	40.0	28.1
Progression Factor	1.00	1.00	1.00		1.00		1.00	1.00		0.78	1.20	2.10
Incremental Delay, d2	72.6	76.8	0.2		346.3		0.7	62.4		112.1	4.3	0.6
Delay (s)	130.4	134.5	31.9		418.8		59.3	100.2		167.1	52.4	59.5
Level of Service	F	F	C		F		E	F		F	D	E
Approach Delay (s)		112.4			418.8			97.2			59.6	
Approach LOS		F			F			F			E	

Intersection Summary			
HCM 2000 Control Delay	96.8	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.15		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	26.5
Intersection Capacity Utilization	107.3%	ICU Level of Service	G
Analysis Period (min)	15		

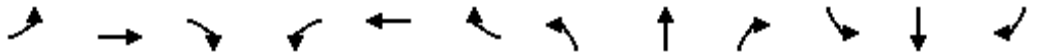
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	635	5	275	0	0	0	0	2950	355	115	1685	0
Future Volume (vph)	635	5	275	0	0	0	0	2950	355	115	1685	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	12	11	12	12	12	12	11	16	11	11	12
Grade (%)		3%			0%			1%			0%	
Total Lost time (s)	8.0	8.0	8.0					6.5		5.5	5.5	
Lane Util. Factor	0.95	0.95	*0.80					0.76		0.97	0.91	
Frt	1.00	1.00	0.85					0.98		1.00	1.00	
Flt Protected	0.95	0.95	1.00					1.00		0.95	1.00	
Satd. Flow (prot)	1601	1661	2412					8038		3319	4916	
Flt Permitted	0.95	0.95	1.00					1.00		0.95	1.00	
Satd. Flow (perm)	1601	1661	2412					8038		3319	4916	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	690	5	299	0	0	0	0	3207	386	125	1832	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	13	0	0	0	0
Lane Group Flow (vph)	345	350	299	0	0	0	0	3580	0	125	1832	0
Turn Type	Split	NA	Prot					NA		Prot	NA	
Protected Phases	4	4	4					6		5	2	
Permitted Phases												
Actuated Green, G (s)	41.2	41.2	41.2					69.3		19.5	95.3	
Effective Green, g (s)	41.2	41.2	41.2					69.3		19.5	95.3	
Actuated g/C Ratio	0.27	0.27	0.27					0.46		0.13	0.64	
Clearance Time (s)	8.0	8.0	8.0					6.5		5.5	5.5	
Vehicle Extension (s)	4.0	4.0	4.0					4.0		0.2	0.2	
Lane Grp Cap (vph)	439	456	662					3713		431	3123	
v/s Ratio Prot	c0.22	0.21	0.12					c0.45		0.04	c0.37	
v/s Ratio Perm												
v/c Ratio	0.79	0.77	0.45					0.96		0.29	0.59	
Uniform Delay, d1	50.3	50.0	45.0					39.1		59.0	15.9	
Progression Factor	1.00	1.00	1.00					0.65		0.50	0.77	
Incremental Delay, d2	9.5	8.0	0.7					1.1		1.5	0.7	
Delay (s)	59.8	58.0	45.7					26.6		31.3	13.0	
Level of Service	E	E	D					C		C	B	
Approach Delay (s)		54.9			0.0			26.6			14.2	
Approach LOS		D			A			C			B	

Intersection Summary				
HCM 2000 Control Delay	27.2	HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio	0.86			
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	20.0	
Intersection Capacity Utilization	75.2%	ICU Level of Service	D	
Analysis Period (min)	15			

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	145	5	215	675	2910	0	0	1655	635
Future Volume (vph)	0	0	0	145	5	215	675	2910	0	0	1655	635
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	13	16	10	11	12	12	11	12
Grade (%)		0%			5%			0%			-1%	
Total Lost time (s)				8.0	8.0	4.0	6.5	6.0			6.0	4.0
Lane Util. Factor				0.95	0.95	1.00	0.97	0.86			0.81	1.00
Frt				1.00	1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	0.96	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				1639	1703	1750	3204	6194			7329	1591
Flt Permitted				0.95	0.96	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				1639	1703	1750	3204	6194			7329	1591
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	158	5	234	734	3163	0	0	1799	690
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	82	81	234	734	3163	0	0	1799	690
Turn Type				Split	NA	Free	Prot	NA			NA	Free
Protected Phases				4	4		1	6			2	
Permitted Phases						Free						Free
Actuated Green, G (s)				13.6	13.6	150.0	42.0	122.4			73.9	150.0
Effective Green, g (s)				13.6	13.6	150.0	42.0	122.4			73.9	150.0
Actuated g/C Ratio				0.09	0.09	1.00	0.28	0.82			0.49	1.00
Clearance Time (s)				8.0	8.0		6.5	6.0			6.0	
Vehicle Extension (s)				4.0	4.0		4.0	0.2			0.2	
Lane Grp Cap (vph)				148	154	1750	897	5054			3610	1591
v/s Ratio Prot				0.05	0.05		c0.23	c0.51			0.25	
v/s Ratio Perm						0.13						c0.43
v/c Ratio				0.55	0.53	0.13	0.82	0.63			0.50	0.43
Uniform Delay, d1				65.3	65.1	0.0	50.4	5.2			25.6	0.0
Progression Factor				1.00	1.00	1.00	1.29	0.82			0.54	1.00
Incremental Delay, d2				5.4	4.2	0.2	1.9	0.2			0.0	0.1
Delay (s)				70.7	69.3	0.2	67.1	4.5			13.9	0.1
Level of Service				E	E	A	E	A			B	A
Approach Delay (s)		0.0			28.8			16.3			10.1	
Approach LOS		A			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	14.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	20.5
Intersection Capacity Utilization	75.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	330	280	150	490	335	110	20	260	2170	675	70	1630
Future Volume (vph)	330	280	150	490	335	110	20	260	2170	675	70	1630
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	12	12	10	12	12	12	10	11	11	11	11
Grade (%)		3%			2%				0%			-1%
Total Lost time (s)	6.5	6.5		6.5	6.5	6.5		6.5	6.5	6.5	6.5	6.5
Lane Util. Factor	0.97	0.95		0.97	0.95	1.00		1.00	0.91	1.00	1.00	*0.80
Frt	1.00	0.95		1.00	1.00	0.85		1.00	1.00	0.85	1.00	0.98
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3156	3304		3172	3504	1567		1652	4916	1531	1719	4242
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.07	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3156	3304		3172	3504	1567		129	4916	1531	1719	4242
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	359	304	163	533	364	120	22	283	2359	734	76	1772
RTOR Reduction (vph)	0	0	0	0	0	98	0	0	0	219	0	14
Lane Group Flow (vph)	359	467	0	533	364	22	0	305	2359	515	76	2084
Turn Type	Split	NA		Split	NA	pt+ov	pm+pt	pm+pt	NA	Perm	Prot	NA
Protected Phases	4	4		3	3	3 5	1	1	6		5	2
Permitted Phases							6	6		6		
Actuated Green, G (s)	27.8	27.8		17.5	17.5	27.7		68.5	68.5	68.5	10.2	64.2
Effective Green, g (s)	27.8	27.8		17.5	17.5	27.7		68.5	68.5	68.5	10.2	64.2
Actuated g/C Ratio	0.19	0.19		0.12	0.12	0.18		0.46	0.46	0.46	0.07	0.43
Clearance Time (s)	6.5	6.5		6.5	6.5			6.5	6.5	6.5	6.5	6.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	584	612		370	408	289		206	2244	699	116	1815
v/s Ratio Prot	0.11	c0.14		c0.17	0.10	0.01		c0.14	0.48		0.04	c0.49
v/s Ratio Perm								c0.53		0.34		
v/c Ratio	0.61	0.76		1.44	0.89	0.08		1.48	1.05	0.74	0.66	1.15
Uniform Delay, d1	56.2	58.0		66.2	65.3	50.6		63.2	40.8	33.4	68.2	42.9
Progression Factor	1.00	1.00		1.00	1.00	1.00		0.57	0.35	0.53	1.00	1.00
Incremental Delay, d2	1.9	5.6		213.0	21.0	0.1		236.2	32.5	5.6	12.5	73.7
Delay (s)	58.1	63.6		279.3	86.3	50.7		272.0	46.9	23.4	80.7	116.6
Level of Service	E	E		F	F	D		F	D	C	F	F
Approach Delay (s)		61.2			183.2				62.0			115.4
Approach LOS		E			F				E			F

Intersection Summary			
HCM 2000 Control Delay	94.2	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.30		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	26.0
Intersection Capacity Utilization	101.9%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group



Movement	SBR
Lane Configurations	
Traffic Volume (vph)	300
Future Volume (vph)	300
Ideal Flow (vphpl)	1900
Lane Width	12
Grade (%)	
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	326
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	



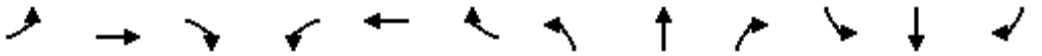
Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	20	1110	30	10	105	590	125	25	45	300	535	140
Future Volume (vph)	20	1110	30	10	105	590	125	25	45	300	535	140
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	12	12	12	12	12	11	11	11	16	9	10
Grade (%)		0%				-1%			2%			-3%
Total Lost time (s)	6.0	6.0			4.5	6.0	6.0	7.5	7.5	4.0	7.0	7.0
Lane Util. Factor	1.00	0.95			1.00	0.95	1.00	1.00	1.00	1.00	0.95	0.95
Frt	1.00	1.00			1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00			0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.97
Satd. Flow (prot)	1711	3525			1778	3557	1538	1694	1783	1776	1536	1623
Flt Permitted	0.41	1.00			0.08	1.00	1.00	0.95	1.00	1.00	0.95	0.97
Satd. Flow (perm)	735	3525			152	3557	1538	1694	1783	1776	1536	1623
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	22	1207	33	11	114	641	136	27	49	326	582	152
RTOR Reduction (vph)	0	1	0	0	0	0	62	0	0	0	0	1
Lane Group Flow (vph)	22	1239	0	0	125	641	74	27	49	326	367	377
Turn Type	Perm	NA		pm+pt	pm+pt	NA	Perm	Split	NA	Free	Split	NA
Protected Phases		6		5	5	2		3	3		4	4
Permitted Phases	6			2	2		2			Free		
Actuated Green, G (s)	67.0	67.0			82.0	82.0	82.0	6.0	6.0	150.0	41.5	41.5
Effective Green, g (s)	67.0	67.0			82.0	82.0	82.0	6.0	6.0	150.0	41.5	41.5
Actuated g/C Ratio	0.45	0.45			0.55	0.55	0.55	0.04	0.04	1.00	0.28	0.28
Clearance Time (s)	6.0	6.0			4.5	6.0	6.0	7.5	7.5		7.0	7.0
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	5.0	5.0		5.0	5.0
Lane Grp Cap (vph)	328	1574			196	1944	840	67	71	1776	424	449
v/s Ratio Prot		c0.35			c0.04	0.18		0.02	c0.03		c0.24	0.23
v/s Ratio Perm	0.03				0.30		0.05			0.18		
v/c Ratio	0.07	0.79			0.64	0.33	0.09	0.40	0.69	0.18	0.87	0.84
Uniform Delay, d1	23.7	35.4			26.5	18.8	16.2	70.3	71.1	0.0	51.6	51.1
Progression Factor	1.00	1.00			1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.4	4.1			6.6	0.5	0.2	8.1	30.9	0.2	18.0	14.5
Delay (s)	24.1	39.5			33.1	19.3	16.4	78.4	102.0	0.2	69.6	65.7
Level of Service	C	D			C	B	B	E	F	A	E	E
Approach Delay (s)		39.2				20.7			17.9			67.6
Approach LOS		D				C			B			E

Intersection Summary			
HCM 2000 Control Delay	38.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	25.0
Intersection Capacity Utilization	78.1%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

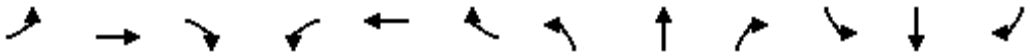


Movement	SBR
Lane Configurations	
Traffic Volume (vph)	10
Future Volume (vph)	10
Ideal Flow (vphpl)	1900
Lane Width	12
Grade (%)	
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	11
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1025	930	400	650	0	0	0	0	615	0	180
Future Volume (vph)	0	1025	930	400	650	0	0	0	0	615	0	180
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	13	12	12	12	12	12
Total Lost time (s)		6.5	6.5	7.5	6.0					7.5		7.5
Lane Util. Factor		0.91	0.88	0.97	0.91					0.94		1.00
Frt		1.00	0.85	1.00	1.00					1.00		0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95		1.00
Satd. Flow (prot)		5085	2787	3433	5085					4990		1583
Flt Permitted		1.00	1.00	0.95	1.00					0.95		1.00
Satd. Flow (perm)		5085	2787	3433	5085					4990		1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1114	1011	435	707	0	0	0	0	668	0	196
RTOR Reduction (vph)	0	0	570	0	0	0	0	0	0	0	0	164
Lane Group Flow (vph)	0	1114	441	435	707	0	0	0	0	668	0	32
Turn Type		NA	Prot	Prot	NA					Prot		Prot
Protected Phases		2	2	1	6					7		7
Permitted Phases												
Actuated Green, G (s)		39.3	39.3	14.3	61.6					14.9		14.9
Effective Green, g (s)		39.3	39.3	14.3	61.6					14.9		14.9
Actuated g/C Ratio		0.44	0.44	0.16	0.68					0.17		0.17
Clearance Time (s)		6.5	6.5	7.5	6.0					7.5		7.5
Vehicle Extension (s)		2.0	2.0	0.5	2.0					0.5		0.5
Lane Grp Cap (vph)		2220	1216	545	3480					826		262
v/s Ratio Prot		c0.22	0.16	c0.13	0.14					c0.13		0.02
v/s Ratio Perm												
v/c Ratio		0.50	0.36	0.80	0.20					0.81		0.12
Uniform Delay, d1		18.3	17.0	36.5	5.2					36.2		32.0
Progression Factor		1.00	1.00	0.63	0.66					1.00		1.00
Incremental Delay, d2		0.8	0.8	7.2	0.1					5.5		0.1
Delay (s)		19.1	17.8	30.2	3.6					41.7		32.1
Level of Service		B	B	C	A					D		C
Approach Delay (s)		18.5			13.7			0.0			39.5	
Approach LOS		B			B			A			D	

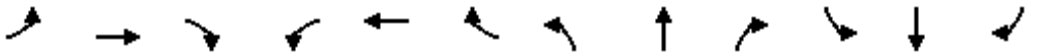
Intersection Summary			
HCM 2000 Control Delay	21.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	21.5
Intersection Capacity Utilization	57.8%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	130	1625	0	0	1120	0	240	0	715	0	0	0
Future Volume (vph)	130	1625	0	0	1120	0	240	0	715	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	7.0			6.0		6.5		6.0			
Lane Util. Factor	1.00	0.91			0.91		0.94		0.88			
Frt	1.00	1.00			1.00		1.00		0.85			
Flt Protected	0.95	1.00			1.00		0.95		1.00			
Satd. Flow (prot)	1770	5085			5085		4990		2787			
Flt Permitted	0.95	1.00			1.00		0.95		1.00			
Satd. Flow (perm)	1770	5085			5085		4990		2787			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	141	1766	0	0	1217	0	261	0	777	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	88	0	0	0
Lane Group Flow (vph)	141	1766	0	0	1217	0	261	0	689	0	0	0
Turn Type	Prot	NA			NA		Prot		Prot			
Protected Phases	5	2			6		3		8			
Permitted Phases												
Actuated Green, G (s)	9.9	52.3			37.4		24.2		24.7			
Effective Green, g (s)	9.9	52.3			37.4		24.2		24.7			
Actuated g/C Ratio	0.11	0.58			0.42		0.27		0.27			
Clearance Time (s)	6.0	7.0			6.0		6.5		6.0			
Vehicle Extension (s)	0.5	2.0			2.0		0.5		0.2			
Lane Grp Cap (vph)	194	2954			2113		1341		764			
v/s Ratio Prot	0.08	c0.35			0.24		0.05		c0.25			
v/s Ratio Perm												
v/c Ratio	0.73	0.60			0.58		0.19		0.90			
Uniform Delay, d1	38.7	12.1			20.2		25.4		31.5			
Progression Factor	1.60	0.12			0.94		1.00		1.00			
Incremental Delay, d2	8.4	0.7			0.7		0.0		13.6			
Delay (s)	70.5	2.2			19.7		25.4		45.1			
Level of Service	E	A			B		C		D			
Approach Delay (s)		7.2			19.7			40.1			0.0	
Approach LOS		A			B			D			A	

Intersection Summary			
HCM 2000 Control Delay	19.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.5
Intersection Capacity Utilization	67.2%	ICU Level of Service	C
Analysis Period (min)	15		

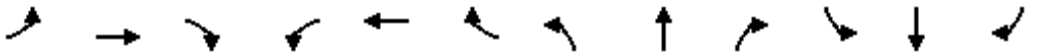
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	100	2210	30	5	1780	20	35	5	5	45	10	215
Future Volume (vph)	100	2210	30	5	1780	20	35	5	5	45	10	215
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	13	11	11	11	11	12	12	12	12	14	15
Grade (%)		2%			3%			-2%			-5%	
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0		6.5			6.5	6.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		1.00			1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85		0.99			1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.96			0.96	1.00
Satd. Flow (prot)	1694	3621	1515	1685	3370	1508		1784			1957	1785
Flt Permitted	0.05	1.00	1.00	0.03	1.00	1.00		0.73			0.75	1.00
Satd. Flow (perm)	95	3621	1515	56	3370	1508		1360			1537	1785
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	109	2402	33	5	1935	22	38	5	5	49	11	234
RTOR Reduction (vph)	0	0	8	0	0	6	0	3	0	0	0	48
Lane Group Flow (vph)	109	2402	25	5	1935	16	0	45	0	0	60	186
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA		Perm	NA	Perm
Protected Phases	1	6		5	2			4			8	
Permitted Phases	6		6	2		2	4			8		8
Actuated Green, G (s)	143.0	136.4	136.4	127.7	127.1	127.1		24.5			24.5	24.5
Effective Green, g (s)	143.0	136.4	136.4	127.7	127.1	127.1		24.5			24.5	24.5
Actuated g/C Ratio	0.79	0.76	0.76	0.71	0.71	0.71		0.14			0.14	0.14
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0		6.5			6.5	6.5
Vehicle Extension (s)	5.0	0.2	0.2	5.0	0.2	0.2		5.0			5.0	5.0
Lane Grp Cap (vph)	163	2743	1148	45	2379	1064		185			209	242
v/s Ratio Prot	c0.04	c0.66		0.00	0.57							
v/s Ratio Perm	0.49		0.02	0.08		0.01		0.03			0.04	c0.10
v/c Ratio	0.67	0.88	0.02	0.11	0.81	0.01		0.25			0.29	0.77
Uniform Delay, d1	36.2	15.7	5.4	29.5	18.3	7.9		69.5			69.9	75.0
Progression Factor	1.00	0.96	0.99	1.00	1.00	1.00		1.00			1.00	1.00
Incremental Delay, d2	10.0	3.3	0.0	2.3	3.2	0.0		1.4			1.6	16.2
Delay (s)	46.3	18.4	5.4	31.8	21.4	7.9		70.9			71.5	91.2
Level of Service	D	B	A	C	C	A		E			E	F
Approach Delay (s)		19.4			21.3			70.9			87.2	
Approach LOS		B			C			E			F	

Intersection Summary			
HCM 2000 Control Delay	24.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	18.5
Intersection Capacity Utilization	89.0%	ICU Level of Service	E
Analysis Period (min)	15		

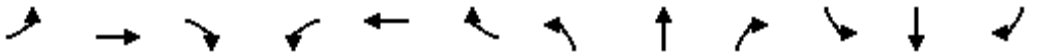
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	145	1485	10	370	905	85	20	0	115	155	0	125
Future Volume (vph)	145	1485	10	370	905	85	20	0	115	155	0	125
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	8.0	8.0	7.5	8.5	8.0	8.0		7.5	8.0		8.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97		1.00	0.97		1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00		0.85	1.00		0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	3433		1583	3433		1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	3433		1583	3433		1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	158	1614	11	402	984	92	22	0	125	168	0	136
RTOR Reduction (vph)	0	0	5	0	0	33	0	0	103	0	0	125
Lane Group Flow (vph)	158	1614	6	402	984	59	22	0	22	168	0	11
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot		Over	Prot		Over
Protected Phases	5	2	3	1	6	7	3		1	7		5
Permitted Phases			2			6						
Actuated Green, G (s)	7.4	43.4	51.0	15.5	50.5	58.1	7.6		15.5	7.6		7.4
Effective Green, g (s)	7.4	43.4	51.0	15.5	50.5	58.1	7.6		15.5	7.6		7.4
Actuated g/C Ratio	0.08	0.48	0.57	0.17	0.56	0.65	0.08		0.17	0.08		0.08
Clearance Time (s)	8.0	8.0	8.0	7.5	8.5	8.0	8.0		7.5	8.0		8.0
Vehicle Extension (s)	0.5	2.0	0.5	0.5	2.0	0.5	0.5		0.5	0.5		0.5
Lane Grp Cap (vph)	282	2452	1037	591	2853	1021	289		272	289		130
v/s Ratio Prot	0.05	c0.32	0.00	c0.12	0.19	0.00	0.01		0.01	c0.05		0.01
v/s Ratio Perm			0.00			0.03						
v/c Ratio	0.56	0.66	0.01	0.68	0.34	0.06	0.08		0.08	0.58		0.09
Uniform Delay, d1	39.7	17.7	8.5	34.9	10.7	5.9	38.0		31.3	39.7		38.2
Progression Factor	0.47	0.52	1.00	0.70	0.26	0.05	1.00		1.00	1.00		1.00
Incremental Delay, d2	1.3	1.2	0.0	2.1	0.3	0.0	0.0		0.0	1.9		0.1
Delay (s)	20.2	10.4	8.5	26.4	3.1	0.3	38.0		31.3	41.6		38.3
Level of Service	C	B	A	C	A	A	D		C	D		D
Approach Delay (s)		11.2			9.2			32.3			40.1	
Approach LOS		B			A			C			D	

Intersection Summary			
HCM 2000 Control Delay	13.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	24.5
Intersection Capacity Utilization	63.8%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



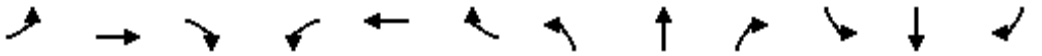
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1025	930	400	650	0	0	0	0	615	0	180
Future Volume (veh/h)	0	1025	930	400	650	0	0	0	0	615	0	180
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0				1870	0	1870
Adj Flow Rate, veh/h	0	1114	1011	435	707	0				668	0	196
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				0.92	0.92	0.92
Percent Heavy Veh, %	0	2	2	2	2	0				2	0	2
Cap, veh/h	0	2344	1281	509	3521	0				778	0	245
Arrive On Green	0.00	0.46	0.46	0.10	0.46	0.00				0.15	0.00	0.15
Sat Flow, veh/h	0	5274	2790	3456	5274	0				5023	0	1585
Grp Volume(v), veh/h	0	1114	1011	435	707	0				668	0	196
Grp Sat Flow(s),veh/h/ln	0	1702	1395	1728	1702	0				1674	0	1585
Q Serve(g_s), s	0.0	13.6	27.7	11.2	7.4	0.0				11.7	0.0	10.7
Cycle Q Clear(g_c), s	0.0	13.6	27.7	11.2	7.4	0.0				11.7	0.0	10.7
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	2344	1281	509	3521	0				778	0	245
V/C Ratio(X)	0.00	0.48	0.79	0.85	0.20	0.00				0.86	0.00	0.80
Avail Cap(c_a), veh/h	0	2344	1281	710	3521	0				1033	0	326
HCM Platoon Ratio	1.00	1.00	1.00	0.67	0.67	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.66	0.66	0.95	0.95	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	16.8	20.7	39.6	9.5	0.0				37.1	0.0	36.7
Incr Delay (d2), s/veh	0.0	0.5	3.4	5.3	0.1	0.0				4.6	0.0	7.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	5.0	8.9	5.2	2.5	0.0				5.0	0.0	4.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	17.3	24.0	44.9	9.6	0.0				41.7	0.0	43.9
LnGrp LOS	A	B	C	D	A	A				D	A	D
Approach Vol, veh/h		2125			1142						864	
Approach Delay, s/veh		20.5			23.1						42.2	
Approach LOS		C			C						D	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	20.8	47.8		21.4		68.6
Change Period (Y+Rc), s	7.5	6.5		7.5		* 6.5
Max Green Setting (Gmax), s	18.5	31.5		18.5		* 58
Max Q Clear Time (g_c+I1), s	13.2	29.7		13.7		9.4
Green Ext Time (p_c), s	0.1	1.4		0.3		3.5

Intersection Summary		
HCM 6th Ctrl Delay		25.7
HCM 6th LOS		C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

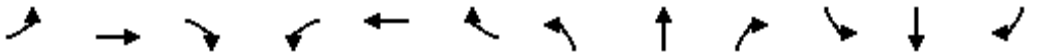


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	130	1625	0	0	1120	0	240	0	715	0	0	0
Future Volume (veh/h)	130	1625	0	0	1120	0	240	0	715	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	0	1870	0	1870			
Adj Flow Rate, veh/h	141	1766	0	0	1217	0	261	0	777			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	0	0	2	0	2	0	2			
Cap, veh/h	173	2823	0	0	1987	0	1493	0	829			
Arrive On Green	0.10	0.55	0.00	0.00	0.39	0.00	0.30	0.00	0.30			
Sat Flow, veh/h	1781	5274	0	0	5443	0	5023	0	2790			
Grp Volume(v), veh/h	141	1766	0	0	1217	0	261	0	777			
Grp Sat Flow(s),veh/h/ln	1781	1702	0	0	1702	0	1674	0	1395			
Q Serve(g_s), s	7.0	21.3	0.0	0.0	17.2	0.0	3.5	0.0	24.4			
Cycle Q Clear(g_c), s	7.0	21.3	0.0	0.0	17.2	0.0	3.5	0.0	24.4			
Prop In Lane	1.00		0.00	0.00		0.00	1.00		1.00			
Lane Grp Cap(c), veh/h	173	2823	0	0	1987	0	1493	0	829			
V/C Ratio(X)	0.82	0.63	0.00	0.00	0.61	0.00	0.17	0.00	0.94			
Avail Cap(c_a), veh/h	257	2823	0	0	1987	0	1647	0	914			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.74	0.74	0.00	0.00	1.00	0.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	39.8	13.8	0.0	0.0	22.1	0.0	23.4	0.0	30.8			
Incr Delay (d2), s/veh	5.4	0.8	0.0	0.0	1.4	0.0	0.0	0.0	15.2			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	3.2	7.5	0.0	0.0	6.7	0.0	1.3	0.0	9.7			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	45.2	14.5	0.0	0.0	23.5	0.0	23.5	0.0	46.0			
LnGrp LOS	D	B	A	A	C	A	C	A	D			
Approach Vol, veh/h		1907			1217			1038				
Approach Delay, s/veh		16.8			23.5			40.4				
Approach LOS		B			C			D				
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		56.8			14.7	42.0		33.2				
Change Period (Y+Rc), s		7.0			6.0	* 7		6.5				
Max Green Setting (Gmax), s		47.0			13.0	* 29		29.5				
Max Q Clear Time (g_c+I1), s		23.3			9.0	19.2		26.4				
Green Ext Time (p_c), s		10.2			0.0	4.2		0.3				

Intersection Summary	
HCM 6th Ctrl Delay	24.6
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	100	2210	30	5	1780	20	35	5	5	45	10	215
Future Volume (veh/h)	100	2210	30	5	1780	20	35	5	5	45	10	215
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1847	1921	1847	1817	1817	1817	1949	1949	1949	2067	2149	2149
Adj Flow Rate, veh/h	109	2402	33	5	1935	22	38	5	5	49	11	234
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	173	2742	1176	83	2510	1120	153	20	16	234	49	259
Arrive On Green	0.03	0.75	0.75	0.00	0.73	0.73	0.16	0.14	0.14	0.16	0.14	0.14
Sat Flow, veh/h	1759	3649	1565	1731	3453	1540	821	140	112	1388	346	1821
Grp Volume(v), veh/h	109	2402	33	5	1935	22	48	0	0	60	0	234
Grp Sat Flow(s),veh/h/ln	1759	1825	1565	1731	1726	1540	1073	0	0	1733	0	1821
Q Serve(g_s), s	2.9	86.2	1.0	0.1	62.6	0.7	5.4	0.0	0.0	0.0	0.0	22.8
Cycle Q Clear(g_c), s	2.9	86.2	1.0	0.1	62.6	0.7	10.5	0.0	0.0	5.2	0.0	22.8
Prop In Lane	1.00		1.00	1.00		1.00	0.79		0.10	0.82		1.00
Lane Grp Cap(c), veh/h	173	2742	1176	83	2510	1120	203	0	0	307	0	259
V/C Ratio(X)	0.63	0.88	0.03	0.06	0.77	0.02	0.24	0.00	0.00	0.20	0.00	0.90
Avail Cap(c_a), veh/h	212	2742	1176	106	2510	1120	227	0	0	339	0	293
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	27.4	16.3	5.7	25.8	15.3	6.8	71.3	0.0	0.0	67.5	0.0	76.0
Incr Delay (d2), s/veh	8.0	4.3	0.0	0.6	2.4	0.0	1.3	0.0	0.0	0.7	0.0	30.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.5	34.4	0.3	0.1	24.0	0.2	2.1	0.0	0.0	2.5	0.0	13.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	35.4	20.6	5.7	26.5	17.6	6.8	72.6	0.0	0.0	68.2	0.0	106.1
LnGrp LOS	D	C	A	C	B	A	E	A	A	E	A	F
Approach Vol, veh/h		2544			1962			48			294	
Approach Delay, s/veh		21.0			17.5			72.6			98.4	
Approach LOS		C			B			E			F	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.0	136.9		32.1	6.7	141.2		32.1				
Change Period (Y+Rc), s	6.0	6.0		6.5	6.0	6.0		6.5				
Max Green Setting (Gmax), s	9.0	123.5		29.0	3.0	129.5		29.0				
Max Q Clear Time (g_c+I1), s	4.9	64.6		12.5	2.1	88.2		24.8				
Green Ext Time (p_c), s	0.2	3.6		0.3	0.0	5.5		0.8				

Intersection Summary			
HCM 6th Ctrl Delay		24.8	
HCM 6th LOS		C	



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	25	690	25	15	265	1305	775	30	215	420	525	200
Future Volume (vph)	25	690	25	15	265	1305	775	30	215	420	525	200
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	12	12	12	12	12	11	11	11	16	9	10
Grade (%)		0%				-1%			2%			-3%
Total Lost time (s)	6.0	6.0			4.5	6.0	6.0	7.5	7.5	4.0	7.0	7.0
Lane Util. Factor	1.00	0.95			1.00	0.95	1.00	1.00	1.00	1.00	0.95	0.95
Frt	1.00	0.99			1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99
Flt Protected	0.95	1.00			0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.98
Satd. Flow (prot)	1711	3521			1778	3557	1538	1694	1783	1776	1536	1619
Flt Permitted	0.11	1.00			0.10	1.00	1.00	0.95	1.00	1.00	0.95	0.98
Satd. Flow (perm)	194	3521			180	3557	1538	1694	1783	1776	1536	1619
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	27	750	27	16	288	1418	842	33	234	457	571	217
RTOR Reduction (vph)	0	2	0	0	0	0	298	0	0	0	0	2
Lane Group Flow (vph)	27	775	0	0	304	1418	544	33	234	457	360	464
Turn Type	Perm	NA		pm+pt	pm+pt	NA	Perm	Split	NA	Free	Split	NA
Protected Phases		6		5	5	2		3	3		4	4
Permitted Phases	6			2	2		2			Free		
Actuated Green, G (s)	37.2	37.2			64.0	64.0	64.0	21.5	21.5	150.0	44.0	44.0
Effective Green, g (s)	37.2	37.2			64.0	64.0	64.0	21.5	21.5	150.0	44.0	44.0
Actuated g/C Ratio	0.25	0.25			0.43	0.43	0.43	0.14	0.14	1.00	0.29	0.29
Clearance Time (s)	6.0	6.0			4.5	6.0	6.0	7.5	7.5		7.0	7.0
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	5.0	5.0		5.0	5.0
Lane Grp Cap (vph)	48	873			314	1517	656	242	255	1776	450	474
v/s Ratio Prot		0.22			0.14	c0.40		0.02	c0.13		0.23	c0.29
v/s Ratio Perm	0.14				c0.27		0.35			0.26		
v/c Ratio	0.56	0.89			0.97	0.93	0.83	0.14	0.92	0.26	0.80	0.98
Uniform Delay, d1	49.3	54.4			46.7	41.0	38.1	56.1	63.4	0.0	48.9	52.5
Progression Factor	1.00	1.00			1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	40.1	13.0			41.7	12.1	11.6	0.5	36.2	0.4	11.1	35.8
Delay (s)	89.4	67.4			88.4	53.1	49.7	56.7	99.6	0.4	60.0	88.3
Level of Service	F	E			F	D	D	E	F	A	E	F
Approach Delay (s)		68.2				56.2			35.0			76.0
Approach LOS		E				E			C			E

Intersection Summary			
HCM 2000 Control Delay	58.3	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	25.0
Intersection Capacity Utilization	96.2%	ICU Level of Service	F
Analysis Period (min)	15		

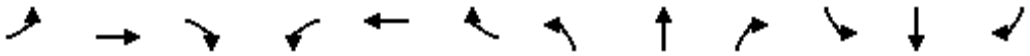
c Critical Lane Group



Movement	SBR
Lane Configurations	
Traffic Volume (vph)	35
Future Volume (vph)	35
Ideal Flow (vphpl)	1900
Lane Width	12
Grade (%)	
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	38
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1320	330	475	2120	0	0	0	0	515	0	240
Future Volume (vph)	0	1320	330	475	2120	0	0	0	0	515	0	240
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	13	12	12	12	12	12
Total Lost time (s)		6.5	6.5	7.5	6.0					7.5		7.5
Lane Util. Factor		0.91	0.88	0.97	0.91					0.94		1.00
Frt		1.00	0.85	1.00	1.00					1.00		0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95		1.00
Satd. Flow (prot)		5085	2787	3433	5085					4990		1583
Flt Permitted		1.00	1.00	0.95	1.00					0.95		1.00
Satd. Flow (perm)		5085	2787	3433	5085					4990		1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1435	359	516	2304	0	0	0	0	560	0	261
RTOR Reduction (vph)	0	0	203	0	0	0	0	0	0	0	0	113
Lane Group Flow (vph)	0	1435	156	516	2304	0	0	0	0	560	0	148
Turn Type		NA	Prot	Prot	NA					Prot		Prot
Protected Phases		2	2	1	6					7		7
Permitted Phases												
Actuated Green, G (s)		39.1	39.1	15.9	63.0					13.5		13.5
Effective Green, g (s)		39.1	39.1	15.9	63.0					13.5		13.5
Actuated g/C Ratio		0.43	0.43	0.18	0.70					0.15		0.15
Clearance Time (s)		6.5	6.5	7.5	6.0					7.5		7.5
Vehicle Extension (s)		2.0	2.0	0.5	2.0					0.5		0.5
Lane Grp Cap (vph)		2209	1210	606	3559					748		237
v/s Ratio Prot		0.28	0.06	0.15	c0.45					c0.11		0.09
v/s Ratio Perm												
v/c Ratio		0.65	0.13	0.85	0.65					0.75		0.62
Uniform Delay, d1		20.1	15.2	35.9	7.4					36.6		35.9
Progression Factor		1.00	1.00	0.78	0.63					1.00		1.00
Incremental Delay, d2		1.5	0.2	3.9	0.4					3.6		3.7
Delay (s)		21.5	15.5	31.9	5.1					40.2		39.5
Level of Service		C	B	C	A					D		D
Approach Delay (s)		20.3			10.0			0.0			40.0	
Approach LOS		C			B			A			D	

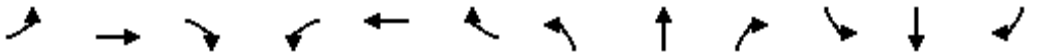
Intersection Summary			
HCM 2000 Control Delay	17.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	21.5
Intersection Capacity Utilization	67.1%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	175	1615	0	0	1635	0	725	0	400	0	0	0
Future Volume (vph)	175	1615	0	0	1635	0	725	0	400	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	7.0			6.0		6.5		6.0			
Lane Util. Factor	1.00	0.91			0.91		0.94		0.88			
Frt	1.00	1.00			1.00		1.00		0.85			
Flt Protected	0.95	1.00			1.00		0.95		1.00			
Satd. Flow (prot)	1770	5085			5085		4990		2787			
Flt Permitted	0.95	1.00			1.00		0.95		1.00			
Satd. Flow (perm)	1770	5085			5085		4990		2787			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	190	1755	0	0	1777	0	788	0	435	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	98	0	0	0
Lane Group Flow (vph)	190	1755	0	0	1777	0	788	0	337	0	0	0
Turn Type	Prot	NA			NA		Prot		Prot			
Protected Phases	5	2			6		3		8			
Permitted Phases												
Actuated Green, G (s)	12.0	60.0			43.0		16.5		17.0			
Effective Green, g (s)	12.0	60.0			43.0		16.5		17.0			
Actuated g/C Ratio	0.13	0.67			0.48		0.18		0.19			
Clearance Time (s)	6.0	7.0			6.0		6.5		6.0			
Vehicle Extension (s)	0.5	2.0			2.0		0.5		0.2			
Lane Grp Cap (vph)	236	3390			2429		914		526			
v/s Ratio Prot	c0.11	0.35			c0.35		c0.16		0.12			
v/s Ratio Perm												
v/c Ratio	0.81	0.52			0.73		0.86		0.64			
Uniform Delay, d1	37.9	7.6			18.9		35.6		33.7			
Progression Factor	1.03	0.93			0.99		1.00		1.00			
Incremental Delay, d2	13.5	0.5			0.2		8.1		2.0			
Delay (s)	52.5	7.5			18.8		43.8		35.7			
Level of Service	D	A			B		D		D			
Approach Delay (s)		11.9			18.8			40.9			0.0	
Approach LOS		B			B			D			A	

Intersection Summary			
HCM 2000 Control Delay	21.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.5
Intersection Capacity Utilization	68.4%	ICU Level of Service	C
Analysis Period (min)	15		

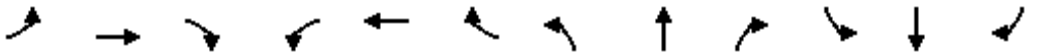
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	255	1700	60	5	2600	55	25	5	5	45	10	155
Future Volume (vph)	255	1700	60	5	2600	55	25	5	5	45	10	155
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	13	11	11	11	11	12	12	12	12	14	15
Grade (%)		2%			3%			-2%			-5%	
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0		6.5			6.5	6.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		1.00			1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85		0.98			1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.96			0.96	1.00
Satd. Flow (prot)	1694	3621	1515	1685	3370	1508		1782			1957	1785
Flt Permitted	0.03	1.00	1.00	0.11	1.00	1.00		0.75			0.78	1.00
Satd. Flow (perm)	58	3621	1515	199	3370	1508		1378			1586	1785
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	277	1848	65	5	2826	60	27	5	5	49	11	168
RTOR Reduction (vph)	0	0	12	0	0	21	0	4	0	0	0	82
Lane Group Flow (vph)	277	1848	53	5	2826	39	0	33	0	0	60	86
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA		Perm	NA	Perm
Protected Phases	1	6		5	2			4			8	
Permitted Phases	6		6	2		2	4			8		8
Actuated Green, G (s)	150.6	144.0	144.0	117.1	116.5	116.5		16.9			16.9	16.9
Effective Green, g (s)	150.6	144.0	144.0	117.1	116.5	116.5		16.9			16.9	16.9
Actuated g/C Ratio	0.84	0.80	0.80	0.65	0.65	0.65		0.09			0.09	0.09
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0		6.5			6.5	6.5
Vehicle Extension (s)	5.0	0.2	0.2	5.0	0.2	0.2		5.0			5.0	5.0
Lane Grp Cap (vph)	303	2896	1212	134	2181	976		129			148	167
v/s Ratio Prot	c0.14	0.51		0.00	c0.84							
v/s Ratio Perm	0.62		0.04	0.02		0.03		0.02			0.04	c0.05
v/c Ratio	0.91	0.64	0.04	0.04	1.30	0.04		0.26			0.41	0.51
Uniform Delay, d1	68.2	7.4	3.7	14.6	31.8	11.5		75.7			76.8	77.6
Progression Factor	1.01	0.97	1.23	1.00	1.00	1.00		1.00			1.00	1.00
Incremental Delay, d2	28.3	0.9	0.1	0.2	136.6	0.1		2.2			3.8	5.2
Delay (s)	97.5	8.1	4.6	14.9	168.4	11.6		78.0			80.6	82.8
Level of Service	F	A	A	B	F	B		E			F	F
Approach Delay (s)		19.3			164.8			78.0			82.2	
Approach LOS		B			F			E			F	

Intersection Summary			
HCM 2000 Control Delay	101.1	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.15		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	18.5
Intersection Capacity Utilization	110.0%	ICU Level of Service	H
Analysis Period (min)	15		

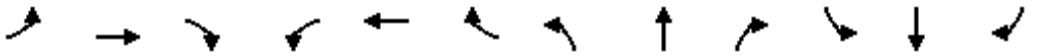
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	315	1340	180	250	2085	25	405	0	150	300	0	105
Future Volume (vph)	315	1340	180	250	2085	25	405	0	150	300	0	105
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	8.0	8.0	7.5	8.5	8.0	8.0		7.5	8.0		8.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97		1.00	0.97		1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00		0.85	1.00		0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	3433		1583	3433		1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	3433		1583	3433		1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	342	1457	196	272	2266	27	440	0	163	326	0	114
RTOR Reduction (vph)	0	0	32	0	0	10	0	0	140	0	0	101
Lane Group Flow (vph)	342	1457	164	272	2266	17	440	0	23	326	0	13
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot		Over	Prot		Over
Protected Phases	5	2	3	1	6	7	3		1	7		5
Permitted Phases			2			6						
Actuated Green, G (s)	9.9	40.5	53.9	12.6	42.2	55.6	13.4		12.6	13.4		9.9
Effective Green, g (s)	9.9	40.5	53.9	12.6	42.2	55.6	13.4		12.6	13.4		9.9
Actuated g/C Ratio	0.11	0.45	0.60	0.14	0.47	0.62	0.15		0.14	0.15		0.11
Clearance Time (s)	8.0	8.0	8.0	7.5	8.5	8.0	8.0		7.5	8.0		8.0
Vehicle Extension (s)	0.5	2.0	0.5	0.5	2.0	0.5	0.5		0.5	0.5		0.5
Lane Grp Cap (vph)	377	2288	1088	480	2384	977	511		221	511		174
v/s Ratio Prot	0.10	c0.29	0.02	0.08	c0.45	0.00	c0.13		0.01	0.09		0.01
v/s Ratio Perm			0.08			0.01						
v/c Ratio	0.91	0.64	0.15	0.57	0.95	0.02	0.86		0.10	0.64		0.07
Uniform Delay, d1	39.6	19.1	8.0	36.1	22.9	6.6	37.4		33.8	36.0		35.9
Progression Factor	0.55	0.41	0.03	1.08	0.59	1.00	1.00		1.00	1.00		1.00
Incremental Delay, d2	19.7	1.1	0.0	0.6	7.1	0.0	13.4		0.1	1.9		0.1
Delay (s)	41.5	9.0	0.3	39.7	20.5	6.6	50.8		33.8	37.9		36.0
Level of Service	D	A	A	D	C	A	D		C	D		D
Approach Delay (s)		13.7			22.4			46.2			37.4	
Approach LOS		B			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	23.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	24.5
Intersection Capacity Utilization	81.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



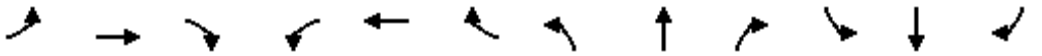
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1320	330	475	2120	0	0	0	0	515	0	240
Future Volume (veh/h)	0	1320	330	475	2120	0	0	0	0	515	0	240
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0				1870	0	1870
Adj Flow Rate, veh/h	0	1435	359	516	2304	0				560	0	261
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				0.92	0.92	0.92
Percent Heavy Veh, %	0	2	2	2	2	0				2	0	2
Cap, veh/h	0	2074	1133	588	3369	0				927	0	293
Arrive On Green	0.00	0.41	0.41	0.11	0.44	0.00				0.18	0.00	0.18
Sat Flow, veh/h	0	5274	2790	3456	5274	0				5023	0	1585
Grp Volume(v), veh/h	0	1435	359	516	2304	0				560	0	261
Grp Sat Flow(s),veh/h/ln	0	1702	1395	1728	1702	0				1674	0	1585
Q Serve(g_s), s	0.0	20.9	7.9	13.2	32.5	0.0				9.2	0.0	14.5
Cycle Q Clear(g_c), s	0.0	20.9	7.9	13.2	32.5	0.0				9.2	0.0	14.5
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	2074	1133	588	3369	0				927	0	293
V/C Ratio(X)	0.00	0.69	0.32	0.88	0.68	0.00				0.60	0.00	0.89
Avail Cap(c_a), veh/h	0	2074	1133	710	3369	0				1033	0	326
HCM Platoon Ratio	1.00	1.00	1.00	0.67	0.67	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.67	0.67	0.30	0.30	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	22.1	18.2	38.9	17.6	0.0				33.7	0.0	35.8
Incr Delay (d2), s/veh	0.0	1.3	0.5	3.1	0.3	0.0				0.5	0.0	22.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	8.1	2.5	6.0	13.2	0.0				3.7	0.0	7.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	23.4	18.7	42.0	17.9	0.0				34.1	0.0	58.0
LnGrp LOS	A	C	B	D	B	A				C	A	E
Approach Vol, veh/h		1794			2820						821	
Approach Delay, s/veh		22.4			22.3						41.7	
Approach LOS		C			C						D	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	22.8	43.1		24.1		65.9
Change Period (Y+Rc), s	7.5	6.5		7.5		* 6.5
Max Green Setting (Gmax), s	18.5	31.5		18.5		* 58
Max Q Clear Time (g_c+I1), s	15.2	22.9		16.5		34.5
Green Ext Time (p_c), s	0.1	5.1		0.1		14.5

Intersection Summary		
HCM 6th Ctrl Delay		25.3
HCM 6th LOS		C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

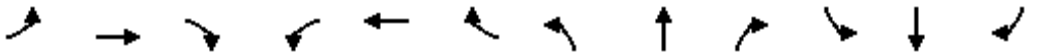


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	175	1615	0	0	1635	0	725	0	400	0	0	0
Future Volume (veh/h)	175	1615	0	0	1635	0	725	0	400	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	0	1870	0	1870			
Adj Flow Rate, veh/h	190	1755	0	0	1777	0	788	0	435			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	0	0	2	0	2	0	2			
Cap, veh/h	227	3427	0	0	2437	0	898	0	499			
Arrive On Green	0.04	0.22	0.00	0.00	0.48	0.00	0.18	0.00	0.18			
Sat Flow, veh/h	1781	5274	0	0	5443	0	5023	0	2790			
Grp Volume(v), veh/h	190	1755	0	0	1777	0	788	0	435			
Grp Sat Flow(s),veh/h/ln	1781	1702	0	0	1702	0	1674	0	1395			
Q Serve(g_s), s	9.5	27.2	0.0	0.0	25.1	0.0	13.8	0.0	13.7			
Cycle Q Clear(g_c), s	9.5	27.2	0.0	0.0	25.1	0.0	13.8	0.0	13.7			
Prop In Lane	1.00		0.00	0.00		0.00	1.00		1.00			
Lane Grp Cap(c), veh/h	227	3427	0	0	2437	0	898	0	499			
V/C Ratio(X)	0.84	0.51	0.00	0.00	0.73	0.00	0.88	0.00	0.87			
Avail Cap(c_a), veh/h	297	3427	0	0	2437	0	1033	0	573			
HCM Platoon Ratio	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.75	0.75	0.00	0.00	1.00	0.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	42.2	22.1	0.0	0.0	18.9	0.0	36.0	0.0	35.9			
Incr Delay (d2), s/veh	9.3	0.4	0.0	0.0	2.0	0.0	7.1	0.0	11.4			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	5.0	12.3	0.0	0.0	9.5	0.0	6.1	0.0	5.3			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	51.4	22.5	0.0	0.0	20.8	0.0	43.1	0.0	47.3			
LnGrp LOS	D	C	A	A	C	A	D	A	D			
Approach Vol, veh/h		1945			1777			1223				
Approach Delay, s/veh		25.3			20.8			44.6				
Approach LOS		C			C			D				
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		67.4			17.5	50.0		22.6				
Change Period (Y+Rc), s		7.0			6.0	* 7		6.5				
Max Green Setting (Gmax), s		58.0			15.0	* 38		18.5				
Max Q Clear Time (g_c+I1), s		29.2			11.5	27.1		15.8				
Green Ext Time (p_c), s		11.0			0.0	6.6		0.3				

Intersection Summary	
HCM 6th Ctrl Delay	28.5
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	255	1700	60	5	2600	55	25	5	5	45	10	155
Future Volume (veh/h)	255	1700	60	5	2600	55	25	5	5	45	10	155
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1847	1921	1847	1817	1817	1817	1949	1949	1949	2067	2149	2149
Adj Flow Rate, veh/h	277	1848	65	5	2826	60	27	5	5	49	11	168
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	196	2865	1229	175	2416	1078	115	21	16	184	38	198
Arrive On Green	0.09	0.78	0.78	0.00	0.70	0.70	0.12	0.11	0.11	0.12	0.11	0.11
Sat Flow, veh/h	1759	3649	1565	1731	3453	1540	742	193	146	1360	349	1821
Grp Volume(v), veh/h	277	1848	65	5	2826	60	37	0	0	60	0	168
Grp Sat Flow(s),veh/h/ln	1759	1825	1565	1731	1726	1540	1081	0	0	1709	0	1821
Q Serve(g_s), s	16.0	39.7	1.7	0.2	126.0	2.2	3.5	0.0	0.0	0.0	0.0	16.3
Cycle Q Clear(g_c), s	16.0	39.7	1.7	0.2	126.0	2.2	9.1	0.0	0.0	5.6	0.0	16.3
Prop In Lane	1.00		1.00	1.00		1.00	0.73		0.14	0.82		1.00
Lane Grp Cap(c), veh/h	196	2865	1229	175	2416	1078	167	0	0	246	0	198
V/C Ratio(X)	1.41	0.65	0.05	0.03	1.17	0.06	0.22	0.00	0.00	0.24	0.00	0.85
Avail Cap(c_a), veh/h	196	2865	1229	197	2416	1078	239	0	0	335	0	293
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	73.0	8.4	4.3	9.6	27.0	8.4	75.9	0.0	0.0	73.0	0.0	78.8
Incr Delay (d2), s/veh	212.3	1.1	0.1	0.1	81.1	0.1	1.4	0.0	0.0	1.1	0.0	21.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	20.7	14.8	0.5	0.1	75.2	0.8	1.7	0.0	0.0	2.6	0.0	8.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	285.3	9.6	4.4	9.8	108.2	8.5	77.3	0.0	0.0	74.1	0.0	100.0
LnGrp LOS	F	A	A	A	F	A	E	A	A	E	A	F
Approach Vol, veh/h		2190			2891			37			228	
Approach Delay, s/veh		44.3			105.9			77.3			93.2	
Approach LOS		D			F			E			F	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	22.0	132.0		26.0	6.7	147.3		26.0				
Change Period (Y+Rc), s	6.0	6.0		6.5	6.0	6.0		6.5				
Max Green Setting (Gmax), s	16.0	116.5		29.0	3.0	129.5		29.0				
Max Q Clear Time (g_c+I1), s	18.0	128.0		11.1	2.2	41.7		18.3				
Green Ext Time (p_c), s	0.0	0.0		0.2	0.0	3.3		1.2				

Intersection Summary												
HCM 6th Ctrl Delay			79.9									
HCM 6th LOS			E									



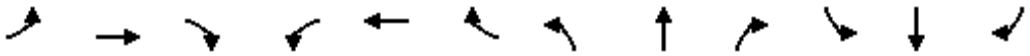
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	80	5	295	10	5	5	5	120	1325	5	5	2635
Future Volume (vph)	80	5	295	10	5	5	5	120	1325	5	5	2635
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.5	5.5		7.0			5.5	6.0	6.0	6.0	6.0
Lane Util. Factor		1.00	1.00		1.00			1.00	0.91	1.00	1.00	0.91
Frt		1.00	0.85		0.97			1.00	1.00	0.85	1.00	1.00
Flt Protected		0.95	1.00		0.97			0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)		1779	1583		1757			1770	5085	1583	1770	5068
Flt Permitted		0.72	1.00		0.83			0.04	1.00	1.00	0.17	1.00
Satd. Flow (perm)		1346	1583		1495			71	5085	1583	322	5068
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	87	5	321	11	5	5	5	130	1440	5	5	2864
RTOR Reduction (vph)	0	0	17	0	4	0	0	0	0	1	0	1
Lane Group Flow (vph)	0	92	304	0	17	0	0	135	1440	4	5	2928
Turn Type	Perm	NA	pm+ov	Perm	NA		custom	pm+pt	NA	Perm	Perm	NA
Protected Phases		4	1!		8			1	6			2
Permitted Phases	4		4	8			1!	6		6	2	
Actuated Green, G (s)		17.4	32.0		17.9			119.1	119.1	119.1	99.0	99.0
Effective Green, g (s)		17.4	32.0		17.9			119.1	119.1	119.1	99.0	99.0
Actuated g/C Ratio		0.12	0.21		0.12			0.79	0.79	0.79	0.66	0.66
Clearance Time (s)		7.5	5.5		7.0			5.5	6.0	6.0	6.0	6.0
Vehicle Extension (s)		5.0	3.0		5.0			3.0	0.2	0.2	0.2	0.2
Lane Grp Cap (vph)		156	337		178			221	4037	1256	212	3344
v/s Ratio Prot			c0.09					0.06	0.28			c0.58
v/s Ratio Perm		0.07	0.10		0.01			0.42		0.00	0.02	
v/c Ratio		0.59	0.90		0.09			0.61	0.36	0.00	0.02	0.88
Uniform Delay, d1		62.9	57.5		58.8			46.0	4.4	3.2	8.8	20.5
Progression Factor		1.00	1.00		1.00			0.68	0.80	1.00	1.00	1.00
Incremental Delay, d2		8.6	25.9		0.5			4.5	0.2	0.0	0.2	3.6
Delay (s)		71.5	83.3		59.3			35.8	3.8	3.2	9.0	24.1
Level of Service		E	F		E			D	A	A	A	C
Approach Delay (s)		80.7			59.3				6.5			24.1
Approach LOS		F			E				A			C

Intersection Summary			
HCM 2000 Control Delay	23.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	101.6%	ICU Level of Service	G
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group



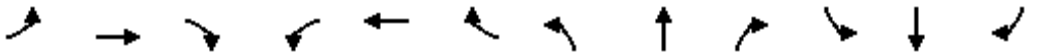
Movement	SBR
Lane Configurations	
Traffic Volume (vph)	60
Future Volume (vph)	60
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	65
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	205	5	325	400	1130	0	0	2285	660
Future Volume (vph)	0	0	0	205	5	325	400	1130	0	0	2285	660
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.5	6.5	6.5	6.0	5.5			6.0	
Lane Util. Factor				0.95	0.95	1.00	1.00	0.91			0.91	
Frt				1.00	1.00	0.85	1.00	1.00			0.97	
Flt Protected				0.95	0.95	1.00	0.95	1.00			1.00	
Satd. Flow (prot)				1681	1689	1583	1770	5085			4914	
Flt Permitted				0.95	0.95	1.00	0.05	1.00			1.00	
Satd. Flow (perm)				1681	1689	1583	85	5085			4914	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	223	5	353	435	1228	0	0	2484	717
RTOR Reduction (vph)	0	0	0	0	0	103	0	0	0	0	34	0
Lane Group Flow (vph)	0	0	0	114	114	250	435	1228	0	0	3167	0
Turn Type				Perm	NA	Perm	pm+pt	NA			NA	
Protected Phases					4		6	2			5	
Permitted Phases				4		4	2					
Actuated Green, G (s)				25.3	25.3	25.3	112.7	112.7			81.2	
Effective Green, g (s)				25.3	25.3	25.3	112.7	112.7			81.2	
Actuated g/C Ratio				0.17	0.17	0.17	0.75	0.75			0.54	
Clearance Time (s)				6.5	6.5	6.5	6.0	5.5			6.0	
Vehicle Extension (s)				4.0	4.0	4.0	3.0	0.2			0.2	
Lane Grp Cap (vph)				283	284	266	344	3820			2660	
v/s Ratio Prot							c0.21	0.24			0.64	
v/s Ratio Perm				0.07	0.07	c0.16	c0.74					
v/c Ratio				0.40	0.40	0.94	1.26	0.32			1.19	
Uniform Delay, d1				55.6	55.6	61.6	58.0	6.1			34.4	
Progression Factor				1.00	1.00	1.00	0.96	0.38			0.60	
Incremental Delay, d2				1.3	1.3	39.0	136.6	0.2			87.7	
Delay (s)				56.9	56.9	100.6	192.2	2.5			108.2	
Level of Service				E	E	F	F	A			F	
Approach Delay (s)		0.0			83.4			52.2			108.2	
Approach LOS		A			F			D			F	

Intersection Summary			
HCM 2000 Control Delay	88.4	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.23		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	18.5
Intersection Capacity Utilization	102.3%	ICU Level of Service	G
Analysis Period (min)	15		

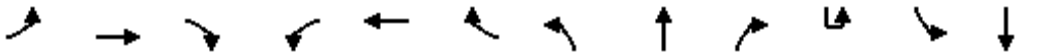
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	110	5	525	0	0	0	0	1420	130	260	2230	0
Future Volume (vph)	110	5	525	0	0	0	0	1420	130	260	2230	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5	4.0					6.0		6.0	5.5	
Lane Util. Factor	0.95	0.95	1.00					0.91		1.00	0.91	
Frt	1.00	1.00	0.85					0.99		1.00	1.00	
Flt Protected	0.95	0.96	1.00					1.00		0.95	1.00	
Satd. Flow (prot)	1681	1692	1583					5021		1770	5085	
Flt Permitted	0.95	0.96	1.00					1.00		0.09	1.00	
Satd. Flow (perm)	1681	1692	1583					5021		171	5085	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	120	5	571	0	0	0	0	1543	141	283	2424	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	6	0	0	0	0
Lane Group Flow (vph)	62	63	571	0	0	0	0	1678	0	283	2424	0
Turn Type	Split	NA	Free					NA		pm+pt	NA	
Protected Phases	4	4						5		6	2	
Permitted Phases			Free							2		
Actuated Green, G (s)	14.2	14.2	150.0					84.3		123.8	123.8	
Effective Green, g (s)	14.2	14.2	150.0					84.3		123.8	123.8	
Actuated g/C Ratio	0.09	0.09	1.00					0.56		0.83	0.83	
Clearance Time (s)	6.5	6.5						6.0		6.0	5.5	
Vehicle Extension (s)	5.0	5.0						0.2		3.0	0.2	
Lane Grp Cap (vph)	159	160	1583					2821		492	4196	
v/s Ratio Prot	0.04	0.04						0.33		0.13	c0.48	
v/s Ratio Perm			c0.36							0.35		
v/c Ratio	0.39	0.39	0.36					0.59		0.58	0.58	
Uniform Delay, d1	63.8	63.9	0.0					21.6		23.9	4.4	
Progression Factor	1.00	1.00	1.00					0.69		0.83	0.23	
Incremental Delay, d2	3.3	3.3	0.6					0.8		0.1	0.1	
Delay (s)	67.1	67.2	0.6					15.8		20.0	1.0	
Level of Service	E	E	A					B		B	A	
Approach Delay (s)		12.6			0.0			15.8			3.0	
Approach LOS		B			A			B			A	

Intersection Summary			
HCM 2000 Control Delay	8.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	18.5
Intersection Capacity Utilization	102.3%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	265	20	10	30	5	85	5	1190	15	10	110	2595
Future Volume (vph)	265	20	10	30	5	85	5	1190	15	10	110	2595
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5		6.5	6.5	6.5	5.5	6.5			5.5	6.5
Lane Util. Factor		1.00		1.00	1.00	1.00	1.00	0.91			1.00	0.91
Frt		1.00		1.00	1.00	0.85	1.00	1.00			1.00	1.00
Flt Protected		0.96		0.95	1.00	1.00	0.95	1.00			0.95	1.00
Satd. Flow (prot)		1775		1770	1863	1583	1770	5076			1770	5074
Flt Permitted		0.74		0.74	1.00	1.00	0.05	1.00			0.15	1.00
Satd. Flow (perm)		1380		1379	1863	1583	88	5076			276	5074
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	288	22	11	33	5	92	5	1293	16	11	120	2821
RTOR Reduction (vph)	0	1	0	0	0	69	0	1	0	0	0	1
Lane Group Flow (vph)	0	320	0	33	5	23	5	1308	0	0	131	2863
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA		custom	pm+pt	NA
Protected Phases		4			8		1	6			5	2
Permitted Phases	4			8		8	6			5	2	
Actuated Green, G (s)		37.6		37.6	37.6	37.6	85.1	84.4			99.4	93.2
Effective Green, g (s)		37.6		37.6	37.6	37.6	85.1	84.4			99.4	93.2
Actuated g/C Ratio		0.25		0.25	0.25	0.25	0.57	0.56			0.66	0.62
Clearance Time (s)		6.5		6.5	6.5	6.5	5.5	6.5			5.5	6.5
Vehicle Extension (s)		4.0		4.0	4.0	4.0	3.0	0.2			3.0	0.2
Lane Grp Cap (vph)		345		345	466	396	57	2856			277	3152
v/s Ratio Prot					0.00		0.00	0.26			c0.03	c0.56
v/s Ratio Perm		c0.23		0.02		0.01	0.05				0.28	
v/c Ratio		0.93		0.10	0.01	0.06	0.09	0.46			0.47	0.91
Uniform Delay, d1		54.9		43.1	42.2	42.7	27.9	19.3			11.9	24.7
Progression Factor		1.00		1.00	1.00	1.00	1.00	1.00			0.50	0.16
Incremental Delay, d2		30.7		0.2	0.0	0.1	0.7	0.5			1.1	4.4
Delay (s)		85.6		43.3	42.2	42.8	28.6	19.9			7.1	8.4
Level of Service		F		D	D	D	C	B			A	A
Approach Delay (s)		85.6			42.9			19.9				8.4
Approach LOS		F			D			B				A

Intersection Summary			
HCM 2000 Control Delay	17.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	18.5
Intersection Capacity Utilization	92.8%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



Movement	SBR
Lane Configurations	
Traffic Volume (vph)	40
Future Volume (vph)	40
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	43
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	



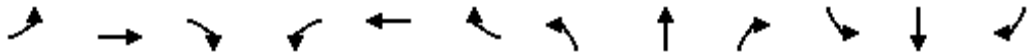
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	120	5	100	10	5	5	5	175	2795	5	5	2000
Future Volume (vph)	120	5	100	10	5	5	5	175	2795	5	5	2000
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.5	5.5		7.0			5.5	6.0	6.0	6.0	6.0
Lane Util. Factor		1.00	1.00		1.00			1.00	0.91	1.00	1.00	0.91
Frt		1.00	0.85		0.97			1.00	1.00	0.85	1.00	0.99
Flt Protected		0.95	1.00		0.97			0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)		1777	1583		1757			1770	5085	1583	1770	5054
Flt Permitted		0.72	1.00		0.83			0.04	1.00	1.00	0.04	1.00
Satd. Flow (perm)		1339	1583		1495			76	5085	1583	80	5054
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	130	5	109	11	5	5	5	190	3038	5	5	2174
RTOR Reduction (vph)	0	0	16	0	3	0	0	0	0	1	0	2
Lane Group Flow (vph)	0	135	93	0	18	0	0	195	3038	4	5	2264
Turn Type	Perm	NA	pm+ov	Perm	NA		custom	pm+pt	NA	Perm	Perm	NA
Protected Phases		4	1!		8			1	6			2
Permitted Phases	4		4	8			1!	6		6	2	
Actuated Green, G (s)		21.6	38.0		22.1			114.9	114.9	114.9	93.0	93.0
Effective Green, g (s)		21.6	38.0		22.1			114.9	114.9	114.9	93.0	93.0
Actuated g/C Ratio		0.14	0.25		0.15			0.77	0.77	0.77	0.62	0.62
Clearance Time (s)		7.5	5.5		7.0			5.5	6.0	6.0	6.0	6.0
Vehicle Extension (s)		5.0	3.0		5.0			3.0	0.2	0.2	0.2	0.2
Lane Grp Cap (vph)		192	401		220			243	3895	1212	49	3133
v/s Ratio Prot			0.03					0.09	c0.60			0.45
v/s Ratio Perm		c0.10	0.03		0.01			c0.53		0.00	0.06	
v/c Ratio		0.70	0.23		0.08			0.80	0.78	0.00	0.10	0.72
Uniform Delay, d1		61.1	44.4		55.2			47.9	10.2	4.1	11.6	19.6
Progression Factor		1.00	1.00		1.00			0.67	1.48	1.00	1.00	1.00
Incremental Delay, d2		13.7	0.3		0.3			11.2	1.0	0.0	4.1	1.5
Delay (s)		74.8	44.7		55.6			43.5	16.1	4.1	15.7	21.1
Level of Service		E	D		E			D	B	A	B	C
Approach Delay (s)		61.4			55.6				17.7			21.1
Approach LOS		E			E				B			C

Intersection Summary			
HCM 2000 Control Delay	21.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	98.8%	ICU Level of Service	F
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group



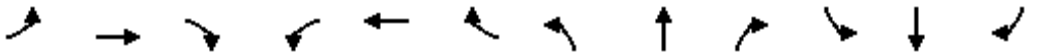
Movement	SBR
Lane Configurations	
Traffic Volume (vph)	85
Future Volume (vph)	85
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	92
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	140	5	235	200	2745	0	0	1635	480
Future Volume (vph)	0	0	0	140	5	235	200	2745	0	0	1635	480
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.5	6.5	6.5	6.0	5.5			6.0	
Lane Util. Factor				0.95	0.95	1.00	1.00	0.91			0.91	
Frt				1.00	1.00	0.85	1.00	1.00			0.97	
Flt Protected				0.95	0.96	1.00	0.95	1.00			1.00	
Satd. Flow (prot)				1681	1691	1583	1770	5085			4912	
Flt Permitted				0.95	0.96	1.00	0.05	1.00			1.00	
Satd. Flow (perm)				1681	1691	1583	84	5085			4912	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	152	5	255	217	2984	0	0	1777	522
RTOR Reduction (vph)	0	0	0	0	0	55	0	0	0	0	33	0
Lane Group Flow (vph)	0	0	0	79	78	200	217	2984	0	0	2266	0
Turn Type				Perm	NA	Perm	pm+pt	NA			NA	
Protected Phases					4		6	2			5	
Permitted Phases				4		4	2					
Actuated Green, G (s)				23.8	23.8	23.8	114.2	114.2			81.7	
Effective Green, g (s)				23.8	23.8	23.8	114.2	114.2			81.7	
Actuated g/C Ratio				0.16	0.16	0.16	0.76	0.76			0.54	
Clearance Time (s)				6.5	6.5	6.5	6.0	5.5			6.0	
Vehicle Extension (s)				4.0	4.0	4.0	3.0	0.2			0.2	
Lane Grp Cap (vph)				266	268	251	356	3871			2675	
v/s Ratio Prot							0.11	c0.59			c0.46	
v/s Ratio Perm				0.05	0.05	c0.13	0.36					
v/c Ratio				0.30	0.29	0.80	0.61	0.77			0.85	
Uniform Delay, d1				55.7	55.7	60.8	41.0	10.3			28.9	
Progression Factor				1.00	1.00	1.00	0.55	0.13			0.46	
Incremental Delay, d2				0.9	0.8	16.9	2.3	0.5			2.5	
Delay (s)				56.6	56.5	77.7	24.8	1.9			15.8	
Level of Service				E	E	E	C	A			B	
Approach Delay (s)		0.0			69.6			3.5			15.8	
Approach LOS		A			E			A			B	

Intersection Summary			
HCM 2000 Control Delay	12.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	18.5
Intersection Capacity Utilization	91.2%	ICU Level of Service	F
Analysis Period (min)	15		

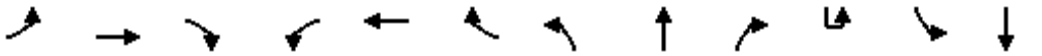
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	465	5	260	0	0	0	0	2480	195	190	1585	0
Future Volume (vph)	465	5	260	0	0	0	0	2480	195	190	1585	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5	4.0					6.0		6.0	5.5	
Lane Util. Factor	0.95	0.95	1.00					0.91		1.00	0.91	
Frt	1.00	1.00	0.85					0.99		1.00	1.00	
Flt Protected	0.95	0.95	1.00					1.00		0.95	1.00	
Satd. Flow (prot)	1681	1687	1583					5030		1770	5085	
Flt Permitted	0.95	0.95	1.00					1.00		0.04	1.00	
Satd. Flow (perm)	1681	1687	1583					5030		77	5085	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	505	5	283	0	0	0	0	2696	212	207	1723	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	6	0	0	0	0
Lane Group Flow (vph)	252	258	283	0	0	0	0	2902	0	207	1723	0
Turn Type	Split	NA	Free					NA		pm+pt	NA	
Protected Phases	4	4						5		6	2	
Permitted Phases			Free							2		
Actuated Green, G (s)	25.8	25.8	150.0					89.7		112.2	112.2	
Effective Green, g (s)	25.8	25.8	150.0					89.7		112.2	112.2	
Actuated g/C Ratio	0.17	0.17	1.00					0.60		0.75	0.75	
Clearance Time (s)	6.5	6.5						6.0		6.0	5.5	
Vehicle Extension (s)	5.0	5.0						0.2		3.0	0.2	
Lane Grp Cap (vph)	289	290	1583					3007		238	3803	
v/s Ratio Prot	0.15	c0.15						c0.58		c0.09	0.34	
v/s Ratio Perm			0.18							0.55		
v/c Ratio	0.87	0.89	0.18					0.97		0.87	0.45	
Uniform Delay, d1	60.5	60.7	0.0					28.7		57.5	7.2	
Progression Factor	1.00	1.00	1.00					0.60		1.00	0.49	
Incremental Delay, d2	25.4	28.0	0.2					7.6		15.8	0.2	
Delay (s)	85.9	88.7	0.2					24.9		73.1	3.7	
Level of Service	F	F	A					C		E	A	
Approach Delay (s)		56.3			0.0			24.9			11.2	
Approach LOS		E			A			C			B	

Intersection Summary			
HCM 2000 Control Delay	24.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	18.5
Intersection Capacity Utilization	91.2%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	55	5	10	10	5	40	10	2575	5	5	35	1715
Future Volume (vph)	55	5	10	10	5	40	10	2575	5	5	35	1715
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5		6.5	6.5	6.5	5.5	6.5			5.5	6.5
Lane Util. Factor		1.00		1.00	1.00	1.00	1.00	0.91			1.00	0.91
Frt		0.98		1.00	1.00	0.85	1.00	1.00			1.00	0.99
Flt Protected		0.96		0.95	1.00	1.00	0.95	1.00			0.95	1.00
Satd. Flow (prot)		1757		1770	1863	1583	1770	5084			1770	5047
Flt Permitted		0.77		0.74	1.00	1.00	0.09	1.00			0.04	1.00
Satd. Flow (perm)		1403		1374	1863	1583	160	5084			65	5047
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	60	5	11	11	5	43	11	2799	5	5	38	1864
RTOR Reduction (vph)	0	4	0	0	0	38	0	0	0	0	0	3
Lane Group Flow (vph)	0	72	0	11	5	5	11	2804	0	0	43	1959
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA		custom	pm+pt	NA
Protected Phases		4			8		1	6			5	2
Permitted Phases	4			8		8	6			5	2	
Actuated Green, G (s)		15.8		15.8	15.8	15.8	112.6	110.8			118.8	113.9
Effective Green, g (s)		15.8		15.8	15.8	15.8	112.6	110.8			118.8	113.9
Actuated g/C Ratio		0.11		0.11	0.11	0.11	0.75	0.74			0.79	0.76
Clearance Time (s)		6.5		6.5	6.5	6.5	5.5	6.5			5.5	6.5
Vehicle Extension (s)		4.0		4.0	4.0	4.0	3.0	0.2			3.0	0.2
Lane Grp Cap (vph)		147		144	196	166	139	3755			107	3832
v/s Ratio Prot					0.00		0.00	c0.55			c0.01	c0.39
v/s Ratio Perm		c0.05		0.01		0.00	0.06				0.30	
v/c Ratio		0.49		0.08	0.03	0.03	0.08	0.75			0.40	0.51
Uniform Delay, d1		63.3		60.5	60.2	60.2	5.4	11.4			16.0	7.1
Progression Factor		1.00		1.00	1.00	1.00	1.00	1.00			2.53	0.61
Incremental Delay, d2		3.4		0.3	0.1	0.1	0.2	1.4			2.3	0.5
Delay (s)		66.7		60.8	60.3	60.3	5.7	12.8			42.8	4.8
Level of Service		E		E	E	E	A	B			D	A
Approach Delay (s)		66.7			60.4			12.8				5.6
Approach LOS		E			E			B				A

Intersection Summary			
HCM 2000 Control Delay	11.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	18.5
Intersection Capacity Utilization	73.4%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	SBR
Lane Configurations	
Traffic Volume (vph)	90
Future Volume (vph)	90
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	98
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

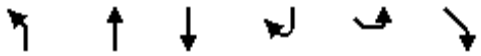
Intersection Summary



Movement	EBL	EBR2	WBL	WBT	WBR	SBT	SBR	NWR
Lane Configurations								
Traffic Volume (vph)	115	225	625	135	115	2145	125	1215
Future Volume (vph)	115	225	625	135	115	2145	125	1215
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	6.5	5.5	6.5		6.0	6.0	6.0
Lane Util. Factor	0.97	1.00	0.97	1.00		0.91	1.00	0.76
Frt	1.00	0.85	1.00	0.93		1.00	0.85	0.85
Flt Protected	0.95	1.00	0.95	1.00		1.00	1.00	1.00
Satd. Flow (prot)	3433	1583	3433	1734		5085	1583	3610
Flt Permitted	0.95	1.00	0.95	1.00		1.00	1.00	1.00
Satd. Flow (perm)	3433	1583	3433	1734		5085	1583	3610
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	125	245	679	147	125	2332	136	1321
RTOR Reduction (vph)	0	49	0	21	0	0	53	0
Lane Group Flow (vph)	125	196	679	251	0	2332	83	1321
Turn Type	Prot	Perm	Prot	NA		NA	Perm	Prot
Protected Phases	3		3 4	4		6		2
Permitted Phases		4					6	
Actuated Green, G (s)	17.7	31.4	54.6	31.4		82.9	82.9	82.9
Effective Green, g (s)	17.7	31.4	54.6	31.4		82.9	82.9	82.9
Actuated g/C Ratio	0.12	0.21	0.36	0.21		0.55	0.55	0.55
Clearance Time (s)	5.5	6.5		6.5		6.0	6.0	6.0
Vehicle Extension (s)	3.0	6.0		6.0		0.2	0.2	0.2
Lane Grp Cap (vph)	405	331	1249	362		2810	874	1995
v/s Ratio Prot	0.04		c0.20	c0.14		c0.46		0.37
v/s Ratio Perm		0.12					0.05	
v/c Ratio	0.31	0.59	0.54	0.69		0.83	0.09	0.66
Uniform Delay, d1	60.5	53.5	37.8	54.9		27.7	15.8	23.7
Progression Factor	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.4	5.2	0.5	8.4		3.0	0.2	1.7
Delay (s)	61.0	58.7	38.3	63.3		30.7	16.1	25.4
Level of Service	E	E	D	E		C	B	C
Approach Delay (s)				45.5		29.9		
Approach LOS				D		C		

Intersection Summary			
HCM 2000 Control Delay	33.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	88.2%	ICU Level of Service	E
Analysis Period (min)	15		

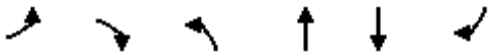
c Critical Lane Group



Movement	NBL	NBT	SBT	SBR	SEL	SER
Lane Configurations						
Traffic Volume (vph)	0	0	3325	0	0	430
Future Volume (vph)	0	0	3325	0	0	430
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)			5.5			6.5
Lane Util. Factor			0.86			0.88
Frt			1.00			0.85
Flt Protected			1.00			1.00
Satd. Flow (prot)			6408			2787
Flt Permitted			1.00			1.00
Satd. Flow (perm)			6408			2787
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	3614	0	0	467
RTOR Reduction (vph)	0	0	0	0	0	1
Lane Group Flow (vph)	0	0	3614	0	0	466
Turn Type			NA			Prot
Protected Phases			2			4
Permitted Phases						
Actuated Green, G (s)			130.1			37.9
Effective Green, g (s)			130.1			37.9
Actuated g/C Ratio			0.72			0.21
Clearance Time (s)			5.5			6.5
Vehicle Extension (s)			0.2			6.0
Lane Grp Cap (vph)			4631			586
v/s Ratio Prot			c0.56			c0.17
v/s Ratio Perm						
v/c Ratio			0.78			0.80
Uniform Delay, d1			15.9			67.4
Progression Factor			1.00			1.00
Incremental Delay, d2			1.4			8.9
Delay (s)			17.2			76.3
Level of Service			B			E
Approach Delay (s)		0.0	17.2		76.3	
Approach LOS		A	B		E	

Intersection Summary			
HCM 2000 Control Delay	24.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	73.2%	ICU Level of Service	D
Analysis Period (min)	15		

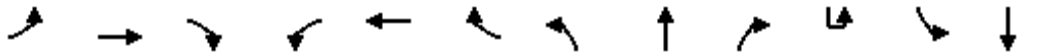
c Critical Lane Group



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	510	195	55	1930	3635	120
Future Volume (vph)	510	195	55	1930	3635	120
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.5	6.5	6.5	6.0
Lane Util. Factor	0.97	1.00	1.00	0.91	0.86	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	3433	1583	1770	5085	6408	1583
Flt Permitted	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	3433	1583	1770	5085	6408	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	554	212	60	2098	3951	130
RTOR Reduction (vph)	0	89	0	0	0	27
Lane Group Flow (vph)	554	123	60	2098	3951	103
Turn Type	Prot	Perm	Prot	NA	NA	pm+ov
Protected Phases	4		5	2	6	4
Permitted Phases		4				6
Actuated Green, G (s)	30.0	30.0	18.0	137.5	113.0	143.0
Effective Green, g (s)	30.0	30.0	18.0	137.5	113.0	143.0
Actuated g/C Ratio	0.17	0.17	0.10	0.76	0.63	0.79
Clearance Time (s)	6.0	6.0	6.5	6.5	6.5	6.0
Vehicle Extension (s)	6.0	6.0	3.0	3.0	0.2	6.0
Lane Grp Cap (vph)	572	263	177	3884	4022	1310
v/s Ratio Prot	c0.16		0.03	c0.41	c0.62	0.01
v/s Ratio Perm		0.08				0.05
v/c Ratio	0.97	0.47	0.34	0.54	0.98	0.08
Uniform Delay, d1	74.5	67.8	75.5	8.5	32.5	4.1
Progression Factor	1.00	1.00	1.02	0.39	0.66	0.56
Incremental Delay, d2	30.2	3.7	0.9	0.4	7.7	0.0
Delay (s)	104.7	71.4	78.2	3.8	29.3	2.3
Level of Service	F	E	E	A	C	A
Approach Delay (s)	95.5			5.8	28.4	
Approach LOS	F			A	C	

Intersection Summary			
HCM 2000 Control Delay	28.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	77.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	75	5	25	5	5	15	0	1575	5	320	5	3410
Future Volume (vph)	75	5	25	5	5	15	0	1575	5	320	5	3410
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0			5.0			4.5	5.0
Lane Util. Factor		1.00			1.00			0.91			1.00	0.91
Frt		0.97			0.92			1.00			1.00	1.00
Flt Protected		0.97			0.99			1.00			0.95	1.00
Satd. Flow (prot)		1741			1692			5083			1770	5065
Flt Permitted		0.77			0.95			1.00			0.08	1.00
Satd. Flow (perm)		1389			1624			5083			158	5065
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	82	5	27	5	5	16	0	1712	5	348	5	3707
RTOR Reduction (vph)	0	2	0	0	14	0	0	0	0	0	0	1
Lane Group Flow (vph)	0	112	0	0	12	0	0	1717	0	0	353	3809
Turn Type	Perm	NA		Perm	NA			NA		custom	pm+pt	NA
Protected Phases		8			4			6			5	2
Permitted Phases	8			4						5	2	
Actuated Green, G (s)		19.3			19.3			102.7			150.2	149.7
Effective Green, g (s)		19.3			19.3			102.7			150.2	149.7
Actuated g/C Ratio		0.11			0.11			0.57			0.83	0.83
Clearance Time (s)		6.0			6.0			5.0			4.5	5.0
Vehicle Extension (s)		3.0			3.0			0.2			3.0	0.2
Lane Grp Cap (vph)		148			174			2900			512	4212
v/s Ratio Prot								0.34			0.16	c0.75
v/s Ratio Perm		c0.08			0.01						0.41	
v/c Ratio		0.76			0.07			0.59			0.69	0.90
Uniform Delay, d1		78.1			72.3			25.1			31.0	10.3
Progression Factor		1.00			1.00			1.00			0.58	1.17
Incremental Delay, d2		19.7			0.2			0.9			1.2	1.2
Delay (s)		97.8			72.4			26.0			19.3	13.2
Level of Service		F			E			C			B	B
Approach Delay (s)		97.8			72.4			26.0				13.7
Approach LOS		F			E			C				B

Intersection Summary			
HCM 2000 Control Delay	19.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	15.5
Intersection Capacity Utilization	89.8%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



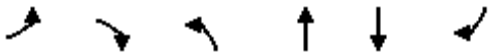
Movement	SBR
Lane Configurations	
Traffic Volume (vph)	95
Future Volume (vph)	95
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	103
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	



Movement	NBL	NBT	SBT	SBR	SEL	SER
Lane Configurations			↑↑↑↑			↱↱
Traffic Volume (veh/h)	0	0	3325	0	0	430
Future Volume (veh/h)	0	0	3325	0	0	430
Initial Q (Qb), veh			0	0	0	0
Ped-Bike Adj(A_pbT)				1.00	1.00	1.00
Parking Bus, Adj			1.00	1.00	1.00	1.00
Work Zone On Approach			No		No	
Adj Sat Flow, veh/h/ln			1870	0	0	1870
Adj Flow Rate, veh/h			3614	0	0	467
Peak Hour Factor			0.92	0.92	0.92	0.92
Percent Heavy Veh, %			2	0	0	2
Cap, veh/h			6237	0	0	0
Arrive On Green			0.97	0.00	0.00	0.00
Sat Flow, veh/h			6958	0	0	
Grp Volume(v), veh/h			3614	0	0.0	
Grp Sat Flow(s),veh/h/ln			1609	0		
Q Serve(g_s), s			7.0	0.0		
Cycle Q Clear(g_c), s			7.0	0.0		
Prop In Lane				0.00		
Lane Grp Cap(c), veh/h			6237	0		
V/C Ratio(X)			0.58	0.00		
Avail Cap(c_a), veh/h			6237	0		
HCM Platoon Ratio			1.00	1.00		
Upstream Filter(I)			1.00	0.00		
Uniform Delay (d), s/veh			0.2	0.0		
Incr Delay (d2), s/veh			0.4	0.0		
Initial Q Delay(d3),s/veh			0.0	0.0		
%ile BackOfQ(50%),veh/ln			0.2	0.0		
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh			0.6	0.0		
LnGrp LOS			A	A		
Approach Vol, veh/h			3614			
Approach Delay, s/veh			0.6			
Approach LOS			A			

Timer - Assigned Phs	2
Phs Duration (G+Y+Rc), s	180.0
Change Period (Y+Rc), s	5.5
Max Green Setting (Gmax), s	124.5
Max Q Clear Time (g_c+I1), s	9.0
Green Ext Time (p_c), s	11.0

Intersection Summary	
HCM 6th Ctrl Delay	0.6
HCM 6th LOS	A



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	510	195	55	1930	3635	120
Future Volume (veh/h)	510	195	55	1930	3635	120
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	554	0	60	2098	3951	130
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	576		178	3900	4039	1259
Arrive On Green	0.17	0.00	0.10	0.76	0.63	0.63
Sat Flow, veh/h	3456	1585	1781	5274	6696	1585
Grp Volume(v), veh/h	554	0	60	2098	3951	130
Grp Sat Flow(s),veh/h/ln	1728	1585	1781	1702	1609	1585
Q Serve(g_s), s	28.6	0.0	5.6	29.6	106.6	3.3
Cycle Q Clear(g_c), s	28.6	0.0	5.6	29.6	106.6	3.3
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	576		178	3900	4039	1259
V/C Ratio(X)	0.96		0.34	0.54	0.98	0.10
Avail Cap(c_a), veh/h	576		178	3900	4039	1259
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	74.4	0.0	75.4	8.5	32.3	4.1
Incr Delay (d2), s/veh	28.9	0.0	1.1	0.5	9.9	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	15.2	0.0	2.7	10.5	41.3	2.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	103.3	0.0	76.5	9.1	42.2	4.3
LnGrp LOS	F		E	A	D	A
Approach Vol, veh/h	554	A		2158	4081	
Approach Delay, s/veh	103.3			10.9	41.0	
Approach LOS	F			B	D	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		144.0		36.0	24.5	119.5
Change Period (Y+Rc), s		6.5		6.0	6.5	6.5
Max Green Setting (Gmax), s		137.5		30.0	18.0	113.0
Max Q Clear Time (g_c+I1), s		31.6		30.6	7.6	108.6
Green Ext Time (p_c), s		37.0		0.0	0.1	3.6

Intersection Summary		
HCM 6th Ctrl Delay		36.6
HCM 6th LOS		D

Notes

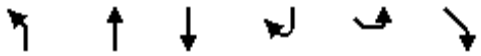
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBR2	WBL	WBT	WBR	SBT	SBR	NWR
Lane Configurations								
Traffic Volume (vph)	165	190	245	140	145	1715	135	1865
Future Volume (vph)	165	190	245	140	145	1715	135	1865
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	6.5	5.5	6.5		6.0	6.0	6.0
Lane Util. Factor	0.97	1.00	0.97	1.00		0.91	1.00	0.76
Frt	1.00	0.85	1.00	0.92		1.00	0.85	0.85
Flt Protected	0.95	1.00	0.95	1.00		1.00	1.00	1.00
Satd. Flow (prot)	3433	1583	3433	1720		5085	1583	3610
Flt Permitted	0.95	1.00	0.95	1.00		1.00	1.00	1.00
Satd. Flow (perm)	3433	1583	3433	1720		5085	1583	3610
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	179	207	266	152	158	1864	147	2027
RTOR Reduction (vph)	0	60	0	24	0	0	60	0
Lane Group Flow (vph)	179	147	266	286	0	1864	87	2027
Turn Type	Prot	Perm	Prot	NA		NA	Perm	Prot
Protected Phases	3		3 4	4		6		2
Permitted Phases		4					6	
Actuated Green, G (s)	13.8	29.1	48.4	29.1		89.1	89.1	89.1
Effective Green, g (s)	13.8	29.1	48.4	29.1		89.1	89.1	89.1
Actuated g/C Ratio	0.09	0.19	0.32	0.19		0.59	0.59	0.59
Clearance Time (s)	5.5	6.5		6.5		6.0	6.0	6.0
Vehicle Extension (s)	3.0	6.0		6.0		0.2	0.2	0.2
Lane Grp Cap (vph)	315	307	1107	333		3020	940	2144
v/s Ratio Prot	c0.05		0.08	c0.17		0.37		c0.56
v/s Ratio Perm		0.09					0.06	
v/c Ratio	0.57	0.48	0.24	0.86		0.62	0.09	0.95
Uniform Delay, d1	65.2	53.7	37.3	58.5		19.5	13.1	28.2
Progression Factor	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	2.3	3.3	0.1	21.5		1.0	0.2	10.3
Delay (s)	67.6	57.0	37.4	80.0		20.5	13.3	38.5
Level of Service	E	E	D	E		C	B	D
Approach Delay (s)				60.3		19.9		
Approach LOS				E		B		

Intersection Summary			
HCM 2000 Control Delay	35.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	78.2%	ICU Level of Service	D
Analysis Period (min)	15		

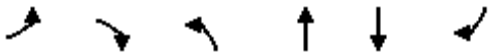
c Critical Lane Group



Movement	NBL	NBT	SBT	SBR	SEL	SER
Lane Configurations			↑↑↑↑			↱↱
Traffic Volume (vph)	0	0	2410	0	0	405
Future Volume (vph)	0	0	2410	0	0	405
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)			5.5			6.5
Lane Util. Factor			0.86			0.88
Frt			1.00			0.85
Flt Protected			1.00			1.00
Satd. Flow (prot)			6408			2787
Flt Permitted			1.00			1.00
Satd. Flow (perm)			6408			2787
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	2620	0	0	440
RTOR Reduction (vph)	0	0	0	0	0	6
Lane Group Flow (vph)	0	0	2620	0	0	434
Turn Type			NA			Prot
Protected Phases			2			4
Permitted Phases						
Actuated Green, G (s)			131.2			36.8
Effective Green, g (s)			131.2			36.8
Actuated g/C Ratio			0.73			0.20
Clearance Time (s)			5.5			6.5
Vehicle Extension (s)			0.2			6.0
Lane Grp Cap (vph)			4670			569
v/s Ratio Prot			c0.41			c0.16
v/s Ratio Perm						
v/c Ratio			0.56			0.76
Uniform Delay, d1			11.2			67.5
Progression Factor			1.00			1.00
Incremental Delay, d2			0.5			7.7
Delay (s)			11.7			75.2
Level of Service			B			E
Approach Delay (s)		0.0	11.7		75.2	
Approach LOS		A	B		E	

Intersection Summary			
HCM 2000 Control Delay	20.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	59.1%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	255	75	65	3350	2475	340
Future Volume (vph)	255	75	65	3350	2475	340
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.5	6.5	6.5	6.0
Lane Util. Factor	0.97	1.00	1.00	0.91	0.86	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	3433	1583	1770	5085	6408	1583
Flt Permitted	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	3433	1583	1770	5085	6408	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	277	82	71	3641	2690	370
RTOR Reduction (vph)	0	69	0	0	0	76
Lane Group Flow (vph)	277	13	71	3641	2690	294
Turn Type	Prot	Perm	Prot	NA	NA	pm+ov
Protected Phases	4		5	2	6	4
Permitted Phases		4				6
Actuated Green, G (s)	20.5	20.5	18.0	147.0	122.5	143.0
Effective Green, g (s)	20.5	20.5	18.0	147.0	122.5	143.0
Actuated g/C Ratio	0.11	0.11	0.10	0.82	0.68	0.79
Clearance Time (s)	6.0	6.0	6.5	6.5	6.5	6.0
Vehicle Extension (s)	6.0	6.0	3.0	3.0	0.2	6.0
Lane Grp Cap (vph)	390	180	177	4152	4361	1310
v/s Ratio Prot	c0.08		0.04	c0.72	0.42	0.03
v/s Ratio Perm		0.01				0.16
v/c Ratio	0.71	0.07	0.40	0.88	0.62	0.22
Uniform Delay, d1	76.9	71.2	75.9	10.7	15.8	4.6
Progression Factor	1.00	1.00	0.84	0.28	0.67	0.26
Incremental Delay, d2	8.5	0.5	0.5	0.9	0.6	0.2
Delay (s)	85.4	71.7	63.9	3.9	11.2	1.4
Level of Service	F	E	E	A	B	A
Approach Delay (s)	82.3			5.0	10.0	
Approach LOS	F			A	B	

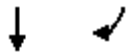
Intersection Summary			
HCM 2000 Control Delay	11.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	82.4%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	95	5	15	10	5	5	5	10	3080	5	235	5
Future Volume (vph)	95	5	15	10	5	5	5	10	3080	5	235	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0			4.5	5.0			4.5
Lane Util. Factor		1.00			1.00			1.00	0.91			1.00
Frt		0.98			0.97			1.00	1.00			1.00
Flt Protected		0.96			0.97			0.95	1.00			0.95
Satd. Flow (prot)		1757			1757			1770	5084			1770
Flt Permitted		0.75			0.87			0.04	1.00			0.03
Satd. Flow (perm)		1368			1571			71	5084			59
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	103	5	16	11	5	5	5	11	3348	5	255	5
RTOR Reduction (vph)	0	3	0	0	4	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	121	0	0	17	0	0	16	3353	0	0	260
Turn Type	Perm	NA		Perm	NA		pm+pt	pm+pt	NA		custom	pm+pt
Protected Phases		8			4		1	1	6			5
Permitted Phases	8			4			6	6			5	2
Actuated Green, G (s)		20.3			20.3			124.9	121.9			149.2
Effective Green, g (s)		20.3			20.3			124.9	121.9			149.2
Actuated g/C Ratio		0.11			0.11			0.69	0.68			0.83
Clearance Time (s)		6.0			6.0			4.5	5.0			4.5
Vehicle Extension (s)		3.0			3.0			3.0	0.2			3.0
Lane Grp Cap (vph)		154			177			77	3442			260
v/s Ratio Prot								0.00	0.66			c0.12
v/s Ratio Perm		c0.09			0.01			0.14				c0.71
v/c Ratio		0.79			0.09			0.21	0.97			1.00
Uniform Delay, d1		77.8			71.6			27.1	27.6			74.0
Progression Factor		1.00			1.00			1.00	1.00			0.97
Incremental Delay, d2		22.8			0.2			1.3	10.4			49.8
Delay (s)		100.6			71.8			28.5	38.0			121.5
Level of Service		F			E			C	D			F
Approach Delay (s)		100.6			71.8				37.9			
Approach LOS		F			E				D			

Intersection Summary			
HCM 2000 Control Delay	28.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	15.5
Intersection Capacity Utilization	96.0%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	2165	145
Future Volume (vph)	2165	145
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	5.0	
Lane Util. Factor	0.91	
Frt	0.99	
Flt Protected	1.00	
Satd. Flow (prot)	5037	
Flt Permitted	1.00	
Satd. Flow (perm)	5037	
Peak-hour factor, PHF	0.92	0.92
Adj. Flow (vph)	2353	158
RTOR Reduction (vph)	3	0
Lane Group Flow (vph)	2508	0
Turn Type	NA	
Protected Phases	2	
Permitted Phases		
Actuated Green, G (s)	141.2	
Effective Green, g (s)	141.2	
Actuated g/C Ratio	0.78	
Clearance Time (s)	5.0	
Vehicle Extension (s)	0.2	
Lane Grp Cap (vph)	3951	
v/s Ratio Prot	0.50	
v/s Ratio Perm		
v/c Ratio	0.63	
Uniform Delay, d1	8.3	
Progression Factor	0.16	
Incremental Delay, d2	0.6	
Delay (s)	2.0	
Level of Service	A	
Approach Delay (s)	13.2	
Approach LOS	B	

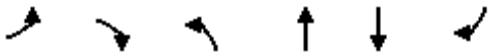
Intersection Summary



Movement	NBL	NBT	SBT	SBR	SEL	SER
Lane Configurations			↑↑↑↑			↱↱
Traffic Volume (veh/h)	0	0	2410	0	0	405
Future Volume (veh/h)	0	0	2410	0	0	405
Initial Q (Qb), veh			0	0	0	0
Ped-Bike Adj(A_pbT)				1.00	1.00	1.00
Parking Bus, Adj			1.00	1.00	1.00	1.00
Work Zone On Approach			No		No	
Adj Sat Flow, veh/h/ln			1870	0	0	1870
Adj Flow Rate, veh/h			2620	0	0	440
Peak Hour Factor			0.92	0.92	0.92	0.92
Percent Heavy Veh, %			2	0	0	2
Cap, veh/h			6237	0	0	0
Arrive On Green			0.97	0.00	0.00	0.00
Sat Flow, veh/h			6958	0	0	
Grp Volume(v), veh/h			2620	0	0.0	
Grp Sat Flow(s),veh/h/ln			1609	0		
Q Serve(g_s), s			3.8	0.0		
Cycle Q Clear(g_c), s			3.8	0.0		
Prop In Lane				0.00		
Lane Grp Cap(c), veh/h			6237	0		
V/C Ratio(X)			0.42	0.00		
Avail Cap(c_a), veh/h			6237	0		
HCM Platoon Ratio			1.00	1.00		
Upstream Filter(I)			1.00	0.00		
Uniform Delay (d), s/veh			0.1	0.0		
Incr Delay (d2), s/veh			0.2	0.0		
Initial Q Delay(d3),s/veh			0.0	0.0		
%ile BackOfQ(50%),veh/ln			0.1	0.0		
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh			0.4	0.0		
LnGrp LOS			A	A		
Approach Vol, veh/h			2620			
Approach Delay, s/veh			0.4			
Approach LOS			A			

Timer - Assigned Phs	2
Phs Duration (G+Y+Rc), s	180.0
Change Period (Y+Rc), s	5.5
Max Green Setting (Gmax), s	116.5
Max Q Clear Time (g_c+I1), s	5.8
Green Ext Time (p_c), s	4.7

Intersection Summary	
HCM 6th Ctrl Delay	0.4
HCM 6th LOS	A



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	255	75	65	3350	2475	340
Future Volume (veh/h)	255	75	65	3350	2475	340
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	277	0	71	3641	2690	370
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	330		216	4264	4361	1226
Arrive On Green	0.10	0.00	0.12	0.83	0.68	0.68
Sat Flow, veh/h	3456	1585	1781	5274	6696	1585
Grp Volume(v), veh/h	277	0	71	3641	2690	370
Grp Sat Flow(s),veh/h/ln	1728	1585	1781	1702	1609	1585
Q Serve(g_s), s	14.2	0.0	6.6	73.8	41.7	12.4
Cycle Q Clear(g_c), s	14.2	0.0	6.6	73.8	41.7	12.4
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	330		216	4264	4361	1226
V/C Ratio(X)	0.84		0.33	0.85	0.62	0.30
Avail Cap(c_a), veh/h	403		216	4264	4361	1226
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	80.0	0.0	72.4	8.5	16.1	6.0
Incr Delay (d2), s/veh	19.4	0.0	0.9	2.4	0.7	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.3	0.0	3.1	22.8	14.7	6.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	99.4	0.0	73.3	10.9	16.7	6.7
LnGrp LOS	F		E	B	B	A
Approach Vol, veh/h	277	A		3712	3060	
Approach Delay, s/veh	99.4			12.1	15.5	
Approach LOS	F			B	B	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		156.8		23.2	28.3	128.5
Change Period (Y+Rc), s		6.5		6.0	6.5	6.5
Max Green Setting (Gmax), s		146.5		21.0	18.0	122.0
Max Q Clear Time (g_c+I1), s		75.8		16.2	8.6	43.7
Green Ext Time (p_c), s		67.6		1.0	0.1	4.8

Intersection Summary		
HCM 6th Ctrl Delay		17.0
HCM 6th LOS		B

Notes

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Appendix J

Historical Crash Data and Supporting Information

Historical Crash Summaries

HISTORICAL CRASH SUMMARIES

I-270 & East Spur– General Crash Characteristics

Crash Type		Number of Crashes along I-270				Total Crashes	% of Total Crashes
		NB GPL	SB GPL	Ramps	Crossing Roadways and Ramp Terminals		
Year	2016	231	210	138	230	809	31%
	2017	278	195	117	275	865	33%
	2018	314	225	161	272	972	37%
Collision Type	Head On	1	0	0	5	6	0%
	Left Turn	0	0	0	105	105	4%
	Rear End	447	344	101	296	1188	45%
	Sideswipe	107	105	30	88	330	12%
	Angle	0	0	3	135	138	5%
	Single Vehicle	268	181	282	148	879	33%
Crash Severity	Fatal	1	2	1	1	5	0%
	Ambulatory Injury	17	7	4	14	42	2%
	Visible Injury	65	72	30	130	297	11%
	Non-visible Injury	166	155	70	151	542	20%
	Property Damage Only	574	394	311	481	1760	67%
Light Condition	Daylight	469	414	275	524	1682	64%
	Dark / Dawn	30	39	17	32	118	4%
	Dark Light On	282	146	100	192	720	27%
	Dark No Lights	22	15	14	16	67	3%
	Other / Unknown	20	16	10	13	59	2%
Weather Condition	Clear	641	478	219	565	1903	72%
	Foggy	1	2	1	6	10	0%
	Raining	126	97	169	132	524	20%
	Snow / Sleet	10	17	9	11	47	2%
	Severe Winds	0	0	0	1	1	0%
	Other / Unknown	45	36	18	62	161	6%
Time of Day	AM Peak Hours (6 am - 10 am)	271	191	134	236	832	31%
	Mid-day Hours (10 am - 3 pm)	116	103	98	36	353	13%
	PM Peak Hours (3 pm - 7 pm)	79	68	15	60	222	8%
	Off Peak Hours (7 pm - 6 am)	61	64	34	165	324	12%
Total Crashes by Facility		823	630	416	777	2646	100%

I-270 & East Spur– Crashes by Time of Day

Time of Day (Hour)	I-270				
	NB GPL	SB GPL	Ramps	Crossroads and Ramp Terminals	Total
0	18	10	13	5	46
1	15	7	5	7	34
2	24	6	4	13	47
3	17	6	5	6	34
4	18	13	5	9	45
5	24	14	9	8	55
6	25	54	17	28	124
7	23	80	23	37	163
8	13	75	26	59	173
9	35	61	24	62	182
10	25	54	33	48	160
11	19	31	26	44	120
12	15	25	20	39	99
13	27	12	22	46	107
14	19	21	26	45	111
15	49	26	18	36	129
16	97	18	19	45	179
17	119	29	32	64	244
18	114	12	18	66	210
19	36	16	22	32	106
20	31	16	11	15	73
21	19	9	15	29	72
22	25	23	15	22	85
23	16	12	8	12	48
Total					2646

I-270 West Spur– General Crash Characteristics

Crash Type		Number of Crashes along I-270Y				Total Crashes	% of Total Crashes
		NB GPL	SB GPL	Ramps	Crossing Roadways and Ramp Terminals		
Year	2016	17	29	4	17	67	30%
	2017	32	23	9	21	85	38%
	2018	26	19	7	21	73	32%
Collision Type	Head On	0	0	0	0	0	0%
	Left Turn	0	0	0	9	9	4%
	Rear End	40	47	5	24	116	52%
	Sideswipe	11	10	1	7	29	13%
	Angle	0	0	0	12	12	5%
	Single Vehicle	24	14	14	7	59	26%
Crash Severity	Fatal	0	0	0	0	0	0%
	Ambulatory Injury	1	1	0	1	3	1%
	Visible Injury	5	6	1	13	25	11%
	Non-visible Injury	14	15	4	6	39	17%
	Property Damage Only	55	49	15	39	158	70%
Light Condition	Daylight	41	50	13	45	149	66%
	Dark / Dawn	5	2	0	1	8	4%
	Dark Light On	25	17	6	12	60	27%
	Dark No Lights	3	0	0	1	4	2%
	Other / Unknown	1	2	1	0	4	2%
Weather Condition	Clear	46	58	11	46	161	72%
	Foggy	0	0	0	0	0	0%
	Raining	21	10	8	7	46	20%
	Snow / Sleet	1	2	0	0	3	1%
	Severe Winds	0	0	0	0	0	0%
	Other / Unknown	7	1	1	0	9	4%
Time of Day	AM Peak Hours (6 am - 10 am)	22	27	8	19	76	34%
	Mid-day Hours (10 am - 3 pm)	19	12	4	1	36	16%
	PM Peak Hours (3 pm - 7 pm)	4	8	2	3	17	8%
	Off Peak Hours (7 pm - 6 am)	3	6	1	11	21	9%
Total Crashes by Facility		75	71	20	59	225	100%

I-270 West Spur– Crashes by Time of Day

Time of Day (Hour)	I-270Y				
	NB GPL	SB GPL	Ramps	Crossroads and Ramp Terminals	Total
0	3	0	1	0	4
1	2	0	1	0	3
2	2	0	0	0	2
3	5	0	0	0	5
4	3	1	0	0	4
5	0	1	1	0	2
6	2	3	0	0	5
7	3	6	0	3	12
8	2	4	0	3	9
9	2	6	0	2	10
10	5	4	1	3	13
11	1	3	0	3	7
12	0	4	2	4	10
13	2	4	3	0	9
14	3	8	2	4	17
15	6	5	3	9	23
16	7	4	1	4	16
17	12	5	1	8	26
18	5	5	1	8	19
19	0	4	1	1	6
20	4	2	2	4	12
21	0	1	0	1	2
22	3	1	0	2	6
23	3	0	0	0	3
Total	75	71	20	59	225

I-495 in Maryland – General Crash Characteristics

Crash Type		Number of Crashes along I-495				Total Crashes	% of Total Crashes
		NB GPL	SB GPL	Ramps	Crossing Roadways and Ramp Terminals		
Year	2016	116	129	44	79	368	31%
	2017	112	161	46	80	399	33%
	2018	154	177	31	71	433	36%
Collision Type	Head On	0	0	0	1	1	0%
	Left Turn	0	0	0	38	38	3%
	Rear End	217	276	41	103	637	53%
	Sideswipe	65	80	15	24	184	15%
	Angle	0	0	0	37	37	3%
	Single Vehicle	100	111	65	27	303	25%
Crash Severity	Fatal	2	0	0	2	4	0%
	Ambulatory Injury	7	3	4	8	22	2%
	Visible Injury	26	27	10	34	97	8%
	Non-visible Injury	81	97	21	48	247	21%
	Property Damage Only	266	340	86	138	830	69%
Light Condition	Daylight	206	285	65	159	715	60%
	Dark / Dawn	20	24	8	13	65	5%
	Dark Light On	125	132	44	44	345	29%
	Dark No Lights	21	15	4	9	49	4%
	Other / Unknown	10	11	0	5	26	2%
Weather Condition	Clear	292	343	91	177	903	75%
	Foggy	1	2	0	0	3	0%
	Raining	61	80	22	27	190	16%
	Snow / Sleet	4	7	2	2	15	1%
	Severe Winds	1	1	0	0	2	0%
	Other / Unknown	23	34	6	24	87	7%
Time of Day	AM Peak Hours (6 am - 10 am)	120	173	38	64	395	33%
	Mid-day Hours (10 am - 3 pm)	49	74	13	7	143	12%
	PM Peak Hours (3 pm - 7 pm)	33	39	6	7	85	7%
	Off Peak Hours (7 pm - 6 am)	46	41	13	47	147	12%
Total Crashes by Facility		382	467	121	230	1200	100%

I-495 in Maryland – Crashes by Time of Day

Time of Day (Hour)	I-495				
	NB GPL	SB GPL	Ramps	Crossroads and Ramp Terminals	Total
0	9	9	4	4	26
1	12	8	3	2	25
2	6	7	2	0	15
3	6	9	4	0	19
4	4	10	5	3	22
5	9	13	3	2	27
6	17	23	8	7	55
7	20	19	12	8	59
8	11	29	8	13	61
9	8	32	3	15	58
10	10	22	6	18	56
11	14	14	6	16	50
12	11	12	4	11	38
13	15	23	3	13	54
14	18	22	6	15	61
15	27	35	6	12	80
16	35	40	8	17	100
17	36	41	6	17	100
18	28	48	6	21	103
19	25	20	3	14	62
20	19	5	3	10	37
21	16	11	6	5	38
22	12	8	4	3	27
23	14	7	2	4	27
Total	382	467	121	230	1200

I-495 in Virginia – General Crash Characteristics

Crash Type		Number of Crashes along I-495 VA				Total Crashes	% of Total Crashes
		NB GPL	SB GPL	Ramps	Crossing Roadways and Ramp Terminals		
Year	2016	99	38	13	49	199	31%
	2017	101	52	8	48	209	33%
	2018	105	45	25	49	224	35%
Collision Type	Head On	0	1	0	6	7	1%
	Left Turn	0	0	0	0	0	0%
	Rear End	201	69	18	60	348	55%
	Sideswipe	65	30	4	6	105	17%
	Angle	13	12	0	48	73	12%
	Single Vehicle	26	23	27	26	102	16%
Crash Severity	Fatal	0	0	0	0	0	0%
	Ambulatory Injury	6	3	3	1	13	2%
	Visible Injury	73	18	10	28	129	20%
	Non-visible Injury	6	6	0	16	28	4%
	Property Damage Only	220	108	33	101	462	73%
Light Condition	Daylight	237	92	26	107	462	73%
	Dark / Dawn	9	8	3	17	37	6%
	Dark Light On	33	22	8	11	74	12%
	Dark No Lights	26	13	9	11	59	9%
	Other / Unknown	0	0	0	0	0	0%
Weather Condition	Clear	270	117	28	119	534	84%
	Foggy	4	1	2	4	11	2%
	Raining	29	16	16	19	80	13%
	Snow / Sleet	2	1	0	4	7	1%
	Severe Winds	0	0	0	0	0	0%
	Other / Unknown	0	0	0	0	0	0%
Time of Day	AM Peak Hours (6 am - 10 am)	0	0	0	0	0	0%
	Mid-day Hours (10 am - 3 pm)	0	0	0	0	0	0%
	PM Peak Hours (3 pm - 7 pm)	0	0	0	0	0	0%
	Off Peak Hours (7 pm - 6 am)	0	0	0	0	0	0%
Total Crashes by Facility		305	135	46	146	632	100%

I-495 in Virginia – Crashes by Time of Day

Time of Day (Hour)	I-495 VA				
	NB GPL	SB GPL	Ramps	Crossroads and Ramp Terminals	Total
0	2	2	1	0	5
1	2	3	1	1	7
2	1	1	1	0	3
3	4	1	0	1	6
4	2	2	1	2	7
5	6	4	1	2	13
6	7	4	3	7	21
7	15	1	3	10	29
8	28	9	0	8	45
9	28	13	1	4	46
10	9	4	3	2	18
11	5	5	3	5	18
12	8	4	1	4	17
13	6	8	3	13	30
14	35	7	1	11	54
15	41	11	3	18	73
16	34	16	1	13	64
17	24	9	3	18	54
18	16	15	2	9	42
19	10	3	2	9	24
20	8	6	0	4	18
21	7	1	2	2	12
22	2	3	1	2	8
23	4	1	1	0	6
Total	304	133	38	145	620

Phase I South Study Area – General Crash Characteristics

Crash Type		Number of Crashes within Phase 1 South								
		Freeway Components								
		NB GPL	SB GPL	Ramps	Freeway Total	Freeway Total	Crossing Roadways and Ramp Terminals	Crossing Roadways and Ramp Terminals	Total Crashes	Total Crashes
Year	2016	463	406	199	1068	31%	375	31%	1443	31%
	2017	523	431	180	1134	32%	424	35%	1558	33%
	2018	599	466	224	1289	37%	413	34%	1702	36%
Collision Type	Head On	1	1	0	2	0%	12	1%	14	0%
	Left Turn	0	0	0	0	0%	152	13%	152	3%
	Rear End	905	736	165	1806	52%	483	40%	2289	49%
	Sideswipe	248	225	50	523	15%	125	10%	648	14%
	Angle	13	12	3	28	1%	232	19%	260	6%
	Single Vehicle	418	329	388	1135	33%	208	17%	1343	29%
Crash Severity	Fatal	3	2	1	6	0%	3	0%	9	0%
	Ambulatory Injury	31	14	11	56	2%	24	2%	80	2%
	Visible Injury	169	123	51	343	10%	205	17%	548	12%
	Non-visible Injury	267	273	95	635	18%	221	18%	856	18%
	Property Damage Only	1115	891	445	2451	70%	759	63%	3210	68%
Light Condition	Daylight	953	841	379	2173	62%	835	69%	3008	64%
	Dark / Dawn	64	73	28	165	5%	63	5%	228	5%
	Dark Light On	465	317	158	940	27%	259	21%	1199	25%
	Dark No Lights	72	43	27	142	4%	37	3%	179	4%
	Other / Unknown	31	29	11	71	2%	18	1%	89	2%
Weather Condition	Clear	1249	996	349	2594	74%	907	75%	3501	74%
	Foggy	6	5	3	14	0%	10	1%	24	1%
	Raining	237	203	215	655	19%	185	15%	840	18%
	Snow / Sleet	17	27	11	55	2%	17	1%	72	2%
	Severe Winds	1	1	0	2	0%	1	0%	3	0%
	Other / Unknown	75	71	25	171	5%	86	7%	257	5%
Time of Day	AM Peak Hours (6 am - 10 am)	413	391	180	984	28%	319	26%	1303	28%
	Mid-day Hours (10 am - 3 pm)	184	189	115	488	14%	44	4%	532	11%
	PM Peak Hours (3 pm - 7 pm)	116	115	23	254	7%	70	6%	324	7%
	Off Peak Hours (7 pm - 6 am)	110	111	48	269	8%	223	18%	492	10%
Total Crashes by Facility		1585	1303	603	3491	100%	1212	100%	4703	100%

Proportion of Crashes by Time of Day by Freeway

Time of Day (Hour)	Proportion of Crash Frequency			
	I-270	I-270Y	I-495	I-495 VA
0	2%	2%	2%	1%
1	1%	1%	2%	1%
2	2%	1%	1%	0%
3	1%	2%	2%	1%
4	2%	2%	2%	1%
5	2%	1%	2%	2%
6	5%	2%	5%	3%
7	6%	5%	5%	5%
8	7%	4%	5%	7%
9	7%	4%	5%	7%
10	6%	6%	5%	3%
11	5%	3%	4%	3%
12	4%	4%	3%	3%
13	4%	4%	5%	5%
14	4%	8%	5%	9%
15	5%	10%	7%	12%
16	7%	7%	8%	10%
17	9%	12%	8%	9%
18	8%	8%	9%	7%
19	4%	3%	5%	4%
20	3%	5%	3%	3%
21	3%	1%	3%	2%
22	3%	3%	2%	1%
23	2%	1%	2%	1%
Total	100%	100%	100%	100%

Historical Crash Rates

I-270 & East Spur – Crash Rates by Quarter-Mile Segments in 100 Million Vehicle Miles Traveled

MP	Reference Interchange / Cross Street	Fatal and Injury Crash Rate by Facility (Statewide Average Fatal and Injury Rate for Urban Interstate = 16.1)		PDO Crash Rate by Facility (Statewide Average PDO Rate for Urban Interstate = 28.2)		Total Crash Rate by Facility (Statewide Average Total Rate for Urban Interstate = 44.3)	
		NB GPL	SB GPL	NB GPL	SB GPL	NB GPL	SB GPL
1.35		56	63	165	59	221	122
1.6	MD 187	41	9	92	44	133	54
1.85	Rockledge Boulevard	9	13	22	9	32	22
2.1		0	3	3	0	3	3
2.35		0	0	6	3	6	3
2.6		32	44	57	82	88	126
2.85		1	0	0	1	1	1
3.1		12	10	23	15	35	25
3.35		0	1	0	0	0	1
3.6		0	3	3	3	3	6
3.85		6	1	10	17	16	19
4.1	Montrose Road	39	52	62	91	102	144
4.35		1	4	3	6	4	10
4.6		1	1	1	1	3	3
4.85		3	4	4	15	7	19
5.1	Wootton Parkway	3	1	4	3	7	4
5.35		25	30	58	39	83	69
5.6	Falls Way	0	4	4	1	4	6
5.85		0	0	0	1	0	1
6.1		0	0	7	1	7	1
6.35		43	52	121	70	165	123
6.6	MD 28	0	2	3	3	3	5
6.85		0	0	0	0	0	0
7.1		0	0	2	0	2	0
7.35		27	12	50	30	77	42
7.6	W. Gude Drive	0	0	2	2	2	2
7.85		0	0	3	3	3	3
8.1		18	3	27	8	45	12
8.35	Shady Grove Road	50	36	115	80	166	116
8.6		0	0	0	2	0	2
8.85		0	3	12	3	12	7
9.1		26	26	73	49	99	77
9.35	I-370	5	5	17	7	22	12
9.6		3	3	2	5	5	9
9.85		10	0	15	3	26	3
10.1	Muddy Branch Road	21	21	51	27	72	48
10.35		3	12	7	9	10	21
10.6		7	3	15	10	22	14
10.85	MD 117	22	12	50	14	72	26

I-270 & West Spur – Crash Rates by Quarter-Mile Segments in 100 Million Vehicle Miles Traveled

MP	Reference Interchange / Cross Street	Fatal and Injury Crash Rate by Facility (Statewide Average Fatal and Injury Rate for Urban Interstate = 16.1)		PDO Crash Rate by Facility (Statewide Average PDO Rate for Urban Interstate = 28.2)		Total Crash Rate by Facility (Statewide Average Total Rate for Urban Interstate = 44.3)	
		NB GPL	SB GPL	NB GPL	SB GPL	NB GPL	SB GPL
0		0	11	6	17	6	28
0.25		17	6	34	25	50	31
0.5		0	0	25	20	25	20
0.75		14	20	22	20	36	39
1	Democracy Blvd	24	21	59	51	83	72
1.25		0	0	0	0	0	0
1.5	Westlake Terrace	0	0	0	0	0	0
1.75		0	3	5	0	5	3
2	I-270	0	0	0	3	0	3

I-495 in Maryland – Crash Rates by Quarter-Mile Segments in 100 Million Vehicle Miles Traveled

MP	Reference Interchange / Cross Street	Fatal and Injury Crash Rate by Facility (Statewide Average Fatal and Injury Rate for Urban Interstate = 16.1)		PDO Crash Rate by Facility (Statewide Average PDO Rate for Urban Interstate = 28.2)		Total Crash Rate by Facility (Statewide Average Total Rate for Urban Interstate = 44.3)	
		NB GPL	SB GPL	NB GPL	SB GPL	NB GPL	SB GPL
0	Virginia Stateline	13	10	30	24	43	35
0.25		7	7	22	48	29	55
0.5	Clara Barton Pkwy	7	16	22	36	29	52
0.75		0	0	0	0	0	0
1	Parsimmon Tree Rd	8	0	25	15	33	15
1.25		9	5	23	19	33	23
1.5		5	2	3	9	8	11
1.75	Seven Locks Rd	0	3	8	9	8	12
2		3	9	9	14	12	23
2.25		60	47	92	100	151	147
2.5	MD 190	0	1	1	4	1	6
2.75		0	0	0	0	0	0
3		0	3	1	3	1	6
3.25		7	12	14	25	21	37
3.5		18	15	51	43	69	58
3.75	I-270Y	3	3	9	12	12	15
4		6	24	30	71	36	95
4.25	Greentree Rd	3	6	3	18	6	24
4.5		12	21	15	24	27	44
4.75		3	12	24	33	27	44
5	Fernwood Rd	3	3	0	3	3	6
5.25		0	0	3	6	3	6
5.5		30	36	80	116	110	151
5.75	MD 187	0	0	3	3	3	3

I-495 in Virginia – Crash Rates by Quarter-Mile Segments in 100 Million Vehicle Miles Traveled

Start NB MP	End NB MP	Reference Interchange / Cross Street	Fatal and Injury Crash Rate by Facility (Statewide Average Fatal and Injury Rate for I-495 NB = 29.94 for I-495 SB = 25.68)		PDO Crash Rate by Facility (Statewide Average PDO Rate for I-495 NB = 67.37, for I-495 SB= 60.52)		Total Crash Rate by Facility (Statewide Average Total Rate for I-495 NB = 97.31, for I-495 SB = 86.2)	
			NB GPL	SB GPL	NB GPL	SB GPL	NB GPL	SB GPL
13.86	14.11		46	11	148	61	194	72
14.11	14.36	Route 193	42	25	141	72	183	98
14.36	14.61		48	3	70	24	119	27
14.61	14.86		42	9	115	49	157	58
14.86	15.11	GWMP	58	15	0	67	58	82
15.11	15.36		48	18	0	52	48	70

I-270 & East Spur – Volume Inputs used for Crash Rate Calculations

Beginning MP	Ending MP	ADT	Conversion Factor	AADT
0	1.54	114080	0.97	110658
1.54	2.7	119240	0.97	115663
2.7	4.14	259590	0.97	251802
4.14	4.9	252840	0.97	245255
4.9	5.5	252840	0.97	245255
5.5	6.46	251660	0.97	244110
6.46	7.57	225890	0.97	219113
7.57	8.39	225890	0.97	219113
8.39	9.26	216085	0.97	209602
9.26	10.9	219695	0.97	213104

I-270 West Spur – Volume Inputs used for Crash Rate Calculations

Beginning MP	Ending MP	ADT	Conversion Factor	AADT
0	1	134665	0.97	130625
1	1.2	140455	0.97	136241
1.2	2.1	140455	0.97	136241

I-495 in Maryland – Volume Inputs used for Crash Rate Calculations

Beginning MP	Ending MP	ADT	Conversion Factor	AADT
0	0.52	243950	1.04	253708
0.52	2.21	226740	1.04	235810
2.21	3.7	253165	1.04	263292
3.7	5.85	118495	1.04	123235

High Crash Locations Methodology for Ramps, Adjacent Intersections and Ramp Terminals along the Crossroads

HIGH CRASH LOCATION ANALYSIS METHODOLOGY FOR RAMPS, ADJACENT INTERSECTIONS & RAMP TERMINALS ALONG CROSSROADS

Identification of High Crash Locations along freeway ramps, ramp terminals, and adjacent intersections along the crossroads involved:

- A spatial cluster analysis using ArcGIS, and
- A review of the crash summary reports provided by MDOT SHA's Office of Traffic and Safety for the historical crashes between January 1, 2016, and December 31, 2018.

Crashes exclusive to crossroad segments, intersections, and ramps were plotted using the latitude and longitudinal points included in the historical crash data spreadsheets provided by MDOT SHA. Using the Buffer tool, the plotted crashes were clipped to only include crashes within the Study limits in the spatial cluster analysis. To define crashes as an intersection or segment related crash, the Integrate tool was run to join all crash points within a specific tolerance of one another utilizing a 100-foot tolerance for roadway segments and a 250-foot tolerance for intersections. Finally, the Collect Events tool was used to group the crash points into a single feature point from which the total number of crashes can be derived for a specific location to help identify locations with more than 20 crashes. Ramp crashes were grouped manually. Once the high crash locations were determined, the detailed crash data provided by MDOT SHA was reviewed to determine specific crash type patterns and time of day patterns.

The high crash ramp locations developed through this process include:

1) I-270 NB Exit Ramp to I-370
2) I-270 SB Exit Ramp to Shady Grove Rd / Omega Dr
3) I-270 NB Exit Ramp to Shady Grove Rd / Redland Blvd
4) I-270 Exit Ramp to MD 28 WB
5) I-270 SB Exit Ramp to Montrose Rd EB

The high crash ramp terminals and adjacent intersections along crossroads developed through this process include:

1) MD 119 at Sam Eig Highway Intersection
2) I-270 NB Ramp Terminal at Shady Grove Road
3) Shady Grove Road at Choke Cherry Road Intersection
4) Wootton Parkway at Seven Locks Road Intersection
5) Wootton Parkway at Tower Oaks Boulevard Intersection
6) Montrose Road at Tower Oaks Boulevard Intersection
7) MD 187 at Tuckerman Lane Intersection
8) MD 355 at Grosvenor Lane

Note that the Montrose Road at Tower Oaks Boulevard intersection has less than 20 crashes (specifically 16) but is included in the high crash locations list due to a significant rear end (7 crashes) and angle (5 crashes) crash pattern.

Appendix K
Predictive Crash Analysis Supporting Information

Predicted Crash Frequency Summary Tables

Table K-1: Predicted Annual Crash Frequency for all facility types within MLS Phase I South Study Area

Freeway	Facility Type	2045 No Build Predicted Annual Crash Frequency (by Severity)			2045 Preferred Alternative Predicted Annual Crash Frequency (by Severity)			Change in Predicted Annual Crash Frequency		
		Fatal and Injury	PDO	Total	Fatal and Injury	PDO	Total	Fatal and Injury	PDO	Total
I-270 & East Spur & I-370	Freeway Segments	176.6	407.2	583.8	185.9	448.6	634.5	9.4	41.4	50.8
	Ramp Segments	221.3	201.8	423.1	27.9	45.2	73.2	-193.5	-156.6	-350.0
	Managed Lanes	0.0	0.0	0.0	17.7	47.7	65.4	17.7	47.7	65.4
	Crossroads and Ramp Terminals	115.4	170.3	285.7	116.1	175.8	291.9	0.7	5.5	6.3
	Subtotal	**513.3**	**779.3**	**1292.6**	**347.6**	**717.3**	**1065.0**	**-165.7**	**-62.0**	**-227.5**
I-270 West Spur	Freeway Segments	30.3	69.4	99.7	25.4	64.3	89.7	-4.9	-5.1	-10.0
	Ramp Segments	1.8	2.2	4.0	2.0	2.7	4.7	0.2	0.5	0.7
	Managed Lanes	0.0	0.0	0.0	3.8	10.3	14.1	3.8	10.3	14.1
	Crossroads and Ramp Terminals	20.8	27.5	48.4	21.5	28.1	49.6	0.6	0.6	1.2
	Subtotal	**52.9**	**99.1**	**152.1**	**52.7**	**105.4**	**158.1**	**-0.3**	**6.3**	**6.0**
I-495 in Maryland	Freeway Segments	143.8	363.3	507.0	145.0	367.0	512.0	1.3	3.7	5.0
	Ramp Segments	15.3	15.7	31.0	13.3	15.6	28.9	-2.0	-0.1	-2.1
	Managed Lanes	0.0	0.0	0.0	8.0	21.6	29.6	8.0	21.6	29.6
	Crossroads and Ramp Terminals	52.8	47.5	100.4	72.2	70.5	142.7	19.4	22.9	42.4
	Subtotal	**211.9**	**426.5**	**638.4**	**238.5**	**474.7**	**713.2**	**26.7**	**48.1**	**74.9**
I-495 in Virginia & GWMP	Freeway Segments	35.1	89.9	125.1	38.9	98.0	137.0	3.8	8.0	11.9
	Ramp Segments	6.0	9.8	15.8	4.3	7.5	11.8	-1.6	-2.3	-4.0
	Managed Lanes	2.4	6.5	8.8	3.7	10.1	13.8	1.3	3.6	4.9
	Crossroads and Ramp Terminals	6.0	13.2	19.3	6.4	13.4	19.9	0.4	0.2	0.6
	Subtotal	**49.5**	**119.4**	**169.0**	**53.3**	**129.0**	**182.5**	**3.9**	**9.5**	**13.4**
Study Area All Freeways Total		**827.6**	**1424.3**	**2252.1**	**692.3**	**1426.4**	**2118.8**	**-135.3**	**2.1**	**-133.2**

Table K-2: Predicted Annual Crash Frequency for Freeways, Ramps, and HOT Managed Lanes (excludes ramp terminals)

Freeway	Facility Type	2045 No Build Predicted Annual Crash Frequency (by Severity)			2045 Preferred Alternative Predicted Annual Crash Frequency (by Severity)			Change in Predicted Annual Crash Frequency		
		Fatal and Injury	PDO	Total	Fatal and Injury	PDO	Total	Fatal and Injury	PDO	Total
I-270 & East Spur	Freeway Segments	171.6	398.4	570.0	180.0	437.4	617.4	8.5	39.0	47.5
	Ramp Segments	221.0	201.5	422.5	27.3	44.2	71.5	-193.8	-157.3	-351.1
	HOT Managed Lanes	0.0	0.0	0.0	17.7	47.7	65.4	17.7	47.7	65.4
	Subtotal	**392.6**	**599.9**	**992.5**	**225.0**	**529.3**	**754.3**	**-167.6**	**-70.6**	**-238.2**
I-270 West Spur	Freeway Segments	30.3	69.4	99.7	25.4	64.3	89.7	-4.9	-5.1	-10.0
	Ramp Segments	1.8	2.2	4.0	2.0	2.7	4.7	0.2	0.5	0.7
	HOT Managed Lanes	0.0	0.0	0.0	3.8	10.3	14.1	3.8	10.3	14.1
	Subtotal	**32.1**	**71.6**	**103.7**	**31.2**	**77.3**	**108.5**	**-0.9**	**5.7**	**4.8**
I-495 in Maryland	Freeway Segments	143.8	363.3	507.0	145.0	367.0	512.0	1.3	3.7	5.0
	Ramp Segments	15.3	15.7	31.0	13.3	15.6	28.9	-2.0	-0.1	-2.1
	HOT Managed Lanes	0.0	0.0	0.0	8.0	21.6	29.6	8.0	21.6	29.6
	Subtotal	**159.1**	**379.0**	**538.1**	**166.3**	**404.2**	**570.5**	**7.3**	**25.2**	**32.5**
I-495 in Virginia	Freeway Segments	34.2	88.2	122.4	37.9	96.0	134.0	3.7	7.8	11.6
	Ramp Segments	6.0	9.8	15.8	4.3	7.5	11.8	-1.6	-2.3	-4.0
	HOT Managed Lanes	2.4	6.5	8.8	3.7	10.1	13.8	1.3	3.6	4.9
	Subtotal	**42.6**	**104.4**	**147.0**	**46.0**	**113.6**	**159.6**	**3.4**	**9.1**	**12.5**
GWMP	Freeway Segments	0.9	1.7	2.7	1.0	2.0	3.0	0.1	0.2	0.3
	Subtotal	**0.9**	**1.7**	**2.7**	**1.0**	**2.0**	**3.0**	**0.1**	**0.2**	**0.3**
I-370	Freeway Segments	5.0	8.8	13.8	5.9	11.2	17.1	0.9	2.4	3.3
	Ramp Segments	0.3	0.3	0.6	0.6	1.0	1.7	0.3	0.7	1.1
	Subtotal	**5.3**	**9.1**	**14.4**	**6.6**	**12.2**	**18.8**	**1.3**	**3.2**	**4.4**
Study Area All Freeways Total		**632.7**	**1165.7**	**1798.4**	**476.1**	**1138.6**	**1614.7**	**-156.6**	**-27.1**	**-183.7**

Table K-3: Predicted Annual Crash Frequency for Crossroads and Adjacent Intersections (includes ramp terminals)

Freeway	Crossroad	Facility Type	2045 No-Build Predicted Annual Crash Frequency (by Severity)			2045 Preferred Alternative Predicted Annual Crash Frequency (by Severity)			Change in Predicted Annual Crash Frequency (by Severity)		
			Fatal and Injury	PDO	Total	Fatal and Injury	PDO	Total	Fatal and Injury	PDO	Total
I-270 & East Spur	MD 117 W Diamond Avenue	Adjacent Intersections	0.4	1.0	1.4	0.4	1.0	1.4	0.0	0.0	0.0
		Ramp Terminals	5.0	8.1	13.1	8.4	11.5	19.9	3.5	3.3	6.8
	Sam Eig Highway (Direct Access to HOT Managed Lanes)	Adjacent Intersections	13.7	13.5	27.3	13.7	13.5	27.2	-0.1	0.0	-0.1
		Ramp Terminals									
	Shady Grove Road/Omega Drive/Redland Boulevard	Adjacent Intersections	10.4	12.7	23.2	10.3	12.6	22.9	-0.1	-0.1	-0.3
		Ramp Terminals	15.0	18.4	33.4	9.4	12.1	21.5	-5.6	-6.2	-11.9
	W. Gude Drive (New interchange w/ Direct Access to HOT Managed Lanes)	Adjacent Intersections	2.7	5.6	8.3	3.1	6.5	9.6	0.4	0.8	1.3
		Ramp Terminals	0.0	0.0	0.0	1.9	3.6	5.4	1.9	3.6	5.4
	MD 28 Montgomery Avenue	Adjacent Intersections	7.3	15.0	22.3	7.4	15.1	22.5	0.1	0.1	0.2
		Ramp Terminals	8.2	13.5	21.7	7.1	11.5	18.6	-1.1	-2.0	-3.1
	MD 189 Falls Road	Adjacent Intersections	2.8	6.3	9.1	2.9	6.4	9.3	0.1	0.1	0.2
		Ramp Terminals	0.3	1.1	1.4	0.3	0.7	1.0	0.0	-0.5	-0.5
	Wootton Parkway (New interchange w/ Direct Access to HOT Managed Lanes)	Adjacent Intersections	2.4	5.2	7.6	2.9	6.1	9.0	0.5	0.9	1.3
		Ramp Terminals	0.0	0.0	0.0	1.4	2.7	4.1	1.4	2.7	4.1
	Montrose Road	Adjacent Intersections	6.3	15.0	21.4	6.2	14.7	20.9	-0.1	-0.4	-0.5
		Ramp Terminals	4.0	5.3	9.3	2.9	5.0	7.8	-1.1	-0.4	-1.5
	Rockledge Blvd	Adjacent Intersections	3.0	4.8	7.8	3.0	4.9	7.9	0.0	0.1	0.1
		Ramp Terminals	6.5	13.3	19.8	7.1	14.4	21.5	0.7	1.1	1.7
	MD 187 Old Georgetown Rd (at I-270)	Adjacent Intersections	11.6	13.7	25.3	11.8	14.1	25.9	0.2	0.4	0.6
		Ramp Terminals	14.5	15.1	29.6	13.9	15.4	29.2	-0.7	0.2	-0.4
	I-370	Ramp Terminals	1.2	2.5	3.7	2.2	4.2	6.5	1.0	1.8	2.8
	Subtotal		**115.4**	**170.3**	**285.7**	**116.1**	**175.8**	**291.9**	**0.7**	**5.5**	**6.3**
I-270 West Spur	Westlake Terrace (Direct Access to HOT Managed Lanes)	Adjacent Intersections	3.0	6.2	9.2	3.8	7.5	11.3	0.7	1.3	2.1
		Ramp Terminals									
	Democracy Boulevard	Adjacent Intersections	8.4	9.1	17.5	8.6	9.4	18.0	0.3	0.3	0.5
		Ramp Terminals	9.4	12.2	21.7	9.1	11.2	20.3	-0.4	-1.0	-1.4
	Subtotal		**20.8**	**27.5**	**48.4**	**21.5**	**28.1**	**49.6**	**0.6**	**0.6**	**1.2**
I-495 in Maryland	MD 190 River Road / Cabin John Parkway (Direct Access to HOT Managed Lanes)	Adjacent Intersections	4.9	9.7	14.6	7.0	13.2	20.2	2.0	3.5	5.6
		Ramp Terminals	2.8	4.1	6.9	12.6	13.3	25.9	9.8	9.2	19.0
	MD 187 Old Georgetown Road (at I-495)	Adjacent Intersections	9.8	9.7	19.5	9.9	9.8	19.7	0.1	0.1	0.2
		Ramp Terminals	23.8	13.1	36.8	31.0	23.1	54.1	7.3	10.0	17.3
	MD 355 Rockville Pike	Adjacent Intersections	11.6	11.0	22.5	11.8	11.1	22.9	0.2	0.2	0.4
		Ramp Terminals									
	Subtotal		**52.8**	**47.5**	**100.4**	**72.2**	**70.5**	**142.7**	**19.4**	**22.9**	**42.4**
I-495 in Virginia	VA 193	Adjacent Intersections									
		Ramp Terminals	6.0	13.2	19.3	6.4	13.4	19.9	0.4	0.2	0.6
	Subtotal		**6.0**	**13.2**	**19.3**	**6.4**	**13.4**	**19.9**	**0.4**	**0.2**	**0.6**
Study Area All Crossroads Total			**195.0**	**258.6**	**453.7**	**216.2**	**287.9**	**504.1**	**21.2**	**29.3**	**50.5**

Enhanced Interchange Safety Analysis Tool

Methodology Supporting Information

ISATe ROADWAY SEGMENTATION

The mainline freeway within the Study corridor is segmented per ISATe input requirements to develop roadway sections with consistent cross-sectional, roadside, ramp access, and traffic volume characteristics. Due to the length of the Study corridor, the ISATe analysis was conducted across multiple ISATe spreadsheet files that produced multiple ISATe output reports. Specifically, the Output Summary and Evaluation Site Summary reports which are included in this Appendix. The table below may be used to reference which ISATe output report to review for a specific section of freeway as well as to determine specific facility types within each analyzed freeway section.

General notes on the mainline freeway segmentation.

- Freeway segment limits include both directions of travel.
- The General Purpose (GP) lane segments run from the mid-point of the upstream interchange to the mid-point of the subject interchange. This does not apply to Sections 1, 15, and 20 which include the Speed Change Lanes for the interchanges at MD 117, VA 193 and MD 355.
- Ramp segments include the GP and HOT lane ramps within the interchange.
- Collector-distributor (CD) segments and Ramp segments (including GP and HOT lane facilities) are analyzed in ISATe within the same worksheet. Therefore, the results are combined.

Freeway	No.	Section Limits	Facility Types
I-270 & East Spur	1	MD 117 to I-370 MP 10.85 - MP 9.33	GP Segments, C-D Segments, MD 117 Interchange Ramp Segments and GP Ramp Terminals, ML Segments
	2	I-370 to Shady Grove Road MP 9.33 - MP 8.39	GP Segments, C-D Segments, I-370 Interchange Ramp Segments, ML Segments
	3	Shady Grove Road to Gude Drive MP 8.39 - MP 7.58	GP Segments, C-D Segments, Shady Grove Road Interchange Ramp Segments and GP Ramp Terminals, ML Segments
	4	Gude Drive to MD 28 MP 7.58 - MP 6.48	GP Segments, C-D Segments, Gude Drive New Interchange Ramp Segments, ML Segments
	5	MD 28 to MD 189 MP 6.48 - MP 5.50	GP Segments, C-D Segments, MD 28 Interchange Ramp Segments and GP Ramp Terminals, ML Segments
	6	MD 189 to Wootton Parkway MP 5.50 - MP 4.90	GP Segments, C-D Segments, MD 189 Interchange Ramp Segments and GP Ramp Terminals, ML Segments
	7	Wootton Parkway to Montrose Road MP 4.90 - MP 4.14	GP Segments, C-D Segments, Wootton Parkway New Interchange Ramp Segments and GP Ramp Terminals, ML Segments
	8	Montrose Road to I-270 West Spur MP 4.14 - MP 2.67	GP Segments, C-D Segments, Montrose Road Interchange Ramp Segments and GP Ramp Terminals, ML Segments

Freeway	No.	Section Limits	Facility Types
	9	I-270 West Spur to Rockledge Boulevard MP 2.67 - MP 1.87	GP Segments, C-D Segments, I-270 West Spur Interchange Ramp Segments and GP Ramp Terminals, ML Segments
	10	Rockledge Blvd to MD 187 MP 1.87 - MP 1.58	GP Segments, C-D Segments, Rockledge Boulevard Interchange Ramp Segments and GP Ramp Terminals, ML Segments
	11	MD 187 to I-495 MP 1.58 - MP 0.22	GP Segments, C-D Segments, MD 187 Interchange Ramp Segments and GP Ramp Terminals, ML Segments
I-270 West Spur	12	I-270 Y-Split to Westlake Terrace MP 1.37 - MP 2.10	GP Segments, Westlake Terrace Interchange Ramp Segments and GP Ramp Terminals, ML Segments
	13	Westlake Terrace to Democracy Boulevard MP 1.37 - MP 1.03	GP Segments, Democracy Boulevard Interchange Ramp Segments and GP Ramp Terminals, ML Segments
	14	Democracy Boulevard to I-495 MP 1.03 – MP 0.00	GP Segments, ML Segments
I-495 in Virginia	15	VA 193 (Southern Study Limit) to George Washington Memorial Parkway NB I-495 MP 13.72 - MP 15.06	GP Segments, C-D Segments, VA 93 Interchange Ramp Segments and GP Ramp Terminals, ML Segments
	16	George Washington Memorial Parkway to MD-VA State Line NB I-495 MP 15.06 - MP 15.39	GP Segments, George Washington Memorial Parkway Interchange Ramp Segments, ML Segments
I-495 in Maryland	17	MD-VA State Line to MD 190 MP 0.00 - MP 2.37	GP Segments, Clara Barton Parkway Interchange Ramp Segments and GP Ramp Terminals. ML Segments
	18	MD 190 (River Road)/ Cabin John Parkway to I-270 West Spur MP 2.37 - MP 3.66	GP Segments, C-D Segments, MD 190 (River Road)/ Cabin John Parkway Interchange Ramp Segments and GP Ramp Terminals, ML Segments
	19	I-270 West Spur to MD 187 MP 3.66 - MP 5.61	GP Segments, I-495/I-270 West Spur ML Ramp Segments, I-495/ MD 187 Interchange GP Ramp Segments and GP Ramp Terminals, ML Segments
	20	MD 187 to MD 355/I-270 MP 5.61 - MP 6.68	GP Segments, I-495/I-270/MD355 Interchange Ramp Segments, GP Ramp Terminals, ML Segments
GWMP	21	I-495 to I-495 On-Ramp GWMP MP 0.00 - MP 0.25	GP Segments

ISATe TRAFFIC VOLUME INPUT ADJUSTMENT SEGMENTS

Below are the segments where the number of lanes exceed the maximum allowable input within ISATe and therefore, the average daily traffic volume was adjusted. See section 7.6 for more details on the volume adjustment process.

I-270 No Build

- 0.97-mile section from Montrose Road to I-270 Y – MP 2.67 to 3.64
- 4.70 miles of C-D Roads along I-270 with three lanes

I-495 No Build

- 0.41-mile section from MD 190 to I-270 West Spur – MP 3.25 to 3.66

I-270 Preferred Alternative

- 0.53-mile section from I-370 to Shady Grove Road – MP 8.54 to 9.07
- 0.42-mile section from Shady Grove Road to Gude Drive – MP 7.79 to 8.21
- 0.10-mile section from Gude Drive to MD 28 – MP 6.47 to 6.57
- 0.81-mile section from MD 28 to MD 189 – MP 5.66 to 6.47
- 0.24-mile section from Montrose Road to I-270 Y – MP 2.65 to 2.89
- 0.69 miles of C-D Roads and ramps with three lanes

I-495 Preferred Alternative

- 0.23-mile section from MD 190 to I-270 West Spur – MP 3.68 to 3.91
- 0.30 miles of C-D Roads and ramps with three lanes

Enhanced Interchange Safety Analysis Tool

Output Summary & Evaluation Site Summary Reports

for the

No Build Scenario

Evaluation Site Summary

General Information

Project description:	ISATe_I-270 from MD 117 to I-370_No Build				
Analyst:	TL/PK	Date:	1/31/2022	Area type:	Urban
First year of analysis:	2027	Total length of freeway segments for Study Period (mi)	1.520		
Last year of analysis:	2045				

Site Description

Freeway Segments

Number	Lanes	Study Period Length (mi)	Study Period Description
1	8	0.210	GP MP 10.85 - MP 10.64
2	9	0.040	GP MP 10.64 - MP 10.60
3	10	0.600	GP MP 10.60 - MP 10.00
4	9	0.230	GP MP 10.00 - MP 9.77
5	8	0.170	GP MP 9.77 - MP 9.60
6	9	0.270	GP MP 9.60 - MP 9.33
7	0	0.000	0
8	0	0.000	0
9	0	0.000	0
10	0	0.000	0
11	0	0.000	0
12	0	0.000	0
13	0	0.000	0
14	0	0.000	0
15	0	0.000	0
16	0	0.000	0
17	0	0.000	0
18	0	0.000	0
19	0	0.000	0
20	0	0.000	0

Ramp Segments

Number	Study Period Description	Number	Study Period Description
1	NB CD MP 7.24 - MP 7.05	21	0
2	NB CD MP 7.05 - MP 6.33	22	0
3	NB CD MP 6.33 - MP 5.89	23	0
4	NB CD MP 5.89 - MP 5.67	24	0
5	C1-1 Ramp from I-270 NB t	25	0
6	C1-2 Ramp from I-270 NB t	26	0
7	0	27	0
8	G6-4 Ramp from MD 117 to	28	0
9	G6-31 Ramp from MD 117	29	0
10	G6-32 Ramp from MD 117	30	0
11	0	31	0
12	0	32	0
13	0	33	0
14	0	34	0
15	0	35	0
16	0	36	0
17	0	37	0
18	0	38	0
19	0	39	0
20	0	40	0

Crossroad Ramp Terminals

Number	Config.	Control	Study Period Description
1	D3ex	Signal	I-270 NB at MD 117
2	D3en	One stop	I-270 SB at MD 117
3	0	0	0
4	0	0	0
5	0	0	0
6	0	0	0

Output Summary						
General Information						
Project description:	ISATe_I-270 from MD 117 to I-370_No Build					
Analyst:	TL/PK	Date:	1/31/2022	Area type:	Urban	
First year of analysis:	2027					
Last year of analysis:	2045					

Crash Data Description				
Freeway segments	Segment crash data available?	No	First year of crash data:	
	Project-level crash data available?	No	Last year of crash data:	
Ramp segments	Segment crash data available?	No	First year of crash data:	
	Project-level crash data available?	No	Last year of crash data:	
Ramp terminals	Segment crash data available?	No	First year of crash data:	
	Project-level crash data available?	No	Last year of crash data:	

Estimated Crash Statistics							
Crashes for Entire Facility		**Total**	**K**	**A**	**B**	**C**	**PDO**
Estimated number of crashes during Study Period, crashes:		2611.7	10.3	31.7	183.0	609.8	1776.8
Estimated average crash freq. during Study Period, crashes/yr:		137.5	0.5	1.7	9.6	32.1	93.5
Crashes by Facility Component	**Nbr. Sites**	**Total**	**K**	**A**	**B**	**C**	**PDO**
Freeway segments, crashes:	6	1800.3	6.7	18.5	110.2	381.0	1283.9
Ramp segments, crashes:	9	562.5	3.5	10.5	56.1	154.1	338.3
Crossroad ramp terminals, crashes:	2	249.0	0.2	2.7	16.7	74.8	154.6
Crashes for Entire Facility by Year	**Year**	**Total**	**K**	**A**	**B**	**C**	**PDO**
Estimated number of crashes during the Study Period, crashes:	2027	137.5	0.5	1.7	9.6	32.1	93.5
	2028	137.5	0.5	1.7	9.6	32.1	93.5
	2029	137.5	0.5	1.7	9.6	32.1	93.5
	2030	137.5	0.5	1.7	9.6	32.1	93.5
	2031	137.5	0.5	1.7	9.6	32.1	93.5
	2032	137.5	0.5	1.7	9.6	32.1	93.5
	2033	137.5	0.5	1.7	9.6	32.1	93.5
	2034	137.5	0.5	1.7	9.6	32.1	93.5
	2035	137.5	0.5	1.7	9.6	32.1	93.5
	2036	137.5	0.5	1.7	9.6	32.1	93.5
	2037	137.5	0.5	1.7	9.6	32.1	93.5
	2038	137.5	0.5	1.7	9.6	32.1	93.5
	2039	137.5	0.5	1.7	9.6	32.1	93.5
	2040	137.5	0.5	1.7	9.6	32.1	93.5
	2041	137.5	0.5	1.7	9.6	32.1	93.5
	2042	137.5	0.5	1.7	9.6	32.1	93.5
	2043	137.5	0.5	1.7	9.6	32.1	93.5
	2044	137.5	0.5	1.7	9.6	32.1	93.5
	2045	137.5	0.5	1.7	9.6	32.1	93.5
	2046						
	2047						
	2048						
	2049						
	2050						

Distribution of Crashes for Entire Facility

Crash Type	**Crash Type Category**	**Estimated Number of Crashes During the Study Period**					
		Total	**K**	**A**	**B**	**C**	**PDO**
Multiple vehicle	Head-on crashes:	12.9	0.1	0.3	1.5	5.1	5.9
	Right-angle crashes:	108.2	0.3	1.4	8.2	33.3	65.1
	Rear-end crashes:	1395.4	5.9	18.0	104.1	348.6	918.8
	Sideswipe crashes:	472.7	1.3	3.8	21.8	72.2	373.7
	Other multiple-vehicle crashes:	92.3	0.5	1.6	9.0	27.1	54.0
	Total multiple-vehicle crashes:	2081.4	8.0	25.0	144.6	486.2	1417.5
Single vehicle	Crashes with animal:	7.0	0.0	0.0	0.1	0.4	6.4
	Crashes with fixed object:	390.4	1.7	4.8	27.6	88.8	267.5
	Crashes with other object:	47.8	0.1	0.3	1.6	5.3	40.6
	Crashes with parked vehicle:	7.8	0.0	0.1	0.5	1.6	5.6
	Other single-vehicle crashes	77.3	0.5	1.5	8.6	27.4	39.2
	Total single-vehicle crashes:	530.3	2.3	6.7	38.4	123.6	359.2
Total crashes:		2611.7	10.3	31.7	183.0	609.8	1776.8

Evaluation Site Summary

General Information

Project description:	ISATe_I-270 from I-370 to Shady Grove Rd_No Build				
Analyst:	TL/PK	Date:	1/31/2022	Area type:	Urban
First year of analysis:	2027	Total length of freeway segments for Study Period (mi)		0.940	
Last year of analysis:	2045				

Site Description

Freeway Segments

Number	Lanes	Study Period Length (mi)	Study Period Description
1	9	0.060	GP MP 9.33 - MP 9.26
2	8	0.360	GP MP 9.26 - MP 8.91
3	8	0.210	GP MP 8.91 - MP 8.70
4	8	0.310	GP MP 8.70 - MP 8.39
5	0	0.000	0
6	0	0.000	0
7	0	0.000	0
8	0	0.000	0
9	0	0.000	0
10	0	0.000	0
11	0	0.000	0
12	0	0.000	0
13	0	0.000	0
14	0	0.000	0
15	0	0.000	0
16	0	0.000	0
17	0	0.000	0
18	0	0.000	0
19	0	0.000	0
20	0	0.000	0

Ramp Segments

Number	Study Period Description	Number	Study Period Description
1	NB CD MP 5.66 - MP 5.59	21	0
2	NB CD MP 5.59 - MP 5.41	22	C7-16 Ramp from I-370 to I
3	NB CD MP 5.41 - MP 4.92	23	G8-17 Ramp from I-270 SB
4	0	24	C2-81 Ramp from I-370 WB
5	NB CD MP 4.92 - MP 4.74	25	C2-82 Ramp from I-370 WB
6	SB CD MP 0.00 - MP 0.26	26	C2-83 Ramp from I-370 WB
7	SB CD MP 0.26 - MP 0.45	27	C3-91 Ramp from I-370 EB
8	SB CD MP 0.45 - MP 0.73	28	C3-92 Ramp from I-370 EB
9	SB CD MP 0.73 - MP 0.82	29	C3-93 Ramp from I-370 EB
10	SB CD MP 0.82 - MP 0.90	30	C7-150 Ramp from I-370 W
11	C1-5 Ramp from I-270 NB t	31	C7-151 Ramp from I-370 W
12	C1-6 Ramp from I-270 to I-	32	0
13	C1-7 Ramp from I-270 to I-	33	0
14	0	34	0
15	0	35	0
16	C4-10 Ramp from I-270 NB	36	0
17	C4-11 Ramp from I-270 NB	37	0
18	G5-12 Ramp from I-270 SB	38	0
19	G5-13 Ramp from I-270 SB	39	0
20	C6-14 Ramp from I-370 EB	40	0

Crossroad Ramp Terminals

Number	Config.	Control	Study Period Description
1	0	0	0
2	0	0	0
3	0	0	0
4	0	0	0
5	0	0	0
6	0	0	0

Output Summary							
General Information							
Project description:	ISATe_I-270 from I-370 to Shady Grove Rd_No Build						
Analyst:	TL/PK	Date:	1/31/2022	Area type:	Urban		
First year of analysis:	2027						
Last year of analysis:	2045						
Crash Data Description							
Freeway segments	Segment crash data available?		No	First year of crash data:			
	Project-level crash data available?		No	Last year of crash data:			
Ramp segments	Segment crash data available?		No	First year of crash data:			
	Project-level crash data available?		No	Last year of crash data:			
Ramp terminals	Segment crash data available?		No	First year of crash data:			
	Project-level crash data available?		No	Last year of crash data:			
Estimated Crash Statistics							
Crashes for Entire Facility		**Total**	**K**	**A**	**B**	**C**	**PDO**
Estimated number of crashes during Study Period, crashes:		1928.0	10.6	31.3	179.6	486.1	1220.3
Estimated average crash freq. during Study Period, crashes/yr:		101.5	0.6	1.6	9.5	25.6	64.2
Crashes by Facility Component	**Nbr. Sites**	**Total**	**K**	**A**	**B**	**C**	**PDO**
Freeway segments, crashes:	4	764.5	3.0	8.3	54.5	172.5	526.2
Ramp segments, crashes:	27	1163.6	7.6	23.1	125.2	313.6	694.2
Crossroad ramp terminals, crashes:	0	0.0	0.0	0.0	0.0	0.0	0.0
Crashes for Entire Facility by Year	**Year**	**Total**	**K**	**A**	**B**	**C**	**PDO**
Estimated number of crashes during the Study Period, crashes:	2027	101.5	0.6	1.6	9.5	25.6	64.2
	2028	101.5	0.6	1.6	9.5	25.6	64.2
	2029	101.5	0.6	1.6	9.5	25.6	64.2
	2030	101.5	0.6	1.6	9.5	25.6	64.2
	2031	101.5	0.6	1.6	9.5	25.6	64.2
	2032	101.5	0.6	1.6	9.5	25.6	64.2
	2033	101.5	0.6	1.6	9.5	25.6	64.2
	2034	101.5	0.6	1.6	9.5	25.6	64.2
	2035	101.5	0.6	1.6	9.5	25.6	64.2
	2036	101.5	0.6	1.6	9.5	25.6	64.2
	2037	101.5	0.6	1.6	9.5	25.6	64.2
	2038	101.5	0.6	1.6	9.5	25.6	64.2
	2039	101.5	0.6	1.6	9.5	25.6	64.2
	2040	101.5	0.6	1.6	9.5	25.6	64.2
	2041	101.5	0.6	1.6	9.5	25.6	64.2
	2042	101.5	0.6	1.6	9.5	25.6	64.2
	2043	101.5	0.6	1.6	9.5	25.6	64.2
	2044	101.5	0.6	1.6	9.5	25.6	64.2
	2045	101.5	0.6	1.6	9.5	25.6	64.2
	2046						
	2047						
	2048						
	2049						
	2050						
Distribution of Crashes for Entire Facility							
Crash Type	**Crash Type Category**	**Estimated Number of Crashes During the Study Period**					
		Total	**K**	**A**	**B**	**C**	**PDO**
Multiple vehicle	Head-on crashes:	13.2	0.1	0.3	1.9	4.9	6.0
	Right-angle crashes:	18.9	0.1	0.4	2.2	6.2	10.0
	Rear-end crashes:	993.7	6.1	18.0	102.6	277.9	589.0
	Sideswipe crashes:	382.7	1.2	3.5	20.4	56.1	301.4
	Other multiple-vehicle crashes:	127.9	1.0	2.9	15.7	40.4	68.0
	Total multiple-vehicle crashes:	1536.4	8.5	25.1	142.8	385.5	974.4
Single vehicle	Crashes with animal:	3.9	0.0	0.0	0.1	0.3	3.4
	Crashes with fixed object:	293.5	1.5	4.5	26.4	72.2	188.9
	Crashes with other object:	27.1	0.1	0.2	1.2	3.5	22.1
	Crashes with parked vehicle:	5.4	0.0	0.1	0.5	1.3	3.4
	Other single-vehicle crashes	61.9	0.5	1.5	8.6	23.3	28.0
	Total single-vehicle crashes:	391.7	2.1	6.2	36.9	100.6	245.9
Total crashes:		1928.0	10.6	31.3	179.6	486.1	1220.3

Evaluation Site Summary

General Information

Project description:	I-270 I-495 Managed Lanes Study_2045 No Build_I-270 from Shady Grove Road to Gude Drive						
Analyst:	TL/PK		Date:	1/31/2022	Area type:	Urban	
First year of analysis:	2027	Total length of freeway segments for Study Period (mi)			0.810		
Last year of analysis:	2045						

Site Description

Freeway Segments

Number	Lanes	Study Period Length (mi)	Study Period Description
1	8	0.130	GP MP 8.39 - MP 8.26
2	9	0.280	GP MP 8.26 - MP 7.98
3	9	0.400	GP MP 7.98 - MP 7.58
4	0	0.000	0
5	0	0.000	0
6	0	0.000	0
7	0	0.000	0
8	0	0.000	0
9	0	0.000	0
10	0	0.000	0
11	0	0.000	0
12	0	0.000	0
13	0	0.000	0
14	0	0.000	0
15	0	0.000	0
16	0	0.000	0
17	0	0.000	0
18	0	0.000	0
19	0	0.000	0
20	0	0.000	0

Ramp Segments

Number	Study Period Description	Number	Study Period Description
1	NB CD MP 4.74 - MP 4.67	21	0
2	NB CD MP 4.67 - MP 4.55	22	0
3	NB CD MP 4.55 - MP 3.92	23	0
4	SB CD MP 0.90 - MP 1.08	24	0
5	SB CD MP 1.08 - MP 1.42	25	0
6	SB CD MP 1.42 - MP 1.68	26	0
7	C2-18 Ramp from Shady G	27	0
8	C3-19 Ramp from Shady G	28	0
9	C4-20 Ramp from I-270 NB	29	0
10	C4-21 Ramp from I-270 NB	30	0
11	C6-22 Ramp from Shady G	31	0
12	C7-23 Ramp from Shady G	32	0
13	C8-24 Ramp from I-270 SB	33	0
14	C9-25 Ramp from I-270 NB	34	0
15	C10-26 Ramp from I-270 S	35	0
16	C10-27 Ramp from I-270 S	36	0
17	0	37	0
18	0	38	0
19	0	39	0
20	0	40	0

Crossroad Ramp Terminals

Number	Config.	Control	Study Period Description
1	D3ex	Signal	Shady Grove Road at I-270 NB
2	D3ex	Signal	Shady Grove Road at I-270 SB
3	D3ex	One stop	Omega Dr Fileds Road at I-270 SB
4	D3ex	Signal	Piccard Dr Redland Blvd at I-270 NB
5	0	0	0
6	0	0	0

Output Summary							
General Information							
Project description:	I-270 I-495 Managed Lanes Study_2045 No Build_I-270 from Shady Grove Road to Gude Drive						
Analyst:	TL/PK	Date:	1/31/2022	Area type:	Urban		
First year of analysis:	2027						
Last year of analysis:	2045						
Crash Data Description							
Freeway segments	Segment crash data available?		No	First year of crash data:			
	Project-level crash data available?		No	Last year of crash data:			
Ramp segments	Segment crash data available?		No	First year of crash data:			
	Project-level crash data available?		No	Last year of crash data:			
Ramp terminals	Segment crash data available?		No	First year of crash data:			
	Project-level crash data available?		No	Last year of crash data:			
Estimated Crash Statistics							
Crashes for Entire Facility		**Total**	**K**	**A**	**B**	**C**	**PDO**
Estimated number of crashes during Study Period, crashes:		2405.1	11.1	42.0	236.1	740.1	1375.9
Estimated average crash freq. during Study Period, crashes/yr:		126.6	0.6	2.2	12.4	39.0	72.4
Crashes by Facility Component	**Nbr. Sites**	**Total**	**K**	**A**	**B**	**C**	**PDO**
Freeway segments, crashes:	3	835.9	2.8	7.7	54.0	188.3	583.2
Ramp segments, crashes:	16	935.2	7.8	23.7	125.3	334.6	443.8
Crossroad ramp terminals, crashes:	4	634.0	0.5	10.6	56.8	217.2	348.9
Crashes for Entire Facility by Year	**Year**	**Total**	**K**	**A**	**B**	**C**	**PDO**
Estimated number of crashes during the Study Period, crashes:	2027	126.6	0.6	2.2	12.4	39.0	72.4
	2028	126.6	0.6	2.2	12.4	39.0	72.4
	2029	126.6	0.6	2.2	12.4	39.0	72.4
	2030	126.6	0.6	2.2	12.4	39.0	72.4
	2031	126.6	0.6	2.2	12.4	39.0	72.4
	2032	126.6	0.6	2.2	12.4	39.0	72.4
	2033	126.6	0.6	2.2	12.4	39.0	72.4
	2034	126.6	0.6	2.2	12.4	39.0	72.4
	2035	126.6	0.6	2.2	12.4	39.0	72.4
	2036	126.6	0.6	2.2	12.4	39.0	72.4
	2037	126.6	0.6	2.2	12.4	39.0	72.4
	2038	126.6	0.6	2.2	12.4	39.0	72.4
	2039	126.6	0.6	2.2	12.4	39.0	72.4
	2040	126.6	0.6	2.2	12.4	39.0	72.4
	2041	126.6	0.6	2.2	12.4	39.0	72.4
	2042	126.6	0.6	2.2	12.4	39.0	72.4
	2043	126.6	0.6	2.2	12.4	39.0	72.4
	2044	126.6	0.6	2.2	12.4	39.0	72.4
	2045	126.6	0.6	2.2	12.4	39.0	72.4
	2046						
	2047						
	2048						
	2049						
	2050						
Distribution of Crashes for Entire Facility							
Crash Type	**Crash Type Category**	**Estimated Number of Crashes During the Study Period**					
		Total	**K**	**A**	**B**	**C**	**PDO**
Multiple vehicle	Head-on crashes:	17.6	0.1	0.5	2.5	7.9	6.6
	Right-angle crashes:	176.1	0.3	3.2	17.6	65.9	89.2
	Rear-end crashes:	1290.7	6.3	24.4	138.0	437.3	684.6
	Sideswipe crashes:	382.8	1.2	3.9	22.9	70.5	284.3
	Other multiple-vehicle crashes:	120.1	1.0	3.0	16.4	46.5	53.2
	Total multiple-vehicle crashes:	1987.3	8.9	35.0	197.4	628.1	1117.8
Single vehicle	Crashes with animal:	4.2	0.0	0.0	0.1	0.3	3.7
	Crashes with fixed object:	311.9	1.6	5.0	27.6	79.8	198.0
	Crashes with other object:	28.0	0.1	0.2	1.2	3.7	22.9
	Crashes with parked vehicle:	6.3	0.0	0.1	0.5	1.5	4.1
	Other single-vehicle crashes	67.5	0.5	1.7	9.3	26.6	29.4
	Total single-vehicle crashes:	417.9	2.2	6.9	38.7	112.0	258.1
	Total crashes:	2405.1	11.1	42.0	236.1	740.1	1375.9

Evaluation Site Summary

General Information

Project description:	ISATe_I-270 from Gude Dr to MD 28_No Build				
Analyst:	TL	Date:	1/31/2022	Area type:	Urban
First year of analysis:	2027	Total length of freeway segments for Study Period (mi)		1.080	
Last year of analysis:	2045				

Site Description

Freeway Segments

Number	Lanes	Study Period Length (mi)	Study Period Description
1	9	0.200	GP MP 7.75 - MP 7.36
2	8	0.020	GP MP 7.36 - MP 7.34
3	8	0.590	GP MP 7.34- MP 6.75
4	8	0.150	GP MP 6.75 - MP 6.60
5	8	0.120	GP MP 6.60 - MP 6.48
6	0	0.000	0
7	0	0.000	0
8	0	0.000	0
9	0	0.000	0
10	0	0.000	0
11	0	0.000	0
12	0	0.000	0
13	0	0.000	0
14	0	0.000	0
15	0	0.000	0
16	0	0.000	0
17	0	0.000	0
18	0	0.000	0
19	0	0.000	0
20	0	0.000	0

Ramp Segments

Number	Study Period Description	Number	Study Period Description
1	NB CD MP 3.92 - MP 3.62	21	0
2	NB CD MP 3.62 - MP 3.03	22	0
3	NB CD MP 3.03 - MP 2.99	23	0
4	NB CD MP 2.99 - MP 2.83	24	0
5	NB CD MP 2.83 - MP 2.82	25	0
6	SB CD MP 1.68 - MP 1.84	26	0
7	SB CD MP 1.84 - MP 2.41	27	0
8	SB CD MP 2.41 - MP 2.52	28	0
9	SB CD MP 2.52 - MP 2.67	29	0
10	SB CD MP 2.67 - MP 2.76	30	0
11	0	31	0
12	0	32	0
13	0	33	0
14	0	34	0
15	0	35	0
16	0	36	0
17	0	37	0
18	0	38	0
19	0	39	0
20	0	40	0

Crossroad Ramp Terminals

Number	Config.	Control	Study Period Description
1	0	0	0
2	0	0	0
3	0	0	0
4	0	0	0
5	0	0	0
6	0	0	0

Output Summary						
General Information						
Project description:	ISATe_I-270 from Gude Dr to MD 28_No Build					
Analyst:	TL	Date:	1/31/2022	Area type:	Urban	
First year of analysis:	2027					
Last year of analysis:	2045					

Crash Data Description				
Freeway segments	Segment crash data available?	No	First year of crash data:	
	Project-level crash data available?	No	Last year of crash data:	
Ramp segments	Segment crash data available?	No	First year of crash data:	
	Project-level crash data available?	No	Last year of crash data:	
Ramp terminals	Segment crash data available?	No	First year of crash data:	
	Project-level crash data available?	No	Last year of crash data:	

Estimated Crash Statistics							
Crashes for Entire Facility		**Total**	**K**	**A**	**B**	**C**	**PDO**
Estimated number of crashes during Study Period, crashes:		2343.2	12.0	35.4	210.3	667.2	1418.2
Estimated average crash freq. during Study Period, crashes/yr:		123.3	0.6	1.9	11.1	35.1	74.6
Crashes by Facility Component	**Nbr. Sites**	**Total**	**K**	**A**	**B**	**C**	**PDO**
Freeway segments, crashes:	5	1251.4	3.8	10.5	75.4	285.9	875.7
Ramp segments, crashes:	10	1091.9	8.2	24.9	134.9	381.4	542.5
Crossroad ramp terminals, crashes:	0	0.0	0.0	0.0	0.0	0.0	0.0
Crashes for Entire Facility by Year	**Year**	**Total**	**K**	**A**	**B**	**C**	**PDO**
Estimated number of crashes during the Study Period, crashes:	2027	123.3	0.6	1.9	11.1	35.1	74.6
	2028	123.3	0.6	1.9	11.1	35.1	74.6
	2029	123.3	0.6	1.9	11.1	35.1	74.6
	2030	123.3	0.6	1.9	11.1	35.1	74.6
	2031	123.3	0.6	1.9	11.1	35.1	74.6
	2032	123.3	0.6	1.9	11.1	35.1	74.6
	2033	123.3	0.6	1.9	11.1	35.1	74.6
	2034	123.3	0.6	1.9	11.1	35.1	74.6
	2035	123.3	0.6	1.9	11.1	35.1	74.6
	2036	123.3	0.6	1.9	11.1	35.1	74.6
	2037	123.3	0.6	1.9	11.1	35.1	74.6
	2038	123.3	0.6	1.9	11.1	35.1	74.6
	2039	123.3	0.6	1.9	11.1	35.1	74.6
	2040	123.3	0.6	1.9	11.1	35.1	74.6
	2041	123.3	0.6	1.9	11.1	35.1	74.6
	2042	123.3	0.6	1.9	11.1	35.1	74.6
	2043	123.3	0.6	1.9	11.1	35.1	74.6
	2044	123.3	0.6	1.9	11.1	35.1	74.6
	2045	123.3	0.6	1.9	11.1	35.1	74.6
	2046						
	2047						
	2048						
	2049						
	2050						

Distribution of Crashes for Entire Facility

Crash Type	**Crash Type Category**	**Estimated Number of Crashes During the Study Period**					
		Total	**K**	**A**	**B**	**C**	**PDO**
Multiple vehicle	Head-on crashes:	15.1	0.1	0.4	2.3	6.8	5.5
	Right-angle crashes:	28.1	0.2	0.5	2.9	9.7	14.9
	Rear-end crashes:	1286.1	7.3	21.7	127.5	400.1	729.4
	Sideswipe crashes:	458.3	1.5	4.3	25.6	82.0	344.9
	Other multiple-vehicle crashes:	141.1	1.1	3.4	18.7	54.4	63.6
	Total multiple-vehicle crashes:	1928.8	10.2	30.2	177.0	553.1	1158.4
Single vehicle	Crashes with animal:	4.8	0.0	0.0	0.1	0.4	4.3
	Crashes with fixed object:	304.7	1.3	3.7	23.9	81.8	193.9
	Crashes with other object:	35.5	0.1	0.2	1.3	4.8	29.1
	Crashes with parked vehicle:	6.0	0.0	0.1	0.5	1.6	3.9
	Other single-vehicle crashes	63.4	0.4	1.2	7.6	25.6	28.7
	Total single-vehicle crashes:	414.4	1.8	5.2	33.3	114.2	259.9
Total crashes:		2343.2	12.0	35.4	210.3	667.2	1418.2

Evaluation Site Summary

General Information

Project description:	I-270 I-495 Managed Lanes Study_2045 No Build_I-270 from MD 28 to MD 189				
Analyst:	TL/PK	Date:	1/31/2022	Area type:	Urban
First year of analysis:	2027	Total length of freeway segments for Study Period (mi)	0.970		
Last year of analysis:	2045				

Site Description

Freeway Segments

Number	Lanes	Study Period Length (mi)	Study Period Description
1	9	0.290	GP MP 6.48 - MP 6.19
2	8	0.100	GP MP 6.19 - MP 6.09
3	8	0.230	GP MP 6.09 - MP 5.85
4	8	0.350	GP MP 5.85 - MP 5.50
5	0	0.000	0
6	0	0.000	0
7	0	0.000	0
8	0	0.000	0
9	0	0.000	0
10	0	0.000	0
11	0	0.000	0
12	0	0.000	0
13	0	0.000	0
14	0	0.000	0
15	0	0.000	0
16	0	0.000	0
17	0	0.000	0
18	0	0.000	0
19	0	0.000	0
20	0	0.000	0

Ramp Segments

Number	Study Period Description	Number	Study Period Description
1	NB CD MP 2.82 - MP 2.77	21	0
2	NB CD MP 2.77 - MP 2.64	22	0
3	NB CD MP 2.64 - MP 2.46	23	0
4	NB CD MP 2.46 - MP 2.28	24	0
5	NB CD MP 2.28 - MP 2.02	25	0
6	NB CD MP 2.02 - MP 1.87	26	0
7	SB CD MP 2.76 - MP 2.89	27	0
8	SB CD MP 2.89 - MP 3.23	28	0
9	SB CD MP 3.23 - MP 3.59	29	0
10	SB CD MP 3.59 - MP 3.76	30	0
11	C1-28 Ramp from I-270 NB	31	0
12	C2-29 Ramp from MD 28 W	32	0
13	C3-30 Ramp from MD 28 E	33	0
14	C4-31.1 Ramp from I-270 N	34	0
15	C4-31.2 Ramp from I-270 N	35	0
16	C5-32.1 Ramp from I-270 S	36	0
17	C5-32.2 Ramp from I-270 S	37	0
18	C6-33 Ramp from MD 28 E	38	0
19	C7-34 Ramp from MD 28 W	39	0
20	0	40	0

Crossroad Ramp Terminals

Number	Config.	Control	Study Period Description
1	D3ex	Signal	MD 28 at I-270 NB
2	D3ex	Signal	MD 28 at I-270 SB
3	0	0	0
4	0	0	0
5	0	0	0
6	0	0	0

Output Summary							
General Information							
Project description:	I-270 I-495 Managed Lanes Study_2045 No Build_I-270 from MD 28 to MD 189						
Analyst:	TL/PK	Date:	1/31/2022	Area type:	Urban		
First year of analysis:	2027						
Last year of analysis:	2045						
Crash Data Description							
Freeway segments	Segment crash data available?		No	First year of crash data:			
	Project-level crash data available?		No	Last year of crash data:			
Ramp segments	Segment crash data available?		No	First year of crash data:			
	Project-level crash data available?		No	Last year of crash data:			
Ramp terminals	Segment crash data available?		No	First year of crash data:			
	Project-level crash data available?		No	Last year of crash data:			
Estimated Crash Statistics							
Crashes for Entire Facility		**Total**	**K**	**A**	**B**	**C**	**PDO**
Estimated number of crashes during Study Period, crashes:		2856.1	14.9	51.4	291.6	854.9	1643.3
Estimated average crash freq. during Study Period, crashes/yr:		150.3	0.8	2.7	15.3	45.0	86.5
Crashes by Facility Component	**Nbr. Sites**	**Total**	**K**	**A**	**B**	**C**	**PDO**
Freeway segments, crashes:	4	1117.0	3.4	9.4	67.6	253.0	783.6
Ramp segments, crashes:	19	1327.2	11.2	33.9	183.9	494.2	604.0
Crossroad ramp terminals, crashes:	2	411.9	0.3	8.0	40.1	107.8	255.8
Crashes for Entire Facility by Year	**Year**	**Total**	**K**	**A**	**B**	**C**	**PDO**
Estimated number of crashes during the Study Period, crashes:	2027	150.3	0.8	2.7	15.3	45.0	86.5
	2028	150.3	0.8	2.7	15.3	45.0	86.5
	2029	150.3	0.8	2.7	15.3	45.0	86.5
	2030	150.3	0.8	2.7	15.3	45.0	86.5
	2031	150.3	0.8	2.7	15.3	45.0	86.5
	2032	150.3	0.8	2.7	15.3	45.0	86.5
	2033	150.3	0.8	2.7	15.3	45.0	86.5
	2034	150.3	0.8	2.7	15.3	45.0	86.5
	2035	150.3	0.8	2.7	15.3	45.0	86.5
	2036	150.3	0.8	2.7	15.3	45.0	86.5
	2037	150.3	0.8	2.7	15.3	45.0	86.5
	2038	150.3	0.8	2.7	15.3	45.0	86.5
	2039	150.3	0.8	2.7	15.3	45.0	86.5
	2040	150.3	0.8	2.7	15.3	45.0	86.5
	2041	150.3	0.8	2.7	15.3	45.0	86.5
	2042	150.3	0.8	2.7	15.3	45.0	86.5
	2043	150.3	0.8	2.7	15.3	45.0	86.5
	2044	150.3	0.8	2.7	15.3	45.0	86.5
	2045	150.3	0.8	2.7	15.3	45.0	86.5
	2046						
	2047						
	2048						
	2049						
	2050						
Distribution of Crashes for Entire Facility							
Crash Type	**Crash Type Category**	**Estimated Number of Crashes During the Study Period**					
		Total	**K**	**A**	**B**	**C**	**PDO**
Multiple vehicle	Head-on crashes:	20.8	0.2	0.6	3.2	9.2	7.5
	Right-angle crashes:	123.9	0.3	2.6	13.5	38.0	69.6
	Rear-end crashes:	1563.8	8.9	31.0	174.9	515.7	833.3
	Sideswipe crashes:	498.4	1.7	5.4	31.2	94.5	365.6
	Other multiple-vehicle crashes:	167.9	1.4	4.4	24.1	67.7	70.3
	Total multiple-vehicle crashes:	2374.9	12.5	43.9	246.9	725.1	1346.5
Single vehicle	Crashes with animal:	5.1	0.0	0.0	0.1	0.4	4.5
	Crashes with fixed object:	358.6	1.7	5.3	32.0	93.0	226.5
	Crashes with other object:	33.8	0.1	0.2	1.4	4.5	27.7
	Crashes with parked vehicle:	7.0	0.0	0.1	0.6	1.8	4.5
	Other single-vehicle crashes	76.7	0.6	1.8	10.6	30.1	33.7
	Total single-vehicle crashes:	481.2	2.4	7.4	44.7	129.8	296.9
Total crashes:		2856.1	14.9	51.4	291.6	854.9	1643.3

Evaluation Site Summary

General Information

Project description:	ISATe_I-270 from MD 189 to Wootton Pkwy_No Build				
Analyst:	TL	Date:	1/31/2022	Area type:	Urban
First year of analysis:	2027	Total length of freeway segments for Study Period (mi)		0.600	
Last year of analysis:	2045				

Site Description

Freeway Segments

Number	Lanes	Study Period Length (mi)	Study Period Description
1	8	0.600	GP MP 5.50 - MP 4.90
2	0	0.000	0
3	0	0.000	0
4	0	0.000	0
5	0	0.000	0
6	0	0.000	0
7	0	0.000	0
8	0	0.000	0
9	0	0.000	0
10	0	0.000	0
11	0	0.000	0
12	0	0.000	0
13	0	0.000	0
14	0	0.000	0
15	0	0.000	0
16	0	0.000	0
17	0	0.000	0
18	0	0.000	0
19	0	0.000	0
20	0	0.000	0

Ramp Segments

Number	Study Period Description	Number	Study Period Description
1	NB CD MP 1.87 - MP 1.74	21	0
2	NB CD MP 1.74 - MP 1.25	22	0
3	SB CD MP 3.76 - MP 4.04	23	0
4	SB CD MP 4.04 - MP 4.33	24	0
5	C1-35 Ramp from I-270 NB	25	0
6	C2-36 Ramp from MD 189	26	0
7	C3-37 Ramp from MD 189	27	0
8	C3-38 Ramp from MD 189	28	0
9	C4-39 Ramp from I-270 NB	29	0
10	C4-40 Ramp from I-270 NB	30	0
11	C5-41 Ramp from I-270 SB	31	0
12	C6-42 Ramp from MD 189	32	0
13	C7-43 Ramp from MD 189	33	0
14	C7-44 Ramp from MD 189	34	0
15	C8-45 Ramp from I-270 SB	35	0
16	C8-46 Ramp from I-270 SB	36	0
17	0	37	0
18	0	38	0
19	0	39	0
20	0	40	0

Crossroad Ramp Terminals

Number	Config.	Control	Study Period Description
1	0	0	0
2	0	0	0
3	0	0	0
4	0	0	0
5	0	0	0
6	0	0	0

Output Summary							
General Information							
Project description:	ISATe_I-270 from MD 189 to Wootton Pkwy_No Build						
Analyst:	TL	Date:	1/31/2022	Area type:	Urban		
First year of analysis:	2027						
Last year of analysis:	2045						
Crash Data Description							
Freeway segments	Segment crash data available?		No	First year of crash data:			
	Project-level crash data available?		No	Last year of crash data:			
Ramp segments	Segment crash data available?		No	First year of crash data:			
	Project-level crash data available?		No	Last year of crash data:			
Ramp terminals	Segment crash data available?		No	First year of crash data:			
	Project-level crash data available?		No	Last year of crash data:			
Estimated Crash Statistics							
Crashes for Entire Facility		**Total**	**K**	**A**	**B**	**C**	**PDO**
Estimated number of crashes during Study Period, crashes:		1757.2	13.3	39.8	223.2	652.2	828.8
Estimated average crash freq. during Study Period, crashes/yr:		92.5	0.7	2.1	11.7	34.3	43.6
Crashes by Facility Component	**Nbr. Sites**	**Total**	**K**	**A**	**B**	**C**	**PDO**
Freeway segments, crashes:	1	572.6	1.7	4.8	34.7	132.4	399.0
Ramp segments, crashes:	16	1184.5	11.5	34.9	188.5	519.8	429.8
Crossroad ramp terminals, crashes:	0	0.0	0.0	0.0	0.0	0.0	0.0
Crashes for Entire Facility by Year	**Year**	**Total**	**K**	**A**	**B**	**C**	**PDO**
Estimated number of crashes during the Study Period, crashes:	2027	92.5	0.7	2.1	11.7	34.3	43.6
	2028	92.5	0.7	2.1	11.7	34.3	43.6
	2029	92.5	0.7	2.1	11.7	34.3	43.6
	2030	92.5	0.7	2.1	11.7	34.3	43.6
	2031	92.5	0.7	2.1	11.7	34.3	43.6
	2032	92.5	0.7	2.1	11.7	34.3	43.6
	2033	92.5	0.7	2.1	11.7	34.3	43.6
	2034	92.5	0.7	2.1	11.7	34.3	43.6
	2035	92.5	0.7	2.1	11.7	34.3	43.6
	2036	92.5	0.7	2.1	11.7	34.3	43.6
	2037	92.5	0.7	2.1	11.7	34.3	43.6
	2038	92.5	0.7	2.1	11.7	34.3	43.6
	2039	92.5	0.7	2.1	11.7	34.3	43.6
	2040	92.5	0.7	2.1	11.7	34.3	43.6
	2041	92.5	0.7	2.1	11.7	34.3	43.6
	2042	92.5	0.7	2.1	11.7	34.3	43.6
	2043	92.5	0.7	2.1	11.7	34.3	43.6
	2044	92.5	0.7	2.1	11.7	34.3	43.6
	2045	92.5	0.7	2.1	11.7	34.3	43.6
	2046						
	2047						
	2048						
	2049						
	2050						
Distribution of Crashes for Entire Facility							
Crash Type	**Crash Type Category**	**Estimated Number of Crashes During the Study Period**					
		Total	**K**	**A**	**B**	**C**	**PDO**
Multiple vehicle	Head-on crashes:	15.5	0.2	0.5	2.8	8.1	3.9
	Right-angle crashes:	18.3	0.1	0.4	2.5	7.9	7.3
	Rear-end crashes:	1004.4	8.5	25.5	142.6	417.6	410.2
	Sideswipe crashes:	316.6	1.6	4.8	27.1	80.3	202.8
	Other multiple-vehicle crashes:	146.1	1.5	4.6	25.1	70.9	44.0
	Total multiple-vehicle crashes:	1500.9	11.9	35.8	200.2	584.8	668.2
Single vehicle	Crashes with animal:	2.7	0.0	0.0	0.1	0.2	2.4
	Crashes with fixed object:	191.8	1.0	2.8	16.6	48.5	122.9
	Crashes with other object:	17.7	0.0	0.1	0.7	2.3	14.6
	Crashes with parked vehicle:	3.6	0.0	0.1	0.3	0.9	2.3
	Other single-vehicle crashes	40.5	0.3	0.9	5.4	15.4	18.5
	Total single-vehicle crashes:	256.3	1.3	4.0	23.0	67.4	160.6
Total crashes:		1757.2	13.3	39.8	223.2	652.2	828.8

Evaluation Site Summary

General Information

Project description:	ISATe_I-270 from Wootton Pkwy to Montrose Rd_No Build				
Analyst:	TL	Date:	1/31/2022	Area type:	Urban
First year of analysis:	2027	Total length of freeway segments for Study Period (mi)		0.760	
Last year of analysis:	2045				

Site Description

Freeway Segments

Number	Lanes	Study Period Length (mi)	Study Period Description
1	8	0.360	GP MP 4.90 - MP 4.54
2	9	0.010	GP MP 4.54 - MP 4.53
3	10	0.390	GP MP 4.53 - MP 4.14
4	0	0.000	0
5	0	0.000	0
6	0	0.000	0
7	0	0.000	0
8	0	0.000	0
9	0	0.000	0
10	0	0.000	0
11	0	0.000	0
12	0	0.000	0
13	0	0.000	0
14	0	0.000	0
15	0	0.000	0
16	0	0.000	0
17	0	0.000	0
18	0	0.000	0
19	0	0.000	0
20	0	0.000	0

Ramp Segments

Number	Study Period Description	Number	Study Period Description
1	NB CD MP 1.25 - MP 0.95	21	0
2	NB CD MP 0.95 - MP 0.70	22	0
3	NB CD MP 0.70 - MP 0.52	23	0
4	NB CD MP 0.52 - MP 0.48	24	0
5	SB CD MP 4.33 - MP 4.62	25	0
6	SB CD MP 4.62 - MP 4.84	26	0
7	SB CD MP 4.84 - MP 5.03	27	0
8	SB CD MP 5.03 - MP 5.09	28	0
9	0	29	0
10	0	30	0
11	0	31	0
12	0	32	0
13	0	33	0
14	0	34	0
15	0	35	0
16	0	36	0
17	0	37	0
18	0	38	0
19	0	39	0
20	0	40	0

Crossroad Ramp Terminals

Number	Config.	Control	Study Period Description
1	0	0	0
2	0	0	0
3	0	0	0
4	0	0	0
5	0	0	0
6	0	0	0

Output Summary							
General Information							
Project description:	ISATe_I-270 from Wootton Pkwy to Montrose Rd_No Build						
Analyst:	TL	Date:	1/31/2022	Area type:	Urban		
First year of analysis:	2027						
Last year of analysis:	2045						
Crash Data Description							
Freeway segments	Segment crash data available?		No	First year of crash data:			
	Project-level crash data available?		No	Last year of crash data:			
Ramp segments	Segment crash data available?		No	First year of crash data:			
	Project-level crash data available?		No	Last year of crash data:			
Ramp terminals	Segment crash data available?		No	First year of crash data:			
	Project-level crash data available?		No	Last year of crash data:			
Estimated Crash Statistics							
Crashes for Entire Facility		**Total**	**K**	**A**	**B**	**C**	**PDO**
Estimated number of crashes during Study Period, crashes:		1978.5	12.8	36.3	212.8	652.3	1064.4
Estimated average crash freq. during Study Period, crashes/yr:		104.1	0.7	1.9	11.2	34.3	56.0
Crashes by Facility Component	**Nbr. Sites**	**Total**	**K**	**A**	**B**	**C**	**PDO**
Freeway segments, crashes:	3	957.9	3.5	8.2	60.4	220.3	665.6
Ramp segments, crashes:	8	1020.6	9.3	28.1	152.4	432.0	398.8
Crossroad ramp terminals, crashes:	0	0.0	0.0	0.0	0.0	0.0	0.0
Crashes for Entire Facility by Year	**Year**	**Total**	**K**	**A**	**B**	**C**	**PDO**
Estimated number of crashes during the Study Period, crashes:	2027	104.1	0.7	1.9	11.2	34.3	56.0
	2028	104.1	0.7	1.9	11.2	34.3	56.0
	2029	104.1	0.7	1.9	11.2	34.3	56.0
	2030	104.1	0.7	1.9	11.2	34.3	56.0
	2031	104.1	0.7	1.9	11.2	34.3	56.0
	2032	104.1	0.7	1.9	11.2	34.3	56.0
	2033	104.1	0.7	1.9	11.2	34.3	56.0
	2034	104.1	0.7	1.9	11.2	34.3	56.0
	2035	104.1	0.7	1.9	11.2	34.3	56.0
	2036	104.1	0.7	1.9	11.2	34.3	56.0
	2037	104.1	0.7	1.9	11.2	34.3	56.0
	2038	104.1	0.7	1.9	11.2	34.3	56.0
	2039	104.1	0.7	1.9	11.2	34.3	56.0
	2040	104.1	0.7	1.9	11.2	34.3	56.0
	2041	104.1	0.7	1.9	11.2	34.3	56.0
	2042	104.1	0.7	1.9	11.2	34.3	56.0
	2043	104.1	0.7	1.9	11.2	34.3	56.0
	2044	104.1	0.7	1.9	11.2	34.3	56.0
	2045	104.1	0.7	1.9	11.2	34.3	56.0
	2046						
	2047						
	2048						
	2049						
	2050						
Distribution of Crashes for Entire Facility							
Crash Type	**Crash Type Category**	**Estimated Number of Crashes During the Study Period**					
		Total	**K**	**A**	**B**	**C**	**PDO**
Multiple vehicle	Head-on crashes:	14.6	0.2	0.4	2.5	7.4	4.2
	Right-angle crashes:	23.3	0.2	0.4	2.8	8.9	11.1
	Rear-end crashes:	1119.3	8.0	23.1	133.6	405.4	549.2
	Sideswipe crashes:	367.7	1.6	4.5	26.2	80.7	254.7
	Other multiple-vehicle crashes:	135.7	1.3	3.9	21.3	61.5	47.8
	Total multiple-vehicle crashes:	1660.7	11.2	32.3	186.4	563.9	866.9
Single vehicle	Crashes with animal:	4.0	0.0	0.0	0.1	0.3	3.5
	Crashes with fixed object:	233.9	1.1	2.9	19.0	63.7	147.2
	Crashes with other object:	26.7	0.1	0.1	1.0	3.6	21.8
	Crashes with parked vehicle:	4.7	0.0	0.1	0.4	1.3	3.0
	Other single-vehicle crashes	48.6	0.3	0.9	5.9	19.5	22.1
	Total single-vehicle crashes:	317.8	1.6	4.0	26.4	88.4	197.5
Total crashes:		1978.5	12.8	36.3	212.8	652.3	1064.4

Evaluation Site Summary

General Information

Project description:	ISATe_I-270 from Montrose Rd to I-270 Y_No Build				
Analyst:	TL	Date:	1/31/2022	Area type:	Urban
First year of analysis:	2027	Total length of freeway segments for Study Period (mi)		1.470	
Last year of analysis:	2045				

Site Description

Freeway Segments

Number	Lanes	Study Period Length (mi)	Study Period Description
1	10	0.460	GP MP 4.14 - MP 3.64
2	10	0.010	GP MP 3.64 - MP 3.60
3	10	0.890	GP MP 3.60 - MP 2.77
4	10	0.110	GP MP 2.77 - MP 2.67
5	0	0.000	0
6	0	0.000	0
7	0	0.000	0
8	0	0.000	0
9	0	0.000	0
10	0	0.000	0
11	0	0.000	0
12	0	0.000	0
13	0	0.000	0
14	0	0.000	0
15	0	0.000	0
16	0	0.000	0
17	0	0.000	0
18	0	0.000	0
19	0	0.000	0
20	0	0.000	0

Ramp Segments

Number	Study Period Description	Number	Study Period Description
1	NB CD MP 0.48 - MP 0.42	21	C10-61 Ramp from I-270 N
2	NB CD MP 0.42 - MP 0.27	22	C2-481 Ramp from Montros
3	NB CD MP 0.27 - MP 0.00	23	0
4	SB CD MP 5.09 - MP 5.13	24	0
5	SB CD MP 5.13 - MP 5.29	25	0
6	SB CD MP 5.29 - MP 5.65	26	0
7	C1-47 Ramp from I-270 NB	27	0
8	C2-48 Ramp from Montrose	28	0
9	C2-49 Ramp from Montrose	29	0
10	C3-50 Ramp from Montrose	30	0
11	C4-51 Ramp from I-270 NB	31	0
12	C5-52 Ramp from I-270 SB	32	0
13	C6-53 Ramp from Montrose	33	0
14	C6-54 Ramp from Montrose	34	0
15	C6-55 Ramp from Montrose	35	0
16	C7-56 Ramp from Montrose	36	0
17	C8-57 Ramp from I-270 SB	37	0
18	C8-58 Ramp from I-270 SB	38	0
19	C9-59 Ramp from Tower O	39	0
20	C10-60 Ramp from I-270 N	40	0

Crossroad Ramp Terminals

Number	Config.	Control	Study Period Description
1	B2	Signal	I-270 NB at Tower Oaks Boulevard
2	0	0	0
3	0	0	0
4	0	0	0
5	0	0	0
6	0	0	0

Output Summary							
General Information							
Project description:	ISATe_I-270 from Montrose Rd to I-270 Y_No Build						
Analyst:	TL	Date:	1/31/2022	Area type:	Urban		
First year of analysis:	2027						
Last year of analysis:	2045						
Crash Data Description							
Freeway segments	Segment crash data available?		No	First year of crash data:			
	Project-level crash data available?		No	Last year of crash data:			
Ramp segments	Segment crash data available?		No	First year of crash data:			
	Project-level crash data available?		No	Last year of crash data:			
Ramp terminals	Segment crash data available?		No	First year of crash data:			
	Project-level crash data available?		No	Last year of crash data:			
Estimated Crash Statistics							
Crashes for Entire Facility		**Total**	**K**	**A**	**B**	**C**	**PDO**
Estimated number of crashes during Study Period, crashes:		2628.7	13.2	37.6	227.7	654.8	1695.4
Estimated average crash freq. during Study Period, crashes/yr:		138.4	0.7	2.0	12.0	34.5	89.2
Crashes by Facility Component	**Nbr. Sites**	**Total**	**K**	**A**	**B**	**C**	**PDO**
Freeway segments, crashes:	4	1917.3	8.1	17.1	126.9	434.3	1330.9
Ramp segments, crashes:	22	534.5	4.8	14.6	76.5	175.5	263.1
Crossroad ramp terminals, crashes:	1	176.9	0.2	5.9	24.2	45.1	101.4
Crashes for Entire Facility by Year	**Year**	**Total**	**K**	**A**	**B**	**C**	**PDO**
Estimated number of crashes during the Study Period, crashes:	2027	138.4	0.7	2.0	12.0	34.5	89.2
	2028	138.4	0.7	2.0	12.0	34.5	89.2
	2029	138.4	0.7	2.0	12.0	34.5	89.2
	2030	138.4	0.7	2.0	12.0	34.5	89.2
	2031	138.4	0.7	2.0	12.0	34.5	89.2
	2032	138.4	0.7	2.0	12.0	34.5	89.2
	2033	138.4	0.7	2.0	12.0	34.5	89.2
	2034	138.4	0.7	2.0	12.0	34.5	89.2
	2035	138.4	0.7	2.0	12.0	34.5	89.2
	2036	138.4	0.7	2.0	12.0	34.5	89.2
	2037	138.4	0.7	2.0	12.0	34.5	89.2
	2038	138.4	0.7	2.0	12.0	34.5	89.2
	2039	138.4	0.7	2.0	12.0	34.5	89.2
	2040	138.4	0.7	2.0	12.0	34.5	89.2
	2041	138.4	0.7	2.0	12.0	34.5	89.2
	2042	138.4	0.7	2.0	12.0	34.5	89.2
	2043	138.4	0.7	2.0	12.0	34.5	89.2
	2044	138.4	0.7	2.0	12.0	34.5	89.2
	2045	138.4	0.7	2.0	12.0	34.5	89.2
	2046						
	2047						
	2048						
	2049						
	2050						
Distribution of Crashes for Entire Facility							
Crash Type	**Crash Type Category**	**Estimated Number of Crashes During the Study Period**					
		Total	**K**	**A**	**B**	**C**	**PDO**
Multiple vehicle	Head-on crashes:	11.8	0.1	0.3	1.8	5.0	4.5
	Right-angle crashes:	75.3	0.3	2.0	9.5	22.2	41.4
	Rear-end crashes:	1374.3	6.9	20.3	122.2	356.1	868.8
	Sideswipe crashes:	448.0	1.5	3.8	24.6	75.5	342.6
	Other multiple-vehicle crashes:	88.7	0.7	1.9	10.9	29.5	45.6
	Total multiple-vehicle crashes:	1998.3	9.4	28.3	169.1	488.4	1303.0
Single vehicle	Crashes with animal:	8.3	0.0	0.0	0.2	0.6	7.4
	Crashes with fixed object:	463.4	2.7	6.7	42.1	120.0	291.9
	Crashes with other object:	55.0	0.1	0.3	2.3	7.4	44.8
	Crashes with parked vehicle:	8.8	0.1	0.1	0.8	2.3	5.6
	Other single-vehicle crashes	94.9	0.8	2.1	13.1	36.2	42.7
	Total single-vehicle crashes:	630.4	3.7	9.3	58.6	166.4	392.4
Total crashes:		2628.7	13.2	37.6	227.7	654.8	1695.4

Evaluation Site Summary

General Information

Project description:	ISATe_I-270 from I-270 Y to Rockledge Blvd_No Build				
Analyst:	TL	Date:	1/31/2022	Area type:	Urban
First year of analysis:	2027	Total length of freeway segments for Study Period (mi)		0.810	
Last year of analysis:	2045				

Site Description

Freeway Segments

Number	Lanes	Study Period Length (mi)	Study Period Description
1	6	0.050	GP MP 2.67 - MP 2.62
2	6	0.050	GP MP 2.62 - MP 2.57
3	6	0.130	GP MP 2.57 - MP 2.45
4	7	0.220	GP MP 2.45 - MP 2.23
5	8	0.090	GP MP 2.23 - MP 2.13
6	7	0.050	GP MP 2.13 - MP 2.08
7	6	0.220	GP MP 2.08 - MP 1.87
8	0	0.000	0
9	0	0.000	0
10	0	0.000	0
11	0	0.000	0
12	0	0.000	0
13	0	0.000	0
14	0	0.000	0
15	0	0.000	0
16	0	0.000	0
17	0	0.000	0
18	0	0.000	0
19	0	0.000	0
20	0	0.000	0

Ramp Segments

Number	Study Period Description	Number	Study Period Description
1	G-62 Ramp from I-270 SB t	21	0
2	H-63 Ramp from I-270 NB t	22	0
3	0	23	0
4	0	24	0
5	0	25	0
6	0	26	0
7	0	27	0
8	0	28	0
9	0	29	0
10	0	30	0
11	0	31	0
12	0	32	0
13	0	33	0
14	0	34	0
15	0	35	0
16	0	36	0
17	0	37	0
18	0	38	0
19	0	39	0
20	0	40	0

Crossroad Ramp Terminals

Number	Config.	Control	Study Period Description
1	0	0	0
2	0	0	0
3	0	0	0
4	0	0	0
5	0	0	0
6	0	0	0

Output Summary							
General Information							
Project description:	ISATe_I-270 from I-270 Y to Rockledge Blvd_No Build						
Analyst:	TL	Date:	1/31/2022	Area type:	Urban		
First year of analysis:	2027						
Last year of analysis:	2045						
Crash Data Description							
Freeway segments	Segment crash data available?		No	First year of crash data:			
	Project-level crash data available?		No	Last year of crash data:			
Ramp segments	Segment crash data available?		No	First year of crash data:			
	Project-level crash data available?		No	Last year of crash data:			
Ramp terminals	Segment crash data available?		No	First year of crash data:			
	Project-level crash data available?		No	Last year of crash data:			
Estimated Crash Statistics							
Crashes for Entire Facility		**Total**	**K**	**A**	**B**	**C**	**PDO**
Estimated number of crashes during Study Period, crashes:		620.6	2.8	7.9	48.6	140.5	420.9
Estimated average crash freq. during Study Period, crashes/yr:		32.7	0.1	0.4	2.6	7.4	22.2
Crashes by Facility Component	**Nbr. Sites**	**Total**	**K**	**A**	**B**	**C**	**PDO**
Freeway segments, crashes:	7	548.1	1.9	5.2	37.0	120.5	383.6
Ramp segments, crashes:	2	72.6	0.9	2.7	11.7	20.0	37.3
Crossroad ramp terminals, crashes:	0	0.0	0.0	0.0	0.0	0.0	0.0
Crashes for Entire Facility by Year	**Year**	**Total**	**K**	**A**	**B**	**C**	**PDO**
Estimated number of crashes during the Study Period, crashes:	2027	32.7	0.1	0.4	2.6	7.4	22.2
	2028	32.7	0.1	0.4	2.6	7.4	22.2
	2029	32.7	0.1	0.4	2.6	7.4	22.2
	2030	32.7	0.1	0.4	2.6	7.4	22.2
	2031	32.7	0.1	0.4	2.6	7.4	22.2
	2032	32.7	0.1	0.4	2.6	7.4	22.2
	2033	32.7	0.1	0.4	2.6	7.4	22.2
	2034	32.7	0.1	0.4	2.6	7.4	22.2
	2035	32.7	0.1	0.4	2.6	7.4	22.2
	2036	32.7	0.1	0.4	2.6	7.4	22.2
	2037	32.7	0.1	0.4	2.6	7.4	22.2
	2038	32.7	0.1	0.4	2.6	7.4	22.2
	2039	32.7	0.1	0.4	2.6	7.4	22.2
	2040	32.7	0.1	0.4	2.6	7.4	22.2
	2041	32.7	0.1	0.4	2.6	7.4	22.2
	2042	32.7	0.1	0.4	2.6	7.4	22.2
	2043	32.7	0.1	0.4	2.6	7.4	22.2
	2044	32.7	0.1	0.4	2.6	7.4	22.2
	2045	32.7	0.1	0.4	2.6	7.4	22.2
	2046						
	2047						
	2048						
	2049						
	2050						
Distribution of Crashes for Entire Facility							
Crash Type	**Crash Type Category**	**Estimated Number of Crashes During the Study Period**					
		Total	**K**	**A**	**B**	**C**	**PDO**
Multiple vehicle	Head-on crashes:	1.5	0.0	0.0	0.2	0.6	0.6
	Right-angle crashes:	8.2	0.0	0.1	0.7	2.4	5.0
	Rear-end crashes:	281.5	1.0	2.8	19.6	63.3	194.8
	Sideswipe crashes:	94.6	0.2	0.7	4.8	15.6	73.2
	Other multiple-vehicle crashes:	10.3	0.0	0.1	0.8	2.5	6.8
	Total multiple-vehicle crashes:	396.1	1.4	3.7	26.2	84.4	280.4
Single vehicle	Crashes with animal:	2.8	0.0	0.0	0.1	0.2	2.5
	Crashes with fixed object:	165.6	1.0	3.0	16.1	40.3	105.1
	Crashes with other object:	19.1	0.0	0.1	0.8	2.3	15.8
	Crashes with parked vehicle:	2.9	0.0	0.1	0.3	0.7	1.9
	Other single-vehicle crashes	34.2	0.3	1.0	5.2	12.5	15.1
	Total single-vehicle crashes:	224.6	1.4	4.1	22.5	56.0	140.5
Total crashes:		620.6	2.8	7.9	48.6	140.5	420.9

Evaluation Site Summary

General Information

Project description:	I-270 I-495 Managed Lanes Study_2045 No Build_I-270 from MD 187 to Rockledge Boulevard				
Analyst:	TL/PK	Date:	1/31/2022	Area type:	Urban
First year of analysis:	2027	Total length of freeway segments for Study Period (mi)		0.290	
Last year of analysis:	2045				

Site Description

Freeway Segments

Number	Lanes	Study Period Length (mi)	Study Period Description
1	6	0.180	GP MP 1.87 - MP 1.69
2	6	0.010	GP MP 1.69 - MP 1.68
3	6	0.100	GP MP 1.68 - MP 1.58
4	0	0.000	0
5	0	0.000	0
6	0	0.000	0
7	0	0.000	0
8	0	0.000	0
9	0	0.000	0
10	0	0.000	0
11	0	0.000	0
12	0	0.000	0
13	0	0.000	0
14	0	0.000	0
15	0	0.000	0
16	0	0.000	0
17	0	0.000	0
18	0	0.000	0
19	0	0.000	0
20	0	0.000	0

Ramp Segments

Number	Study Period Description	Number	Study Period Description
1	G2-66 Ramp from I-270 NB	21	0
2	G4-67 Ramp from Rockled	22	0
3	G3-64 Ramp from I-270 SB	23	0
4	G8-65 Ramp from Rockled	24	0
5	0	25	0
6	0	26	0
7	0	27	0
8	0	28	0
9	0	29	0
10	0	30	0
11	0	31	0
12	0	32	0
13	0	33	0
14	0	34	0
15	0	35	0
16	0	36	0
17	0	37	0
18	0	38	0
19	0	39	0
20	0	40	0

Crossroad Ramp Terminals

Number	Config.	Control	Study Period Description
1	D4	Signal	Rockledge Boulevard at I-270 WB
2	D4	Signal	Rockledge Boulevard at I-270 EB
3	0	0	0
4	0	0	0
5	0	0	0
6	0	0	0

Output Summary						
General Information						
Project description:	I-270 I-495 Managed Lanes Study_2045 No Build_I-270 from MD 187 to Rockledge Boulevard					
Analyst:	TL/PK	Date:	1/31/2022	Area type:	Urban	
First year of analysis:	2027					
Last year of analysis:	2045					
Crash Data Description						
Freeway segments	Segment crash data available?	No	First year of crash data:			
	Project-level crash data available?	No	Last year of crash data:			
Ramp segments	Segment crash data available?	No	First year of crash data:			
	Project-level crash data available?	No	Last year of crash data:			
Ramp terminals	Segment crash data available?	No	First year of crash data:			
	Project-level crash data available?	No	Last year of crash data:			

Estimated Crash Statistics							
Crashes for Entire Facility		**Total**	**K**	**A**	**B**	**C**	**PDO**
Estimated number of crashes during Study Period, crashes:		610.4	1.4	7.1	40.7	152.9	408.4
Estimated average crash freq. during Study Period, crashes/yr:		32.1	0.1	0.4	2.1	8.0	21.5
Crashes by Facility Component	**Nbr. Sites**	**Total**	**K**	**A**	**B**	**C**	**PDO**
Freeway segments, crashes:	3	163.6	0.6	1.6	11.2	35.0	115.2
Ramp segments, crashes:	4	70.5	0.6	1.9	8.1	19.9	39.8
Crossroad ramp terminals, crashes:	2	376.3	0.1	3.6	21.3	98.0	253.4
Crashes for Entire Facility by Year	**Year**	**Total**	**K**	**A**	**B**	**C**	**PDO**
Estimated number of crashes during the Study Period, crashes:	2027	32.1	0.1	0.4	2.1	8.0	21.5
	2028	32.1	0.1	0.4	2.1	8.0	21.5
	2029	32.1	0.1	0.4	2.1	8.0	21.5
	2030	32.1	0.1	0.4	2.1	8.0	21.5
	2031	32.1	0.1	0.4	2.1	8.0	21.5
	2032	32.1	0.1	0.4	2.1	8.0	21.5
	2033	32.1	0.1	0.4	2.1	8.0	21.5
	2034	32.1	0.1	0.4	2.1	8.0	21.5
	2035	32.1	0.1	0.4	2.1	8.0	21.5
	2036	32.1	0.1	0.4	2.1	8.0	21.5
	2037	32.1	0.1	0.4	2.1	8.0	21.5
	2038	32.1	0.1	0.4	2.1	8.0	21.5
	2039	32.1	0.1	0.4	2.1	8.0	21.5
	2040	32.1	0.1	0.4	2.1	8.0	21.5
	2041	32.1	0.1	0.4	2.1	8.0	21.5
	2042	32.1	0.1	0.4	2.1	8.0	21.5
	2043	32.1	0.1	0.4	2.1	8.0	21.5
	2044	32.1	0.1	0.4	2.1	8.0	21.5
	2045	32.1	0.1	0.4	2.1	8.0	21.5
	2046						
	2047						
	2048						
	2049						
	2050						

Distribution of Crashes for Entire Facility

Crash Type	**Crash Type Category**	**Estimated Number of Crashes During the Study Period**					
		Total	**K**	**A**	**B**	**C**	**PDO**
Multiple vehicle	Head-on crashes:	3.7	0.0	0.1	0.3	1.3	2.0
	Right-angle crashes:	90.2	0.0	1.0	5.8	26.2	57.3
	Rear-end crashes:	307.4	0.5	3.3	20.3	82.2	201.2
	Sideswipe crashes:	75.6	0.1	0.4	2.5	9.1	63.4
	Other multiple-vehicle crashes:	11.1	0.0	0.1	0.6	2.1	8.2
	Total multiple-vehicle crashes:	488.0	0.7	4.8	29.5	120.9	332.1
Single vehicle	Crashes with animal:	1.0	0.0	0.0	0.0	0.1	0.9
	Crashes with fixed object:	92.1	0.5	1.6	7.9	22.4	59.6
	Crashes with other object:	7.3	0.0	0.1	0.3	0.9	6.0
	Crashes with parked vehicle:	1.9	0.0	0.0	0.1	0.4	1.3
	Other single-vehicle crashes	20.1	0.2	0.6	2.8	8.0	8.6
	Total single-vehicle crashes:	122.4	0.7	2.3	11.2	31.9	76.3
Total crashes:		610.4	1.4	7.1	40.7	152.9	408.4

Evaluation Site Summary

General Information

Project description:	I-270 I-495 Managed Lanes Study_2045 No Build_I-270 from I-495 to MD 187				
Analyst:	TL/PK	Date:	1/31/2022	Area type:	Urban
First year of analysis:	2027	Total length of freeway segments for Study Period (mi)	1.410		
Last year of analysis:	2045				

Site Description

Freeway Segments

Number	Lanes	Study Period Length (mi)	Study Period Description
1	6	0.150	GP MP 1.58 - MP 1.43
2	6	0.030	GP MP 1.43 - MP 1.40
3	6	1.090	GP MP 1.40 - MP 0.31
4	5	0.050	GP MP 0.22 - MP 0.17
5	6	0.090	GP MP 0.31 - MP 0.22
6	0	0.000	0
7	0	0.000	0
8	0	0.000	0
9	0	0.000	0
10	0	0.000	0
11	0	0.000	0
12	0	0.000	0
13	0	0.000	0
14	0	0.000	0
15	0	0.000	0
16	0	0.000	0
17	0	0.000	0
18	0	0.000	0
19	0	0.000	0
20	0	0.000	0

Ramp Segments

Number	Study Period Description	Number	Study Period Description
1	G2-68 Ramp from I-270 NB	21	0
2	G2-69 Ramp from I-270 NB	22	0
3	0	23	0
4	0	24	0
5	G4-72 Ramp from MD 187	25	0
6	G6-73 Ramp from I-270 SB	26	0
7	G6-74 Ramp from I-270 SB	27	0
8	0	28	0
9	G8-76 Ramp from MD 187	29	0
10	G8-77 Ramp from MD 187	30	0
11	G4-72.1 Ramp from MD 18	31	0
12	0	32	0
13	0	33	0
14	0	34	0
15	0	35	0
16	0	36	0
17	0	37	0
18	0	38	0
19	0	39	0
20	0	40	0

Crossroad Ramp Terminals

Number	Config.	Control	Study Period Description
1	D4	Signal	MD 187 at I-270 WB
2	D4	Signal	MD 187 at I-270 EB
3	0	0	0
4	0	0	0
5	0	0	0
6	0	0	0

Output Summary							
General Information							
Project description:	I-270 I-495 Managed Lanes Study_2045 No Build_I-270 from I-495 to MD 187						
Analyst:	TL/PK	Date:	1/31/2022	Area type:	Urban		
First year of analysis:	2027						
Last year of analysis:	2045						
Crash Data Description							
Freeway segments	Segment crash data available?		No	First year of crash data:			
	Project-level crash data available?		No	Last year of crash data:			
Ramp segments	Segment crash data available?		No	First year of crash data:			
	Project-level crash data available?		No	Last year of crash data:			
Ramp terminals	Segment crash data available?		No	First year of crash data:			
	Project-level crash data available?		No	Last year of crash data:			
Estimated Crash Statistics							
Crashes for Entire Facility		**Total**	**K**	**A**	**B**	**C**	**PDO**
Estimated number of crashes during Study Period, crashes:		1529.1	4.0	16.7	109.5	452.2	946.7
Estimated average crash freq. during Study Period, crashes/yr:		80.5	0.2	0.9	5.8	23.8	49.8
Crashes by Facility Component	**Nbr. Sites**	**Total**	**K**	**A**	**B**	**C**	**PDO**
Freeway segments, crashes:	5	901.0	3.2	8.7	60.8	205.4	623.0
Ramp segments, crashes:	8	65.3	0.6	1.7	7.3	19.1	36.7
Crossroad ramp terminals, crashes:	2	562.9	0.3	6.3	41.4	227.8	287.0
Crashes for Entire Facility by Year	**Year**	**Total**	**K**	**A**	**B**	**C**	**PDO**
Estimated number of crashes during the Study Period, crashes:	2027	80.5	0.2	0.9	5.8	23.8	49.8
	2028	80.5	0.2	0.9	5.8	23.8	49.8
	2029	80.5	0.2	0.9	5.8	23.8	49.8
	2030	80.5	0.2	0.9	5.8	23.8	49.8
	2031	80.5	0.2	0.9	5.8	23.8	49.8
	2032	80.5	0.2	0.9	5.8	23.8	49.8
	2033	80.5	0.2	0.9	5.8	23.8	49.8
	2034	80.5	0.2	0.9	5.8	23.8	49.8
	2035	80.5	0.2	0.9	5.8	23.8	49.8
	2036	80.5	0.2	0.9	5.8	23.8	49.8
	2037	80.5	0.2	0.9	5.8	23.8	49.8
	2038	80.5	0.2	0.9	5.8	23.8	49.8
	2039	80.5	0.2	0.9	5.8	23.8	49.8
	2040	80.5	0.2	0.9	5.8	23.8	49.8
	2041	80.5	0.2	0.9	5.8	23.8	49.8
	2042	80.5	0.2	0.9	5.8	23.8	49.8
	2043	80.5	0.2	0.9	5.8	23.8	49.8
	2044	80.5	0.2	0.9	5.8	23.8	49.8
	2045	80.5	0.2	0.9	5.8	23.8	49.8
	2046						
	2047						
	2048						
	2049						
	2050						

Distribution of Crashes for Entire Facility

Crash Type	**Crash Type Category**	**Estimated Number of Crashes During the Study Period**					
		Total	**K**	**A**	**B**	**C**	**PDO**
Multiple vehicle	Head-on crashes:	7.7	0.0	0.1	0.8	3.7	3.0
	Right-angle crashes:	149.5	0.1	1.8	12.1	63.6	71.9
	Rear-end crashes:	819.6	2.0	8.9	60.1	257.2	491.4
	Sideswipe crashes:	223.7	0.4	1.5	10.0	37.4	174.4
	Other multiple-vehicle crashes:	27.1	0.1	0.3	1.9	7.0	17.9
	Total multiple-vehicle crashes:	1227.6	2.7	12.6	84.9	368.9	758.5
Single vehicle	Crashes with animal:	3.5	0.0	0.0	0.1	0.2	3.2
	Crashes with fixed object:	219.7	1.0	2.9	17.4	58.6	139.8
	Crashes with other object:	26.8	0.1	0.2	1.0	3.5	22.0
	Crashes with parked vehicle:	4.6	0.0	0.1	0.3	1.2	3.0
	Other single-vehicle crashes	47.0	0.3	1.0	5.7	19.8	20.2
	Total single-vehicle crashes:	301.5	1.3	4.1	24.6	83.3	188.2
Total crashes:		1529.1	4.0	16.7	109.5	452.2	946.7

Evaluation Site Summary

General Information

Project description:	I-270 I-495 Managed Lanes Study_2045 No Build_I-270 Y from Westlake Terrace to I-270				
Analyst:	TL/PK	Date:	1/31/2022	Area type:	Urban
First year of analysis:	2027	Total length of freeway segments for Study Period (mi)		0.720	
Last year of analysis:	2045				

Site Description

Freeway Segments

Number	Lanes	Study Period Length (mi)	Study Period Description
1	8	0.100	GP MP 2.00 - MP 2.10
2	8	0.390	GP MP 1.61 -MP 2.00
3	8	0.160	GP MP 1.44 - MP 1.61
4	9	0.070	GP MP 1.37 - MP 1.44
5	0	0.000	0
6	0	0.000	0
7	0	0.000	0
8	0	0.000	0
9	0	0.000	0
10	0	0.000	0
11	0	0.000	0
12	0	0.000	0
13	0	0.000	0
14	0	0.000	0
15	0	0.000	0
16	0	0.000	0
17	0	0.000	0
18	0	0.000	0
19	0	0.000	0
20	0	0.000	0

Ramp Segments

Number	Study Period Description	Number	Study Period Description
1	H3-66 Ramp from Westlake	21	0
2	H5-67 Ramp from I-270 Y S	22	0
3	H-68 Ramp from I-270 SB t	23	0
4	0	24	0
5	0	25	0
6	0	26	0
7	0	27	0
8	0	28	0
9	0	29	0
10	0	30	0
11	0	31	0
12	0	32	0
13	0	33	0
14	0	34	0
15	0	35	0
16	0	36	0
17	0	37	0
18	0	38	0
19	0	39	0
20	0	40	0

Crossroad Ramp Terminals

Number	Config.	Control	Study Period Description
1	A2	Signal	Westlake Terrace at I-270Y
2	0	0	0
3	0	0	0
4	0	0	0
5	0	0	0
6	0	0	0

Output Summary							
General Information							
Project description:	I-270 I-495 Managed Lanes Study_2045 No Build_I-270 Y from Westlake Terrace to I-270						
Analyst:	TL/PK	Date:	1/31/2022	Area type:	Urban		
First year of analysis:	2027						
Last year of analysis:	2045						
Crash Data Description							
Freeway segments	Segment crash data available?		No	First year of crash data:			
	Project-level crash data available?		No	Last year of crash data:			
Ramp segments	Segment crash data available?		No	First year of crash data:			
	Project-level crash data available?		No	Last year of crash data:			
Ramp terminals	Segment crash data available?		No	First year of crash data:			
	Project-level crash data available?		No	Last year of crash data:			
Estimated Crash Statistics							
Crashes for Entire Facility		**Total**	**K**	**A**	**B**	**C**	**PDO**
Estimated number of crashes during Study Period, crashes:		864.7	3.7	9.0	64.6	203.6	583.8
Estimated average crash freq. during Study Period, crashes/yr:		45.5	0.2	0.5	3.4	10.7	30.7
Crashes by Facility Component	**Nbr. Sites**	**Total**	**K**	**A**	**B**	**C**	**PDO**
Freeway segments, crashes:	4	741.7	3.4	7.1	53.0	163.7	514.6
Ramp segments, crashes:	3	27.4	0.3	0.8	4.4	7.4	14.5
Crossroad ramp terminals, crashes:	1	95.7	0.0	1.2	7.2	32.5	54.8
Crashes for Entire Facility by Year	**Year**	**Total**	**K**	**A**	**B**	**C**	**PDO**
Estimated number of crashes during the Study Period, crashes:	2027	45.5	0.2	0.5	3.4	10.7	30.7
	2028	45.5	0.2	0.5	3.4	10.7	30.7
	2029	45.5	0.2	0.5	3.4	10.7	30.7
	2030	45.5	0.2	0.5	3.4	10.7	30.7
	2031	45.5	0.2	0.5	3.4	10.7	30.7
	2032	45.5	0.2	0.5	3.4	10.7	30.7
	2033	45.5	0.2	0.5	3.4	10.7	30.7
	2034	45.5	0.2	0.5	3.4	10.7	30.7
	2035	45.5	0.2	0.5	3.4	10.7	30.7
	2036	45.5	0.2	0.5	3.4	10.7	30.7
	2037	45.5	0.2	0.5	3.4	10.7	30.7
	2038	45.5	0.2	0.5	3.4	10.7	30.7
	2039	45.5	0.2	0.5	3.4	10.7	30.7
	2040	45.5	0.2	0.5	3.4	10.7	30.7
	2041	45.5	0.2	0.5	3.4	10.7	30.7
	2042	45.5	0.2	0.5	3.4	10.7	30.7
	2043	45.5	0.2	0.5	3.4	10.7	30.7
	2044	45.5	0.2	0.5	3.4	10.7	30.7
	2045	45.5	0.2	0.5	3.4	10.7	30.7
	2046						
	2047						
	2048						
	2049						
	2050						
Distribution of Crashes for Entire Facility							
Crash Type	**Crash Type Category**	**Estimated Number of Crashes During the Study Period**					
		Total	**K**	**A**	**B**	**C**	**PDO**
Multiple vehicle	Head-on crashes:	2.8	0.0	0.1	0.4	1.3	1.1
	Right-angle crashes:	34.7	0.1	0.5	3.0	12.0	19.2
	Rear-end crashes:	443.2	1.9	4.6	33.3	108.5	294.9
	Sideswipe crashes:	147.2	0.4	1.0	7.2	22.6	116.0
	Other multiple-vehicle crashes:	15.7	0.1	0.2	1.3	3.9	10.2
	Total multiple-vehicle crashes:	643.6	2.5	6.3	45.1	148.2	441.5
Single vehicle	Crashes with animal:	2.9	0.0	0.0	0.1	0.2	2.6
	Crashes with fixed object:	159.3	0.9	2.0	13.9	39.5	103.1
	Crashes with other object:	23.0	0.1	0.1	0.9	2.7	19.3
	Crashes with parked vehicle:	3.4	0.0	0.0	0.3	0.8	2.3
	Other single-vehicle crashes	32.5	0.3	0.6	4.3	12.2	15.0
	Total single-vehicle crashes:	221.1	1.2	2.8	19.4	55.4	142.4
Total crashes:		864.7	3.7	9.0	64.6	203.6	583.8

Evaluation Site Summary

General Information

Project description:	I-270 I-495 Managed Lanes Study_2045 No Build_I-270 Y from Democracy Blvd to Westlake Terra				
Analyst:	TL/PK	Date:	1/31/2022	Area type:	Urban
First year of analysis:	2027	Total length of freeway segments for Study Period (mi)		0.340	
Last year of analysis:	2045				

Site Description

Freeway Segments

Number	Lanes	Study Period Length (mi)	Study Period Description
1	9	0.150	GP MP 1.22 - MP 1.37
2	7	0.190	GP MP 1.03 - MP 1.22
3	0	0.000	0
4	0	0.000	0
5	0	0.000	0
6	0	0.000	0
7	0	0.000	0
8	0	0.000	0
9	0	0.000	0
10	0	0.000	0
11	0	0.000	0
12	0	0.000	0
13	0	0.000	0
14	0	0.000	0
15	0	0.000	0
16	0	0.000	0
17	0	0.000	0
18	0	0.000	0
19	0	0.000	0
20	0	0.000	0

Ramp Segments

Number	Study Period Description	Number	Study Period Description
1	G1-1 Ramp from I-270 Y N	21	0
2	G2-2 Ramp from Democrac	22	0
3	G3-3 Ramp from Democrac	23	0
4	G4-4 Ramp from I-270 Y N	24	0
5	G4-5 Ramp from I-270 Y N	25	0
6	G6-6 Ramp from Democrac	26	0
7	G7-7 Ramp from Democrac	27	0
8	G7-8 Ramp from Democrac	28	0
9	G8-9 Ramp from I-270 Y S	29	0
10	0	30	0
11	G8-10 Ramp from I-270 Y S	31	0
12	0	32	0
13	0	33	0
14	0	34	0
15	0	35	0
16	0	36	0
17	0	37	0
18	0	38	0
19	0	39	0
20	0	40	0

Crossroad Ramp Terminals

Number	Config.	Control	Study Period Description
1	D3ex	Signal	Democracy Boulevard at I-270Y NB
2	D4	Signal	Democracy Boulevard at I-270Y SB
3	0	0	0
4	0	0	0
5	0	0	0
6	0	0	0

Output Summary							
General Information							
Project description:	I-270 I-495 Managed Lanes Study_2045 No Build_I-270 Y from Democracy Blvd to Westlake Terra						
Analyst:	TL/PK	Date:	1/31/2022	Area type:	Urban		
First year of analysis:	2027						
Last year of analysis:	2045						
Crash Data Description							
Freeway segments	Segment crash data available?		No	First year of crash data:			
	Project-level crash data available?		No	Last year of crash data:			
Ramp segments	Segment crash data available?		No	First year of crash data:			
	Project-level crash data available?		No	Last year of crash data:			
Ramp terminals	Segment crash data available?		No	First year of crash data:			
	Project-level crash data available?		No	Last year of crash data:			
Estimated Crash Statistics							
Crashes for Entire Facility		**Total**	**K**	**A**	**B**	**C**	**PDO**
Estimated number of crashes during Study Period, crashes:		757.3	2.0	9.1	57.7	223.7	464.9
Estimated average crash freq. during Study Period, crashes/yr:		39.9	0.1	0.5	3.0	11.8	24.5
Crashes by Facility Component	**Nbr. Sites**	**Total**	**K**	**A**	**B**	**C**	**PDO**
Freeway segments, crashes:	2	296.2	1.3	3.0	21.5	65.1	205.3
Ramp segments, crashes:	10	49.3	0.5	1.6	7.8	12.1	27.3
Crossroad ramp terminals, crashes:	2	411.9	0.2	4.5	28.4	146.4	232.4
Crashes for Entire Facility by Year	**Year**	**Total**	**K**	**A**	**B**	**C**	**PDO**
Estimated number of crashes during the Study Period, crashes:	2027	39.9	0.1	0.5	3.0	11.8	24.5
	2028	39.9	0.1	0.5	3.0	11.8	24.5
	2029	39.9	0.1	0.5	3.0	11.8	24.5
	2030	39.9	0.1	0.5	3.0	11.8	24.5
	2031	39.9	0.1	0.5	3.0	11.8	24.5
	2032	39.9	0.1	0.5	3.0	11.8	24.5
	2033	39.9	0.1	0.5	3.0	11.8	24.5
	2034	39.9	0.1	0.5	3.0	11.8	24.5
	2035	39.9	0.1	0.5	3.0	11.8	24.5
	2036	39.9	0.1	0.5	3.0	11.8	24.5
	2037	39.9	0.1	0.5	3.0	11.8	24.5
	2038	39.9	0.1	0.5	3.0	11.8	24.5
	2039	39.9	0.1	0.5	3.0	11.8	24.5
	2040	39.9	0.1	0.5	3.0	11.8	24.5
	2041	39.9	0.1	0.5	3.0	11.8	24.5
	2042	39.9	0.1	0.5	3.0	11.8	24.5
	2043	39.9	0.1	0.5	3.0	11.8	24.5
	2044	39.9	0.1	0.5	3.0	11.8	24.5
	2045	39.9	0.1	0.5	3.0	11.8	24.5
	2046						
	2047						
	2048						
	2049						
	2050						
Distribution of Crashes for Entire Facility							
Crash Type	**Crash Type Category**	**Estimated Number of Crashes During the Study Period**					
		Total	**K**	**A**	**B**	**C**	**PDO**
Multiple vehicle	Head-on crashes:	4.5	0.0	0.1	0.4	2.0	2.0
	Right-angle crashes:	102.7	0.1	1.2	7.9	39.5	54.1
	Rear-end crashes:	400.5	0.8	4.5	30.1	128.0	237.0
	Sideswipe crashes:	99.9	0.2	0.6	4.1	14.9	80.1
	Other multiple-vehicle crashes:	12.8	0.0	0.1	0.9	2.9	8.8
	Total multiple-vehicle crashes:	620.4	1.2	6.6	43.4	187.3	382.0
Single vehicle	Crashes with animal:	1.2	0.0	0.0	0.0	0.1	1.1
	Crashes with fixed object:	101.0	0.6	1.8	10.1	25.3	63.3
	Crashes with other object:	9.8	0.0	0.1	0.5	1.3	8.0
	Crashes with parked vehicle:	2.3	0.0	0.0	0.2	0.5	1.5
	Other single-vehicle crashes	22.7	0.2	0.6	3.5	9.2	9.2
	Total single-vehicle crashes:	136.9	0.8	2.5	14.2	36.4	83.0
Total crashes:		757.3	2.0	9.1	57.7	223.7	464.9

Evaluation Site Summary

General Information

Project description:	Phase 1 South I-270Y from I-495 to Democracy Boulevard				
Analyst:	PK	Date:	1/31/2022	Area type:	Urban
First year of analysis:	2027	Total length of freeway segments for Study Period (mi)		1.030	
Last year of analysis:	2045				

Site Description

Freeway Segments

Number	Lanes	Study Period Length (mi)	Study Period Description
1	6	0.060	GP MP 0.00 - MP 0.06
2	6	0.370	GP MP 0.06 - MP 0.43
3	7	0.390	GP MP 0.43 - MP 0.82
4	7	0.040	GP MP 0.82 - MP 0.86
5	7	0.130	GP MP 0.86 - MP 0.99
6	7	0.040	GP MP 0.99 - MP 1.03
7	0	0.000	0
8	0	0.000	0
9	0	0.000	0
10	0	0.000	0
11	0	0.000	0
12	0	0.000	0
13	0	0.000	0
14	0	0.000	0
15	0	0.000	0
16	0	0.000	0
17	0	0.000	0
18	0	0.000	0
19	0	0.000	0
20	0	0.000	0

Ramp Segments

Number	Study Period Description	Number	Study Period Description
1	0	21	0
2	0	22	0
3	0	23	0
4	0	24	0
5	0	25	0
6	0	26	0
7	0	27	0
8	0	28	0
9	0	29	0
10	0	30	0
11	0	31	0
12	0	32	0
13	0	33	0
14	0	34	0
15	0	35	0
16	0	36	0
17	0	37	0
18	0	38	0
19	0	39	0
20	0	40	0

Crossroad Ramp Terminals

Number	Config.	Control	Study Period Description
1	0	0	0
2	0	0	0
3	0	0	0
4	0	0	0
5	0	0	0
6	0	0	0

Output Summary							
General Information							
Project description:	Phase 1 South I-270Y from I-495 to Democracy Boulevard						
Analyst:	PK	Date:	1/31/2022	Area type:	Urban		
First year of analysis:	2027						
Last year of analysis:	2045						
Crash Data Description							
Freeway segments	Segment crash data available?		No	First year of crash data:			
	Project-level crash data available?		No	Last year of crash data:			
Ramp segments	Segment crash data available?		No	First year of crash data:			
	Project-level crash data available?		No	Last year of crash data:			
Ramp terminals	Segment crash data available?		No	First year of crash data:			
	Project-level crash data available?		No	Last year of crash data:			
Estimated Crash Statistics							
Crashes for Entire Facility		**Total**	**K**	**A**	**B**	**C**	**PDO**
Estimated number of crashes during Study Period, crashes:		855.6	2.5	7.1	50.5	197.4	598.0
Estimated average crash freq. during Study Period, crashes/yr:		45.0	0.1	0.4	2.7	10.4	31.5
Crashes by Facility Component	**Nbr. Sites**	**Total**	**K**	**A**	**B**	**C**	**PDO**
Freeway segments, crashes:	6	855.6	2.5	7.1	50.5	197.4	598.0
Ramp segments, crashes:	0	0.0	0.0	0.0	0.0	0.0	0.0
Crossroad ramp terminals, crashes:	0	0.0	0.0	0.0	0.0	0.0	0.0
Crashes for Entire Facility by Year	**Year**	**Total**	**K**	**A**	**B**	**C**	**PDO**
Estimated number of crashes during the Study Period, crashes:	2027	45.0	0.1	0.4	2.7	10.4	31.5
	2028	45.0	0.1	0.4	2.7	10.4	31.5
	2029	45.0	0.1	0.4	2.7	10.4	31.5
	2030	45.0	0.1	0.4	2.7	10.4	31.5
	2031	45.0	0.1	0.4	2.7	10.4	31.5
	2032	45.0	0.1	0.4	2.7	10.4	31.5
	2033	45.0	0.1	0.4	2.7	10.4	31.5
	2034	45.0	0.1	0.4	2.7	10.4	31.5
	2035	45.0	0.1	0.4	2.7	10.4	31.5
	2036	45.0	0.1	0.4	2.7	10.4	31.5
	2037	45.0	0.1	0.4	2.7	10.4	31.5
	2038	45.0	0.1	0.4	2.7	10.4	31.5
	2039	45.0	0.1	0.4	2.7	10.4	31.5
	2040	45.0	0.1	0.4	2.7	10.4	31.5
	2041	45.0	0.1	0.4	2.7	10.4	31.5
	2042	45.0	0.1	0.4	2.7	10.4	31.5
	2043	45.0	0.1	0.4	2.7	10.4	31.5
	2044	45.0	0.1	0.4	2.7	10.4	31.5
	2045	45.0	0.1	0.4	2.7	10.4	31.5
	2046						
	2047						
	2048						
	2049						
	2050						
Distribution of Crashes for Entire Facility							
Crash Type	**Crash Type Category**	**Estimated Number of Crashes During the Study Period**					
		Total	**K**	**A**	**B**	**C**	**PDO**
Multiple vehicle	Head-on crashes:	2.4	0.0	0.0	0.3	1.1	0.9
	Right-angle crashes:	14.0	0.1	0.2	1.1	4.2	8.5
	Rear-end crashes:	468.3	1.4	3.9	27.9	109.0	326.2
	Sideswipe crashes:	159.6	0.3	1.0	6.8	26.6	124.9
	Other multiple-vehicle crashes:	16.5	0.1	0.2	1.1	4.3	10.9
	Total multiple-vehicle crashes:	660.8	1.9	5.2	37.1	145.2	471.5
Single vehicle	Crashes with animal:	2.9	0.0	0.0	0.0	0.2	2.7
	Crashes with fixed object:	140.2	0.5	1.3	9.6	37.6	91.1
	Crashes with other object:	21.6	0.0	0.1	0.7	2.8	17.9
	Crashes with parked vehicle:	2.8	0.0	0.0	0.2	0.7	1.8
	Other single-vehicle crashes	27.4	0.1	0.4	2.8	11.0	13.0
	Total single-vehicle crashes:	194.8	0.7	1.9	13.4	52.3	126.6
	Total crashes:	855.6	2.5	7.1	50.5	197.4	598.0

Evaluation Site Summary

General Information

Project description:	Southern Study Limit to George Washington Memorial Parkway Interchange				
Analyst:	PK	Date:	1/31/2022	Area type:	Urban
First year of analysis:	2027	Total length of freeway segments for Study Period (mi)		1.350	
Last year of analysis:	2045				

Site Description

Freeway Segments

Number	Lanes	Study Period Length (mi)	Study Period Description
1	10	0.250	GP MP 13.72 - MP 13.97
2	9	0.010	GP MP 13.97 - MP 13.97
3	9	0.180	GP MP 13.97 - MP 14.15
4	8	0.020	GP MP 14.15 - MP 14.17
5	8	0.190	GP MP 14.15 - MP 14.17
6	9	0.180	GP MP 14.36 - MP 14.54
7	9	0.200	GP MP 14.54 - MP 14.74
8	9	0.110	GP MP 14.74 - MP 14.85
9	8	0.050	GP MP 14.85 - MP 14.90
10	8	0.080	GP MP 14.90 - MP 14.98
11	8	0.080	GP MP 14.98 - MP 15.06
12	0	0.000	0
13	0	0.000	0
14	0	0.000	0
15	0	0.000	0
16	0	0.000	0
17	0	0.000	0
18	0	0.000	0
19	0	0.000	0
20	0	0.000	0

Ramp Segments

Number	Study Period Description	Number	Study Period Description
1	SB CD-1 I-495 SB	21	0
2	SB CD-2 I-495 SB	22	0
3	Ramp from VA 193 WB to I	23	0
4	Ramp from VA 193 WB to I	24	0
5	Ramp from VA 193 WB to I	25	0
6	Ramp from I-495 SB C-D R	26	0
7	Ramp from I-495 SB to VA	27	0
8	Ramp from I-495 NB to VA	28	0
9	Ramp from I-495 SB GP to	29	0
10	0	30	0
11	0	31	0
12	0	32	0
13	0	33	0
14	0	34	0
15	0	35	0
16	0	36	0
17	0	37	0
18	0	38	0
19	0	39	0
20	0	40	0

Crossroad Ramp Terminals

Number	Config.	Control	Study Period Description
1	D4	Signal	VA 193 at I-495 NB
2	D4	Signal	VA 193 at I-495 SB
3	0	0	0
4	0	0	0
5	0	0	0
6	0	0	0

Output Summary							
General Information							
Project description:	Southern Study Limit to George Washington Memorial Parkway Interchange						
Analyst:	PK	Date:	1/31/2022	Area type:	Urban		
First year of analysis:	2027						
Last year of analysis:	2045						
Crash Data Description							
Freeway segments	Segment crash data available?		No	First year of crash data:			
	Project-level crash data available?		No	Last year of crash data:			
Ramp segments	Segment crash data available?		No	First year of crash data:			
	Project-level crash data available?		No	Last year of crash data:			
Ramp terminals	Segment crash data available?		No	First year of crash data:			
	Project-level crash data available?		No	Last year of crash data:			
Estimated Crash Statistics							
Crashes for Entire Facility		**Total**	**K**	**A**	**B**	**C**	**PDO**
Estimated number of crashes during Study Period, crashes:		2070.9	7.2	22.6	126.4	456.2	1458.4
Estimated average crash freq. during Study Period, crashes/yr:		109.0	0.4	1.2	6.7	24.0	76.8
Crashes by Facility Component	**Nbr. Sites**	**Total**	**K**	**A**	**B**	**C**	**PDO**
Freeway segments, crashes:	11	1597.2	6.5	17.9	98.8	336.9	1137.0
Ramp segments, crashes:	9	107.5	0.7	2.1	10.4	24.6	69.8
Crossroad ramp terminals, crashes:	2	366.3	0.1	2.6	17.2	94.7	251.6
Crashes for Entire Facility by Year	**Year**	**Total**	**K**	**A**	**B**	**C**	**PDO**
Estimated number of crashes during the Study Period, crashes:	2027	109.0	0.4	1.2	6.7	24.0	76.8
	2028	109.0	0.4	1.2	6.7	24.0	76.8
	2029	109.0	0.4	1.2	6.7	24.0	76.8
	2030	109.0	0.4	1.2	6.7	24.0	76.8
	2031	109.0	0.4	1.2	6.7	24.0	76.8
	2032	109.0	0.4	1.2	6.7	24.0	76.8
	2033	109.0	0.4	1.2	6.7	24.0	76.8
	2034	109.0	0.4	1.2	6.7	24.0	76.8
	2035	109.0	0.4	1.2	6.7	24.0	76.8
	2036	109.0	0.4	1.2	6.7	24.0	76.8
	2037	109.0	0.4	1.2	6.7	24.0	76.8
	2038	109.0	0.4	1.2	6.7	24.0	76.8
	2039	109.0	0.4	1.2	6.7	24.0	76.8
	2040	109.0	0.4	1.2	6.7	24.0	76.8
	2041	109.0	0.4	1.2	6.7	24.0	76.8
	2042	109.0	0.4	1.2	6.7	24.0	76.8
	2043	109.0	0.4	1.2	6.7	24.0	76.8
	2044	109.0	0.4	1.2	6.7	24.0	76.8
	2045	109.0	0.4	1.2	6.7	24.0	76.8
	2046						
	2047						
	2048						
	2049						
	2050						
Distribution of Crashes for Entire Facility							
Crash Type	**Crash Type Category**	**Estimated Number of Crashes During the Study Period**					
		Total	**K**	**A**	**B**	**C**	**PDO**
Multiple vehicle	Head-on crashes:	7.9	0.0	0.1	0.8	3.0	3.8
	Right-angle crashes:	112.0	0.2	1.1	6.6	31.9	72.2
	Rear-end crashes:	1136.5	4.0	12.5	70.7	260.6	788.7
	Sideswipe crashes:	368.9	1.0	2.8	15.3	53.3	296.5
	Other multiple-vehicle crashes:	42.4	0.2	0.5	2.9	9.5	29.3
	Total multiple-vehicle crashes:	1667.6	5.3	17.0	96.4	358.3	1190.6
Single vehicle	Crashes with animal:	4.8	0.0	0.0	0.1	0.2	4.5
	Crashes with fixed object:	294.0	1.4	4.0	21.4	69.3	198.0
	Crashes with other object:	41.3	0.1	0.3	1.5	5.0	34.6
	Crashes with parked vehicle:	5.4	0.0	0.1	0.4	1.2	3.7
	Other single-vehicle crashes	57.7	0.4	1.3	6.8	22.2	27.0
	Total single-vehicle crashes:	403.3	1.9	5.6	30.1	97.9	267.8
Total crashes:		2070.9	7.2	22.6	126.4	456.2	1458.4

Evaluation Site Summary

General Information

Project description:	GWMP Interchange to Maryland Stateline				
Analyst:	PK	Date:	1/31/2022	Area type:	Urban
First year of analysis:	2027	Total length of freeway segments for Study Period (mi)		0.330	
Last year of analysis:	2045				

Site Description

Freeway Segments

Number	Lanes	Study Period Length (mi)	Study Period Description
1	8	0.090	Ramp from I-495 NB ML to GWMP EB
2	10	0.070	GP MP 15.15 - MP 15.22
3	8	0.170	GP MP 15.22 - MP 15.39
4	0	0.000	0
5	0	0.000	0
6	0	0.000	0
7	0	0.000	0
8	0	0.000	0
9	0	0.000	0
10	0	0.000	0
11	0	0.000	0
12	0	0.000	0
13	0	0.000	0
14	0	0.000	0
15	0	0.000	0
16	0	0.000	0
17	0	0.000	0
18	0	0.000	0
19	0	0.000	0
20	0	0.000	0

Ramp Segments

Number	Study Period Description	Number	Study Period Description
1	Ramp from I-495 SB to GW	21	0
2	Ramp from I-495 NB ML ar	22	0
3	Ramp from I-495 NB to GW	23	0
4	Ramp from GWMP WB to I	24	0
5	Ramp from GWMP WB to I	25	0
6	Ramp from GWMP WB to I	26	0
7	Ramp from I-495 NB ML to	27	0
8	Ramp from GWMP WB to I	28	0
9	0	29	0
10	0	30	0
11	0	31	0
12	0	32	0
13	0	33	0
14	0	34	0
15	0	35	0
16	0	36	0
17	0	37	0
18	0	38	0
19	0	39	0
20	0	40	0

Crossroad Ramp Terminals

Number	Config.	Control	Study Period Description
1	0	0	0
2	0	0	0
3	0	0	0
4	0	0	0
5	0	0	0
6	0	0	0

Output Summary							
General Information							
Project description:	GWMP Interchange to Maryland Stateline						
Analyst:	PK	Date:	1/31/2022	Area type:	Urban		
First year of analysis:	2027						
Last year of analysis:	2045						
Crash Data Description							
Freeway segments	Segment crash data available?		No	First year of crash data:			
	Project-level crash data available?		No	Last year of crash data:			
Ramp segments	Segment crash data available?		No	First year of crash data:			
	Project-level crash data available?		No	Last year of crash data:			
Ramp terminals	Segment crash data available?		No	First year of crash data:			
	Project-level crash data available?		No	Last year of crash data:			
Estimated Crash Statistics							
Crashes for Entire Facility		**Total**	**K**	**A**	**B**	**C**	**PDO**
Estimated number of crashes during Study Period, crashes:		921.0	3.7	10.7	62.1	189.6	654.8
Estimated average crash freq. during Study Period, crashes/yr:		48.5	0.2	0.6	3.3	10.0	34.5
Crashes by Facility Component	**Nbr. Sites**	**Total**	**K**	**A**	**B**	**C**	**PDO**
Freeway segments, crashes:	3	728.7	2.4	6.6	37.2	143.9	538.6
Ramp segments, crashes:	8	192.4	1.4	4.1	25.0	45.8	116.2
Crossroad ramp terminals, crashes:	0	0.0	0.0	0.0	0.0	0.0	0.0
Crashes for Entire Facility by Year	**Year**	**Total**	**K**	**A**	**B**	**C**	**PDO**
Estimated number of crashes during the Study Period, crashes:	2027	48.5	0.2	0.6	3.3	10.0	34.5
	2028	48.5	0.2	0.6	3.3	10.0	34.5
	2029	48.5	0.2	0.6	3.3	10.0	34.5
	2030	48.5	0.2	0.6	3.3	10.0	34.5
	2031	48.5	0.2	0.6	3.3	10.0	34.5
	2032	48.5	0.2	0.6	3.3	10.0	34.5
	2033	48.5	0.2	0.6	3.3	10.0	34.5
	2034	48.5	0.2	0.6	3.3	10.0	34.5
	2035	48.5	0.2	0.6	3.3	10.0	34.5
	2036	48.5	0.2	0.6	3.3	10.0	34.5
	2037	48.5	0.2	0.6	3.3	10.0	34.5
	2038	48.5	0.2	0.6	3.3	10.0	34.5
	2039	48.5	0.2	0.6	3.3	10.0	34.5
	2040	48.5	0.2	0.6	3.3	10.0	34.5
	2041	48.5	0.2	0.6	3.3	10.0	34.5
	2042	48.5	0.2	0.6	3.3	10.0	34.5
	2043	48.5	0.2	0.6	3.3	10.0	34.5
	2044	48.5	0.2	0.6	3.3	10.0	34.5
	2045	48.5	0.2	0.6	3.3	10.0	34.5
	2046						
	2047						
	2048						
	2049						
	2050						
Distribution of Crashes for Entire Facility							
Crash Type	**Crash Type Category**	**Estimated Number of Crashes During the Study Period**					
		Total	**K**	**A**	**B**	**C**	**PDO**
Multiple vehicle	Head-on crashes:	3.8	0.0	0.1	0.5	1.5	1.7
	Right-angle crashes:	14.4	0.1	0.2	1.1	4.1	8.9
	Rear-end crashes:	529.8	2.2	6.2	35.7	114.2	371.5
	Sideswipe crashes:	189.9	0.5	1.4	7.9	26.1	154.0
	Other multiple-vehicle crashes:	32.4	0.2	0.6	3.3	8.2	20.1
	Total multiple-vehicle crashes:	770.3	2.9	8.5	48.6	154.1	556.2
Single vehicle	Crashes with animal:	1.9	0.0	0.0	0.0	0.1	1.7
	Crashes with fixed object:	111.5	0.6	1.6	9.7	25.6	73.9
	Crashes with other object:	12.2	0.0	0.1	0.4	1.3	10.4
	Crashes with parked vehicle:	2.2	0.0	0.0	0.2	0.5	1.5
	Other single-vehicle crashes	23.0	0.2	0.5	3.2	8.0	11.1
	Total single-vehicle crashes:	150.7	0.8	2.3	13.5	35.6	98.6
Total crashes:		921.0	3.7	10.7	62.1	189.6	654.8

Evaluation Site Summary

General Information

Project description:	I-270 I-495 Managed Lanes Study_2045 No Build_ I-495 from Virginia Stateline to MD 190				
Analyst:	PK	Date:	1/31/2022	Area type:	Urban
First year of analysis:	2027	Total length of freeway segments for Study Period (mi)		2.370	
Last year of analysis:	2045				

Site Description

Freeway Segments

Number	Lanes	Study Period Length (mi)	Study Period Description
1	10	0.330	GP MP 0.00 - MP 0.33
2	9	0.020	GP MP 0.33 - MP 0.35
3	8	0.130	GP MP 0.35 - MP 0.48
4	9	0.120	GP MP 0.48 - MP 0.60
5	9	0.260	GP MP 0.60 - MP 0.86
6	8	0.630	GP MP 0.86 - MP 1.49
7	9	0.340	GP MP 1.49 - MP 1.83
8	8	0.070	GP MP 1.83 - MP 1.90
9	8	0.290	GP MP 1.90 - MP 2.19
10	9	0.110	GP MP 2.19 - MP 2.30
11	10	0.070	GP MP 2.30 - MP 2.37
12	0	0.000	0
13	0	0.000	0
14	0	0.000	0
15	0	0.000	0
16	0	0.000	0
17	0	0.000	0
18	0	0.000	0
19	0	0.000	0
20	0	0.000	0

Ramp Segments

Number	Study Period Description	Number	Study Period Description
1	G1-1 I-495 NB to CBP WB	21	0
2	G3-1 CBP EB to I-495 NB	22	0
3	G4-1 I-495 NB to CBP EB	23	0
4	G4-2 I-495 NB to CBP EB	24	0
5	G6-1 CBP EB to I-495 SB	25	0
6	G7-1 CBP WB to I-495 SB	26	0
7	G7-2 CBP Wb to I-495 SB	27	0
8	G8-1 I-495 SB to CBP WB	28	0
9	0	29	0
10	0	30	0
11	0	31	0
12	0	32	0
13	0	33	0
14	0	34	0
15	0	35	0
16	0	36	0
17	0	37	0
18	0	38	0
19	0	39	0
20	0	40	0

Crossroad Ramp Terminals

Number	Config.	Control	Study Period Description
1	0	0	0
2	0	0	0
3	0	0	0
4	0	0	0
5	0	0	0
6	0	0	0

Output Summary						
General Information						
Project description:	I-270 I-495 Managed Lanes Study_2045 No Build_ I-495 from Virginia Stateline to MD 190					
Analyst:	PK	Date:	1/31/2022	Area type:	Urban	
First year of analysis:	2027					
Last year of analysis:	2045					
Crash Data Description						
Freeway segments	Segment crash data available?		No	First year of crash data:		
	Project-level crash data available?		No	Last year of crash data:		
Ramp segments	Segment crash data available?		No	First year of crash data:		
	Project-level crash data available?		No	Last year of crash data:		
Ramp terminals	Segment crash data available?		No	First year of crash data:		
	Project-level crash data available?		No	Last year of crash data:		

Estimated Crash Statistics							
Crashes for Entire Facility		**Total**	**K**	**A**	**B**	**C**	**PDO**
Estimated number of crashes during Study Period, crashes:		4730.2	12.8	35.7	248.6	1025.4	3407.7
Estimated average crash freq. during Study Period, crashes/yr:		249.0	0.7	1.9	13.1	54.0	179.4
Crashes by Facility Component	**Nbr. Sites**	**Total**	**K**	**A**	**B**	**C**	**PDO**
Freeway segments, crashes:	11	4658.2	12.0	33.4	236.2	1007.5	3369.0
Ramp segments, crashes:	8	72.1	0.8	2.3	12.3	17.9	38.7
Crossroad ramp terminals, crashes:	0	0.0	0.0	0.0	0.0	0.0	0.0
Crashes for Entire Facility by Year	**Year**	**Total**	**K**	**A**	**B**	**C**	**PDO**
Estimated number of crashes during the Study Period, crashes:	2027	249.0	0.7	1.9	13.1	54.0	179.4
	2028	249.0	0.7	1.9	13.1	54.0	179.4
	2029	249.0	0.7	1.9	13.1	54.0	179.4
	2030	249.0	0.7	1.9	13.1	54.0	179.4
	2031	249.0	0.7	1.9	13.1	54.0	179.4
	2032	249.0	0.7	1.9	13.1	54.0	179.4
	2033	249.0	0.7	1.9	13.1	54.0	179.4
	2034	249.0	0.7	1.9	13.1	54.0	179.4
	2035	249.0	0.7	1.9	13.1	54.0	179.4
	2036	249.0	0.7	1.9	13.1	54.0	179.4
	2037	249.0	0.7	1.9	13.1	54.0	179.4
	2038	249.0	0.7	1.9	13.1	54.0	179.4
	2039	249.0	0.7	1.9	13.1	54.0	179.4
	2040	249.0	0.7	1.9	13.1	54.0	179.4
	2041	249.0	0.7	1.9	13.1	54.0	179.4
	2042	249.0	0.7	1.9	13.1	54.0	179.4
	2043	249.0	0.7	1.9	13.1	54.0	179.4
	2044	249.0	0.7	1.9	13.1	54.0	179.4
	2045	249.0	0.7	1.9	13.1	54.0	179.4
	2046						
	2047						
	2048						
	2049						
	2050						

Distribution of Crashes for Entire Facility

Crash Type	**Crash Type Category**	**Estimated Number of Crashes During the Study Period**					
		Total	**K**	**A**	**B**	**C**	**PDO**
Multiple vehicle	Head-on crashes:	14.1	0.1	0.2	1.5	6.4	6.0
	Right-angle crashes:	82.3	0.3	0.8	5.6	24.0	51.6
	Rear-end crashes:	2766.4	7.3	20.2	142.2	598.1	1998.7
	Sideswipe crashes:	947.2	1.7	4.9	34.3	144.6	761.7
	Other multiple-vehicle crashes:	102.6	0.3	0.9	6.2	25.0	70.2
	Total multiple-vehicle crashes:	3912.8	9.7	27.0	189.9	798.0	2888.2
Single vehicle	Crashes with animal:	12.2	0.0	0.0	0.2	0.8	11.2
	Crashes with fixed object:	592.1	2.2	6.3	42.4	164.3	376.9
	Crashes with other object:	83.6	0.1	0.4	2.7	11.4	68.9
	Crashes with parked vehicle:	11.7	0.0	0.1	0.8	3.2	7.6
	Other single-vehicle crashes	117.8	0.7	1.9	12.5	47.7	55.0
	Total single-vehicle crashes:	817.5	3.1	8.8	58.7	227.4	519.5
	Total crashes:	4730.2	12.8	35.7	248.6	1025.4	3407.7

Evaluation Site Summary

General Information

Project description:	I-270 I-495 Managed Lanes Study_2045 No Build_ I-495 Between MD 190 and I-270Y						
Analyst:	PK		Date:	1/31/2022	Area type:	Urban	
First year of analysis:	2027	Total length of freeway segments for Study Period (mi)			1.290		
Last year of analysis:	2045						

Site Description

Freeway Segments

Number	Lanes	Study Period Length (mi)	Study Period Description
1	10	0.200	GP MP 2.37 - MP 2.57
2	10	0.030	GP MP 2.57 - MP 2.60
3	10	0.650	GP MP 2.60 - MP 3.25
4	10	0.410	GP MP 3.25 - MP 3.66
5	0	0.000	0
6	0	0.000	0
7	0	0.000	0
8	0	0.000	0
9	0	0.000	0
10	0	0.000	0
11	0	0.000	0
12	0	0.000	0
13	0	0.000	0
14	0	0.000	0
15	0	0.000	0
16	0	0.000	0
17	0	0.000	0
18	0	0.000	0
19	0	0.000	0
20	0	0.000	0

Ramp Segments

Number	Study Period Description	Number	Study Period Description
1	GA-1 Ramp from CBP to I-	21	0
2	GB-1 Ramp from CBP to M	22	0
3	G1-1 Ramp from I-495 NB	23	0
4	G4-1 Ramp from I-495 NB	24	0
5	G4-2 Ramp from I-495 NB	25	0
6	G4-3 Ramp from I-495 NB	26	0
7	G2-1 Ramp from MD 190 W	27	0
8	G5-1 Ramp from Ramp 11	28	0
9	0	29	0
10	G7-1 Ramp 7 to Ramp 11	30	0
11	G10-1 Ramp from I-495 SB	31	0
12	SB CD-5 from MD 190 to I-	32	0
13	SB CD-6 from MD 190 to I-	33	0
14	SB CD-1 from I-495 SB to (	34	0
15	SB CD-2 from I-495 SB MD	35	0
16	SB CD-3 Ramp from I-495	36	0
17	SB CD-4 from I-495 SB MD	37	0
18	G2-2 Ramp from MD 190 W	38	0
19	G6-1 Ramp from MD 190 E	39	0
20	0	40	0

Crossroad Ramp Terminals

Number	Config.	Control	Study Period Description
1	D3en	Signal	MD 190 at I-495 NB
2	D3ex	Signal	MD 190 at I-495 SB
3	0	0	0
4	0	0	0
5	0	0	0
6	0	0	0

Output Summary							
General Information							
Project description:	I-270 I-495 Managed Lanes Study_2045 No Build_ I-495 Between MD 190 and I-270Y						
Analyst:	PK	Date:	1/31/2022	Area type:	Urban		
First year of analysis:	2027						
Last year of analysis:	2045						
Crash Data Description							
Freeway segments	Segment crash data available?		No	First year of crash data:			
	Project-level crash data available?		No	Last year of crash data:			
Ramp segments	Segment crash data available?		No	First year of crash data:			
	Project-level crash data available?		No	Last year of crash data:			
Ramp terminals	Segment crash data available?		No	First year of crash data:			
	Project-level crash data available?		No	Last year of crash data:			
Estimated Crash Statistics							
Crashes for Entire Facility		**Total**	**K**	**A**	**B**	**C**	**PDO**
Estimated number of crashes during Study Period, crashes:		2554.3	7.5	22.7	151.4	575.8	1796.9
Estimated average crash freq. during Study Period, crashes/yr:		134.4	0.4	1.2	8.0	30.3	94.6
Crashes by Facility Component	**Nbr. Sites**	**Total**	**K**	**A**	**B**	**C**	**PDO**
Freeway segments, crashes:	4	2244.4	5.9	16.4	116.8	493.0	1612.3
Ramp segments, crashes:	18	179.0	1.6	4.7	25.4	41.3	106.0
Crossroad ramp terminals, crashes:	2	130.9	0.1	1.5	9.2	41.5	78.6
Crashes for Entire Facility by Year	**Year**	**Total**	**K**	**A**	**B**	**C**	**PDO**
Estimated number of crashes during the Study Period, crashes:	2027	134.4	0.4	1.2	8.0	30.3	94.6
	2028	134.4	0.4	1.2	8.0	30.3	94.6
	2029	134.4	0.4	1.2	8.0	30.3	94.6
	2030	134.4	0.4	1.2	8.0	30.3	94.6
	2031	134.4	0.4	1.2	8.0	30.3	94.6
	2032	134.4	0.4	1.2	8.0	30.3	94.6
	2033	134.4	0.4	1.2	8.0	30.3	94.6
	2034	134.4	0.4	1.2	8.0	30.3	94.6
	2035	134.4	0.4	1.2	8.0	30.3	94.6
	2036	134.4	0.4	1.2	8.0	30.3	94.6
	2037	134.4	0.4	1.2	8.0	30.3	94.6
	2038	134.4	0.4	1.2	8.0	30.3	94.6
	2039	134.4	0.4	1.2	8.0	30.3	94.6
	2040	134.4	0.4	1.2	8.0	30.3	94.6
	2041	134.4	0.4	1.2	8.0	30.3	94.6
	2042	134.4	0.4	1.2	8.0	30.3	94.6
	2043	134.4	0.4	1.2	8.0	30.3	94.6
	2044	134.4	0.4	1.2	8.0	30.3	94.6
	2045	134.4	0.4	1.2	8.0	30.3	94.6
	2046						
	2047						
	2048						
	2049						
	2050						

Distribution of Crashes for Entire Facility

Crash Type	**Crash Type Category**	**Estimated Number of Crashes During the Study Period**					
		Total	**K**	**A**	**B**	**C**	**PDO**
Multiple vehicle	Head-on crashes:	8.3	0.0	0.1	0.9	3.6	3.7
	Right-angle crashes:	69.4	0.2	0.8	5.1	21.9	41.5
	Rear-end crashes:	1403.3	3.7	11.3	78.1	316.4	993.8
	Sideswipe crashes:	473.7	0.9	2.5	17.7	71.9	380.7
	Other multiple-vehicle crashes:	56.4	0.2	0.6	3.9	13.6	38.2
	Total multiple-vehicle crashes:	2011.1	5.0	15.3	105.6	427.3	1457.9
Single vehicle	Crashes with animal:	7.0	0.0	0.0	0.1	0.5	6.3
	Crashes with fixed object:	397.6	1.8	5.3	32.9	106.6	250.9
	Crashes with other object:	50.0	0.1	0.3	1.8	6.9	40.9
	Crashes with parked vehicle:	7.5	0.0	0.1	0.6	2.0	4.7
	Other single-vehicle crashes	81.2	0.6	1.7	10.4	32.5	36.1
	Total single-vehicle crashes:	543.2	2.5	7.4	45.8	148.5	339.0
	Total crashes:	2554.3	7.5	22.7	151.4	575.8	1796.9

Evaluation Site Summary

General Information

Project description:	I-270 I-495 Managed Lanes Study_2045 No Build_I-495 Between I-270Y to MD 187						
Analyst:	PK		Date:	1/31/2022	Area type:		Urban
First year of analysis:	2027	Total length of freeway segments for Study Period (mi)			1.950		
Last year of analysis:	2045						

Site Description

Freeway Segments

Number	Lanes	Study Period Length (mi)	Study Period Description
1	6	0.050	GP MP 3.66 - MP 3.71
2	6	1.220	GP MP 3.71 - MP 4.93
3	6	0.470	GP MP 4.93 - MP 5.40
4	6	0.060	GP MP 5.40 - MP 5.46
5	6	0.150	GP MP 5.46 - MP 5.61
6	0	0.000	0
7	0	0.000	0
8	0	0.000	0
9	0	0.000	0
10	0	0.000	0
11	0	0.000	0
12	0	0.000	0
13	0	0.000	0
14	0	0.000	0
15	0	0.000	0
16	0	0.000	0
17	0	0.000	0
18	0	0.000	0
19	0	0.000	0
20	0	0.000	0

Ramp Segments

Number	Study Period Description	Number	Study Period Description
1	G2-1 Ramp from I-495 WB	21	0
2	0	22	0
3	0	23	0
4	G4-2 Ramp from MD 187 N	24	0
5	G6-1 Ramp from I-495 EB t	25	0
6	0	26	0
7	0	27	0
8	G8-2 Ramp from MD 187 to	28	0
9	0	29	0
10	0	30	0
11	0	31	0
12	0	32	0
13	0	33	0
14	0	34	0
15	0	35	0
16	0	36	0
17	0	37	0
18	0	38	0
19	0	39	0
20	0	40	0

Crossroad Ramp Terminals

Number	Config.	Control	Study Period Description
1	0	0	0
2	0	0	0
3	0	0	0
4	0	0	0
5	0	0	0
6	0	0	0

Output Summary							
General Information							
Project description:	I-270 I-495 Managed Lanes Study_2045 No Build_I-495 Between I-270Y to MD 187						
Analyst:	PK	Date:	1/31/2022	Area type:	Urban		
First year of analysis:	2027						
Last year of analysis:	2045						
Crash Data Description							
Freeway segments	Segment crash data available?		No	First year of crash data:			
	Project-level crash data available?		No	Last year of crash data:			
Ramp segments	Segment crash data available?		No	First year of crash data:			
	Project-level crash data available?		No	Last year of crash data:			
Ramp terminals	Segment crash data available?		No	First year of crash data:			
	Project-level crash data available?		No	Last year of crash data:			
Estimated Crash Statistics							
Crashes for Entire Facility		**Total**	**K**	**A**	**B**	**C**	**PDO**
Estimated number of crashes during Study Period, crashes:		1248.1	4.5	12.2	84.5	282.5	864.4
Estimated average crash freq. during Study Period, crashes/yr:		65.7	0.2	0.6	4.4	14.9	45.5
Crashes by Facility Component	**Nbr. Sites**	**Total**	**K**	**A**	**B**	**C**	**PDO**
Freeway segments, crashes:	5	1223.6	4.2	11.3	80.1	276.4	851.5
Ramp segments, crashes:	4	24.5	0.3	0.9	4.4	6.1	12.9
Crossroad ramp terminals, crashes:	0	0.0	0.0	0.0	0.0	0.0	0.0
Crashes for Entire Facility by Year	**Year**	**Total**	**K**	**A**	**B**	**C**	**PDO**
Estimated number of crashes during the Study Period, crashes:	2027	65.7	0.2	0.6	4.4	14.9	45.5
	2028	65.7	0.2	0.6	4.4	14.9	45.5
	2029	65.7	0.2	0.6	4.4	14.9	45.5
	2030	65.7	0.2	0.6	4.4	14.9	45.5
	2031	65.7	0.2	0.6	4.4	14.9	45.5
	2032	65.7	0.2	0.6	4.4	14.9	45.5
	2033	65.7	0.2	0.6	4.4	14.9	45.5
	2034	65.7	0.2	0.6	4.4	14.9	45.5
	2035	65.7	0.2	0.6	4.4	14.9	45.5
	2036	65.7	0.2	0.6	4.4	14.9	45.5
	2037	65.7	0.2	0.6	4.4	14.9	45.5
	2038	65.7	0.2	0.6	4.4	14.9	45.5
	2039	65.7	0.2	0.6	4.4	14.9	45.5
	2040	65.7	0.2	0.6	4.4	14.9	45.5
	2041	65.7	0.2	0.6	4.4	14.9	45.5
	2042	65.7	0.2	0.6	4.4	14.9	45.5
	2043	65.7	0.2	0.6	4.4	14.9	45.5
	2044	65.7	0.2	0.6	4.4	14.9	45.5
	2045	65.7	0.2	0.6	4.4	14.9	45.5
	2046						
	2047						
	2048						
	2049						
	2050						
Distribution of Crashes for Entire Facility							
Crash Type	**Crash Type Category**	**Estimated Number of Crashes During the Study Period**					
		Total	**K**	**A**	**B**	**C**	**PDO**
Multiple vehicle	Head-on crashes:	3.4	0.0	0.1	0.5	1.6	1.3
	Right-angle crashes:	19.6	0.1	0.2	1.7	6.0	11.5
	Rear-end crashes:	642.8	2.3	6.1	43.2	148.3	442.9
	Sideswipe crashes:	218.6	0.5	1.5	10.4	35.8	170.3
	Other multiple-vehicle crashes:	23.7	0.1	0.3	1.8	6.1	15.4
	Total multiple-vehicle crashes:	908.0	3.0	8.2	57.7	197.7	641.4
Single vehicle	Crashes with animal:	5.1	0.0	0.0	0.1	0.3	4.7
	Crashes with fixed object:	245.6	1.0	2.9	19.3	61.1	161.3
	Crashes with other object:	35.6	0.1	0.2	1.3	4.2	29.9
	Crashes with parked vehicle:	5.1	0.0	0.1	0.4	1.2	3.4
	Other single-vehicle crashes	48.7	0.3	0.9	5.8	17.9	23.8
	Total single-vehicle crashes:	340.1	1.4	4.0	26.8	84.8	223.1
Total crashes:		1248.1	4.5	12.2	84.5	282.5	864.4

Evaluation Site Summary

General Information

Project description:	I-270 I-495 Managed Lane Study_2045 No Build_I-495 MD 187 to I-270 MD 355						
Analyst:	PK		Date:	1/31/2022	Area type:		Urban
First year of analysis:	2027	Total length of freeway segments for Study Period (mi)			1.460		
Last year of analysis:	2045						

Site Description

Freeway Segments

Number	Lanes	Study Period Length (mi)	Study Period Description
1	6	0.140	GP MP 5.61 - MP 5.75
2	6	0.070	GP MP 5.75 - MP 5.82
3	6	0.470	GP MP 5.82 - MP 6.29
4	5	0.180	GP MP 6.29 - MP 6.47
5	5	0.030	GP MP 6.47 - MP 6.50
6	8	0.180	GP MP 6.50 - MP 6.68
7	8	0.080	GP MP 6.68 - MP 6.76
8	9	0.030	GP MP 6.76 - MP 6.79
9	9	0.070	GP MP 6.79 - MP 6.86
10	9	0.210	GP MP 6.86 - MP 7.07
11	0	0.000	0
12	0	0.000	0
13	0	0.000	0
14	0	0.000	0
15	0	0.000	0
16	0	0.000	0
17	0	0.000	0
18	0	0.000	0
19	0	0.000	0
20	0	0.000	0

Ramp Segments

Number	Study Period Description	Number	Study Period Description
1	G1 Ramp from MD 355 NB	21	0
2	G1 Ramp from MD 355 NB	22	0
3	G2 Ramp from I-495 WB to	23	0
4	G4 Ramp from MD 355 NB	24	0
5	G5 Ramp from MD 355 SB	25	0
6	G6-1 Ramp from I-495 EB t	26	0
7	G6-2 Ramp from I-495 EB t	27	0
8	G6 Ramp from I-270 EB to	28	0
9	I-495 WB to I-270 NB Conn	29	0
10	I-495 WB to I-270 NB Conn	30	0
11	I-270 SB to I-495 EB Conne	31	0
12	0	32	0
13	0	33	0
14	0	34	0
15	0	35	0
16	0	36	0
17	0	37	0
18	0	38	0
19	0	39	0
20	0	40	0

Crossroad Ramp Terminals

Number	Config.	Control	Study Period Description
1	D4	Signal	MD 187 at I-495 WB
2	D4	Signal	MD 187 at I-495 EB
3	0	0	0
4	0	0	0
5	0	0	0
6	0	0	0

Output Summary							
General Information							
Project description:	I-270 I-495 Managed Lane Study_2045 No Build_I-495 MD 187 to I-270 MD 355						
Analyst:	PK	Date:	1/31/2022	Area type:	Urban		
First year of analysis:	2027						
Last year of analysis:	2045						
Crash Data Description							
Freeway segments	Segment crash data available?		No	First year of crash data:			
	Project-level crash data available?		No	Last year of crash data:			
Ramp segments	Segment crash data available?		No	First year of crash data:			
	Project-level crash data available?		No	Last year of crash data:			
Ramp terminals	Segment crash data available?		No	First year of crash data:			
	Project-level crash data available?		No	Last year of crash data:			
Estimated Crash Statistics							
Crashes for Entire Facility		**Total**	**K**	**A**	**B**	**C**	**PDO**
Estimated number of crashes during Study Period, crashes:		2504.4	8.2	35.4	217.4	791.0	1452.4
Estimated average crash freq. during Study Period, crashes/yr:		131.8	0.4	1.9	11.4	41.6	76.4
Crashes by Facility Component	**Nbr. Sites**	**Total**	**K**	**A**	**B**	**C**	**PDO**
Freeway segments, crashes:	10	1507.5	4.5	12.4	88.1	333.5	1069.0
Ramp segments, crashes:	11	297.3	3.2	9.7	50.2	99.1	135.1
Crossroad ramp terminals, crashes:	2	699.6	0.5	13.3	79.1	358.4	248.3
Crashes for Entire Facility by Year	**Year**	**Total**	**K**	**A**	**B**	**C**	**PDO**
Estimated number of crashes during the Study Period, crashes:	2027	131.8	0.4	1.9	11.4	41.6	76.4
	2028	131.8	0.4	1.9	11.4	41.6	76.4
	2029	131.8	0.4	1.9	11.4	41.6	76.4
	2030	131.8	0.4	1.9	11.4	41.6	76.4
	2031	131.8	0.4	1.9	11.4	41.6	76.4
	2032	131.8	0.4	1.9	11.4	41.6	76.4
	2033	131.8	0.4	1.9	11.4	41.6	76.4
	2034	131.8	0.4	1.9	11.4	41.6	76.4
	2035	131.8	0.4	1.9	11.4	41.6	76.4
	2036	131.8	0.4	1.9	11.4	41.6	76.4
	2037	131.8	0.4	1.9	11.4	41.6	76.4
	2038	131.8	0.4	1.9	11.4	41.6	76.4
	2039	131.8	0.4	1.9	11.4	41.6	76.4
	2040	131.8	0.4	1.9	11.4	41.6	76.4
	2041	131.8	0.4	1.9	11.4	41.6	76.4
	2042	131.8	0.4	1.9	11.4	41.6	76.4
	2043	131.8	0.4	1.9	11.4	41.6	76.4
	2044	131.8	0.4	1.9	11.4	41.6	76.4
	2045	131.8	0.4	1.9	11.4	41.6	76.4
	2046						
	2047						
	2048						
	2049						
	2050						
Distribution of Crashes for Entire Facility							
Crash Type	**Crash Type Category**	**Estimated Number of Crashes During the Study Period**					
		Total	**K**	**A**	**B**	**C**	**PDO**
Multiple vehicle	Head-on crashes:	13.3	0.1	0.3	1.9	6.9	4.1
	Right-angle crashes:	198.6	0.3	3.8	22.8	101.1	70.7
	Rear-end crashes:	1383.1	4.4	20.0	123.8	464.5	770.5
	Sideswipe crashes:	392.7	0.9	3.1	20.0	70.6	298.1
	Other multiple-vehicle crashes:	63.4	0.4	1.3	7.6	21.0	33.1
	Total multiple-vehicle crashes:	2051.1	6.1	28.5	176.0	664.0	1176.5
Single vehicle	Crashes with animal:	4.9	0.0	0.0	0.1	0.3	4.5
	Crashes with fixed object:	329.8	1.6	4.9	29.3	89.1	205.0
	Crashes with other object:	40.6	0.1	0.2	1.6	5.5	33.2
	Crashes with parked vehicle:	6.6	0.0	0.1	0.6	1.8	4.1
	Other single-vehicle crashes	71.5	0.5	1.7	9.9	30.3	29.1
	Total single-vehicle crashes:	453.3	2.2	6.9	41.4	127.0	275.9
Total crashes:		2504.4	8.2	35.4	217.4	791.0	1452.4

Evaluation Site Summary

General Information

Project description:	ISATe_GWMP				
Analyst:	AS	Date:	1/31/2022	Area type:	Urban
First year of analysis:	2027	Total length of freeway segments for Study Period (mi)	0.240		
Last year of analysis:	2045				

Site Description

Freeway Segments

Number	Lanes	Study Period Length (mi)	Study Period Description
1	4	0.240	GWMP
2	0	0.000	0
3	0	0.000	0
4	0	0.000	0
5	0	0.000	0
6	0	0.000	0
7	0	0.000	0
8	0	0.000	0
9	0	0.000	0
10	0	0.000	0
11	0	0.000	0
12	0	0.000	0
13	0	0.000	0
14	0	0.000	0
15	0	0.000	0
16	0	0.000	0
17	0	0.000	0
18	0	0.000	0
19	0	0.000	0
20	0	0.000	0

Ramp Segments

Number	Study Period Description	Number	Study Period Description
1	0	21	0
2	0	22	0
3	0	23	0
4	0	24	0
5	0	25	0
6	0	26	0
7	0	27	0
8	0	28	0
9	0	29	0
10	0	30	0
11	0	31	0
12	0	32	0
13	0	33	0
14	0	34	0
15	0	35	0
16	0	36	0
17	0	37	0
18	0	38	0
19	0	39	0
20	0	40	0

Crossroad Ramp Terminals

Number	Config.	Control	Study Period Description
1	0	0	0
2	0	0	0
3	0	0	0
4	0	0	0
5	0	0	0
6	0	0	0

Output Summary							
General Information							
Project description:	ISATe_GWMP						
Analyst:	AS	Date:	1/31/2022	Area type:	Urban		
First year of analysis:	2027						
Last year of analysis:	2045						
Crash Data Description							
Freeway segments	Segment crash data available?		No	First year of crash data:			
	Project-level crash data available?		No	Last year of crash data:			
Ramp segments	Segment crash data available?		No	First year of crash data:			
	Project-level crash data available?		No	Last year of crash data:			
Ramp terminals	Segment crash data available?		No	First year of crash data:			
	Project-level crash data available?		No	Last year of crash data:			
Estimated Crash Statistics							
Crashes for Entire Facility		**Total**	**K**	**A**	**B**	**C**	**PDO**
Estimated number of crashes during Study Period, crashes:		50.7	0.4	0.8	6.0	10.6	32.8
Estimated average crash freq. during Study Period, crashes/yr:		2.7	0.0	0.0	0.3	0.6	1.7
Crashes by Facility Component	**Nbr. Sites**	**Total**	**K**	**A**	**B**	**C**	**PDO**
Freeway segments, crashes:	1	50.7	0.4	0.8	6.0	10.6	32.8
Ramp segments, crashes:	0	0.0	0.0	0.0	0.0	0.0	0.0
Crossroad ramp terminals, crashes:	0	0.0	0.0	0.0	0.0	0.0	0.0
Crashes for Entire Facility by Year	**Year**	**Total**	**K**	**A**	**B**	**C**	**PDO**
Estimated number of crashes during the Study Period, crashes:	2027	2.7	0.0	0.0	0.3	0.6	1.7
	2028	2.7	0.0	0.0	0.3	0.6	1.7
	2029	2.7	0.0	0.0	0.3	0.6	1.7
	2030	2.7	0.0	0.0	0.3	0.6	1.7
	2031	2.7	0.0	0.0	0.3	0.6	1.7
	2032	2.7	0.0	0.0	0.3	0.6	1.7
	2033	2.7	0.0	0.0	0.3	0.6	1.7
	2034	2.7	0.0	0.0	0.3	0.6	1.7
	2035	2.7	0.0	0.0	0.3	0.6	1.7
	2036	2.7	0.0	0.0	0.3	0.6	1.7
	2037	2.7	0.0	0.0	0.3	0.6	1.7
	2038	2.7	0.0	0.0	0.3	0.6	1.7
	2039	2.7	0.0	0.0	0.3	0.6	1.7
	2040	2.7	0.0	0.0	0.3	0.6	1.7
	2041	2.7	0.0	0.0	0.3	0.6	1.7
	2042	2.7	0.0	0.0	0.3	0.6	1.7
	2043	2.7	0.0	0.0	0.3	0.6	1.7
	2044	2.7	0.0	0.0	0.3	0.6	1.7
	2045	2.7	0.0	0.0	0.3	0.6	1.7
	2046						
	2047						
	2048						
	2049						
	2050						
Distribution of Crashes for Entire Facility							
Crash Type	**Crash Type Category**	**Estimated Number of Crashes During the Study Period**					
		Total	**K**	**A**	**B**	**C**	**PDO**
Multiple vehicle	Head-on crashes:	0.1	0.0	0.0	0.0	0.0	0.0
	Right-angle crashes:	0.6	0.0	0.0	0.1	0.2	0.4
	Rear-end crashes:	20.3	0.2	0.3	2.5	4.3	13.0
	Sideswipe crashes:	7.5	0.0	0.1	0.6	1.1	5.7
	Other multiple-vehicle crashes:	0.7	0.0	0.0	0.1	0.2	0.4
	Total multiple-vehicle crashes:	29.2	0.2	0.4	3.3	5.7	19.5
Single vehicle	Crashes with animal:	0.3	0.0	0.0	0.0	0.0	0.3
	Crashes with fixed object:	15.4	0.1	0.3	2.0	3.5	9.5
	Crashes with other object:	2.5	0.0	0.0	0.2	0.3	2.0
	Crashes with parked vehicle:	0.3	0.0	0.0	0.0	0.1	0.2
	Other single-vehicle crashes	3.1	0.0	0.1	0.6	1.0	1.4
	Total single-vehicle crashes:	21.6	0.2	0.4	2.8	4.9	13.4
	Total crashes:	50.7	0.4	0.8	6.0	10.6	32.8

Evaluation Site Summary

General Information

Project description:	I-370 From Fields Road to I-270 Ramps_Phase 1 Build				
Analyst:	DK	Date:	1/31/2022	Area type:	Urban
First year of analysis:	2027	Total length of freeway segments for Study Period (mi)		1.200	
Last year of analysis:	2045				

Site Description

Freeway Segments

Number	Lanes	Study Period Length (mi)	Study Period Description
1	6	0.020	GP MP 0.25 - MP 0.27
2	6	0.170	GP MP 0.27 - MP 0.44
3	5	0.040	GP MP 0.44 - MP 0.48
4	5	0.140	GP MP 0.48 - MP 0.62
5	5	0.120	GP MP 0.62 - MP 0.74
6	4	0.180	GP MP 0.74 - MP 0.92
7	5	0.250	GP MP 0.92 - MP 1.17
8	5	0.010	GP MP 1.17 - MP 1.18
9	6	0.010	GP MP 1.18 - MP 1.19
10	7	0.260	GP MP 1.19 - MP 1.45
11	0	0.000	0
12	0	0.000	0
13	0	0.000	0
14	0	0.000	0
15	0	0.000	0
16	0	0.000	0
17	0	0.000	0
18	0	0.000	0
19	0	0.000	0
20	0	0.000	0

Ramp Segments

Number	Study Period Description	Number	Study Period Description
1	Ramp from I-370 WB to Wa	21	0
2	Ramp from Washingtonian	22	0
3	Ramp from Fields Rd/Sam	23	0
4	Ramp from Washingtonian	24	0
5	0	25	0
6	0	26	0
7	0	27	0
8	0	28	0
9	0	29	0
10	0	30	0
11	0	31	0
12	0	32	0
13	0	33	0
14	0	34	0
15	0	35	0
16	0	36	0
17	0	37	0
18	0	38	0
19	0	39	0
20	0	40	0

Crossroad Ramp Terminals

Number	Config.	Control	Study Period Description
1	D4	Signal	Washingtonian Blvd at I-370 EB
2	D4	Signal	Washingtonian Blvd at I-370 WB
3	0	0	0
4	0	0	0
5	0	0	0
6	0	0	0

Output Summary							
General Information							
Project description:	I-370 From Fields Road to I-270 Ramps_Phase 1 Build						
Analyst:	DK	Date:	1/31/2022	Area type:	Urban		
First year of analysis:	2027						
Last year of analysis:	2045						
Crash Data Description							
Freeway segments	Segment crash data available?		No	First year of crash data:			
	Project-level crash data available?		No	Last year of crash data:			
Ramp segments	Segment crash data available?		No	First year of crash data:			
	Project-level crash data available?		No	Last year of crash data:			
Ramp terminals	Segment crash data available?		No	First year of crash data:			
	Project-level crash data available?		No	Last year of crash data:			
Estimated Crash Statistics							
Crashes for Entire Facility		**Total**	**K**	**A**	**B**	**C**	**PDO**
Estimated number of crashes during Study Period, crashes:		343.3	1.8	5.3	35.1	81.7	219.4
Estimated average crash freq. during Study Period, crashes/yr:		18.1	0.1	0.3	1.8	4.3	11.5
Crashes by Facility Component	**Nbr. Sites**	**Total**	**K**	**A**	**B**	**C**	**PDO**
Freeway segments, crashes:	10	261.9	1.6	4.2	28.8	60.5	166.8
Ramp segments, crashes:	4	11.4	0.2	0.5	2.2	2.8	5.8
Crossroad ramp terminals, crashes:	2	70.0	0.0	0.7	4.1	18.3	46.8
Crashes for Entire Facility by Year	**Year**	**Total**	**K**	**A**	**B**	**C**	**PDO**
Estimated number of crashes during the Study Period, crashes:	2027	18.1	0.1	0.3	1.8	4.3	11.5
	2028	18.1	0.1	0.3	1.8	4.3	11.5
	2029	18.1	0.1	0.3	1.8	4.3	11.5
	2030	18.1	0.1	0.3	1.8	4.3	11.5
	2031	18.1	0.1	0.3	1.8	4.3	11.5
	2032	18.1	0.1	0.3	1.8	4.3	11.5
	2033	18.1	0.1	0.3	1.8	4.3	11.5
	2034	18.1	0.1	0.3	1.8	4.3	11.5
	2035	18.1	0.1	0.3	1.8	4.3	11.5
	2036	18.1	0.1	0.3	1.8	4.3	11.5
	2037	18.1	0.1	0.3	1.8	4.3	11.5
	2038	18.1	0.1	0.3	1.8	4.3	11.5
	2039	18.1	0.1	0.3	1.8	4.3	11.5
	2040	18.1	0.1	0.3	1.8	4.3	11.5
	2041	18.1	0.1	0.3	1.8	4.3	11.5
	2042	18.1	0.1	0.3	1.8	4.3	11.5
	2043	18.1	0.1	0.3	1.8	4.3	11.5
	2044	18.1	0.1	0.3	1.8	4.3	11.5
	2045	18.1	0.1	0.3	1.8	4.3	11.5
	2046						
	2047						
	2048						
	2049						
	2050						
Distribution of Crashes for Entire Facility							
Crash Type	**Crash Type Category**	**Estimated Number of Crashes During the Study Period**					
		Total	**K**	**A**	**B**	**C**	**PDO**
Multiple vehicle	Head-on crashes:	1.2	0.0	0.0	0.2	0.4	0.5
	Right-angle crashes:	19.6	0.0	0.2	1.5	5.7	12.1
	Rear-end crashes:	150.0	0.7	2.1	14.3	37.7	95.2
	Sideswipe crashes:	44.9	0.2	0.5	3.1	7.3	33.9
	Other multiple-vehicle crashes:	4.9	0.0	0.1	0.5	1.1	3.2
	Total multiple-vehicle crashes:	220.5	0.9	2.9	19.5	52.2	144.9
Single vehicle	Crashes with animal:	1.6	0.0	0.0	0.0	0.1	1.4
	Crashes with fixed object:	89.0	0.7	1.7	11.1	21.0	54.4
	Crashes with other object:	12.1	0.0	0.1	0.8	1.5	9.7
	Crashes with parked vehicle:	1.8	0.0	0.0	0.2	0.4	1.1
	Other single-vehicle crashes	18.3	0.2	0.5	3.4	6.5	7.8
	Total single-vehicle crashes:	122.7	0.9	2.4	15.5	29.5	74.4
	Total crashes:	343.3	1.8	5.3	35.1	81.7	219.4

Enhanced Interchange Safety Analysis Tool

Output Summary & Evaluation Site Summary Reports

for the

Preferred Alternative

Evaluation Site Summary

General Information

Project description:	I-270 From MD 117 to I-370_Phase 1 Build				
Analyst:	DK	Date:	1/31/22	Area type:	Urban
First year of analysis:	2027	Total length of freeway segments for Study Period (mi):	1.570		
Last year of analysis:	2045				

Site Description

Freeway Segments

Number	Lanes	Study Period Length (mi)	Study Period Description
1	8	0.250	GP MP 10.90 - MP 10.65
2	9	0.040	GP MP 10.65 - MP 10.61
3	10	0.590	GP MP 10.61 - MP 10.02
4	10	0.020	GP MP 10.02 - MP 10.00
5	9	0.300	GP MP 10.00 - MP 9.70
6	9	0.370	GP MP 9.70 - MP 9.33
7	0	0.000	0
8	0	0.000	0
9	0	0.000	0
10	0	0.000	0
11	0	0.000	0
12	0	0.000	0
13	0	0.000	0
14	0	0.000	0
15	0	0.000	0
16	0	0.000	0
17	0	0.000	0
18	0	0.000	0
19	0	0.000	0
20	0	0.000	0

Ramp Segments

Number	Study Period Description	Number	Study Period Description
1	C1-1 Ramp from I-270 NB to	21	0
2	C1-2 Ramp from I-270 NB to	22	0
3	G6-31 Ramp from MD 117 E	23	0
4	G6-32 Ramp from MD 117 t	24	0
5	G6-4 Ramp from MD 117 to	25	0
6	NB CD MP 1.82 - MP 1.63	26	0
7	NB CD MP 1.63 - MP 0.91	27	0
8	NB CD MP 0.91 - MP 0.45	28	0
9	NB CD MP 0.45 - MP 0.25	29	0
10	0	30	0
11	0	31	0
12	0	32	0
13	0	33	0
14	0	34	0
15	0	35	0
16	0	36	0
17	0	37	0
18	0	38	0
19	0	39	0
20	0	40	0

Crossroad Ramp Terminals

Number	Config.	Control	Study Period Description
1	D3ex	Signal	MD 117 at I-270 NB
2	D3en	One stop	MD 117 at I-270 SB
3	0	0	0
4	0	0	0
5	0	0	0
6	0	0	0

Output Summary

General Information

Project description:	I-270 From MD 117 to I-370_Phase 1 Build				
Analyst:	DK	Date:	1/31/22	Area type:	Urban
First year of analysis:	2027				
Last year of analysis:	2045				

Crash Data Description

Freeway segments	Segment crash data available?	No	First year of crash data:	
	Project-level crash data available?	No	Last year of crash data:	
Ramp segments	Segment crash data available?	No	First year of crash data:	
	Project-level crash data available?	No	Last year of crash data:	
Ramp terminals	Segment crash data available?	No	First year of crash data:	
	Project-level crash data available?	No	Last year of crash data:	

Estimated Crash Statistics

Crashes for Entire Facility	**Total**	**K**	**A**	**B**	**C**	**PDO**
Estimated number of crashes during Study Period, crashes:	2844.5	10.4	32.5	184.0	652.2	1965.4
Estimated average crash freq. during Study Period, crashes/yr:	149.7	0.5	1.7	9.7	34.3	103.4

Crashes by Facility Component	**Nbr. Sites**	**Total**	**K**	**A**	**B**	**C**	**PDO**
Freeway segments, crashes:	6	2145.2	8.1	22.6	127.7	450.6	1536.2
Ramp segments, crashes:	9	321.4	1.7	5.3	27.8	75.0	211.6
Crossroad ramp terminals, crashes:	2	377.9	0.6	4.6	28.5	126.6	217.6

Crashes for Entire Facility by Year	**Year**	**Total**	**K**	**A**	**B**	**C**	**PDO**
Estimated number of crashes during the Study Period, crashes:	2027	149.7	0.5	1.7	9.7	34.3	103.4
	2028	149.7	0.5	1.7	9.7	34.3	103.4
	2029	149.7	0.5	1.7	9.7	34.3	103.4
	2030	149.7	0.5	1.7	9.7	34.3	103.4
	2031	149.7	0.5	1.7	9.7	34.3	103.4
	2032	149.7	0.5	1.7	9.7	34.3	103.4
	2033	149.7	0.5	1.7	9.7	34.3	103.4
	2034	149.7	0.5	1.7	9.7	34.3	103.4
	2035	149.7	0.5	1.7	9.7	34.3	103.4
	2036	149.7	0.5	1.7	9.7	34.3	103.4
	2037	149.7	0.5	1.7	9.7	34.3	103.4
	2038	149.7	0.5	1.7	9.7	34.3	103.4
	2039	149.7	0.5	1.7	9.7	34.3	103.4
	2040	149.7	0.5	1.7	9.7	34.3	103.4
	2041	149.7	0.5	1.7	9.7	34.3	103.4
	2042	149.7	0.5	1.7	9.7	34.3	103.4
	2043	149.7	0.5	1.7	9.7	34.3	103.4
	2044	149.7	0.5	1.7	9.7	34.3	103.4
	2045	149.7	0.5	1.7	9.7	34.3	103.4
	2046						
	2047						
	2048						
	2049						
	2050						

Distribution of Crashes for Entire Facility

Crash Type	**Crash Type Category**	**Estimated Number of Crashes During the Study Period**					
		Total	**K**	**A**	**B**	**C**	**PDO**
Multiple vehicle	Head-on crashes:	13.3	0.1	0.3	1.5	5.4	6.1
	Right-angle crashes:	167.3	0.4	2.3	13.8	58.2	92.6
	Rear-end crashes:	1527.8	5.8	17.9	101.6	361.1	1041.5
	Sideswipe crashes:	509.7	1.3	3.8	21.3	74.3	409.0
	Other multiple-vehicle crashes:	76.9	0.4	1.1	6.1	19.8	49.6
	Total multiple-vehicle crashes:	2295.0	8.0	25.3	144.3	518.7	1598.8
Single vehicle	Crashes with animal:	7.1	0.0	0.0	0.1	0.4	6.6
	Crashes with fixed object:	402.2	1.8	5.2	28.6	96.1	270.6
	Crashes with other object:	50.5	0.1	0.3	1.7	5.7	42.7
	Crashes with parked vehicle:	8.8	0.0	0.1	0.5	1.8	6.4
	Other single-vehicle crashes	80.8	0.5	1.6	8.8	29.4	40.4
	Total single-vehicle crashes:	549.5	2.4	7.2	39.7	133.5	366.7
	Total crashes:	2844.5	10.4	32.5	184.0	652.2	1965.4

Evaluation Site Summary

General Information

Project description:	I-270 From I-370 to Shady Grove Rd_Phase 1 Build				
Analyst:	DK	Date:	1/31/22	Area type:	Urban
First year of analysis:	2027	Total length of freeway segments for Study Period (mi):		0.930	
Last year of analysis:	2045				

Site Description

Freeway Segments

Number	Lanes	Study Period Length (mi)	Study Period Description
1	9	0.010	GP MP 9.33 - MP 9.32
2	8	0.100	GP MP 9.32 - MP 9.22
3	8	0.150	GP MP 9.22 - MP 9.07
4	10	0.050	GP MP 9.07 - MP 9.02
5	10	0.420	GP MP 9.01 - MP 8.59
6	10	0.050	GP MP 8.59 - MP 8.54
7	10	0.090	GP MP 8.54 - MP 8.45
8	10	0.060	GP MP 8.45 - MP 8.39
9	0	0.000	0
10	0	0.000	0
11	0	0.000	0
12	0	0.000	0
13	0	0.000	0
14	0	0.000	0
15	0	0.000	0
16	0	0.000	0
17	0	0.000	0
18	0	0.000	0
19	0	0.000	0
20	0	0.000	0

Ramp Segments

Number	Study Period Description	Number	Study Period Description
1	G1-2 Ramp from I-270 NB t	21	M11-1 Ramp from I-370 WB
2	G1-3 Ramp from I-270 to I-3	22	M11-2 Ramp from I-370 to I
3	G1-4 Ramp from I-270 to I-3	23	M12-5 Ramp from I-270 NB
4	G2-5 Ramp from I-370 WB t	24	M9-6 Ramp from I-270 NB M
5	G2-6 Ramp from I-370 WB t	25	M12-7 Ramp from I-270 NB
6	G2-7 Ramp from I-370 WB t	26	M12-8 Ramp from I-270 NB
7	G3-80 Ramp from I-370 EB	27	M0-1 Ramp from I-270 NB M
8	G3-81 Ramp from I-370 EB	28	M0-2 Ramp from I-270 SB C
9	G3-82 Ramp from I-370 EB	29	0
10	G4-9 Ramp from I-270 NB t	30	0
11	G4-10 Ramp from I-270 NB	31	0
12	G5-11 Ramp from I-270 SB	32	0
13	G5-12 Ramp from I-270 SB	33	0
14	G6-13 Ramp from I-370 EB	34	0
15	G7-14 Ramp from I-370 WB	35	0
16	G7-14-2 Ramp from I-370 W	36	0
17	G7-15 Ramp from I-370 to I-	37	0
18	G8-16 Ramp from I-270 SB	38	0
19	M10-1 Ramp from I-370 EB	39	0
20	M10-2 Ramp from I-370 EB	40	0

Crossroad Ramp Terminals

Number	Config.	Control	Study Period Description
1	0	0	0
2	0	0	0
3	0	0	0
4	0	0	0
5	0	0	0
6	0	0	0

Output Summary

General Information

Project description:	I-270 From I-370 to Shady Grove Rd_Phase 1 Build				
Analyst:	DK	Date:	1/31/22	Area type:	Urban
First year of analysis:	2027				
Last year of analysis:	2045				

Crash Data Description

Freeway segments	Segment crash data available?	No	First year of crash data:	
	Project-level crash data available?	No	Last year of crash data:	
Ramp segments	Segment crash data available?	No	First year of crash data:	
	Project-level crash data available?	No	Last year of crash data:	
Ramp terminals	Segment crash data available?	No	First year of crash data:	
	Project-level crash data available?	No	Last year of crash data:	

Estimated Crash Statistics

Crashes for Entire Facility	**Total**	**K**	**A**	**B**	**C**	**PDO**
Estimated number of crashes during Study Period, crashes:	1541.3	8.3	23.7	130.7	330.9	1047.8
Estimated average crash freq. during Study Period, crashes/yr:	81.1	0.4	1.2	6.9	17.4	55.1

Crashes by Facility Component	**Nbr. Sites**	**Total**	**K**	**A**	**B**	**C**	**PDO**
Freeway segments, crashes:	8	977.7	4.6	12.6	69.3	200.8	690.4
Ramp segments, crashes:	28	563.7	3.7	11.1	61.4	130.1	357.4
Crossroad ramp terminals, crashes:	0	0.0	0.0	0.0	0.0	0.0	0.0

Crashes for Entire Facility by Year	**Year**	**Total**	**K**	**A**	**B**	**C**	**PDO**
Estimated number of crashes during the Study Period, crashes:	2027	81.1	0.4	1.2	6.9	17.4	55.1
	2028	81.1	0.4	1.2	6.9	17.4	55.1
	2029	81.1	0.4	1.2	6.9	17.4	55.1
	2030	81.1	0.4	1.2	6.9	17.4	55.1
	2031	81.1	0.4	1.2	6.9	17.4	55.1
	2032	81.1	0.4	1.2	6.9	17.4	55.1
	2033	81.1	0.4	1.2	6.9	17.4	55.1
	2034	81.1	0.4	1.2	6.9	17.4	55.1
	2035	81.1	0.4	1.2	6.9	17.4	55.1
	2036	81.1	0.4	1.2	6.9	17.4	55.1
	2037	81.1	0.4	1.2	6.9	17.4	55.1
	2038	81.1	0.4	1.2	6.9	17.4	55.1
	2039	81.1	0.4	1.2	6.9	17.4	55.1
	2040	81.1	0.4	1.2	6.9	17.4	55.1
	2041	81.1	0.4	1.2	6.9	17.4	55.1
	2042	81.1	0.4	1.2	6.9	17.4	55.1
	2043	81.1	0.4	1.2	6.9	17.4	55.1
	2044	81.1	0.4	1.2	6.9	17.4	55.1
	2045	81.1	0.4	1.2	6.9	17.4	55.1
	2046						
	2047						
	2048						
	2049						
	2050						

Distribution of Crashes for Entire Facility

Crash Type	**Crash Type Category**	**Estimated Number of Crashes During the Study Period**					
		Total	**K**	**A**	**B**	**C**	**PDO**
Multiple vehicle	Head-on crashes:	7.0	0.1	0.2	1.0	2.4	3.4
	Right-angle crashes:	18.4	0.1	0.3	1.8	5.0	11.1
	Rear-end crashes:	775.8	4.3	12.1	67.0	176.9	515.6
	Sideswipe crashes:	289.7	1.0	2.7	14.8	39.8	231.4
	Other multiple-vehicle crashes:	63.6	0.4	1.2	6.9	16.6	38.5
	Total multiple-vehicle crashes:	1154.6	5.8	16.5	91.5	240.7	800.0
Single vehicle	Crashes with animal:	3.9	0.0	0.0	0.1	0.2	3.6
	Crashes with fixed object:	288.8	1.8	5.1	28.1	64.5	189.3
	Crashes with other object:	30.0	0.1	0.2	1.3	3.5	24.9
	Crashes with parked vehicle:	4.8	0.0	0.1	0.5	1.1	3.1
	Other single-vehicle crashes	59.3	0.6	1.7	9.2	20.9	26.9
	Total single-vehicle crashes:	386.8	2.5	7.1	39.2	90.2	247.8
Total crashes:		1541.3	8.3	23.7	130.7	330.9	1047.8

Evaluation Site Summary

General Information

Project description:	I-270 From Shady Grove Rd to W.Gude Dr_Phase 1 Build				
Analyst:	DK	Date:	1/31/22	Area type:	Urban
First year of analysis:	2027	Total length of freeway segments for Study Period (mi):		0.810	
Last year of analysis:	2045				

Site Description

Freeway Segments

Number	Lanes	Study Period Length (mi)	Study Period Description
1	10	0.070	GP MP 8.39 - MP 8.32
2	10	0.110	GP MP 8.32 - MP 8.21
3	10	0.050	GP MP 8.21 - MP 8.16
4	10	0.040	GP MP 8.16 - MP 8.12
5	10	0.330	GP MP 8.12 - MP 7.79
6	10	0.210	GP MP 7.79- MP 7.58
7	0	0.000	0
8	0	0.000	0
9	0	0.000	0
10	0	0.000	0
11	0	0.000	0
12	0	0.000	0
13	0	0.000	0
14	0	0.000	0
15	0	0.000	0
16	0	0.000	0
17	0	0.000	0
18	0	0.000	0
19	0	0.000	0
20	0	0.000	0

Ramp Segments

Number	Study Period Description	Number	Study Period Description
1	G2-1 Ramp from Shady Gro	21	0
2	G3-2 Ramp from Shady Gro	22	0
3	G4-3 Ramp from I-270 NB t	23	0
4	G4-4 Ramp from I-270 NB t	24	0
5	G6-5 Ramp from Shady Gro	25	0
6	G7-6 Ramp from Shady Gro	26	0
7	G8-8 Ramp from Shady Gro	27	0
8	G8-7 Ramp from I-270 SB t	28	0
9	G9-9 Ramp from I-270 NB t	29	0
10	G10-10 Ramp from I-270 SE	30	0
11	0	31	0
12	0	32	0
13	0	33	0
14	0	34	0
15	0	35	0
16	0	36	0
17	0	37	0
18	0	38	0
19	0	39	0
20	0	40	0

Crossroad Ramp Terminals

Number	Config.	Control	Study Period Description
1	A4	Signal	Shady Grove Road at I-270 NB
2	A4	Signal	Shady Grove Road at I-270 SB
3	0	0	0
4	0	0	0
5	0	0	0
6	0	0	0

Output Summary

General Information

Project description:	I-270 From Shady Grove Rd to W.Gude Dr_Phase 1 Build				
Analyst:	DK	Date:	1/31/22	Area type:	Urban
First year of analysis:	2027				
Last year of analysis:	2045				

Crash Data Description

Freeway segments	Segment crash data available?	No	First year of crash data:	
	Project-level crash data available?	No	Last year of crash data:	
Ramp segments	Segment crash data available?	No	First year of crash data:	
	Project-level crash data available?	No	Last year of crash data:	
Ramp terminals	Segment crash data available?	No	First year of crash data:	
	Project-level crash data available?	No	Last year of crash data:	

Estimated Crash Statistics

Crashes for Entire Facility	**Total**	**K**	**A**	**B**	**C**	**PDO**
Estimated number of crashes during Study Period, crashes:	1177.4	4.1	16.2	89.4	312.9	754.8
Estimated average crash freq. during Study Period, crashes/yr:	62.0	0.2	0.9	4.7	16.5	39.7

Crashes by Facility Component	**Nbr. Sites**	**Total**	**K**	**A**	**B**	**C**	**PDO**
Freeway segments, crashes:	6	691.5	3.1	8.5	47.2	152.1	480.6
Ramp segments, crashes:	10	77.7	0.8	2.5	11.0	19.6	43.8
Crossroad ramp terminals, crashes:	2	408.3	0.2	5.2	31.2	141.3	230.3

Crashes for Entire Facility by Year	**Year**	**Total**	**K**	**A**	**B**	**C**	**PDO**
Estimated number of crashes during the Study Period, crashes:	2027	62.0	0.2	0.9	4.7	16.5	39.7
	2028	62.0	0.2	0.9	4.7	16.5	39.7
	2029	62.0	0.2	0.9	4.7	16.5	39.7
	2030	62.0	0.2	0.9	4.7	16.5	39.7
	2031	62.0	0.2	0.9	4.7	16.5	39.7
	2032	62.0	0.2	0.9	4.7	16.5	39.7
	2033	62.0	0.2	0.9	4.7	16.5	39.7
	2034	62.0	0.2	0.9	4.7	16.5	39.7
	2035	62.0	0.2	0.9	4.7	16.5	39.7
	2036	62.0	0.2	0.9	4.7	16.5	39.7
	2037	62.0	0.2	0.9	4.7	16.5	39.7
	2038	62.0	0.2	0.9	4.7	16.5	39.7
	2039	62.0	0.2	0.9	4.7	16.5	39.7
	2040	62.0	0.2	0.9	4.7	16.5	39.7
	2041	62.0	0.2	0.9	4.7	16.5	39.7
	2042	62.0	0.2	0.9	4.7	16.5	39.7
	2043	62.0	0.2	0.9	4.7	16.5	39.7
	2044	62.0	0.2	0.9	4.7	16.5	39.7
	2045	62.0	0.2	0.9	4.7	16.5	39.7
	2046						
	2047						
	2048						
	2049						
	2050						

Distribution of Crashes for Entire Facility

Crash Type	**Crash Type Category**	**Estimated Number of Crashes During the Study Period**					
		Total	**K**	**A**	**B**	**C**	**PDO**
Multiple vehicle	Head-on crashes:	5.6	0.0	0.1	0.6	2.4	2.4
	Right-angle crashes:	108.2	0.1	1.5	9.1	39.9	57.5
	Rear-end crashes:	615.4	1.8	8.0	45.9	172.0	387.7
	Sideswipe crashes:	173.9	0.4	1.4	7.7	26.3	138.1
	Other multiple-vehicle crashes:	20.6	0.1	0.3	1.5	4.8	14.1
	Total multiple-vehicle crashes:	923.7	2.5	11.3	64.8	245.3	599.8
Single vehicle	Crashes with animal:	2.6	0.0	0.0	0.1	0.2	2.4
	Crashes with fixed object:	186.6	1.1	3.5	17.5	47.8	116.7
	Crashes with other object:	20.6	0.1	0.2	0.9	2.7	16.7
	Crashes with parked vehicle:	3.8	0.0	0.1	0.3	0.9	2.4
	Other single-vehicle crashes	40.1	0.4	1.2	5.8	16.0	16.8
	Total single-vehicle crashes:	253.7	1.6	4.9	24.6	67.6	155.0
Total crashes:		1177.4	4.1	16.2	89.4	312.9	754.8

Evaluation Site Summary

General Information

Project description:	I-270 From W.Gude Dr to MD 28__Phase 1 Build				
Analyst:	DK	Date:	1/31/22	Area type:	Urban
First year of analysis:	2027	Total length of freeway segments for Study Period (mi):		1.100	
Last year of analysis:	2045				

Site Description

Freeway Segments

Number	Lanes	Study Period Length (mi)	Study Period Description
1	10	0.830	GP MP 7.57 - MP 6.74
2	10	0.100	GP MP 6.74 - MP 6.64
3	10	0.070	GP MP 6.64 - MP 6.57
4	10	0.080	GP MP 6.57 - MP 6.49
5	10	0.020	GP MP 6.49 - MP 6.47
6	0	0.000	0
7	0	0.000	0
8	0	0.000	0
9	0	0.000	0
10	0	0.000	0
11	0	0.000	0
12	0	0.000	0
13	0	0.000	0
14	0	0.000	0
15	0	0.000	0
16	0	0.000	0
17	0	0.000	0
18	0	0.000	0
19	0	0.000	0
20	0	0.000	0

Ramp Segments

Number	Study Period Description		Number	Study Period Description	
1	MT1-1 Ramp from I-270 SB		21	0	
2	MT1-2 Ramp from I-270 SB		22	0	
3	MT2-3 Ramp from Gude Dr		23	0	
4	MT3-4 Ramp from Gude Dr		24	0	
5	MT4-5 Ramp from I-270 NB		25	0	
6	MT4-6 Ramp from I-270 NB		26	0	
7	0		27	0	
8	0		28	0	
9	0		29	0	
10	0		30	0	
11	0		31	0	
12	0		32	0	
13	0		33	0	
14	0		34	0	
15	0		35	0	
16	0		36	0	
17	0		37	0	
18	0		38	0	
19	0		39	0	
20	0		40	0	

Crossroad Ramp Terminals

Number	Config.	Control	Study Period Description
1	0	0	0
2	0	0	0
3	0	0	0
4	0	0	0
5	0	0	0
6	0	0	0

Output Summary

General Information

Project description:	I-270 From W.Gude Dr to MD 28__Phase 1 Build				
Analyst:	DK	Date:	1/31/22	Area type:	Urban
First year of analysis:	2027				
Last year of analysis:	2045				

Crash Data Description

Freeway segments	Segment crash data available?	No	First year of crash data:	
	Project-level crash data available?	No	Last year of crash data:	
Ramp segments	Segment crash data available?	No	First year of crash data:	
	Project-level crash data available?	No	Last year of crash data:	
Ramp terminals	Segment crash data available?	No	First year of crash data:	
	Project-level crash data available?	No	Last year of crash data:	

Estimated Crash Statistics

Crashes for Entire Facility	**Total**	**K**	**A**	**B**	**C**	**PDO**
Estimated number of crashes during Study Period, crashes:	1266.7	5.5	15.4	85.0	271.5	889.3
Estimated average crash freq. during Study Period, crashes/yr:	66.7	0.3	0.8	4.5	14.3	46.8

Crashes by Facility Component	**Nbr. Sites**	**Total**	**K**	**A**	**B**	**C**	**PDO**
Freeway segments, crashes:	5	1221.7	5.1	14.2	79.1	260.7	862.6
Ramp segments, crashes:	6	44.9	0.4	1.2	5.9	10.8	26.7
Crossroad ramp terminals, crashes:	0	0.0	0.0	0.0	0.0	0.0	0.0

Crashes for Entire Facility by Year	**Year**	**Total**	**K**	**A**	**B**	**C**	**PDO**
Estimated number of crashes during the Study Period, crashes:	2027	66.7	0.3	0.8	4.5	14.3	46.8
	2028	66.7	0.3	0.8	4.5	14.3	46.8
	2029	66.7	0.3	0.8	4.5	14.3	46.8
	2030	66.7	0.3	0.8	4.5	14.3	46.8
	2031	66.7	0.3	0.8	4.5	14.3	46.8
	2032	66.7	0.3	0.8	4.5	14.3	46.8
	2033	66.7	0.3	0.8	4.5	14.3	46.8
	2034	66.7	0.3	0.8	4.5	14.3	46.8
	2035	66.7	0.3	0.8	4.5	14.3	46.8
	2036	66.7	0.3	0.8	4.5	14.3	46.8
	2037	66.7	0.3	0.8	4.5	14.3	46.8
	2038	66.7	0.3	0.8	4.5	14.3	46.8
	2039	66.7	0.3	0.8	4.5	14.3	46.8
	2040	66.7	0.3	0.8	4.5	14.3	46.8
	2041	66.7	0.3	0.8	4.5	14.3	46.8
	2042	66.7	0.3	0.8	4.5	14.3	46.8
	2043	66.7	0.3	0.8	4.5	14.3	46.8
	2044	66.7	0.3	0.8	4.5	14.3	46.8
	2045	66.7	0.3	0.8	4.5	14.3	46.8
	2046						
	2047						
	2048						
	2049						
	2050						

Distribution of Crashes for Entire Facility

Crash Type	**Crash Type Category**	**Estimated Number of Crashes During the Study Period**					
		Total	**K**	**A**	**B**	**C**	**PDO**
Multiple vehicle	Head-on crashes:	3.5	0.0	0.1	0.5	1.5	1.4
	Right-angle crashes:	20.2	0.1	0.3	1.8	5.8	12.2
	Rear-end crashes:	672.9	2.9	8.1	45.0	147.2	469.8
	Sideswipe crashes:	229.7	0.7	2.0	10.9	35.7	180.4
	Other multiple-vehicle crashes:	24.8	0.1	0.3	1.9	6.0	16.4
	Total multiple-vehicle crashes:	951.2	3.9	10.8	60.0	196.3	680.2
Single vehicle	Crashes with animal:	4.5	0.0	0.0	0.1	0.3	4.2
	Crashes with fixed object:	229.4	1.2	3.3	18.0	54.2	152.7
	Crashes with other object:	31.8	0.1	0.2	1.1	3.6	26.8
	Crashes with parked vehicle:	4.5	0.0	0.1	0.3	1.0	3.0
	Other single-vehicle crashes	45.2	0.4	1.0	5.4	16.1	22.3
	Total single-vehicle crashes:	315.5	1.6	4.6	25.0	75.2	209.0
	Total crashes:	1266.7	5.5	15.4	85.0	271.5	889.3

Evaluation Site Summary

General Information

Project description:	I-270 From MD 28 to MD 189_Phase 1 Build				
Analyst:	DK	Date:	1/31/22	Area type:	Urban
First year of analysis:	2027	Total length of freeway segments for Study Period (mi):		0.970	
Last year of analysis:	2045				

Site Description

Freeway Segments

Number	Lanes	Study Period Length (mi)	Study Period Description
1	10	0.070	GP MP 6.47 - MP 6.40
2	10	0.070	GP MP 6.40 - MP 6.33
3	10	0.040	GP MP 6.33 - MP 6.29
4	10	0.630	GP MP 6.29 - MP 5.66
5	10	0.160	GP MP 5.66 - MP 5.50
6	0	0.000	0
7	0	0.000	0
8	0	0.000	0
9	0	0.000	0
10	0	0.000	0
11	0	0.000	0
12	0	0.000	0
13	0	0.000	0
14	0	0.000	0
15	0	0.000	0
16	0	0.000	0
17	0	0.000	0
18	0	0.000	0
19	0	0.000	0
20	0	0.000	0

Ramp Segments

Number	Study Period Description		Number	Study Period Description	
1	C1-1 Ramp from I-270 NB to		21	0	
2	C2-2 Ramp from MD 28 WB		22	0	
3	C3-3 Ramp from MD 28 EB		23	0	
4	C4-4 Ramp from I-270 NB to		24	0	
5	C4-5 Ramp from I-270 NB to		25	0	
6	G5-6 Ramp from I-270 SB to		26	0	
7	G5-7 Ramp from I-270 SB to		27	0	
8	G6-8 Ramp from MD 28 EB		28	0	
9	G7-9 Ramp from MD 28 WB		29	0	
10	0		30	0	
11	0		31	0	
12	0		32	0	
13	0		33	0	
14	0		34	0	
15	0		35	0	
16	0		36	0	
17	0		37	0	
18	0		38	0	
19	0		39	0	
20	0		40	0	

Crossroad Ramp Terminals

Number	Config.	Control	Study Period Description
1	D3ex	Signal	MD 28 at I-270 NB
2	D3ex	Signal	MD 28 at I-270 SB
3	0	0	0
4	0	0	0
5	0	0	0
6	0	0	0

Output Summary

General Information

Project description:	I-270 From MD 28 to MD 189_Phase 1 Build				
Analyst:	DK	Date:	1/31/22	Area type:	Urban
First year of analysis:	2027				
Last year of analysis:	2045				

Crash Data Description

Freeway segments	Segment crash data available?	No	First year of crash data:	
	Project-level crash data available?	No	Last year of crash data:	
Ramp segments	Segment crash data available?	No	First year of crash data:	
	Project-level crash data available?	No	Last year of crash data:	
Ramp terminals	Segment crash data available?	No	First year of crash data:	
	Project-level crash data available?	No	Last year of crash data:	

Estimated Crash Statistics

Crashes for Entire Facility	**Total**	**K**	**A**	**B**	**C**	**PDO**
Estimated number of crashes during Study Period, crashes:	1807.6	6.7	25.2	135.4	392.0	1248.2
Estimated average crash freq. during Study Period, crashes/yr:	95.1	0.4	1.3	7.1	20.6	65.7

Crashes by Facility Component	**Nbr. Sites**	**Total**	**K**	**A**	**B**	**C**	**PDO**
Freeway segments, crashes:	5	1385.8	5.8	16.0	88.7	283.3	992.0
Ramp segments, crashes:	9	68.8	0.7	2.0	11.3	17.3	37.6
Crossroad ramp terminals, crashes:	2	353.0	0.3	7.2	35.5	91.4	218.7

Crashes for Entire Facility by Year	**Year**	**Total**	**K**	**A**	**B**	**C**	**PDO**
Estimated number of crashes during the Study Period, crashes:	2027	95.1	0.4	1.3	7.1	20.6	65.7
	2028	95.1	0.4	1.3	7.1	20.6	65.7
	2029	95.1	0.4	1.3	7.1	20.6	65.7
	2030	95.1	0.4	1.3	7.1	20.6	65.7
	2031	95.1	0.4	1.3	7.1	20.6	65.7
	2032	95.1	0.4	1.3	7.1	20.6	65.7
	2033	95.1	0.4	1.3	7.1	20.6	65.7
	2034	95.1	0.4	1.3	7.1	20.6	65.7
	2035	95.1	0.4	1.3	7.1	20.6	65.7
	2036	95.1	0.4	1.3	7.1	20.6	65.7
	2037	95.1	0.4	1.3	7.1	20.6	65.7
	2038	95.1	0.4	1.3	7.1	20.6	65.7
	2039	95.1	0.4	1.3	7.1	20.6	65.7
	2040	95.1	0.4	1.3	7.1	20.6	65.7
	2041	95.1	0.4	1.3	7.1	20.6	65.7
	2042	95.1	0.4	1.3	7.1	20.6	65.7
	2043	95.1	0.4	1.3	7.1	20.6	65.7
	2044	95.1	0.4	1.3	7.1	20.6	65.7
	2045	95.1	0.4	1.3	7.1	20.6	65.7
	2046						
	2047						
	2048						
	2049						
	2050						

Distribution of Crashes for Entire Facility

Crash Type	**Crash Type Category**	**Estimated Number of Crashes During the Study Period**					
		Total	**K**	**A**	**B**	**C**	**PDO**
Multiple vehicle	Head-on crashes:	7.1	0.0	0.2	1.0	2.8	3.1
	Right-angle crashes:	106.6	0.2	2.2	11.4	30.5	62.3
	Rear-end crashes:	978.1	3.6	14.1	75.6	225.0	659.8
	Sideswipe crashes:	307.2	0.8	2.6	14.3	44.1	245.4
	Other multiple-vehicle crashes:	35.1	0.2	0.5	2.7	8.0	23.8
	Total multiple-vehicle crashes:	1434.1	4.9	19.6	104.9	310.4	994.3
Single vehicle	Crashes with animal:	5.1	0.0	0.0	0.1	0.3	4.7
	Crashes with fixed object:	271.4	1.3	4.0	21.8	58.1	186.2
	Crashes with other object:	36.6	0.1	0.2	1.2	3.6	31.4
	Crashes with parked vehicle:	5.9	0.0	0.1	0.4	1.2	4.1
	Other single-vehicle crashes	54.6	0.4	1.3	7.1	18.4	27.5
	Total single-vehicle crashes:	373.5	1.8	5.6	30.6	81.6	253.9
	Total crashes:	1807.6	6.7	25.2	135.4	392.0	1248.2

Evaluation Site Summary

General Information

Project description:	I-270 From MD 189 to Wootton Parkway_Phase 1 Build				
Analyst:	DK	Date:	1/31/22	Area type:	Urban
First year of analysis:	2027	Total length of freeway segments for Study Period (mi):		0.600	
Last year of analysis:	2045				

Site Description

Freeway Segments

Number	Lanes	Study Period Length (mi)	Study Period Description
1	10	0.130	GP MP 5.50 - MP 5.37
2	10	0.160	GP MP 5.37 - MP 5.21
3	10	0.310	GP MP 5.21 - MP 4.90
4	0	0.000	0
5	0	0.000	0
6	0	0.000	0
7	0	0.000	0
8	0	0.000	0
9	0	0.000	0
10	0	0.000	0
11	0	0.000	0
12	0	0.000	0
13	0	0.000	0
14	0	0.000	0
15	0	0.000	0
16	0	0.000	0
17	0	0.000	0
18	0	0.000	0
19	0	0.000	0
20	0	0.000	0

Ramp Segments

Number	Study Period Description		Number	Study Period Description	
1	G1-1 Ramp from I-270 NB t		21	0	
2	G2-2 Ramp from MD 189 W		22	0	
3	G3-3 Ramp from MD 189 W		23	0	
4	G3-4 Ramp from MD 189 to		24	0	
5	G4-5 Ramp from I-270 SB t		25	0	
6	G4-6 Ramp from I-270 SB t		26	0	
7	G5-7 Ramp from I-270 SB t		27	0	
8	G6-8 Ramp from MD 189 Et		28	0	
9	G6-9 Ramp from MD 189 to		29	0	
10	G7-10 Ramp from MD 189 E		30	0	
11	G8-11 Ramp from I-270 NB		31	0	
12	G8-12 Ramp from I-270 NB		32	0	
13	0		33	0	
14	0		34	0	
15	0		35	0	
16	0		36	0	
17	0		37	0	
18	0		38	0	
19	0		39	0	
20	0		40	0	

Crossroad Ramp Terminals

Number	Config.	Control	Study Period Description
1	0	0	0
2	0	0	0
3	0	0	0
4	0	0	0
5	0	0	0
6	0	0	0

Output Summary

General Information

Project description:	I-270 From MD 189 to Wootton Parkway_Phase 1 Build				
Analyst:	DK	Date:	1/31/22	Area type:	Urban
First year of analysis:	2027				
Last year of analysis:	2045				

Crash Data Description

Freeway segments	Segment crash data available?	No	First year of crash data:	
	Project-level crash data available?	No	Last year of crash data:	
Ramp segments	Segment crash data available?	No	First year of crash data:	
	Project-level crash data available?	No	Last year of crash data:	
Ramp terminals	Segment crash data available?	No	First year of crash data:	
	Project-level crash data available?	No	Last year of crash data:	

Estimated Crash Statistics

Crashes for Entire Facility	**Total**	**K**	**A**	**B**	**C**	**PDO**
Estimated number of crashes during Study Period, crashes:	981.0	4.1	11.3	62.0	205.0	698.6
Estimated average crash freq. during Study Period, crashes/yr:	51.6	0.2	0.6	3.3	10.8	36.8

Crashes by Facility Component	**Nbr. Sites**	**Total**	**K**	**A**	**B**	**C**	**PDO**
Freeway segments, crashes:	3	936.7	3.6	10.1	56.0	194.8	672.2
Ramp segments, crashes:	12	44.3	0.4	1.2	6.1	10.3	26.3
Crossroad ramp terminals, crashes:	0	0.0	0.0	0.0	0.0	0.0	0.0

Crashes for Entire Facility by Year	**Year**	**Total**	**K**	**A**	**B**	**C**	**PDO**
Estimated number of crashes during the Study Period, crashes:	2027	51.6	0.2	0.6	3.3	10.8	36.8
	2028	51.6	0.2	0.6	3.3	10.8	36.8
	2029	51.6	0.2	0.6	3.3	10.8	36.8
	2030	51.6	0.2	0.6	3.3	10.8	36.8
	2031	51.6	0.2	0.6	3.3	10.8	36.8
	2032	51.6	0.2	0.6	3.3	10.8	36.8
	2033	51.6	0.2	0.6	3.3	10.8	36.8
	2034	51.6	0.2	0.6	3.3	10.8	36.8
	2035	51.6	0.2	0.6	3.3	10.8	36.8
	2036	51.6	0.2	0.6	3.3	10.8	36.8
	2037	51.6	0.2	0.6	3.3	10.8	36.8
	2038	51.6	0.2	0.6	3.3	10.8	36.8
	2039	51.6	0.2	0.6	3.3	10.8	36.8
	2040	51.6	0.2	0.6	3.3	10.8	36.8
	2041	51.6	0.2	0.6	3.3	10.8	36.8
	2042	51.6	0.2	0.6	3.3	10.8	36.8
	2043	51.6	0.2	0.6	3.3	10.8	36.8
	2044	51.6	0.2	0.6	3.3	10.8	36.8
	2045	51.6	0.2	0.6	3.3	10.8	36.8
	2046						
	2047						
	2048						
	2049						
	2050						

Distribution of Crashes for Entire Facility

Crash Type	**Crash Type Category**	**Estimated Number of Crashes During the Study Period**					
		Total	**K**	**A**	**B**	**C**	**PDO**
Multiple vehicle	Head-on crashes:	2.7	0.0	0.1	0.3	1.2	1.1
	Right-angle crashes:	15.9	0.1	0.2	1.3	4.5	9.9
	Rear-end crashes:	537.6	2.2	6.1	33.7	116.0	379.7
	Sideswipe crashes:	185.5	0.5	1.5	8.2	28.3	147.1
	Other multiple-vehicle crashes:	19.8	0.1	0.3	1.4	4.7	13.3
	Total multiple-vehicle crashes:	761.6	2.9	8.1	44.9	154.6	551.1
Single vehicle	Crashes with animal:	3.0	0.0	0.0	0.0	0.1	2.8
	Crashes with fixed object:	159.9	0.8	2.3	12.3	36.2	108.3
	Crashes with other object:	22.2	0.0	0.1	0.7	2.4	18.8
	Crashes with parked vehicle:	3.0	0.0	0.0	0.2	0.7	2.1
	Other single-vehicle crashes	31.3	0.3	0.7	3.8	11.0	15.5
	Total single-vehicle crashes:	219.4	1.1	3.2	17.1	50.4	147.5
Total crashes:		981.0	4.1	11.3	62.0	205.0	698.6

Evaluation Site Summary

General Information

Project description:	I-270 From Wootton Pkwy to Montrose Rd_Phase 1 Build				
Analyst:	NK	Date:	1/31/22	Area type:	Urban
First year of analysis:	2027	Total length of freeway segments for Study Period (mi):		0.770	
Last year of analysis:	2045				

Site Description

Freeway Segments

Number	Lanes	Study Period Length (mi)	Study Period Description
1	10	0.510	GP MP 4.95 - MP 4.44
2	10	0.040	GP MP 4.44 - MP 4.40
3	10	0.120	GP MP 4.40 - MP 4.28
4	10	0.060	GP MP 4.28 - MP 4.22
5	10	0.040	GP MP 4.22 - MP 4.18
6	0	0.000	0
7	0	0.000	0
8	0	0.000	0
9	0	0.000	0
10	0	0.000	0
11	0	0.000	0
12	0	0.000	0
13	0	0.000	0
14	0	0.000	0
15	0	0.000	0
16	0	0.000	0
17	0	0.000	0
18	0	0.000	0
19	0	0.000	0
20	0	0.000	0

Ramp Segments

Number	Study Period Description		Number	Study Period Description	
1	MT1-1 Ramp from I-270 SB		21	0	
2	MT1-2 Ramp from I-270 SB		22	0	
3	MT2-1 Ramp from Wootton		23	0	
4	MT3-1 Ramp from Wootton		24	0	
5	MT4-1 Ramp from I-270 NB		25	0	
6	MT4-2 Ramp from I-270 NB		26	0	
7	0		27	0	
8	0		28	0	
9	0		29	0	
10	0		30	0	
11	0		31	0	
12	0		32	0	
13	0		33	0	
14	0		34	0	
15	0		35	0	
16	0		36	0	
17	0		37	0	
18	0		38	0	
19	0		39	0	
20	0		40	0	

Crossroad Ramp Terminals

Number	Config.	Control	Study Period Description
1	0	0	0
2	0	0	0
3	0	0	0
4	0	0	0
5	0	0	0
6	0	0	0

Output Summary

General Information

Project description:	I-270 From Wootton Pkwy to Montrose Rd_Phase 1 Build				
Analyst:	NK	Date:	1/31/22	Area type:	Urban
First year of analysis:	2027				
Last year of analysis:	2045				

Crash Data Description

Freeway segments	Segment crash data available?	No	First year of crash data:	
	Project-level crash data available?	No	Last year of crash data:	
Ramp segments	Segment crash data available?	No	First year of crash data:	
	Project-level crash data available?	No	Last year of crash data:	
Ramp terminals	Segment crash data available?	No	First year of crash data:	
	Project-level crash data available?	No	Last year of crash data:	

Estimated Crash Statistics

Crashes for Entire Facility	**Total**	**K**	**A**	**B**	**C**	**PDO**
Estimated number of crashes during Study Period, crashes:	949.0	4.0	11.2	61.6	213.4	658.9
Estimated average crash freq. during Study Period, crashes/yr:	49.9	0.2	0.6	3.2	11.2	34.7

Crashes by Facility Component	**Nbr. Sites**	**Total**	**K**	**A**	**B**	**C**	**PDO**
Freeway segments, crashes:	5	912.6	3.7	10.2	56.7	204.2	637.7
Ramp segments, crashes:	6	36.5	0.3	1.0	4.9	9.1	21.2
Crossroad ramp terminals, crashes:	0	0.0	0.0	0.0	0.0	0.0	0.0

Crashes for Entire Facility by Year	**Year**	**Total**	**K**	**A**	**B**	**C**	**PDO**
Estimated number of crashes during the Study Period, crashes:	2027	49.9	0.2	0.6	3.2	11.2	34.7
	2028	49.9	0.2	0.6	3.2	11.2	34.7
	2029	49.9	0.2	0.6	3.2	11.2	34.7
	2030	49.9	0.2	0.6	3.2	11.2	34.7
	2031	49.9	0.2	0.6	3.2	11.2	34.7
	2032	49.9	0.2	0.6	3.2	11.2	34.7
	2033	49.9	0.2	0.6	3.2	11.2	34.7
	2034	49.9	0.2	0.6	3.2	11.2	34.7
	2035	49.9	0.2	0.6	3.2	11.2	34.7
	2036	49.9	0.2	0.6	3.2	11.2	34.7
	2037	49.9	0.2	0.6	3.2	11.2	34.7
	2038	49.9	0.2	0.6	3.2	11.2	34.7
	2039	49.9	0.2	0.6	3.2	11.2	34.7
	2040	49.9	0.2	0.6	3.2	11.2	34.7
	2041	49.9	0.2	0.6	3.2	11.2	34.7
	2042	49.9	0.2	0.6	3.2	11.2	34.7
	2043	49.9	0.2	0.6	3.2	11.2	34.7
	2044	49.9	0.2	0.6	3.2	11.2	34.7
	2045	49.9	0.2	0.6	3.2	11.2	34.7
	2046						
	2047						
	2048						
	2049						
	2050						

Distribution of Crashes for Entire Facility

Crash Type	**Crash Type Category**	**Estimated Number of Crashes During the Study Period**					
		Total	**K**	**A**	**B**	**C**	**PDO**
Multiple vehicle	Head-on crashes:	2.7	0.0	0.1	0.3	1.2	1.1
	Right-angle crashes:	15.3	0.1	0.2	1.2	4.4	9.4
	Rear-end crashes:	517.0	2.1	5.8	32.2	115.1	361.9
	Sideswipe crashes:	176.4	0.5	1.4	7.9	28.2	138.5
	Other multiple-vehicle crashes:	18.8	0.1	0.2	1.3	4.6	12.5
	Total multiple-vehicle crashes:	730.1	2.8	7.7	42.9	153.4	523.3
Single vehicle	Crashes with animal:	2.9	0.0	0.0	0.1	0.2	2.6
	Crashes with fixed object:	159.6	0.9	2.5	13.4	43.1	99.7
	Crashes with other object:	21.2	0.1	0.2	0.8	2.9	17.2
	Crashes with parked vehicle:	2.9	0.0	0.0	0.2	0.8	1.8
	Other single-vehicle crashes	32.3	0.3	0.8	4.1	12.9	14.2
	Total single-vehicle crashes:	218.9	1.2	3.5	18.7	59.9	135.6
Total crashes:		949.0	4.0	11.2	61.6	213.4	658.9

Evaluation Site Summary

General Information

Project description:	I-270 From Montrose Rd to I-270 Y_Phase 1 Build				
Analyst:	NK	Date:	1/31/22	Area type:	Urban
First year of analysis:	2027	Total length of freeway segments for Study Period (mi):		1.580	
Last year of analysis:	2045				

Site Description

Freeway Segments

Number	Lanes	Study Period Length (mi)	Study Period Description
1	10	0.030	GP MP 4.18 - MP 4.15
2	10	0.040	GP MP 4.15 - MP 4.11
3	10	0.110	GP MP 4.11 - MP 4.00
4	10	0.040	GP MP 4.00 - MP 3.96
5	10	1.070	GP MP 3.96 - MP 2.89
6	10	0.020	GP MP 2.89 - MP 2.87
7	10	0.220	GP MP 2.87 - MP 2.65
8	6	0.050	GP MP 2.65 - MP 2.60
9	0	0.000	0
10	0	0.000	0
11	0	0.000	0
12	0	0.000	0
13	0	0.000	0
14	0	0.000	0
15	0	0.000	0
16	0	0.000	0
17	0	0.000	0
18	0	0.000	0
19	0	0.000	0
20	0	0.000	0

Ramp Segments

Number	Study Period Description		Number	Study Period Description	
1	C1-1 Ramp from I-270 NB to		21	0	
2	C2-1 Ramp from Tower Oak		22	0	
3	C2-2 Ramp from Montrose F		23	0	
4	C3-1 Ramp from Montrose F		24	0	
5	C4-1 Ramp from I-270 NB to		25	0	
6	C5-1 Ramp from I-270 Sb to		26	0	
7	C6-1 Ramp from Montrose F		27	0	
8	C6-2 Ramp from Montrose F		28	0	
9	C6-3 Ramp from Montrose F		29	0	
10	C7-1 Ramp from Montrose F		30	0	
11	C7-2 Ramp from Montrose F		31	0	
12	C8-1 Ramp from I-270 SB to		32	0	
13	C8-2 Ramp from I-270 SB to		33	0	
14	C8-3 Ramp from I-270 SB to		34	0	
15	C10-1 Ramp from I-270 NB		35	0	
16	C10-2 Ramp from I-270 NB		36	0	
17	0		37	0	
18	0		38	0	
19	0		39	0	
20	0		40	0	

Crossroad Ramp Terminals

Number	Config.	Control	Study Period Description
1	B2	Signal	I-270 NB at Tower Oaks Blvd/Geico Entrance
2	0	0	0
3	0	0	0
4	0	0	0
5	0	0	0
6	0	0	0

Output Summary

General Information

Project description:	I-270 From Montrose Rd to I-270 Y_Phase 1 Build				
Analyst:	NK	Date:	1/31/22	Area type:	Urban
First year of analysis:	2027				
Last year of analysis:	2045				

Crash Data Description

Freeway segments	Segment crash data available?	No	First year of crash data:	
	Project-level crash data available?	No	Last year of crash data:	
Ramp segments	Segment crash data available?	No	First year of crash data:	
	Project-level crash data available?	No	Last year of crash data:	
Ramp terminals	Segment crash data available?	No	First year of crash data:	
	Project-level crash data available?	No	Last year of crash data:	

Estimated Crash Statistics

Crashes for Entire Facility	**Total**	**K**	**A**	**B**	**C**	**PDO**
Estimated number of crashes during Study Period, crashes:	2095.3	8.1	24.5	135.0	465.4	1462.3
Estimated average crash freq. during Study Period, crashes/yr:	110.3	0.4	1.3	7.1	24.5	77.0

Crashes by Facility Component	**Nbr. Sites**	**Total**	**K**	**A**	**B**	**C**	**PDO**
Freeway segments, crashes:	8	1870.4	7.3	20.3	112.8	406.3	1323.8
Ramp segments, crashes:	16	76.5	0.8	2.4	11.5	17.4	44.4
Crossroad ramp terminals, crashes:	1	148.4	0.1	1.7	10.7	41.8	94.1

Crashes for Entire Facility by Year	**Year**	**Total**	**K**	**A**	**B**	**C**	**PDO**
Estimated number of crashes during the Study Period, crashes:	2027	110.3	0.4	1.3	7.1	24.5	77.0
	2028	110.3	0.4	1.3	7.1	24.5	77.0
	2029	110.3	0.4	1.3	7.1	24.5	77.0
	2030	110.3	0.4	1.3	7.1	24.5	77.0
	2031	110.3	0.4	1.3	7.1	24.5	77.0
	2032	110.3	0.4	1.3	7.1	24.5	77.0
	2033	110.3	0.4	1.3	7.1	24.5	77.0
	2034	110.3	0.4	1.3	7.1	24.5	77.0
	2035	110.3	0.4	1.3	7.1	24.5	77.0
	2036	110.3	0.4	1.3	7.1	24.5	77.0
	2037	110.3	0.4	1.3	7.1	24.5	77.0
	2038	110.3	0.4	1.3	7.1	24.5	77.0
	2039	110.3	0.4	1.3	7.1	24.5	77.0
	2040	110.3	0.4	1.3	7.1	24.5	77.0
	2041	110.3	0.4	1.3	7.1	24.5	77.0
	2042	110.3	0.4	1.3	7.1	24.5	77.0
	2043	110.3	0.4	1.3	7.1	24.5	77.0
	2044	110.3	0.4	1.3	7.1	24.5	77.0
	2045	110.3	0.4	1.3	7.1	24.5	77.0
	2046						
	2047						
	2048						
	2049						
	2050						

Distribution of Crashes for Entire Facility

Crash Type	**Crash Type Category**	**Estimated Number of Crashes During the Study Period**					
		Total	**K**	**A**	**B**	**C**	**PDO**
Multiple vehicle	Head-on crashes:	6.7	0.0	0.1	0.8	2.9	2.9
	Right-angle crashes:	66.4	0.2	0.9	5.3	20.0	40.0
	Rear-end crashes:	1139.0	4.2	12.6	70.9	255.4	795.9
	Sideswipe crashes:	378.1	1.0	2.9	15.9	57.2	301.1
	Other multiple-vehicle crashes:	41.6	0.2	0.5	2.9	9.9	28.2
	Total multiple-vehicle crashes:	1631.9	5.6	17.1	95.8	345.4	1168.0
Single vehicle	Crashes with animal:	6.3	0.0	0.0	0.1	0.4	5.7
	Crashes with fixed object:	337.5	1.8	5.3	28.1	86.3	215.9
	Crashes with other object:	44.4	0.1	0.3	1.7	5.7	36.6
	Crashes with parked vehicle:	6.8	0.0	0.1	0.5	1.7	4.4
	Other single-vehicle crashes	68.4	0.6	1.6	8.7	26.0	31.6
	Total single-vehicle crashes:	463.4	2.6	7.4	39.2	120.1	294.2
	Total crashes:	2095.3	8.1	24.5	135.0	465.4	1462.3

Evaluation Site Summary

General Information

Project description:	I-270 From I-270 Y to Rockledge Blvd_Phase 1 Build				
Analyst:	NK	Date:	1/31/22	Area type:	Urban
First year of analysis:	2027	Total length of freeway segments for Study Period (mi):		0.730	
Last year of analysis:	2045				

Site Description

Freeway Segments

Number	Lanes	Study Period Length (mi)	Study Period Description
1	6	0.460	GP MP 2.60 - MP 2.14
2	5	0.090	GP MP 2.14 - MP 2.05
3	4	0.180	GP MP 2.05 - MP 1.87
4	0	0.000	0
5	0	0.000	0
6	0	0.000	0
7	0	0.000	0
8	0	0.000	0
9	0	0.000	0
10	0	0.000	0
11	0	0.000	0
12	0	0.000	0
13	0	0.000	0
14	0	0.000	0
15	0	0.000	0
16	0	0.000	0
17	0	0.000	0
18	0	0.000	0
19	0	0.000	0
20	0	0.000	0

Ramp Segments

Number	Study Period Description		Number	Study Period Description	
1	0		21	0	
2	0		22	0	
3	0		23	0	
4	0		24	0	
5	0		25	0	
6	0		26	0	
7	0		27	0	
8	0		28	0	
9	0		29	0	
10	0		30	0	
11	0		31	0	
12	0		32	0	
13	0		33	0	
14	0		34	0	
15	0		35	0	
16	0		36	0	
17	0		37	0	
18	0		38	0	
19	0		39	0	
20	0		40	0	

Crossroad Ramp Terminals

Number	Config.	Control	Study Period Description
1	0	0	0
2	0	0	0
3	0	0	0
4	0	0	0
5	0	0	0
6	0	0	0

Output Summary

General Information

Project description:	I-270 From I-270 Y to Rockledge Blvd_Phase 1 Build				
Analyst:	NK	Date:	1/31/22	Area type:	Urban
First year of analysis:	2027				
Last year of analysis:	2045				

Crash Data Description

Freeway segments	Segment crash data available?	No	First year of crash data:	
	Project-level crash data available?	No	Last year of crash data:	
Ramp segments	Segment crash data available?	No	First year of crash data:	
	Project-level crash data available?	No	Last year of crash data:	
Ramp terminals	Segment crash data available?	No	First year of crash data:	
	Project-level crash data available?	No	Last year of crash data:	

Estimated Crash Statistics

Crashes for Entire Facility	**Total**	**K**	**A**	**B**	**C**	**PDO**
Estimated number of crashes during Study Period, crashes:	415.9	1.8	5.1	28.2	88.4	292.4
Estimated average crash freq. during Study Period, crashes/yr:	21.9	0.1	0.3	1.5	4.7	15.4

Crashes by Facility Component	**Nbr. Sites**	**Total**	**K**	**A**	**B**	**C**	**PDO**
Freeway segments, crashes:	3	415.9	1.8	5.1	28.2	88.4	292.4
Ramp segments, crashes:	0	0.0	0.0	0.0	0.0	0.0	0.0
Crossroad ramp terminals, crashes:	0	0.0	0.0	0.0	0.0	0.0	0.0

Crashes for Entire Facility by Year	**Year**	**Total**	**K**	**A**	**B**	**C**	**PDO**
Estimated number of crashes during the Study Period, crashes:	2027	21.9	0.1	0.3	1.5	4.7	15.4
	2028	21.9	0.1	0.3	1.5	4.7	15.4
	2029	21.9	0.1	0.3	1.5	4.7	15.4
	2030	21.9	0.1	0.3	1.5	4.7	15.4
	2031	21.9	0.1	0.3	1.5	4.7	15.4
	2032	21.9	0.1	0.3	1.5	4.7	15.4
	2033	21.9	0.1	0.3	1.5	4.7	15.4
	2034	21.9	0.1	0.3	1.5	4.7	15.4
	2035	21.9	0.1	0.3	1.5	4.7	15.4
	2036	21.9	0.1	0.3	1.5	4.7	15.4
	2037	21.9	0.1	0.3	1.5	4.7	15.4
	2038	21.9	0.1	0.3	1.5	4.7	15.4
	2039	21.9	0.1	0.3	1.5	4.7	15.4
	2040	21.9	0.1	0.3	1.5	4.7	15.4
	2041	21.9	0.1	0.3	1.5	4.7	15.4
	2042	21.9	0.1	0.3	1.5	4.7	15.4
	2043	21.9	0.1	0.3	1.5	4.7	15.4
	2044	21.9	0.1	0.3	1.5	4.7	15.4
	2045	21.9	0.1	0.3	1.5	4.7	15.4
	2046						
	2047						
	2048						
	2049						
	2050						

Distribution of Crashes for Entire Facility

Crash Type	**Crash Type Category**	**Estimated Number of Crashes During the Study Period**					
		Total	**K**	**A**	**B**	**C**	**PDO**
Multiple vehicle	Head-on crashes:	1.1	0.0	0.0	0.2	0.5	0.4
	Right-angle crashes:	6.4	0.0	0.1	0.6	1.9	3.8
	Rear-end crashes:	217.2	1.0	2.8	15.7	49.1	148.6
	Sideswipe crashes:	72.6	0.3	0.7	3.9	12.1	55.7
	Other multiple-vehicle crashes:	7.6	0.0	0.1	0.6	1.9	4.9
	Total multiple-vehicle crashes:	305.0	1.4	3.8	20.9	65.5	213.5
Single vehicle	Crashes with animal:	1.8	0.0	0.0	0.0	0.1	1.7
	Crashes with fixed object:	80.0	0.3	0.9	5.2	16.5	57.0
	Crashes with other object:	12.8	0.0	0.1	0.4	1.3	11.0
	Crashes with parked vehicle:	1.5	0.0	0.0	0.1	0.3	1.1
	Other single-vehicle crashes	14.8	0.1	0.3	1.5	4.8	8.1
	Total single-vehicle crashes:	110.9	0.5	1.3	7.3	22.9	78.9
	Total crashes:	415.9	1.8	5.1	28.2	88.4	292.4

Evaluation Site Summary

General Information

Project description:	I-270 From Rockledge Blvd to MD 187				
Analyst:	NK	Date:	1/31/22	Area type:	Urban
First year of analysis:	2027	Total length of freeway segments for Study Period (mi):		0.290	
Last year of analysis:	2045				

Site Description

Freeway Segments

Number	Lanes	Study Period Length (mi)	Study Period Description
1	4	0.180	GP MP 1.87 - MP 1.69
2	4	0.010	GP MP 1.69 - MP 1.68
3	4	0.100	GP MP 1.68 - MP 1.58
4	0	0.000	0
5	0	0.000	0
6	0	0.000	0
7	0	0.000	0
8	0	0.000	0
9	0	0.000	0
10	0	0.000	0
11	0	0.000	0
12	0	0.000	0
13	0	0.000	0
14	0	0.000	0
15	0	0.000	0
16	0	0.000	0
17	0	0.000	0
18	0	0.000	0
19	0	0.000	0
20	0	0.000	0

Ramp Segments

Number	Study Period Description	Number	Study Period Description
1	G3-1 Ramp from I-270SB to	21	0
2	G8-2 Ramp from Rockledge	22	0
3	G2-3 Ramp from I-270 NB t	23	0
4	G4-4 Ramp from Rockledge	24	0
5	0	25	0
6	0	26	0
7	0	27	0
8	0	28	0
9	0	29	0
10	0	30	0
11	0	31	0
12	0	32	0
13	0	33	0
14	0	34	0
15	0	35	0
16	0	36	0
17	0	37	0
18	0	38	0
19	0	39	0
20	0	40	0

Crossroad Ramp Terminals

Number	Config.	Control	Study Period Description
1	D4	Signal	Rockledge Blvd at I-270 NB
2	D4	Signal	Rockledge Blvd at I-270 SB
3	0	0	0
4	0	0	0
5	0	0	0
6	0	0	0

Output Summary

General Information

Project description:	I-270 From Rockledge Blvd to MD 187				
Analyst:	NK	Date:	1/31/22	Area type:	Urban
First year of analysis:	2027				
Last year of analysis:	2045				

Crash Data Description

Freeway segments	Segment crash data available?	No	First year of crash data:	
	Project-level crash data available?	No	Last year of crash data:	
Ramp segments	Segment crash data available?	No	First year of crash data:	
	Project-level crash data available?	No	Last year of crash data:	
Ramp terminals	Segment crash data available?	No	First year of crash data:	
	Project-level crash data available?	No	Last year of crash data:	

Estimated Crash Statistics

Crashes for Entire Facility	**Total**	**K**	**A**	**B**	**C**	**PDO**
Estimated number of crashes during Study Period, crashes:	643.2	1.4	7.5	41.4	163.2	429.7
Estimated average crash freq. during Study Period, crashes/yr:	33.9	0.1	0.4	2.2	8.6	22.6

Crashes by Facility Component	**Nbr. Sites**	**Total**	**K**	**A**	**B**	**C**	**PDO**
Freeway segments, crashes:	3	176.3	0.7	2.0	11.5	39.0	123.1
Ramp segments, crashes:	4	57.8	0.5	1.6	6.5	16.4	32.8
Crossroad ramp terminals, crashes:	2	409.2	0.2	3.9	23.5	107.8	273.8

Crashes for Entire Facility by Year	**Year**	**Total**	**K**	**A**	**B**	**C**	**PDO**
Estimated number of crashes during the Study Period, crashes:	2027	33.9	0.1	0.4	2.2	8.6	22.6
	2028	33.9	0.1	0.4	2.2	8.6	22.6
	2029	33.9	0.1	0.4	2.2	8.6	22.6
	2030	33.9	0.1	0.4	2.2	8.6	22.6
	2031	33.9	0.1	0.4	2.2	8.6	22.6
	2032	33.9	0.1	0.4	2.2	8.6	22.6
	2033	33.9	0.1	0.4	2.2	8.6	22.6
	2034	33.9	0.1	0.4	2.2	8.6	22.6
	2035	33.9	0.1	0.4	2.2	8.6	22.6
	2036	33.9	0.1	0.4	2.2	8.6	22.6
	2037	33.9	0.1	0.4	2.2	8.6	22.6
	2038	33.9	0.1	0.4	2.2	8.6	22.6
	2039	33.9	0.1	0.4	2.2	8.6	22.6
	2040	33.9	0.1	0.4	2.2	8.6	22.6
	2041	33.9	0.1	0.4	2.2	8.6	22.6
	2042	33.9	0.1	0.4	2.2	8.6	22.6
	2043	33.9	0.1	0.4	2.2	8.6	22.6
	2044	33.9	0.1	0.4	2.2	8.6	22.6
	2045	33.9	0.1	0.4	2.2	8.6	22.6
	2046						
	2047						
	2048						
	2049						
	2050						

Distribution of Crashes for Entire Facility

Crash Type	**Crash Type Category**	**Estimated Number of Crashes During the Study Period**					
		Total	**K**	**A**	**B**	**C**	**PDO**
Multiple vehicle	Head-on crashes:	4.0	0.0	0.1	0.3	1.4	2.2
	Right-angle crashes:	98.2	0.1	1.1	6.3	28.8	62.0
	Rear-end crashes:	334.5	0.5	3.7	21.6	90.3	218.4
	Sideswipe crashes:	81.7	0.1	0.5	2.7	10.1	68.4
	Other multiple-vehicle crashes:	11.5	0.0	0.1	0.6	2.2	8.6
	Total multiple-vehicle crashes:	529.9	0.7	5.4	31.5	132.8	359.5
Single vehicle	Crashes with animal:	0.9	0.0	0.0	0.0	0.1	0.8
	Crashes with fixed object:	85.1	0.5	1.5	7.0	21.3	54.9
	Crashes with other object:	6.8	0.0	0.1	0.3	1.0	5.5
	Crashes with parked vehicle:	1.8	0.0	0.0	0.1	0.4	1.2
	Other single-vehicle crashes	18.7	0.2	0.5	2.5	7.7	7.8
	Total single-vehicle crashes:	113.3	0.7	2.1	9.9	30.4	70.2
	Total crashes:	643.2	1.4	7.5	41.4	163.2	429.7

Evaluation Site Summary

General Information

Project description:	I-270 From MD 187 to MD 355/I-495				
Analyst:	NK	Date:	1/31/22	Area type:	Urban
First year of analysis:	2027	Total length of freeway segments for Study Period (mi):		1.420	
Last year of analysis:	2045				

Site Description

Freeway Segments

Number	Lanes	Study Period Length (mi)	Study Period Description
1	4	0.140	GP MP 1.58 - MP 1.44
2	4	0.030	GP MP 1.44 - MP 1.41
3	4	0.410	GP MP 1.41 - MP 1.00
4	5	0.360	GP MP 1.00 - MP 0.64
5	6	0.430	GP MP 0.64 - MP 0.21
6	5	0.050	GP MP 0.21 - MP 0.16
7	0	0.000	0
8	0	0.000	0
9	0	0.000	0
10	0	0.000	0
11	0	0.000	0
12	0	0.000	0
13	0	0.000	0
14	0	0.000	0
15	0	0.000	0
16	0	0.000	0
17	0	0.000	0
18	0	0.000	0
19	0	0.000	0
20	0	0.000	0

Ramp Segments

Number	Study Period Description	Number	Study Period Description
1	G2-1 Ramp from I-270 NB t	21	0
2	G4-2 Ramp from MD 187 N	22	0
3	G4-3 Ramp from MD 187 N	23	0
4	G6-4 Ramp from I-270 SB t	24	0
5	G6-5 Ramp from I-270 SB t	25	0
6	G8-6 Ramp from MD 187 to	26	0
7	G8-10 Ramp from MD 187 t	27	0
8	0	28	0
9	0	29	0
10	0	30	0
11	0	31	0
12	0	32	0
13	0	33	0
14	0	34	0
15	0	35	0
16	0	36	0
17	0	37	0
18	0	38	0
19	0	39	0
20	0	40	0

Crossroad Ramp Terminals

Number	Config.	Control	Study Period Description
1	D4	Signal	MD 187 at I-270 NB
2	D4	Signal	MD 187 at I-270 SB
3	0	0	0
4	0	0	0
5	0	0	0
6	0	0	0

Output Summary

General Information

Project description:	I-270 From MD 187 to MD 355/I-495				
Analyst:	NK	Date:	1/31/22	Area type:	Urban
First year of analysis:	2027				
Last year of analysis:	2045				

Crash Data Description

Freeway segments	Segment crash data available?	No	First year of crash data:	
	Project-level crash data available?	No	Last year of crash data:	
Ramp segments	Segment crash data available?	No	First year of crash data:	
	Project-level crash data available?	No	Last year of crash data:	
Ramp terminals	Segment crash data available?	No	First year of crash data:	
	Project-level crash data available?	No	Last year of crash data:	

Estimated Crash Statistics

Crashes for Entire Facility	**Total**	**K**	**A**	**B**	**C**	**PDO**
Estimated number of crashes during Study Period, crashes:	1617.9	5.2	19.8	112.8	450.2	1029.9
Estimated average crash freq. during Study Period, crashes/yr:	85.2	0.3	1.0	5.9	23.7	54.2

Crashes by Facility Component	**Nbr. Sites**	**Total**	**K**	**A**	**B**	**C**	**PDO**
Freeway segments, crashes:	6	996.2	4.4	12.0	65.9	213.6	700.4
Ramp segments, crashes:	7	66.6	0.6	1.7	7.3	19.2	37.9
Crossroad ramp terminals, crashes:	2	555.0	0.2	6.0	39.6	217.5	291.7

Crashes for Entire Facility by Year	**Year**	**Total**	**K**	**A**	**B**	**C**	**PDO**
Estimated number of crashes during the Study Period, crashes:	2027	85.2	0.3	1.0	5.9	23.7	54.2
	2028	85.2	0.3	1.0	5.9	23.7	54.2
	2029	85.2	0.3	1.0	5.9	23.7	54.2
	2030	85.2	0.3	1.0	5.9	23.7	54.2
	2031	85.2	0.3	1.0	5.9	23.7	54.2
	2032	85.2	0.3	1.0	5.9	23.7	54.2
	2033	85.2	0.3	1.0	5.9	23.7	54.2
	2034	85.2	0.3	1.0	5.9	23.7	54.2
	2035	85.2	0.3	1.0	5.9	23.7	54.2
	2036	85.2	0.3	1.0	5.9	23.7	54.2
	2037	85.2	0.3	1.0	5.9	23.7	54.2
	2038	85.2	0.3	1.0	5.9	23.7	54.2
	2039	85.2	0.3	1.0	5.9	23.7	54.2
	2040	85.2	0.3	1.0	5.9	23.7	54.2
	2041	85.2	0.3	1.0	5.9	23.7	54.2
	2042	85.2	0.3	1.0	5.9	23.7	54.2
	2043	85.2	0.3	1.0	5.9	23.7	54.2
	2044	85.2	0.3	1.0	5.9	23.7	54.2
	2045	85.2	0.3	1.0	5.9	23.7	54.2
	2046						
	2047						
	2048						
	2049						
	2050						

Distribution of Crashes for Entire Facility

Crash Type	**Crash Type Category**	**Estimated Number of Crashes During the Study Period**					
		Total	**K**	**A**	**B**	**C**	**PDO**
Multiple vehicle	Head-on crashes:	7.9	0.0	0.1	0.8	3.7	3.2
	Right-angle crashes:	149.3	0.2	1.8	11.8	61.3	74.2
	Rear-end crashes:	881.9	2.7	10.8	63.3	260.4	544.5
	Sideswipe crashes:	248.0	0.6	2.0	11.0	39.4	195.0
	Other multiple-vehicle crashes:	29.4	0.1	0.4	2.0	7.2	19.7
	Total multiple-vehicle crashes:	1316.4	3.7	15.1	89.0	372.0	836.7
Single vehicle	Crashes with animal:	3.5	0.0	0.0	0.1	0.2	3.2
	Crashes with fixed object:	219.8	1.1	3.3	16.9	54.9	143.6
	Crashes with other object:	27.3	0.1	0.2	1.0	3.3	22.8
	Crashes with parked vehicle:	4.6	0.0	0.1	0.3	1.1	3.1
	Other single-vehicle crashes	46.3	0.3	1.1	5.6	18.7	20.6
	Total single-vehicle crashes:	301.5	1.5	4.6	23.8	78.2	193.3
	Total crashes:	1617.9	5.2	19.8	112.8	450.2	1029.9

Evaluation Site Summary

General Information

Project description:	I-270 West Spur From Westlake Terrace to I-270_Phase 1 Build				
Analyst:	DK	Date:	1/31/22	Area type:	Urban
First year of analysis:	2027	Total length of freeway segments for Study Period (mi):		0.660	
Last year of analysis:	2045				

Site Description

Freeway Segments

Number	Lanes	Study Period Length (mi)	Study Period Description
1	7	0.140	GP MP 1.15 - MP 1.29
2	7	0.520	GP MP 1.29 - MP 1.81
3	0	0.000	0
4	0	0.000	0
5	0	0.000	0
6	0	0.000	0
7	0	0.000	0
8	0	0.000	0
9	0	0.000	0
10	0	0.000	0
11	0	0.000	0
12	0	0.000	0
13	0	0.000	0
14	0	0.000	0
15	0	0.000	0
16	0	0.000	0
17	0	0.000	0
18	0	0.000	0
19	0	0.000	0
20	0	0.000	0

Ramp Segments

Number	Study Period Description		Number	Study Period Description	
1	M3-1 Ramp from Westlake T		21	0	
2	M5-2 Ramp from I-270 Y SE		22	0	
3	M-3 Ramp from I-270 Y NB		23	0	
4	M-4 Ramp from Westlake T		24	0	
5	0		25	0	
6	0		26	0	
7	0		27	0	
8	0		28	0	
9	0		29	0	
10	0		30	0	
11	0		31	0	
12	0		32	0	
13	0		33	0	
14	0		34	0	
15	0		35	0	
16	0		36	0	
17	0		37	0	
18	0		38	0	
19	0		39	0	
20	0		40	0	

Crossroad Ramp Terminals

Number	Config.	Control	Study Period Description
1	0	0	0
2	0	0	0
3	0	0	0
4	0	0	0
5	0	0	0
6	0	0	0

Output Summary							
General Information							
Project description:	I-270 West Spur From Westlake Terrace to I-270_Phase 1 Build						
Analyst:	DK	Date:	1/31/22	Area type:	Urban		
First year of analysis:	2027						
Last year of analysis:	2045						
Crash Data Description							
Freeway segments	Segment crash data available?		No	First year of crash data:			
	Project-level crash data available?		No	Last year of crash data:			
Ramp segments	Segment crash data available?		No	First year of crash data:			
	Project-level crash data available?		No	Last year of crash data:			
Ramp terminals	Segment crash data available?		No	First year of crash data:			
	Project-level crash data available?		No	Last year of crash data:			

Estimated Crash Statistics							
Crashes for Entire Facility		**Total**	**K**	**A**	**B**	**C**	**PDO**
Estimated number of crashes during Study Period, crashes:		607.4	3.0	8.3	45.1	125.4	425.6
Estimated average crash freq. during Study Period, crashes/yr:		32.0	0.2	0.4	2.4	6.6	22.4
Crashes by Facility Component	**Nbr. Sites**	**Total**	**K**	**A**	**B**	**C**	**PDO**
Freeway segments, crashes:	2	573.8	2.7	7.4	40.3	116.9	406.6
Ramp segments, crashes:	4	33.6	0.3	0.9	4.8	8.5	18.9
Crossroad ramp terminals, crashes:	0	0.0	0.0	0.0	0.0	0.0	0.0
Crashes for Entire Facility by Year	**Year**	**Total**	**K**	**A**	**B**	**C**	**PDO**
Estimated number of crashes during the Study Period, crashes:	2027	32.0	0.2	0.4	2.4	6.6	22.4
	2028	32.0	0.2	0.4	2.4	6.6	22.4
	2029	32.0	0.2	0.4	2.4	6.6	22.4
	2030	32.0	0.2	0.4	2.4	6.6	22.4
	2031	32.0	0.2	0.4	2.4	6.6	22.4
	2032	32.0	0.2	0.4	2.4	6.6	22.4
	2033	32.0	0.2	0.4	2.4	6.6	22.4
	2034	32.0	0.2	0.4	2.4	6.6	22.4
	2035	32.0	0.2	0.4	2.4	6.6	22.4
	2036	32.0	0.2	0.4	2.4	6.6	22.4
	2037	32.0	0.2	0.4	2.4	6.6	22.4
	2038	32.0	0.2	0.4	2.4	6.6	22.4
	2039	32.0	0.2	0.4	2.4	6.6	22.4
	2040	32.0	0.2	0.4	2.4	6.6	22.4
	2041	32.0	0.2	0.4	2.4	6.6	22.4
	2042	32.0	0.2	0.4	2.4	6.6	22.4
	2043	32.0	0.2	0.4	2.4	6.6	22.4
	2044	32.0	0.2	0.4	2.4	6.6	22.4
	2045	32.0	0.2	0.4	2.4	6.6	22.4
	2046						
	2047						
	2048						
	2049						
	2050						

Distribution of Crashes for Entire Facility							
Crash Type	**Crash Type Category**	**Estimated Number of Crashes During the Study Period**					
		Total	**K**	**A**	**B**	**C**	**PDO**
Multiple vehicle	Head-on crashes:	1.5	0.0	0.0	0.2	0.7	0.6
	Right-angle crashes:	9.6	0.1	0.2	0.9	2.6	5.9
	Rear-end crashes:	310.5	1.6	4.2	23.2	67.0	214.5
	Sideswipe crashes:	112.5	0.4	1.0	5.6	16.1	89.4
	Other multiple-vehicle crashes:	11.1	0.1	0.2	0.9	2.7	7.2
	Total multiple-vehicle crashes:	445.3	2.1	5.6	30.9	89.1	317.6
Single vehicle	Crashes with animal:	2.0	0.0	0.0	0.0	0.1	1.8
	Crashes with fixed object:	117.1	0.7	1.9	10.1	25.8	78.6
	Crashes with other object:	17.0	0.0	0.1	0.6	1.8	14.5
	Crashes with parked vehicle:	2.4	0.0	0.0	0.2	0.5	1.7
	Other single-vehicle crashes	23.6	0.2	0.6	3.3	8.2	11.3
	Total single-vehicle crashes:	162.1	0.9	2.7	14.2	36.3	108.0
Total crashes:		607.4	3.0	8.3	45.1	125.4	425.6

Evaluation Site Summary

General Information

Project description:	I-270 West Spur From Democracy Blvd to Westlake Terrace_Phase 1 Build				
Analyst:	DK	Date:	1/31/22	Area type:	Urban
First year of analysis:	2027	Total length of freeway segments for Study Period (mi):		0.350	
Last year of analysis:	2045				

Site Description

Freeway Segments

Number	Lanes	Study Period Length (mi)	Study Period Description
1	6	0.150	GP MP 0.80 - MP 0.95
2	6	0.010	GP MP 0.95 - MP 0.96
3	7	0.020	GP MP 0.96 - MP 0.98
4	7	0.170	GP MP 0.98 - MP 1.15
5	0	0.000	0
6	0	0.000	0
7	0	0.000	0
8	0	0.000	0
9	0	0.000	0
10	0	0.000	0
11	0	0.000	0
12	0	0.000	0
13	0	0.000	0
14	0	0.000	0
15	0	0.000	0
16	0	0.000	0
17	0	0.000	0
18	0	0.000	0
19	0	0.000	0
20	0	0.000	0

Ramp Segments

Number	Study Period Description		Number	Study Period Description	
1	G1-1 Ramp from I-270 Y NB		21	0	
2	G1-2 Ramp from I-270 Y NB		22	0	
3	G2-3 Ramp from Democrac		23	0	
4	G3-4 Ramp from Democrac		24	0	
5	G4-5 Ramp from I-270 Y NB		25	0	
6	G4-6 Ramp from I-270 Y NB		26	0	
7	G4-7 Ramp from I-270 Y NB		27	0	
8	G7-10 Ramp from Democra		28	0	
9	G7-11 Ramp from Democra		29	0	
10	G5-8 Ramp from I-270 Y SB		30	0	
11	G5-9 Ramp from I-270 Y SB		31	0	
12	0		32	0	
13	0		33	0	
14	0		34	0	
15	0		35	0	
16	0		36	0	
17	0		37	0	
18	0		38	0	
19	0		39	0	
20	0		40	0	

Crossroad Ramp Terminals

Number	Config.	Control	Study Period Description
1	D3ex	Signal	Democracy Boulevard at I-270Y NB
2	D4	Signal	Democracy Boulevard at I-270Y SB
3	0	0	0
4	0	0	0
5	0	0	0
6	0	0	0

Output Summary

General Information

Project description:	I-270 West Spur From Democracy Blvd to Westlake Terrace_Phase 1 Build				
Analyst:	DK	Date:	1/31/22	Area type:	Urban
First year of analysis:	2027				
Last year of analysis:	2045				

Crash Data Description

Freeway segments	Segment crash data available?	No	First year of crash data:	
	Project-level crash data available?	No	Last year of crash data:	
Ramp segments	Segment crash data available?	No	First year of crash data:	
	Project-level crash data available?	No	Last year of crash data:	
Ramp terminals	Segment crash data available?	No	First year of crash data:	
	Project-level crash data available?	No	Last year of crash data:	

Estimated Crash Statistics

Crashes for Entire Facility	**Total**	**K**	**A**	**B**	**C**	**PDO**
Estimated number of crashes during Study Period, crashes:	715.1	2.1	9.6	56.3	211.3	435.8
Estimated average crash freq. during Study Period, crashes/yr:	37.6	0.1	0.5	3.0	11.1	22.9

Crashes by Facility Component	**Nbr. Sites**	**Total**	**K**	**A**	**B**	**C**	**PDO**
Freeway segments, crashes:	4	273.2	1.4	3.7	20.3	57.9	189.9
Ramp segments, crashes:	11	56.5	0.5	1.6	8.6	13.2	32.6
Crossroad ramp terminals, crashes:	2	385.4	0.2	4.3	27.3	140.2	213.3

Crashes for Entire Facility by Year	**Year**	**Total**	**K**	**A**	**B**	**C**	**PDO**
Estimated number of crashes during the Study Period, crashes:	2027	37.6	0.1	0.5	3.0	11.1	22.9
	2028	37.6	0.1	0.5	3.0	11.1	22.9
	2029	37.6	0.1	0.5	3.0	11.1	22.9
	2030	37.6	0.1	0.5	3.0	11.1	22.9
	2031	37.6	0.1	0.5	3.0	11.1	22.9
	2032	37.6	0.1	0.5	3.0	11.1	22.9
	2033	37.6	0.1	0.5	3.0	11.1	22.9
	2034	37.6	0.1	0.5	3.0	11.1	22.9
	2035	37.6	0.1	0.5	3.0	11.1	22.9
	2036	37.6	0.1	0.5	3.0	11.1	22.9
	2037	37.6	0.1	0.5	3.0	11.1	22.9
	2038	37.6	0.1	0.5	3.0	11.1	22.9
	2039	37.6	0.1	0.5	3.0	11.1	22.9
	2040	37.6	0.1	0.5	3.0	11.1	22.9
	2041	37.6	0.1	0.5	3.0	11.1	22.9
	2042	37.6	0.1	0.5	3.0	11.1	22.9
	2043	37.6	0.1	0.5	3.0	11.1	22.9
	2044	37.6	0.1	0.5	3.0	11.1	22.9
	2045	37.6	0.1	0.5	3.0	11.1	22.9
	2046						
	2047						
	2048						
	2049						
	2050						

Distribution of Crashes for Entire Facility

Crash Type	**Crash Type Category**	**Estimated Number of Crashes During the Study Period**					
		Total	**K**	**A**	**B**	**C**	**PDO**
Multiple vehicle	Head-on crashes:	4.2	0.0	0.1	0.4	1.9	1.8
	Right-angle crashes:	96.3	0.1	1.2	7.6	37.7	49.8
	Rear-end crashes:	377.0	0.9	4.9	29.4	121.4	220.4
	Sideswipe crashes:	96.7	0.2	0.7	4.1	14.0	77.8
	Other multiple-vehicle crashes:	12.0	0.0	0.1	0.8	2.7	8.2
	Total multiple-vehicle crashes:	586.2	1.2	7.1	42.3	177.6	358.0
Single vehicle	Crashes with animal:	0.9	0.0	0.0	0.0	0.1	0.8
	Crashes with fixed object:	94.9	0.6	1.8	9.8	23.2	59.5
	Crashes with other object:	9.4	0.0	0.1	0.5	1.2	7.6
	Crashes with parked vehicle:	2.1	0.0	0.0	0.2	0.5	1.4
	Other single-vehicle crashes	21.6	0.2	0.6	3.5	8.7	8.5
	Total single-vehicle crashes:	128.9	0.8	2.6	14.0	33.7	77.8
Total crashes:		715.1	2.1	9.6	56.3	211.3	435.8

Evaluation Site Summary

General Information

Project description:	I-270 West Spur From I-495 to Democracy Blvd_Phase 1 Build				
Analyst:	DK	Date:	1/31/22	Area type:	Urban
First year of analysis:	2027	Total length of freeway segments for Study Period (mi):		0.800	
Last year of analysis:	2045				

Site Description

Freeway Segments

Number	Lanes	Study Period Length (mi)	Study Period Description
1	6	0.280	GP MP 0.00 - MP 0.28
2	6	0.050	GP MP 0.28 - MP 0.33
3	6	0.100	GP MP 0.33 - MP 0.43
4	6	0.200	GP MP 0.43 - MP 0.63
5	5	0.100	GP MP 0.63 - MP 0.73
6	6	0.070	GP MP 0.73 - MP 0.80
7	0	0.000	0
8	0	0.000	0
9	0	0.000	0
10	0	0.000	0
11	0	0.000	0
12	0	0.000	0
13	0	0.000	0
14	0	0.000	0
15	0	0.000	0
16	0	0.000	0
17	0	0.000	0
18	0	0.000	0
19	0	0.000	0
20	0	0.000	0

Ramp Segments

Number	Study Period Description		Number	Study Period Description	
1	0		21	0	
2	0		22	0	
3	0		23	0	
4	0		24	0	
5	0		25	0	
6	0		26	0	
7	0		27	0	
8	0		28	0	
9	0		29	0	
10	0		30	0	
11	0		31	0	
12	0		32	0	
13	0		33	0	
14	0		34	0	
15	0		35	0	
16	0		36	0	
17	0		37	0	
18	0		38	0	
19	0		39	0	
20	0		40	0	

Crossroad Ramp Terminals

Number	Config.	Control	Study Period Description
1	0	0	0
2	0	0	0
3	0	0	0
4	0	0	0
5	0	0	0
6	0	0	0

Output Summary							
General Information							
Project description:	I-270 West Spur From I-495 to Democracy Blvd_Phase 1 Build						
Analyst:	DK	Date:	1/31/22	Area type:	Urban		
First year of analysis:	2027						
Last year of analysis:	2045						
Crash Data Description							
Freeway segments	Segment crash data available?		No	First year of crash data:			
	Project-level crash data available?		No	Last year of crash data:			
Ramp segments	Segment crash data available?		No	First year of crash data:			
	Project-level crash data available?		No	Last year of crash data:			
Ramp terminals	Segment crash data available?		No	First year of crash data:			
	Project-level crash data available?		No	Last year of crash data:			

Estimated Crash Statistics							
Crashes for Entire Facility		**Total**	**K**	**A**	**B**	**C**	**PDO**
Estimated number of crashes during Study Period, crashes:		856.5	3.3	9.1	50.9	168.1	625.1
Estimated average crash freq. during Study Period, crashes/yr:		45.1	0.2	0.5	2.7	8.8	32.9
Crashes by Facility Component	**Nbr. Sites**	**Total**	**K**	**A**	**B**	**C**	**PDO**
Freeway segments, crashes:	6	856.5	3.3	9.1	50.9	168.1	625.1
Ramp segments, crashes:	0	0.0	0.0	0.0	0.0	0.0	0.0
Crossroad ramp terminals, crashes:	0	0.0	0.0	0.0	0.0	0.0	0.0
Crashes for Entire Facility by Year	**Year**	**Total**	**K**	**A**	**B**	**C**	**PDO**
Estimated number of crashes during the Study Period, crashes:	2027	45.1	0.2	0.5	2.7	8.8	32.9
	2028	45.1	0.2	0.5	2.7	8.8	32.9
	2029	45.1	0.2	0.5	2.7	8.8	32.9
	2030	45.1	0.2	0.5	2.7	8.8	32.9
	2031	45.1	0.2	0.5	2.7	8.8	32.9
	2032	45.1	0.2	0.5	2.7	8.8	32.9
	2033	45.1	0.2	0.5	2.7	8.8	32.9
	2034	45.1	0.2	0.5	2.7	8.8	32.9
	2035	45.1	0.2	0.5	2.7	8.8	32.9
	2036	45.1	0.2	0.5	2.7	8.8	32.9
	2037	45.1	0.2	0.5	2.7	8.8	32.9
	2038	45.1	0.2	0.5	2.7	8.8	32.9
	2039	45.1	0.2	0.5	2.7	8.8	32.9
	2040	45.1	0.2	0.5	2.7	8.8	32.9
	2041	45.1	0.2	0.5	2.7	8.8	32.9
	2042	45.1	0.2	0.5	2.7	8.8	32.9
	2043	45.1	0.2	0.5	2.7	8.8	32.9
	2044	45.1	0.2	0.5	2.7	8.8	32.9
	2045	45.1	0.2	0.5	2.7	8.8	32.9
	2046						
	2047						
	2048						
	2049						
	2050						

Distribution of Crashes for Entire Facility							
Crash Type	**Crash Type Category**	**Estimated Number of Crashes During the Study Period**					
		Total	**K**	**A**	**B**	**C**	**PDO**
Multiple vehicle	Head-on crashes:	2.3	0.0	0.0	0.3	0.9	1.0
	Right-angle crashes:	12.5	0.1	0.2	0.9	3.1	8.3
	Rear-end crashes:	472.3	1.9	5.2	28.7	94.8	341.9
	Sideswipe crashes:	147.3	0.5	1.3	7.4	24.5	113.5
	Other multiple-vehicle crashes:	15.1	0.1	0.2	1.0	3.3	10.5
	Total multiple-vehicle crashes:	649.5	2.5	6.9	38.3	126.5	475.3
Single vehicle	Crashes with animal:	3.5	0.0	0.0	0.0	0.1	3.4
	Crashes with fixed object:	152.8	0.6	1.6	9.1	30.1	111.3
	Crashes with other object:	23.1	0.0	0.1	0.7	2.4	19.7
	Crashes with parked vehicle:	1.7	0.0	0.0	0.1	0.4	1.2
	Other single-vehicle crashes	25.9	0.2	0.5	2.6	8.6	14.1
	Total single-vehicle crashes:	207.0	0.8	2.3	12.6	41.6	149.8
Total crashes:		856.5	3.3	9.1	50.9	168.1	625.1

Evaluation Site Summary

General Information

Project description:	I-495 VA From VA 193 (Southern Study Limit) to GWMP_Phase 1 Build				
Analyst:	DK	Date:	1/31/22	Area type:	Urban
First year of analysis:	2027	Total length of freeway segments for Study Period (mi):	1.352		
Last year of analysis:	2045				

Site Description

Freeway Segments

Number	Lanes	Study Period Length (mi)	Study Period Description
1	10	0.254	GP MP 13.72 - MP 13.97
2	9	0.010	GP MP 13.97 - MP 13.97
3	9	0.183	GP MP 13.97 - MP 14.15
4	8	0.207	GP MP 14.15 - MP 14.36
5	9	0.178	GP MP 14.36 - MP 14.54
6	9	0.361	GP MP 14.54 - MP 14.90
7	8	0.015	GP MP 14.90 - MP 14.91
8	9	0.145	GP MP 14.92 - MP 15.06
9	0	0.000	0
10	0	0.000	0
11	0	0.000	0
12	0	0.000	0
13	0	0.000	0
14	0	0.000	0
15	0	0.000	0
16	0	0.000	0
17	0	0.000	0
18	0	0.000	0
19	0	0.000	0
20	0	0.000	0

Ramp Segments

Number	Study Period Description		Number	Study Period Description	
1	Ramp from VA 193 WB to I-		21	0	
2	Ramp from VA 193 WB to I-		22	0	
3	Ramp from I-495 SB C-D R		23	0	
4	Ramp from I-495 SB to VA		24	0	
5	Ramp from I-495 NB to VA		25	0	
6	Ramp from I-495 SB GP to		26	0	
7	SB CD-1 I-495 SB		27	0	
8	SB CD-2 from I-495 SB to V		28	0	
9	0		29	0	
10	0		30	0	
11	0		31	0	
12	0		32	0	
13	0		33	0	
14	0		34	0	
15	0		35	0	
16	0		36	0	
17	0		37	0	
18	0		38	0	
19	0		39	0	
20	0		40	0	

Crossroad Ramp Terminals

Number	Config.	Control	Study Period Description
1	D4	Signal	VA 193 at I-495 NB
2	D4	Signal	VA 193 at I-495 SB
3	0	0	0
4	0	0	0
5	0	0	0
6	0	0	0

Output Summary							
General Information							
Project description:	I-495 VA From VA 193 (Southern Study Limit) to GWMP_Phase 1 Build						
Analyst:	DK	Date:	4/7/2022	Area type:	Urban		
First year of analysis:	2027						
Last year of analysis:	2045						
Crash Data Description							
Freeway segments	Segment crash data available?		No	First year of crash data:			
	Project-level crash data available?		No	Last year of crash data:			
Ramp segments	Segment crash data available?		No	First year of crash data:			
	Project-level crash data available?		No	Last year of crash data:			
Ramp terminals	Segment crash data available?		No	First year of crash data:			
	Project-level crash data available?		No	Last year of crash data:			
Estimated Crash Statistics							
Crashes for Entire Facility		**Total**	**K**	**A**	**B**	**C**	**PDO**
Estimated number of crashes during Study Period, crashes:		2460.2	6.5	20.5	139.8	554.2	1739.2
Estimated average crash freq. during Study Period, crashes/yr:		129.5	0.3	1.1	7.4	29.2	91.5
Crashes by Facility Component	**Nbr. Sites**	**Total**	**K**	**A**	**B**	**C**	**PDO**
Freeway segments, crashes:	8	1996.1	5.8	15.9	112.8	433.9	1427.6
Ramp segments, crashes:	8	86.7	0.6	1.7	8.6	19.3	56.5
Crossroad ramp terminals, crashes:	2	377.3	0.1	2.8	18.4	100.9	255.1
Crashes for Entire Facility by Year	**Year**	**Total**	**K**	**A**	**B**	**C**	**PDO**
Estimated number of crashes during the Study Period, crashes:	2027	129.5	0.3	1.1	7.4	29.2	91.5
	2028	129.5	0.3	1.1	7.4	29.2	91.5
	2029	129.5	0.3	1.1	7.4	29.2	91.5
	2030	129.5	0.3	1.1	7.4	29.2	91.5
	2031	129.5	0.3	1.1	7.4	29.2	91.5
	2032	129.5	0.3	1.1	7.4	29.2	91.5
	2033	129.5	0.3	1.1	7.4	29.2	91.5
	2034	129.5	0.3	1.1	7.4	29.2	91.5
	2035	129.5	0.3	1.1	7.4	29.2	91.5
	2036	129.5	0.3	1.1	7.4	29.2	91.5
	2037	129.5	0.3	1.1	7.4	29.2	91.5
	2038	129.5	0.3	1.1	7.4	29.2	91.5
	2039	129.5	0.3	1.1	7.4	29.2	91.5
	2040	129.5	0.3	1.1	7.4	29.2	91.5
	2041	129.5	0.3	1.1	7.4	29.2	91.5
	2042	129.5	0.3	1.1	7.4	29.2	91.5
	2043	129.5	0.3	1.1	7.4	29.2	91.5
	2044	129.5	0.3	1.1	7.4	29.2	91.5
	2045	129.5	0.3	1.1	7.4	29.2	91.5
	2046						
	2047						
	2048						
	2049						
	2050						
Distribution of Crashes for Entire Facility							
Crash Type	**Crash Type Category**	**Estimated Number of Crashes During the Study Period**					
		Total	**K**	**A**	**B**	**C**	**PDO**
Multiple vehicle	Head-on crashes:	9.3	0.0	0.1	0.9	3.9	4.4
	Right-angle crashes:	122.7	0.2	1.1	7.5	36.5	77.5
	Rear-end crashes:	1385.7	3.6	11.6	80.6	325.3	964.5
	Sideswipe crashes:	449.3	0.9	2.5	17.4	67.5	361.1
	Other multiple-vehicle crashes:	51.9	0.2	0.5	3.3	12.2	35.7
	Total multiple-vehicle crashes:	2019.0	4.9	15.8	109.7	445.5	1443.1
Single vehicle	Crashes with animal:	6.0	0.0	0.0	0.1	0.3	5.5
	Crashes with fixed object:	320.7	1.2	3.3	21.6	77.5	217.2
	Crashes with other object:	44.3	0.1	0.2	1.4	5.2	37.4
	Crashes with parked vehicle:	6.6	0.0	0.1	0.4	1.5	4.6
	Other single-vehicle crashes	63.5	0.4	1.0	6.7	24.0	31.4
	Total single-vehicle crashes:	441.2	1.6	4.7	30.1	108.6	296.1
	Total crashes:	2460.2	6.5	20.5	139.8	554.2	1739.2

Evaluation Site Summary

General Information

Project description:	I-495 VA From GWMP to MD State Line_Phase 1 Build				
Analyst:	DK	Date:	1/31/22	Area type:	Urban
First year of analysis:	2027	Total length of freeway segments for Study Period (mi):		0.345	
Last year of analysis:	2045				

Site Description

Freeway Segments

Number	Lanes	Study Period Length (mi)	Study Period Description	
1	9	0.176	GP MP 15.06 - MP 15.24	
2	10	0.169	GP MP 15.24 - MP 15.41	
3	0	0.000	0	
4	0	0.000	0	
5	0	0.000	0	
6	0	0.000	0	
7	0	0.000	0	
8	0	0.000	0	
9	0	0.000	0	
10	0	0.000	0	
11	0	0.000	0	
12	0	0.000	0	
13	0	0.000	0	
14	0	0.000	0	
15	0	0.000	0	
16	0	0.000	0	
17	0	0.000	0	
18	0	0.000	0	
19	0	0.000	0	
20	0	0.000	0	

Ramp Segments

Number	Study Period Description		Number	Study Period Description	
1	Ramp from I-495 SB ML to (		21	0	
2	Ramp from I-495 SB ML to I		22	0	
3	Ramp from I-495 NB ML to (		23	0	
4	Ramp from I-495 SB ML to (		24	0	
5	Ramp from I-495 NB ML an		25	0	
6	Ramp from I-495 SB to GWI		26	0	
7	Ramp from I-495 SB GP an		27	0	
8	Ramp from GWMP WB to I-		28	0	
9	Ramp from GWMP WB to I-		29	0	
10	Ramp from GWMP WB to I-		30	0	
11	Ramp from I-495 NB to GW		31	0	
12	Ramp from I-495 NB to GW		32	0	
13	Ramp from I-495 NB to I-49		33	0	
14	Ramp from GWMP WB to I-		34	0	
15	Ramp from I-495 NB and G		35	0	
16	Ramp from GWMP WB to I-		36	0	
17	0		37	0	
18	0		38	0	
19	0		39	0	
20	0		40	0	

Crossroad Ramp Terminals

Number	Config.	Control	Study Period Description	
1	0	0	0	
2	0	0	0	
3	0	0	0	
4	0	0	0	
5	0	0	0	
6	0	0	0	

Output Summary							
General Information							
Project description:	I-495 VA From GWMP to MD State Line_Phase 1 Build						
Analyst:	DK	Date:	4/7/2022	Area type:	Urban		
First year of analysis:	2027						
Last year of analysis:	2045						
Crash Data Description							
Freeway segments	Segment crash data available?		No	First year of crash data:			
	Project-level crash data available?		No	Last year of crash data:			
Ramp segments	Segment crash data available?		No	First year of crash data:			
	Project-level crash data available?		No	Last year of crash data:			
Ramp terminals	Segment crash data available?		No	First year of crash data:			
	Project-level crash data available?		No	Last year of crash data:			
Estimated Crash Statistics							
Crashes for Entire Facility		**Total**	**K**	**A**	**B**	**C**	**PDO**
Estimated number of crashes during Study Period, crashes:		687.2	2.4	7.0	47.2	148.2	482.4
Estimated average crash freq. during Study Period, crashes/yr:		36.2	0.1	0.4	2.5	7.8	25.4
Crashes by Facility Component	**Nbr. Sites**	**Total**	**K**	**A**	**B**	**C**	**PDO**
Freeway segments, crashes:	2	549.6	1.4	4.0	28.8	118.2	397.1
Ramp segments, crashes:	16	137.6	1.0	3.0	18.4	30.0	85.3
Crossroad ramp terminals, crashes:	0	0.0	0.0	0.0	0.0	0.0	0.0
Crashes for Entire Facility by Year	**Year**	**Total**	**K**	**A**	**B**	**C**	**PDO**
Estimated number of crashes during the Study Period, crashes:	2027	36.2	0.1	0.4	2.5	7.8	25.4
	2028	36.2	0.1	0.4	2.5	7.8	25.4
	2029	36.2	0.1	0.4	2.5	7.8	25.4
	2030	36.2	0.1	0.4	2.5	7.8	25.4
	2031	36.2	0.1	0.4	2.5	7.8	25.4
	2032	36.2	0.1	0.4	2.5	7.8	25.4
	2033	36.2	0.1	0.4	2.5	7.8	25.4
	2034	36.2	0.1	0.4	2.5	7.8	25.4
	2035	36.2	0.1	0.4	2.5	7.8	25.4
	2036	36.2	0.1	0.4	2.5	7.8	25.4
	2037	36.2	0.1	0.4	2.5	7.8	25.4
	2038	36.2	0.1	0.4	2.5	7.8	25.4
	2039	36.2	0.1	0.4	2.5	7.8	25.4
	2040	36.2	0.1	0.4	2.5	7.8	25.4
	2041	36.2	0.1	0.4	2.5	7.8	25.4
	2042	36.2	0.1	0.4	2.5	7.8	25.4
	2043	36.2	0.1	0.4	2.5	7.8	25.4
	2044	36.2	0.1	0.4	2.5	7.8	25.4
	2045	36.2	0.1	0.4	2.5	7.8	25.4
	2046						
	2047						
	2048						
	2049						
	2050						
Distribution of Crashes for Entire Facility							
Crash Type	**Crash Type Category**	**Estimated Number of Crashes During the Study Period**					
		Total	**K**	**A**	**B**	**C**	**PDO**
Multiple vehicle	Head-on crashes:	2.6	0.0	0.1	0.4	1.0	1.2
	Right-angle crashes:	10.2	0.0	0.1	0.8	3.0	6.2
	Rear-end crashes:	370.1	1.3	3.7	24.9	82.2	258.1
	Sideswipe crashes:	132.5	0.3	0.8	5.5	19.0	106.9
	Other multiple-vehicle crashes:	22.1	0.1	0.4	2.3	5.5	13.9
	Total multiple-vehicle crashes:	537.5	1.7	5.0	33.8	110.7	386.3
Single vehicle	Crashes with animal:	1.9	0.0	0.0	0.0	0.1	1.7
	Crashes with fixed object:	110.3	0.5	1.4	9.6	27.0	71.8
	Crashes with other object:	12.5	0.0	0.1	0.4	1.5	10.5
	Crashes with parked vehicle:	2.2	0.0	0.0	0.2	0.5	1.4
	Other single-vehicle crashes	22.8	0.2	0.5	3.1	8.3	10.8
	Total single-vehicle crashes:	149.7	0.7	2.0	13.4	37.5	96.1
Total crashes:		687.2	2.4	7.0	47.2	148.2	482.4

Evaluation Site Summary

General Information

Project description:	I-495 MD From VA State Line to MD 190_Phase 1 Build				
Analyst:	DK	Date:	1/31/22	Area type:	Urban
First year of analysis:	2027	Total length of freeway segments for Study Period (mi):		2.400	
Last year of analysis:	2045				

Site Description

Freeway Segments

Number	Lanes	Study Period Length (mi)	Study Period Description
1	10	0.320	GP MP 0.00 - MP 0.32
2	9	0.060	GP MP 0.32 - MP 0.38
3	8	0.080	GP MP 0.38 - MP 0.46
4	8	0.030	GP MP 0.46 - MP 0.49
5	8	0.100	GP MP 0.49 - MP 0.59
6	8	1.300	GP MP 0.59 - MP 1.89
7	8	0.150	GP MP 1.89 - MP 2.04
8	8	0.170	GP MP 2.04 - MP 2.21
9	9	0.190	GP MP 2.21 - MP 2.40
10	0	0.000	0
11	0	0.000	0
12	0	0.000	0
13	0	0.000	0
14	0	0.000	0
15	0	0.000	0
16	0	0.000	0
17	0	0.000	0
18	0	0.000	0
19	0	0.000	0
20	0	0.000	0

Ramp Segments

Number	Study Period Description	Number	Study Period Description
1	Ramp from CBP EB to I-495	21	0
2	Ramp from CBP EB to I-495	22	0
3	Ramp from CBP EB to I-495	23	0
4	Ramp from I-495 NB to CBP	24	0
5	Ramp from I-495 NB to CBP	25	0
6	Ramp from I-495 NB to CBP	26	0
7	Ramp from CBP WB to I-49	27	0
8	Ramp from I-495 SB to CBP	28	0
9	0	29	0
10	0	30	0
11	0	31	0
12	0	32	0
13	0	33	0
14	0	34	0
15	0	35	0
16	0	36	0
17	0	37	0
18	0	38	0
19	0	39	0
20	0	40	0

Crossroad Ramp Terminals

Number	Config.	Control	Study Period Description
1	0	0	0
2	0	0	0
3	0	0	0
4	0	0	0
5	0	0	0
6	0	0	0

Output Summary						
General Information						
Project description:	I-495 MD From VA State Line to MD 190_Phase 1 Build					
Analyst:	DK	Date:	4/7/2022	Area type:	Urban	
First year of analysis:	2027					
Last year of analysis:	2045					

Crash Data Description				
Freeway segments	Segment crash data available?	No	First year of crash data:	
	Project-level crash data available?	No	Last year of crash data:	
Ramp segments	Segment crash data available?	No	First year of crash data:	
	Project-level crash data available?	No	Last year of crash data:	
Ramp terminals	Segment crash data available?	No	First year of crash data:	
	Project-level crash data available?	No	Last year of crash data:	

Estimated Crash Statistics							
Crashes for Entire Facility		**Total**	**K**	**A**	**B**	**C**	**PDO**
Estimated number of crashes during Study Period, crashes:		4335.0	11.4	31.8	226.6	958.2	3107.1
Estimated average crash freq. during Study Period, crashes/yr:		228.2	0.6	1.7	11.9	50.4	163.5
Crashes by Facility Component	**Nbr. Sites**	**Total**	**K**	**A**	**B**	**C**	**PDO**
Freeway segments, crashes:	9	4289.2	11.0	30.7	219.2	947.2	3081.1
Ramp segments, crashes:	8	45.8	0.4	1.1	7.4	11.0	25.9
Crossroad ramp terminals, crashes:	0	0.0	0.0	0.0	0.0	0.0	0.0
Crashes for Entire Facility by Year	**Year**	**Total**	**K**	**A**	**B**	**C**	**PDO**
Estimated number of crashes during the Study Period, crashes:	2027	228.2	0.6	1.7	11.9	50.4	163.5
	2028	228.2	0.6	1.7	11.9	50.4	163.5
	2029	228.2	0.6	1.7	11.9	50.4	163.5
	2030	228.2	0.6	1.7	11.9	50.4	163.5
	2031	228.2	0.6	1.7	11.9	50.4	163.5
	2032	228.2	0.6	1.7	11.9	50.4	163.5
	2033	228.2	0.6	1.7	11.9	50.4	163.5
	2034	228.2	0.6	1.7	11.9	50.4	163.5
	2035	228.2	0.6	1.7	11.9	50.4	163.5
	2036	228.2	0.6	1.7	11.9	50.4	163.5
	2037	228.2	0.6	1.7	11.9	50.4	163.5
	2038	228.2	0.6	1.7	11.9	50.4	163.5
	2039	228.2	0.6	1.7	11.9	50.4	163.5
	2040	228.2	0.6	1.7	11.9	50.4	163.5
	2041	228.2	0.6	1.7	11.9	50.4	163.5
	2042	228.2	0.6	1.7	11.9	50.4	163.5
	2043	228.2	0.6	1.7	11.9	50.4	163.5
	2044	228.2	0.6	1.7	11.9	50.4	163.5
	2045	228.2	0.6	1.7	11.9	50.4	163.5
	2046						
	2047						
	2048						
	2049						
	2050						

Distribution of Crashes for Entire Facility

Crash Type	**Crash Type Category**	**Estimated Number of Crashes During the Study Period**					
		Total	**K**	**A**	**B**	**C**	**PDO**
Multiple vehicle	Head-on crashes:	12.6	0.1	0.2	1.4	5.8	5.2
	Right-angle crashes:	74.9	0.3	0.7	5.1	22.0	46.8
	Rear-end crashes:	2507.2	6.6	18.5	131.6	561.2	1789.4
	Sideswipe crashes:	868.1	1.6	4.5	31.8	136.3	694.0
	Other multiple-vehicle crashes:	91.1	0.3	0.8	5.6	22.8	61.6
	Total multiple-vehicle crashes:	3553.8	8.8	24.6	175.5	748.0	2596.9
Single vehicle	Crashes with animal:	11.3	0.0	0.0	0.2	0.6	10.5
	Crashes with fixed object:	562.4	1.8	5.2	36.7	150.8	367.9
	Crashes with other object:	86.3	0.1	0.4	2.6	11.2	72.0
	Crashes with parked vehicle:	11.1	0.0	0.1	0.7	2.9	7.3
	Other single-vehicle crashes	110.0	0.5	1.5	10.9	44.6	52.4
	Total single-vehicle crashes:	781.2	2.6	7.2	51.1	210.2	510.1
Total crashes:		4335.0	11.4	31.8	226.6	958.2	3107.1

Evaluation Site Summary

General Information

Project description:	I-495 From MD 190 to I-270 West Spur_Phase 1 Build				
Analyst:	SMT	Date:	1/31/22	Area type:	Urban
First year of analysis:	2027	Total length of freeway segments for Study Period (mi):		1.510	
Last year of analysis:	2045				

Site Description

Freeway Segments

Number	Lanes	Study Period Length (mi)	Study Period Description
1	9	0.010	GP MP 2.40 - MP 2.41
2	10	0.160	GP MP 2.41 to MP 2.57
3	10	0.030	GP MP 2.57 to MP 2.60
4	10	1.080	GP MP 2.60 to MP 3.68
5	10	0.230	GP MP 3.68 to MP 3.91
6	0	0.000	0
7	0	0.000	0
8	0	0.000	0
9	0	0.000	0
10	0	0.000	0
11	0	0.000	0
12	0	0.000	0
13	0	0.000	0
14	0	0.000	0
15	0	0.000	0
16	0	0.000	0
17	0	0.000	0
18	0	0.000	0
19	0	0.000	0
20	0	0.000	0

Ramp Segments

Number	Study Period Description		Number	Study Period Description	
1	R0-1 Ramp from CJP NB to		21	T4-16.1 Ramp from I-495 SI	
2	R9-2 Ramp from I-495 NB G		22	T3-17 Ramp from MD 190 t	
3	R9-3 Ramp from I-495 NB G		23	T3-17.1 Ramp from MD 190	
4	R11-4 Ramp from CJP NB t		24	R2-18 Ramp from MD 190 t	
5	R11-4.1 Ramp from CJP NE		25	R2-18.1 Ramp from MD 190	
6	R0-5 Ramp from CJP NB to		26	0	
7	T1-6 Ramp from I-495 NB M		27	0	
8	T1-6.1 Ramp from I-495 NE		28	0	
9	T2-7 Ramp from MD 190 to		29	0	
10	T2-7.1 Ramp from MD 190 t		30	0	
11	R0-8 Ramp from SB I-495 M		31	0	
12	R0-9 Ramp from SB I-495 G		32	0	
13	R6-10 Ramp from MD 190 t		33	0	
14	R6-11 Ramp from MD 190 a		34	0	
15	R6-12 Ramp from MD 190 a		35	0	
16	R6-13 Ramp from MD 190 t		36	0	
17	R10-14 Ramp from MD 190		37	0	
18	R5-15 Ramp from I-495 SB		38	0	
19	R5-15.1 Ramp from I-495 S		39	0	
20	T4-16 Ramp from I-495 SB		40	0	

Crossroad Ramp Terminals

Number	Config.	Control	Study Period Description
1	D4	Signal	MD 190 at I-495 NB
2	D4	Signal	MD 190 at I-495 SB
3	0	0	0
4	0	0	0
5	0	0	0
6	0	0	0

Output Summary							
General Information							
Project description:	I-495 From MD 190 to I-270 West Spur_Phase 1 Build						
Analyst:	SMT	Date:	4/7/2022	Area type:	Urban		
First year of analysis:	2027						
Last year of analysis:	2045						
Crash Data Description							
Freeway segments	Segment crash data available?		No	First year of crash data:			
	Project-level crash data available?		No	Last year of crash data:			
Ramp segments	Segment crash data available?		No	First year of crash data:			
	Project-level crash data available?		No	Last year of crash data:			
Ramp terminals	Segment crash data available?		No	First year of crash data:			
	Project-level crash data available?		No	Last year of crash data:			
Estimated Crash Statistics							
Crashes for Entire Facility		**Total**	**K**	**A**	**B**	**C**	**PDO**
Estimated number of crashes during Study Period, crashes:		3161.2	8.4	28.5	191.4	784.2	2148.7
Estimated average crash freq. during Study Period, crashes/yr:		166.4	0.4	1.5	10.1	41.3	113.1
Crashes by Facility Component	**Nbr. Sites**	**Total**	**K**	**A**	**B**	**C**	**PDO**
Freeway segments, crashes:	5	2481.0	6.7	18.7	133.4	541.1	1781.0
Ramp segments, crashes:	25	188.8	1.4	4.3	22.1	45.9	115.1
Crossroad ramp terminals, crashes:	2	491.4	0.2	5.5	35.9	197.2	252.6
Crashes for Entire Facility by Year	**Year**	**Total**	**K**	**A**	**B**	**C**	**PDO**
Estimated number of crashes during the Study Period, crashes:	2027	166.4	0.4	1.5	10.1	41.3	113.1
	2028	166.4	0.4	1.5	10.1	41.3	113.1
	2029	166.4	0.4	1.5	10.1	41.3	113.1
	2030	166.4	0.4	1.5	10.1	41.3	113.1
	2031	166.4	0.4	1.5	10.1	41.3	113.1
	2032	166.4	0.4	1.5	10.1	41.3	113.1
	2033	166.4	0.4	1.5	10.1	41.3	113.1
	2034	166.4	0.4	1.5	10.1	41.3	113.1
	2035	166.4	0.4	1.5	10.1	41.3	113.1
	2036	166.4	0.4	1.5	10.1	41.3	113.1
	2037	166.4	0.4	1.5	10.1	41.3	113.1
	2038	166.4	0.4	1.5	10.1	41.3	113.1
	2039	166.4	0.4	1.5	10.1	41.3	113.1
	2040	166.4	0.4	1.5	10.1	41.3	113.1
	2041	166.4	0.4	1.5	10.1	41.3	113.1
	2042	166.4	0.4	1.5	10.1	41.3	113.1
	2043	166.4	0.4	1.5	10.1	41.3	113.1
	2044	166.4	0.4	1.5	10.1	41.3	113.1
	2045	166.4	0.4	1.5	10.1	41.3	113.1
	2046						
	2047						
	2048						
	2049						
	2050						

Distribution of Crashes for Entire Facility

Crash Type	**Crash Type Category**	**Estimated Number of Crashes During the Study Period**					
		Total	**K**	**A**	**B**	**C**	**PDO**
Multiple vehicle	Head-on crashes:	11.9	0.0	0.2	1.2	5.5	4.9
	Right-angle crashes:	159.3	0.2	1.8	12.4	63.5	81.4
	Rear-end crashes:	1702.7	4.1	14.5	100.8	436.0	1147.2
	Sideswipe crashes:	532.7	1.0	2.9	20.4	84.1	424.3
	Other multiple-vehicle crashes:	62.0	0.2	0.6	3.9	15.2	42.1
	Total multiple-vehicle crashes:	2468.6	5.5	20.0	138.7	604.3	1700.0
Single vehicle	Crashes with animal:	8.9	0.0	0.0	0.2	0.6	8.1
	Crashes with fixed object:	508.9	2.1	6.1	37.7	128.7	334.4
	Crashes with other object:	61.3	0.1	0.3	2.0	7.7	51.1
	Crashes with parked vehicle:	9.9	0.0	0.1	0.7	2.5	6.5
	Other single-vehicle crashes	103.7	0.6	2.0	12.0	40.5	48.6
	Total single-vehicle crashes:	692.6	2.9	8.5	52.6	179.9	448.7
Total crashes:		3161.2	8.4	28.5	191.4	784.2	2148.7

Evaluation Site Summary

General Information

Project description:	I-495 MD From I-270 West Spur to MD 187_Phase 1 Build				
Analyst:	DK	Date:	1/31/22	Area type:	Urban
First year of analysis:	2027	Total length of freeway segments for Study Period (mi):		1.710	
Last year of analysis:	2045				

Site Description

Freeway Segments

Number	Lanes	Study Period Length (mi)	Study Period Description
1	6	0.210	GP MP 3.91 to MP 4.12
2	7	0.480	GP MP 4.12 to MP 4.59
3	6	0.820	GP MP 4.59 to MP 5.41
4	6	0.050	GP MP 5.41 to MP 5.46
5	6	0.150	GP MP 5.46 to MP 5.61
6	0	0.000	0
7	0	0.000	0
8	0	0.000	0
9	0	0.000	0
10	0	0.000	0
11	0	0.000	0
12	0	0.000	0
13	0	0.000	0
14	0	0.000	0
15	0	0.000	0
16	0	0.000	0
17	0	0.000	0
18	0	0.000	0
19	0	0.000	0
20	0	0.000	0

Ramp Segments

Number	Study Period Description		Number	Study Period Description	
1	R0-1 Ramp from I-495 NB M		21	0	
2	R0-2 Ramp from I-495 SB G		22	0	
3	0		23	0	
4	0		24	0	
5	0		25	0	
6	0		26	0	
7	0		27	0	
8	0		28	0	
9	0		29	0	
10	0		30	0	
11	0		31	0	
12	0		32	0	
13	0		33	0	
14	0		34	0	
15	0		35	0	
16	0		36	0	
17	0		37	0	
18	0		38	0	
19	0		39	0	
20	0		40	0	

Crossroad Ramp Terminals

Number	Config.	Control	Study Period Description
1	0	0	0
2	0	0	0
3	0	0	0
4	0	0	0
5	0	0	0
6	0	0	0

Output Summary							
General Information							
Project description:	I-495 MD From I-270 West Spur to MD 187_Phase 1 Build						
Analyst:	DK	Date:	4/7/2022	Area type:	Urban		
First year of analysis:	2027						
Last year of analysis:	2045						
Crash Data Description							
Freeway segments	Segment crash data available?		No	First year of crash data:			
	Project-level crash data available?		No	Last year of crash data:			
Ramp segments	Segment crash data available?		No	First year of crash data:			
	Project-level crash data available?		No	Last year of crash data:			
Ramp terminals	Segment crash data available?		No	First year of crash data:			
	Project-level crash data available?		No	Last year of crash data:			
Estimated Crash Statistics							
Crashes for Entire Facility		**Total**	**K**	**A**	**B**	**C**	**PDO**
Estimated number of crashes during Study Period, crashes:		1511.6	5.1	13.9	96.2	322.5	1073.9
Estimated average crash freq. during Study Period, crashes/yr:		79.6	0.3	0.7	5.1	17.0	56.5
Crashes by Facility Component	**Nbr. Sites**	**Total**	**K**	**A**	**B**	**C**	**PDO**
Freeway segments, crashes:	5	1481.4	4.8	13.1	92.3	316.2	1055.0
Ramp segments, crashes:	2	30.2	0.3	0.8	4.0	6.3	18.9
Crossroad ramp terminals, crashes:	0	0.0	0.0	0.0	0.0	0.0	0.0
Crashes for Entire Facility by Year	**Year**	**Total**	**K**	**A**	**B**	**C**	**PDO**
Estimated number of crashes during the Study Period, crashes:	2027	79.6	0.3	0.7	5.1	17.0	56.5
	2028	79.6	0.3	0.7	5.1	17.0	56.5
	2029	79.6	0.3	0.7	5.1	17.0	56.5
	2030	79.6	0.3	0.7	5.1	17.0	56.5
	2031	79.6	0.3	0.7	5.1	17.0	56.5
	2032	79.6	0.3	0.7	5.1	17.0	56.5
	2033	79.6	0.3	0.7	5.1	17.0	56.5
	2034	79.6	0.3	0.7	5.1	17.0	56.5
	2035	79.6	0.3	0.7	5.1	17.0	56.5
	2036	79.6	0.3	0.7	5.1	17.0	56.5
	2037	79.6	0.3	0.7	5.1	17.0	56.5
	2038	79.6	0.3	0.7	5.1	17.0	56.5
	2039	79.6	0.3	0.7	5.1	17.0	56.5
	2040	79.6	0.3	0.7	5.1	17.0	56.5
	2041	79.6	0.3	0.7	5.1	17.0	56.5
	2042	79.6	0.3	0.7	5.1	17.0	56.5
	2043	79.6	0.3	0.7	5.1	17.0	56.5
	2044	79.6	0.3	0.7	5.1	17.0	56.5
	2045	79.6	0.3	0.7	5.1	17.0	56.5
	2046						
	2047						
	2048						
	2049						
	2050						
Distribution of Crashes for Entire Facility							
Crash Type	**Crash Type Category**	**Estimated Number of Crashes During the Study Period**					
		Total	**K**	**A**	**B**	**C**	**PDO**
Multiple vehicle	Head-on crashes:	4.1	0.0	0.1	0.5	1.8	1.7
	Right-angle crashes:	23.2	0.1	0.3	1.9	6.6	14.3
	Rear-end crashes:	801.3	2.7	7.3	51.2	174.9	565.2
	Sideswipe crashes:	264.2	0.7	1.8	12.7	43.2	205.8
	Other multiple-vehicle crashes:	28.3	0.1	0.3	2.0	6.9	19.0
	Total multiple-vehicle crashes:	1121.1	3.6	9.7	68.3	233.4	806.0
Single vehicle	Crashes with animal:	6.1	0.0	0.0	0.1	0.3	5.7
	Crashes with fixed object:	285.0	1.1	3.0	20.2	64.4	196.4
	Crashes with other object:	40.9	0.1	0.2	1.4	4.6	34.7
	Crashes with parked vehicle:	4.9	0.0	0.1	0.4	1.1	3.4
	Other single-vehicle crashes	53.5	0.3	0.9	5.9	18.7	27.6
	Total single-vehicle crashes:	390.5	1.5	4.2	27.9	89.1	267.8
Total crashes:		1511.6	5.1	13.9	96.2	322.5	1073.9

Evaluation Site Summary

General Information

Project description:	I-495 MD From MD 187 To MD 355/I-495				
Analyst:	DK	Date:	1/31/22	Area type:	Urban
First year of analysis:	2027	Total length of freeway segments for Study Period (mi):		1.450	
Last year of analysis:	2045				

Site Description

Freeway Segments

Number	Lanes	Study Period Length (mi)	Study Period Description
1	6	0.130	GP MP 5.61 to MP 5.74
2	6	0.060	GP MP 5.74 to MP 5.80
3	6	0.490	GP MP 5.80 to MP 6.29
4	5	0.180	GP MP 6.29 - MP 6.47
5	5	0.030	GP MP 6.47 to MP 6.50
6	8	0.250	GP MP 6.50 - MP 6.75
7	9	0.030	GP MP 6.75 - MP 6.78
8	9	0.070	GP MP 6.78 - MP 6.85
9	9	0.210	GP MP 6.85 - MP 7.06
10	0	0.000	0
11	0	0.000	0
12	0	0.000	0
13	0	0.000	0
14	0	0.000	0
15	0	0.000	0
16	0	0.000	0
17	0	0.000	0
18	0	0.000	0
19	0	0.000	0
20	0	0.000	0

Ramp Segments

Number	Study Period Description	Number	Study Period Description
1	G2-1 Ramp from I-495 WB t	21	0
2	G4-2 Ramp from MD 187 NI	22	0
3	G6-3 Ramp from I-495 EB to	23	0
4	G8-4 Ramp from MD 187 to	24	0
5	G35.1-1 Ramp from MD 355	25	0
6	G35.6-2 Ramp from I-270 S	26	0
7	I-495 Outer Loop to I-270 NI	27	0
8	I-495 Outer Loop to I-270 NI	28	0
9	I-270 SB to I-495 Inner Loop	29	0
10	G1-5 MD 355 NB to I-495 O	30	0
11	G2-6 I-495 Outer Loop to M	31	0
12	G4-7 MD 355 NB to I-495 In	32	0
13	G5-8 MD 355 SB to I-495 In	33	0
14	G6-9.1 I-495 Inner Loop to M	34	0
15	G6-9.2 I-495 Inner Loop to M	35	0
16	0	36	0
17	0	37	0
18	0	38	0
19	0	39	0
20	0	40	0

Crossroad Ramp Terminals

Number	Config.	Control	Study Period Description
1	D4	Signal	MD 187 at I-495 WB
2	D4	Signal	MD 187 at I-495 EB
3	0	0	0
4	0	0	0
5	0	0	0
6	0	0	0

Output Summary

General Information

Project description:	I-495 MD From MD 187 To MD 355/I-495				
Analyst:	DK	Date:	1/31/22	Area type:	Urban
First year of analysis:	2027				
Last year of analysis:	2045				

Crash Data Description

Freeway segments	Segment crash data available?	No	First year of crash data:	
	Project-level crash data available?	No	Last year of crash data:	
Ramp segments	Segment crash data available?	No	First year of crash data:	
	Project-level crash data available?	No	Last year of crash data:	
Ramp terminals	Segment crash data available?	No	First year of crash data:	
	Project-level crash data available?	No	Last year of crash data:	

Estimated Crash Statistics

Crashes for Entire Facility	**Total**	**K**	**A**	**B**	**C**	**PDO**
Estimated number of crashes during Study Period, crashes:	2964.8	8.5	39.6	243.4	920.3	1753.1
Estimated average crash freq. during Study Period, crashes/yr:	156.0	0.4	2.1	12.8	48.4	92.3

Crashes by Facility Component	**Nbr. Sites**	**Total**	**K**	**A**	**B**	**C**	**PDO**
Freeway segments, crashes:	9	1650.1	4.8	13.2	93.0	362.6	1176.6
Ramp segments, crashes:	15	287.3	3.0	9.1	47.1	89.9	138.2
Crossroad ramp terminals, crashes:	2	1027.5	0.7	17.3	103.3	467.9	438.3

Crashes for Entire Facility by Year	**Year**	**Total**	**K**	**A**	**B**	**C**	**PDO**
Estimated number of crashes during the Study Period, crashes:	2027	156.0	0.4	2.1	12.8	48.4	92.3
	2028	156.0	0.4	2.1	12.8	48.4	92.3
	2029	156.0	0.4	2.1	12.8	48.4	92.3
	2030	156.0	0.4	2.1	12.8	48.4	92.3
	2031	156.0	0.4	2.1	12.8	48.4	92.3
	2032	156.0	0.4	2.1	12.8	48.4	92.3
	2033	156.0	0.4	2.1	12.8	48.4	92.3
	2034	156.0	0.4	2.1	12.8	48.4	92.3
	2035	156.0	0.4	2.1	12.8	48.4	92.3
	2036	156.0	0.4	2.1	12.8	48.4	92.3
	2037	156.0	0.4	2.1	12.8	48.4	92.3
	2038	156.0	0.4	2.1	12.8	48.4	92.3
	2039	156.0	0.4	2.1	12.8	48.4	92.3
	2040	156.0	0.4	2.1	12.8	48.4	92.3
	2041	156.0	0.4	2.1	12.8	48.4	92.3
	2042	156.0	0.4	2.1	12.8	48.4	92.3
	2043	156.0	0.4	2.1	12.8	48.4	92.3
	2044	156.0	0.4	2.1	12.8	48.4	92.3
	2045	156.0	0.4	2.1	12.8	48.4	92.3
	2046						
	2047						
	2048						
	2049						
	2050						

Distribution of Crashes for Entire Facility

Crash Type	**Crash Type Category**	**Estimated Number of Crashes During the Study Period**					
		Total	**K**	**A**	**B**	**C**	**PDO**
Multiple vehicle	Head-on crashes:	16.2	0.1	0.3	2.1	8.1	5.6
	Right-angle crashes:	278.5	0.3	4.8	29.2	130.1	114.2
	Rear-end crashes:	1642.5	4.4	22.3	138.4	541.9	935.4
	Sideswipe crashes:	452.9	0.9	3.3	21.1	77.9	349.6
	Other multiple-vehicle crashes:	68.3	0.4	1.2	7.2	20.9	38.6
	Total multiple-vehicle crashes:	2458.4	6.1	32.0	197.9	779.0	1443.4
Single vehicle	Crashes with animal:	5.3	0.0	0.0	0.1	0.3	4.8
	Crashes with fixed object:	369.2	1.7	5.3	32.1	98.8	231.4
	Crashes with other object:	43.9	0.1	0.3	1.7	5.9	35.9
	Crashes with parked vehicle:	7.5	0.0	0.1	0.6	2.0	4.8
	Other single-vehicle crashes	80.5	0.5	1.9	11.0	34.3	32.8
	Total single-vehicle crashes:	506.4	2.3	7.6	45.5	141.3	309.7
	Total crashes:	2964.8	8.5	39.6	243.4	920.3	1753.1

Evaluation Site Summary

General Information

Project description:	GWMP at I-495				
Analyst:	DK	Date:	1/31/22	Area type:	Urban
First year of analysis:	2027	Total length of freeway segments for Study Period (mi):		0.230	
Last year of analysis:	2045				

Site Description

Freeway Segments

Number	Lanes	Study Period Length (mi)	Study Period Description
1	4	0.230	GWMP GP 1
2	0	0.000	0
3	0	0.000	0
4	0	0.000	0
5	0	0.000	0
6	0	0.000	0
7	0	0.000	0
8	0	0.000	0
9	0	0.000	0
10	0	0.000	0
11	0	0.000	0
12	0	0.000	0
13	0	0.000	0
14	0	0.000	0
15	0	0.000	0
16	0	0.000	0
17	0	0.000	0
18	0	0.000	0
19	0	0.000	0
20	0	0.000	0

Ramp Segments

Number	Study Period Description	Number	Study Period Description
1	0	21	0
2	0	22	0
3	0	23	0
4	0	24	0
5	0	25	0
6	0	26	0
7	0	27	0
8	0	28	0
9	0	29	0
10	0	30	0
11	0	31	0
12	0	32	0
13	0	33	0
14	0	34	0
15	0	35	0
16	0	36	0
17	0	37	0
18	0	38	0
19	0	39	0
20	0	40	0

Crossroad Ramp Terminals

Number	Config.	Control	Study Period Description
1	0	0	0
2	0	0	0
3	0	0	0
4	0	0	0
5	0	0	0
6	0	0	0

Output Summary

General Information

Project description:	GWMP at I-495				
Analyst:	DK	Date:	1/31/22	Area type:	Urban
First year of analysis:	2027				
Last year of analysis:	2045				

Crash Data Description

Freeway segments	Segment crash data available?	No	First year of crash data:	
	Project-level crash data available?	No	Last year of crash data:	
Ramp segments	Segment crash data available?	No	First year of crash data:	
	Project-level crash data available?	No	Last year of crash data:	
Ramp terminals	Segment crash data available?	No	First year of crash data:	
	Project-level crash data available?	No	Last year of crash data:	

Estimated Crash Statistics

Crashes for Entire Facility	**Total**	**K**	**A**	**B**	**C**	**PDO**
Estimated number of crashes during Study Period, crashes:	57.1	0.5	0.9	6.7	11.7	37.3
Estimated average crash freq. during Study Period, crashes/yr:	3.0	0.0	0.0	0.4	0.6	2.0

Crashes by Facility Component	**Nbr. Sites**	**Total**	**K**	**A**	**B**	**C**	**PDO**
Freeway segments, crashes:	1	57.1	0.5	0.9	6.7	11.7	37.3
Ramp segments, crashes:	0	0.0	0.0	0.0	0.0	0.0	0.0
Crossroad ramp terminals, crashes:	0	0.0	0.0	0.0	0.0	0.0	0.0

Crashes for Entire Facility by Year	**Year**	**Total**	**K**	**A**	**B**	**C**	**PDO**
Estimated number of crashes during the Study Period, crashes:	2027	3.0	0.0	0.0	0.4	0.6	2.0
	2028	3.0	0.0	0.0	0.4	0.6	2.0
	2029	3.0	0.0	0.0	0.4	0.6	2.0
	2030	3.0	0.0	0.0	0.4	0.6	2.0
	2031	3.0	0.0	0.0	0.4	0.6	2.0
	2032	3.0	0.0	0.0	0.4	0.6	2.0
	2033	3.0	0.0	0.0	0.4	0.6	2.0
	2034	3.0	0.0	0.0	0.4	0.6	2.0
	2035	3.0	0.0	0.0	0.4	0.6	2.0
	2036	3.0	0.0	0.0	0.4	0.6	2.0
	2037	3.0	0.0	0.0	0.4	0.6	2.0
	2038	3.0	0.0	0.0	0.4	0.6	2.0
	2039	3.0	0.0	0.0	0.4	0.6	2.0
	2040	3.0	0.0	0.0	0.4	0.6	2.0
	2041	3.0	0.0	0.0	0.4	0.6	2.0
	2042	3.0	0.0	0.0	0.4	0.6	2.0
	2043	3.0	0.0	0.0	0.4	0.6	2.0
	2044	3.0	0.0	0.0	0.4	0.6	2.0
	2045	3.0	0.0	0.0	0.4	0.6	2.0
	2046						
	2047						
	2048						
	2049						
	2050						

Distribution of Crashes for Entire Facility

Crash Type	**Crash Type Category**	**Estimated Number of Crashes During the Study Period**					
		Total	**K**	**A**	**B**	**C**	**PDO**
Multiple vehicle	Head-on crashes:	0.1	0.0	0.0	0.0	0.0	0.0
	Right-angle crashes:	0.8	0.0	0.0	0.1	0.2	0.4
	Rear-end crashes:	24.0	0.2	0.4	2.9	5.0	15.5
	Sideswipe crashes:	8.8	0.0	0.1	0.7	1.2	6.8
	Other multiple-vehicle crashes:	0.8	0.0	0.0	0.1	0.2	0.5
	Total multiple-vehicle crashes:	34.4	0.3	0.5	3.8	6.7	23.2
Single vehicle	Crashes with animal:	0.3	0.0	0.0	0.0	0.0	0.3
	Crashes with fixed object:	16.1	0.1	0.3	2.0	3.6	10.0
	Crashes with other object:	2.6	0.0	0.0	0.2	0.3	2.1
	Crashes with parked vehicle:	0.4	0.0	0.0	0.0	0.1	0.2
	Other single-vehicle crashes	3.3	0.0	0.1	0.6	1.1	1.4
	Total single-vehicle crashes:	22.6	0.2	0.4	2.9	5.0	14.1
	Total crashes:	57.1	0.5	0.9	6.7	11.7	37.3

Evaluation Site Summary

General Information

Project description:	From I-370 to Fields Road to Merge/Diverge From I-270 Ramps				
Analyst:	DK	Date:	1/31/22	Area type:	Urban
First year of analysis:	2027	Total length of freeway segments for Study Period (mi):	1.221		
Last year of analysis:	2045				

Site Description

Freeway Segments

Number	Lanes	Study Period Length (mi)	Study Period Description	
1	6	0.018	GP MP 0.25 - MP 0.27	
2	6	0.169	GP MP 0.27 - MP 0.44	
3	5	0.021	GP MP 0.44 - MP 0.46	
4	5	0.019	GP MP 0.46 - MP 0.48	
5	5	0.010	GP MP 0.48- MP 0.49	
6	5	0.145	GP MP 0.49 - MP 0.63	
7	5	0.116	GP MP 0.63 - MP 0.75	
8	4	0.175	GP MP 0.75 - MP 0.93	
9	5	0.024	GP MP 0.93 - MP 0.95	
10	5	0.235	GP MP 0.95 - MP 1.19	
11	5	0.013	GP MP 1.19 - MP 1.20	
12	6	0.010	GP MP 1.20 - MP 1.21	
13	7	0.265	GP MP 1.21 - MP 1.47	
14	0	0.000	0	
15	0	0.000	0	
16	0	0.000	0	
17	0	0.000	0	
18	0	0.000	0	
19	0	0.000	0	
20	0	0.000	0	

Ramp Segments

Number	Study Period Description		Number	Study Period Description	
1	Ramp from I-370 WB to Wa		21	0	
2	Ramp from Washingtonian E		22	0	
3	Ramp from Fields Rd/Sam E		23	0	
4	Ramp from Washingtonian E		24	0	
5	NB CD MP 0.75 - MP 0.84		25	0	
6	NB CD MP 0.84 - MP 0.95		26	0	
7	0		27	0	
8	0		28	0	
9	0		29	0	
10	0		30	0	
11	0		31	0	
12	0		32	0	
13	0		33	0	
14	0		34	0	
15	0		35	0	
16	0		36	0	
17	0		37	0	
18	0		38	0	
19	0		39	0	
20	0		40	0	

Crossroad Ramp Terminals

Number	Config.	Control	Study Period Description	
1	D4	Signal	Washingtonian Blvd at I-370 WB	
2	D4	Signal	Washingtonian Blvd at I-370 EB	
3	0	0	0	
4	0	0	0	
5	0	0	0	
6	0	0	0	

Output Summary

General Information

Project description:	From I-370 to Fields Road to Merge/Diverge From I-270 Ramps				
Analyst:	DK	Date:	1/31/22	Area type:	Urban
First year of analysis:	2027				
Last year of analysis:	2045				

Crash Data Description

Freeway segments	Segment crash data available?	No	First year of crash data:	
	Project-level crash data available?	No	Last year of crash data:	
Ramp segments	Segment crash data available?	No	First year of crash data:	
	Project-level crash data available?	No	Last year of crash data:	
Ramp terminals	Segment crash data available?	No	First year of crash data:	
	Project-level crash data available?	No	Last year of crash data:	

Estimated Crash Statistics

Crashes for Entire Facility	**Total**	**K**	**A**	**B**	**C**	**PDO**
Estimated number of crashes during Study Period, crashes:	477.3	2.5	7.8	45.6	108.1	313.2
Estimated average crash freq. during Study Period, crashes/yr:	25.1	0.1	0.4	2.4	5.7	16.5

Crashes by Facility Component	**Nbr. Sites**	**Total**	**K**	**A**	**B**	**C**	**PDO**
Freeway segments, crashes:	13	322.8	2.2	5.8	34.2	67.8	212.9
Ramp segments, crashes:	6	31.8	0.3	0.8	4.1	6.9	19.8
Crossroad ramp terminals, crashes:	2	122.6	0.0	1.2	7.4	33.4	80.6

Crashes for Entire Facility by Year	**Year**	**Total**	**K**	**A**	**B**	**C**	**PDO**
Estimated number of crashes during the Study Period, crashes:	2027	25.1	0.1	0.4	2.4	5.7	16.5
	2028	25.1	0.1	0.4	2.4	5.7	16.5
	2029	25.1	0.1	0.4	2.4	5.7	16.5
	2030	25.1	0.1	0.4	2.4	5.7	16.5
	2031	25.1	0.1	0.4	2.4	5.7	16.5
	2032	25.1	0.1	0.4	2.4	5.7	16.5
	2033	25.1	0.1	0.4	2.4	5.7	16.5
	2034	25.1	0.1	0.4	2.4	5.7	16.5
	2035	25.1	0.1	0.4	2.4	5.7	16.5
	2036	25.1	0.1	0.4	2.4	5.7	16.5
	2037	25.1	0.1	0.4	2.4	5.7	16.5
	2038	25.1	0.1	0.4	2.4	5.7	16.5
	2039	25.1	0.1	0.4	2.4	5.7	16.5
	2040	25.1	0.1	0.4	2.4	5.7	16.5
	2041	25.1	0.1	0.4	2.4	5.7	16.5
	2042	25.1	0.1	0.4	2.4	5.7	16.5
	2043	25.1	0.1	0.4	2.4	5.7	16.5
	2044	25.1	0.1	0.4	2.4	5.7	16.5
	2045	25.1	0.1	0.4	2.4	5.7	16.5
	2046						
	2047						
	2048						
	2049						
	2050						

Distribution of Crashes for Entire Facility

Crash Type	**Crash Type Category**	**Estimated Number of Crashes During the Study Period**					
		Total	**K**	**A**	**B**	**C**	**PDO**
Multiple vehicle	Head-on crashes:	1.9	0.0	0.0	0.2	0.7	0.9
	Right-angle crashes:	33.0	0.0	0.4	2.5	9.8	20.3
	Rear-end crashes:	227.1	1.1	3.6	20.9	54.1	147.6
	Sideswipe crashes:	67.1	0.3	0.7	4.4	9.7	52.1
	Other multiple-vehicle crashes:	8.4	0.0	0.1	0.8	1.7	5.7
	Total multiple-vehicle crashes:	337.6	1.5	4.9	28.7	75.9	226.7
Single vehicle	Crashes with animal:	1.7	0.0	0.0	0.0	0.1	1.6
	Crashes with fixed object:	102.0	0.8	2.1	12.1	22.9	64.1
	Crashes with other object:	13.3	0.1	0.1	0.8	1.6	10.8
	Crashes with parked vehicle:	1.9	0.0	0.0	0.2	0.4	1.2
	Other single-vehicle crashes	20.8	0.2	0.7	3.8	7.2	8.9
	Total single-vehicle crashes:	139.7	1.1	2.9	17.0	32.2	86.5
Total crashes:		477.3	2.5	7.8	45.6	108.1	313.2

Safety Performance Function for Managed Lanes

VDOT Memo on the Development of Safety Performance Functions (SPFs) for I-495 Express Lanes

MEMORANDUM

To: Abi Lerner, P.E., VDOT Project Manager

From: Warren E. Hughes, P.E., ATCS, P.L.C.
Ram Jagannathan, ATCS, P.L.C.
Rob Prunty, P.E., Kimley-Horn

Date: March 25, 2019

Subject: Development of Safety Performance Functions (SPFs) for I-495 Express Lanes

Introduction

This memorandum documents the development a new Safety Performance Functions (SPFs) for Express Lanes that was conducted as part of the I-495 Express Lanes Northern Extension Project. The methodology followed the framework that had been proposed in the memo dated November 15, 2018, which was submitted to and accepted by FHWA and VDOT.

Framework and Methodology for the Development of SPFs and Crash Prediction for Express Lanes

Treatment of Freeway Segments:

The Highway Safety Manual (HSM), first edition, does not have a crash prediction methodology for estimating the safety performance of separated express lanes or urban interstate corridors with express lanes/managed lane facilities. At the time that safety analyses were conducted for I-495 and for I-66, there was insufficient experience with express lanes in Virginia to properly predict crashes for express lanes. During the conduct of the I-495 Express Lanes Northern Extension study, it was proposed to VDOT and FHWA that sufficient crash history associated with express lanes on I-495 (the Capital Beltway) and that SPFs could be developed to help predict the expected crashes on both existing and new express lanes. With the development and application of SPF for express lanes, a more complete assessment could be performed for the safety performance of both the no-build and build alternatives related to extending the I-495 Express Lanes north to the American Legion Memorial Bridge. Using historical and available crash data, traffic volume data and roadway geometric data for the existing segments of I-495 Express Lanes, a SPF was developed. The SPFs will allow for estimation of future year crash experience for both existing express lane sections on I-495 and for new express lane sections that will be included in the Build alternative.

The study area includes approximately 3.5 miles along I-495 between the Route 123 interchange and the Maryland state line at the American Legion Memorial Bridge. The study area also extends approximately 2,500 feet east along the George Washington Memorial Parkway. Intersecting roadways and interchanges are also included in the study area, as well as adjacent areas within 600 feet of the existing edge of pavement, as shown in Figure 1. The Express Lanes extension is shown in Figure 2.

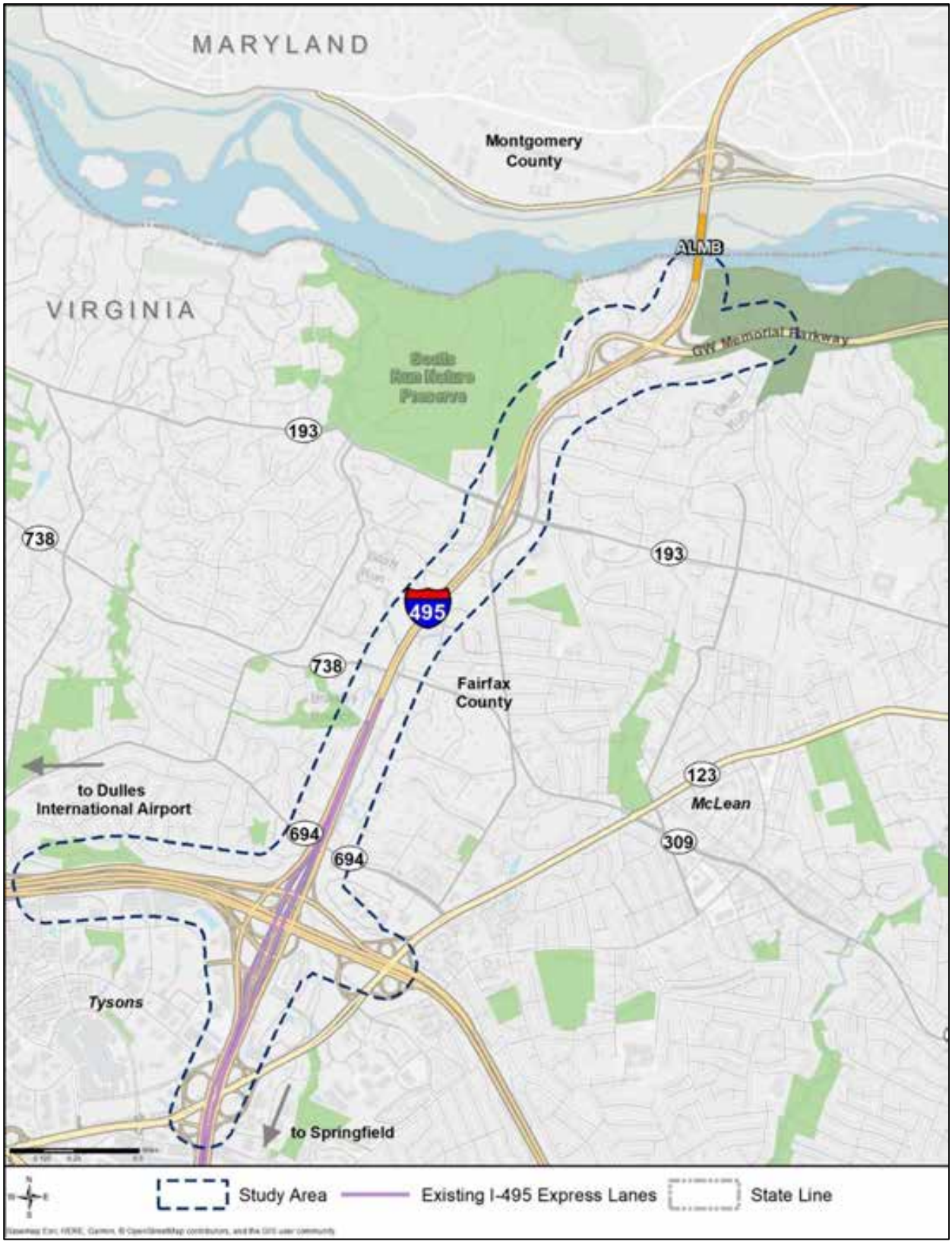
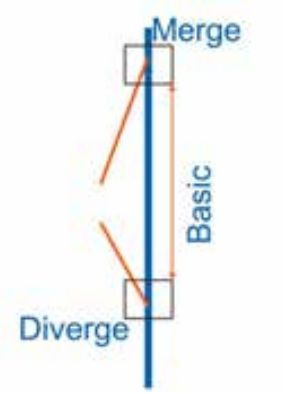


Figure 1: Express Lanes Northern Extension Study Area



Figure 2: I-495 Express Lanes Northern Extension (from Transurban Public Information Meeting, March 2018)

The construct of the safety performance prediction model was initially established to separate express lanes sections into one of three component parts, as shown below:



The Segmentation of express lanes includes: Basic Section (BS), which were between merge and diverge areas, Diverge Section (DS), which included 500 feet upstream and downstream of the diverge point, and Merge Section (MS), which included 500 feet upstream and downstream of the merge point. These are shown in the figure to the right side.

Based on this approach to segmentation, the sample size used in the development of the SPF for express lanes included the following:

<u>For Northbound Express Lanes segments</u>:

1. BS - From the Southern NB Entrance to the on-ramp from Braddock Road
2. BS - From the on-ramp from Braddock Rd to the on-ramp from Gallows Road
3. BS - From the on-ramp from Gallows Road to the off-ramp to Lee Highway
4. BS - From the off-ramp to Lee Hwy to the off-ramp to I-66
5. BS - From the off-ramp to I-66 to the on-ramp from I-66 EB
6. BS - From the on-ramp from I-66 EB to the off-ramp to Leesburg Pike (VA Rte. 7)
7. BS - From the off-ramp to Leesburg Pike (VA Rte. 7) to the off-ramp to Westpark Drive Connector

8. BS - From the off-ramp to Westpark Drive Connector to the on-ramp from Westpark Drive Connector
9. BS - From the on-ramp from Westpark Drive Connector to the off-ramp to Jones Branch Connector
10. BS - From the off-ramp to Jones Branch Connector to the off-ramp to VA Rte. 267
11. BS - From the off-ramp to VA Rte. 267 to the on-ramp from Jones Branch Connector
12. BS - From on-ramp from Jones Branch Connector to Northern NB Exit to GP Lane
13. DS - off-ramp to Lee Highway
14. DS - off-ramp to I-66
15. DS - off-ramp to Leesburg Pike (VA Rte. 7)
16. DS - off-ramp to Westpark Drive Connector
17. DS - off-ramp to Jones Branch Connector
18. DS - off-ramp to VA Rte. 267
19. MS - on-ramp from Braddock Road
20. MS - on-ramp from Gallows Road
21. MS - on-ramp from I-66 EB
22. MS - on-ramp from Westpark Drive Connector
23. MS - on-ramp from Jones Branch Connector

For Southbound Express Lanes segments:

1. BS - From Northern SB Entrance to the off-ramp to VA Rte. 267
2. BS - From the off-ramp to VA Rte. 267 to off-ramp to Jones Branch Connector
3. BS - From the off-ramp to Jones Branch Connector to the on-ramp from Jones Branch Connector
4. BS - From On-Ramp from Jones Branch Connector and On-Ramp from VA Rte. 267
5. BS - From the on-ramp from VA Rte. 267 to the off-ramp to Westpark Drive Connector
6. BS - From the off-ramp to Westpark Drive Connector to the on-ramp from Westpark Drive Connector
7. BS - From the on-ramp from Westpark Drive Connector to the on-ramp from Leesburg Pike (VA Rte. 7)
8. BS - From the on-ramp from Leesburg Pike (VA Rte. 7) to the off-ramp from I-66 WB
9. BS - From the off-ramp from I-66 WB to the on-ramp from I-66 WB & EB
10. BS - From the on-ramp from I-66 WB and EB to the on-ramp from Lee Highway
11. BS - From the on-ramp from Lee Highway to the off-ramp to Gallows Road
12. BS - From the off-ramp to Gallows Road to the off-ramp to Braddock Road
13. BS - From the off-ramp to Braddock Road to the Southern SB Exit
14. DS - off-ramp to VA Rte. 267
15. DS - off-ramp to Jones Branch Connector
16. DS - off-ramp to Westpark Drive Connector
17. DS - off-ramp from I-66 WB
18. DS - off-ramp to Gallows Road
19. DS - off-ramp to Braddock Road
20. MS - on-ramp from Jones Branch Connector
21. MS - on-ramp from VA Rte. 267
22. MS - on-ramp from Westpark Drive Connector
23. MS - On-ramp from Leesburg Pike (VA Rte. 7)
24. MS - on-ramp from I-66 WB & EB
25. MS - on-ramp from Lee Highway

It is important to note that in the development of the Safety Performance Function, the transition areas at the end of the express lanes and the ramps to/from the express lanes were excluded from the analysis. More detail on why this was done is provided in the succeeding paragraphs.

Treatment of Endings of Express Lanes:

Based on INRIX and other travel time/speed observations, free flow conditions do not always exist at the downstream ends of express lanes where drivers coming from the express lanes must merge with

adjacent traffic traveling in the general purpose (GP) lanes. Frequently, congestion occurs in this transition area due to downstream capacity limitations. Consequently, the transition zones do not operate as well as the upstream sections of the express lanes. To properly account for this, it is necessary to segregate the transition from the express lanes for the purposes of development of a SPF for express lanes. A line is needed to demark the end of the free flow, higher speed travel on express lanes and the beginning of the point where flow on express lanes is affected by downstream congestion and capacity-limitations associated with the GP lanes. Beyond the demarcation lines, ISATe is appropriate to analyze the sections of the Express Lanes that are no longer operating under free flow conditions.

Treatment of Ramps to/from Express Lanes:

No SPFs were developed for individual ramps to or from the express lanes. There were relatively few crashes reported on the ramps to/from the express lanes. Most of the crashes that occurred within the vicinity of the express lane ramps are reported in/near merges and diverges. As noted in the methodology memo, ISATe will be used to analyze the safety of express lane (EL) ramps. This will be in a manner similar to how ISATe is used to analyze ramps to and from the general purpose (GP) lanes. Consequently, ISATe procedures will be used for all EL and GP ramps for the 2025 and 2045 No-Build and Build alternatives.

Development of Safety Performance Functions for Express Lanes

In developing the safety performance functions, it is important to recognize the underlying assumptions on which the new relationships were based. These included the following:

- Because I-495 ELs operate within an uncongested regime, SPFs would be directly related to AADT as a dependent variable within certain thresholds.
- Traffic Volumes and Crash History for Existing I-495 Express Lane sections for the past 5 years (Jan. 1, 2013 through Dec. 31, 2017) were deemed adequate from a historical perspective and used to develop new SPFs for the express lanes directional segments consisting of two lanes.

The salient features of the crash data, from which the SPF were developed, are described as follows:

- A total of 396 crashes were reported over a period of 5 years on the I-495 express lanes.
- Of those 396 reported crashes, 49 reported crashes occurred within the Diverge Segments and 45 reported crashes occurred within the Merge Segments. The remaining 302 reported crashes occurred on the Basic and Weave Segments.

A series of statistical models were developed to predict crashes. The primary independent variables used in the regression analyses were AADT, segment length and segment type (Merge, Diverge or Basic/Weave). The number of predicted crashes per year was the dependent variable in each model. The following functional forms for SPFs were tested:

Group 1 (Each model included segment length as one of the independent variables):

1. All reported crashes as a function of AADT, segment length and segment type
2. All reported crashes as a function of AADT and segment length
3. Basic and weave segment crashes as a function of AADT and segment length
4. Merge segment crashes as a function of AADT and segment length
5. Diverge segment crashes as a function of AADT and segment length

Group 2 (None of the models included section length as an independent variable)

6. All reported crashes as a function of AADT and segment type
7. All reported crashes as a function of AADT
8. Basic and weave Segment Crashes as a function of AADT
9. Merge segment crashes as a function of AADT
10. Diverge segment crashes as a function of AADT

The results of the statistical regression modelling were as follows:

Group 1:

1. All Crashes as a function of AADT, segment length and segment type: Segment type was insignificant.
2. All Crashes as a function of AADT and segment length: All variables were significant.
3. Basic and Weave Segment Crashes as a function of AADT and segment length: All variables were significant.
4. Merge Segment Crashes as a function of AADT and segment length: All variables were insignificant.
5. Diverge Segment Crashes as a function of AADT and segment length: AADT was insignificant.

Group 2:

6. All Crashes as a function of AADT and segment type: AADT and segment type variables were insignificant.
7. All Crashes as a function of AADT: All variables were significant.
8. Basic and Weave Segment Crashes as a function of AADT: All variables were insignificant.
9. Merge Segment Crashes as a function of AADT: All variables were insignificant.
10. Diverge Segment Crashes as a function of AADT: All variables were insignificant.

The results of the statistical modelling results and the statistical model forms are included in an appendix at the end of this memo. The results show that SFP2 in Group 1 and SPF7 in Group 2 were the only models in which all of their independent variables were found to be statistically significant. Of the two, SFP2 in Group 1 had a much higher R-squared value, which reflects a better "goodness of fit," compared to SPF7 in Group 2. Intuitively, predicted crashes should have a direct correlation to AADT and roadway segment length. The models in the Highway Safety Manual for crash prediction are also very similar in form but with different coefficients.

On the basis of the analysis conducted, the proposed SPF for express lanes on I-495 is given below for the non-linear and linear regression models.

Non-Linear Regression: Expectation ($Crashes_{i,t}$) = exponential (0.011022579 + 0.987113593 * ln($Segment\ Length_{i,t}$) + 0.141283034 * ln($AADT_{i,t}$)

Linear Regression: Expectation ($Crashes_{i,t}$) = 0.550840245 + 4.130999289 * $Segment\ Length_{i,t}$) - 0.000121228 * $AADT_{i,t}$)

Where:

$Crashes_{i,t}$ = Crashes/year on Segment i for Time period t,

$Segment\ Length_{i,t}$ = Segment Length on Segment i for Time period t and

$AADT_{i,t}$ = Average Annual Daily Traffic on Segment i for Time period t.

The non-linear regression form had an R-squared value of 0.51 and the linear regression form had an R-squared value of 0.564; therefore, the linear regression model form was chosen due to the better R-squared value. There was a challenge with linear regression model for a limited number of cases where the model had a negative prediction of crashes. To fix that challenge, the form of the linear regression model was modified to be the max value of 0 and linear regression predicted crashes; this change in the model form solved the challenge by replacing negative prediction of crashes with zero. The R-squared for the modified form continued to be 0.564.

On the basis of the analysis conducted, the proposed SPF for express lanes on I-495 is given below:

Expectation ($Crashes_{i,t}$) = Max[0.550840245 + 4.130999289 * $Segment\ Length_{i,t}$) -0.000121228 * $AADT_{i,t}$), 0]

Where:

$Crashes_{i,t}$ = Crashes/year on Segment i for Time period t,

$Segment\ Length_{i,t}$ = Segment Length on Segment i for Time period t and

$AADT_{i,t}$ = Average Annual Daily Traffic on Segment i for Time period t.

This equation applies to Merge Sections, Diverge Sections and Basic+Weave Sections. The Appendix includes a comparison of the actual crashes and predicted crashes for all segments in the existing conditions. The comparison shows the difference in the total crashes predicted using linear regression model versus actual crash performance is less than 1 crash in five years for existing conditions. The proposed SPF for I-495 Express lanes can be used for the prediction of crashes for future No-Build and Build alternatives for the I-495 Express Lanes Northern Extension project.

Appendix - Statistical Modelling Results

Comparison of Predicted Crashes versus Actual Crashes for Existing Crashes

ID	Segment	Year	Length (miles)	AADT	Crashes	Non-Linear Predicted Crashes	Linear Predicted Crashes
NB Express Lanes – BS & WS Segments							
1	BS - From the Southern NB Entrance to the on-ramp from Braddock Road	2013	2.27	7966	24.0	8.1	9.0
2	BS - From the on-ramp from Braddock Rd to the on-ramp from Gallows Road	2013	2.61	9481	9.0	9.5	10.2
3	BS - From the on-ramp from Gallows Road to the off-ramp to Lee Highway	2013	0.62	10879	2.0	2.3	1.8
4	BS - From the off-ramp to Lee Hwy to the off-ramp to I-66	2013	0.33	9741	3.0	1.2	0.7
5	BS - From the off-ramp to I-66 to the on-ramp from I-66 EB	2013	0.88	7671	0.0	3.2	3.3
6	BS - From the on-ramp from I-66 EB to the off-ramp to Leesburg Pike (VA Rt 7)	2013	0.61	10782	2.0	2.3	1.8
7	BS - From the off-ramp to Leesburg Pike (VA Rt 7) to the off-ramp to Westpark Drive Connector	2013	0.63	9320	2.0	2.3	2.0
8	BS - From the off-ramp to Westpark Drive Connector to the on-ramp from Westpark Drive Connector	2013	0.5	8072	0.0	1.8	1.6
9	WS - From the on-ramp from Westpark Drive Connector to the off-ramp to Jones Branch Connector	2013	0.18	8964	0.0	0.7	0.2
11	BS - From the off-ramp to VA Rt 267 to the on-ramp from Jones Branch Connector	2013	0.28	926	0.0	0.8	1.6
12	BS - From on-ramp from Jones Branch Connector to Northern NB Exit to GP Lane	2013	0.49	2786	2.0	1.5	2.2
	SubTotal BS&WS crashes	2013			44.0	33.7	34.4
1	BS - From the Southern NB Entrance to the on-ramp from Braddock Road	2014	2.27	9349	14.0	8.3	8.8
2	BS - From the on-ramp from Braddock Rd to the on-ramp	2014	2.61	11168	9.0	9.7	10.0

	from Gallows Road						
3	BS - From the on-ramp from Gallows Road to the off-ramp to Lee Highway	2014	0.62	12936	3.0	2.4	1.5
4	BS - From the off-ramp to Lee Hwy to the off-ramp to I-66	2014	0.33	11446	1.0	1.3	0.5
5	BS - From the off-ramp to I-66 to the on-ramp from I-66 EB	2014	0.88	9015	2.0	3.2	3.1
6	BS - From the on-ramp from I-66 EB to the off-ramp to Leesburg Pike (VA Rt 7)	2014	0.61	12655	0.0	2.4	1.5
7	BS - From the off-ramp to Leesburg Pike (VA Rt 7) to the off-ramp to Westpark Drive Connector	2014	0.63	10853	2.0	2.4	1.8
8	BS - From the off-ramp to Westpark Drive Connector to the on-ramp from Westpark Drive Connector	2014	0.5	9373	5.0	1.9	1.5
9	WS - From the on-ramp from Westpark Drive Connector to the off-ramp to Jones Branch Connector	2014	0.18	10663	0.0	0.7	0.0
11	BS - From the off-ramp to VA Rt 267 to the on-ramp from Jones Branch Connector	2014	0.28	1255	0.0	0.8	1.6
12	BS - From on-ramp from Jones Branch Connector to Northern NB Exit to GP Lane	2014	0.49	3277	2.0	1.6	2.2
	SubTotal BS&WS crashes	2014			38.0	34.5	32.5
1	BS - From the Southern NB Entrance to the on-ramp from Braddock Road	2015	2.27	10783	9.0	8.4	8.6
2	BS - From the on-ramp from Braddock Rd to the on-ramp from Gallows Road	2015	2.61	12714	3.0	9.9	9.8
3	BS - From the on-ramp from Gallows Road to the off-ramp to Lee Highway	2015	0.62	14517	0.0	2.4	1.4
4	BS - From the off-ramp to Lee Hwy to the off-ramp to I-66	2015	0.33	12732	2.0	1.3	0.4
5	BS - From the off-ramp to I-66 to the on-ramp from I-66 EB	2015	0.88	10041	1.0	3.3	3.0
6	BS - From the on-ramp from I-66 EB to the off-ramp to Leesburg Pike (VA Rt 7)	2015	0.61	13982	0.0	2.4	1.4
7	BS - From the off-ramp to Leesburg Pike (VA Rt 7) to the off-ramp to Westpark Drive Connector	2015	0.63	11971	4.0	2.4	1.7
8	BS - From the off-ramp to Westpark Drive Connector to	2015	0.5	10422	3.0	1.9	1.4

	the on-ramp from Westpark Drive Connector						
9	WS - From the on-ramp from Westpark Drive Connector to the off-ramp to Jones Branch Connector	2015	0.18	11962	0.0	0.7	0.0
11	BS - From the off-ramp to VA Rt 267 to the on-ramp from Jones Branch Connector	2015	0.28	1529	0.0	0.8	1.5
12	BS - From on-ramp from Jones Branch Connector to Northern NB Exit to GP Lane	2015	0.49	3714	2.0	1.6	2.1
	SubTotal BS&WS crashes	2015			24.0	35.1	31.2
1	BS - From the Southern NB Entrance to the on-ramp from Braddock Road	2016	2.27	11547	10.0	8.5	8.5
2	BS - From the on-ramp from Braddock Rd to the on-ramp from Gallows Road	2016	2.61	13560	6.0	10.0	9.7
3	BS - From the on-ramp from Gallows Road to the off-ramp to Lee Highway	2016	0.62	15311	1.0	2.5	1.3
4	BS - From the off-ramp to Lee Hwy to the off-ramp to I-66	2016	0.33	13345	1.0	1.3	0.3
5	BS - From the off-ramp to I-66 to the on-ramp from I-66 EB	2016	0.88	10412	3.0	3.3	2.9
6	BS - From the on-ramp from I-66 EB to the off-ramp to Leesburg Pike (VA Rt 7)	2016	0.61	14623	0.0	2.4	1.3
7	BS - From the off-ramp to Leesburg Pike (VA Rt 7) to the off-ramp to Westpark Drive Connector	2016	0.63	12511	0.0	2.4	1.6
8	BS - From the off-ramp to Westpark Drive Connector to the on-ramp from Westpark Drive Connector	2016	0.5	10891	2.0	1.9	1.3
9	WS - From the on-ramp from Westpark Drive Connector to the off-ramp to Jones Branch Connector	2016	0.18	12507	0.0	0.7	0.0
11	BS - From the off-ramp to VA Rt 267 to the on-ramp from Jones Branch Connector	2016	0.28	1625	0.0	0.8	1.5
12	BS - From on-ramp from Jones Branch Connector to Northern NB Exit to GP Lane	2016	0.49	3804	1.0	1.6	2.1
	SubTotal BS&WS crashes	2016			24.0	35.4	30.5
1	BS - From the Southern NB Entrance to the on-ramp from Braddock Road	2017	2.27	12506	9.0	8.6	8.4
2	BS - From the on-ramp from Braddock Rd to the on-ramp	2017	2.61	14677	5.0	10.1	9.6

	from Gallows Road						
3	BS - From the on-ramp from Gallows Road to the off-ramp to Lee Highway	2017	0.62	16523	1.0	2.5	1.1
4	BS - From the off-ramp to Lee Hwy to the off-ramp to I-66	2017	0.33	14378	4.0	1.3	0.2
5	BS - From the off-ramp to I-66 to the on-ramp from I-66 EB	2017	0.88	11028	3.0	3.3	2.8
6	BS - From the on-ramp from I-66 EB to the off-ramp to Leesburg Pike (VA Rt 7)	2017	0.61	15686	0.0	2.4	1.2
7	BS - From the off-ramp to Leesburg Pike (VA Rt 7) to the off-ramp to Westpark Drive Connector	2017	0.63	13505	0.0	2.5	1.5
8	BS - From the off-ramp to Westpark Drive Connector to the on-ramp from Westpark Drive Connector	2017	0.5	11793	1.0	1.9	1.2
9	WS - From the on-ramp from Westpark Drive Connector to the off-ramp to Jones Branch Connector	2017	0.18	13720	0.0	0.7	0.0
11	BS - From the off-ramp to VA Rt 267 to the on-ramp from Jones Branch Connector	2017	0.28	1767	0.0	0.8	1.5
12	BS - From on-ramp from Jones Branch Connector to Northern NB Exit to GP Lane	2017	0.49	4180	2.0	1.6	2.1
	SubTotal BS&WS crashes	2017			25.0	35.8	29.5
SB Express Lanes – BS & WS Segments							
24	BS - From Northern SB Entrance to the off-ramp to VA Rt 267	2013	0.15	4565	1.0	0.5	0.6
26	BS - From the off-ramp to VA Rt 267 to off-ramp to Jones Branch Connector	2013	0.21	3730	0.0	0.7	1.0
28	BS - From the off-ramp to Jones Branch Connector to the on-ramp from Jones Branch Connector	2013	0.35	8345	1.0	1.3	1.0
32	WS - From the on-ramp from VA Rt 267 to the off-ramp to Westpark Drive Connector	2013	0.17	6216	1.0	0.6	0.5
34	BS - From the off-ramp to Westpark Drive Connector to the on-ramp from Westpark Drive Connector	2013	0.45	8072	2.0	1.6	1.4
36	BS - From the on-ramp from Westpark Drive Connector to the on-ramp from Leesburg Pike (VA Rt 7)	2013	0.7	7356	9.0	2.5	2.6
38	BS - From the on-ramp from Leesburg Pike (VA Rt 7) to	2013	0.53	8336	4.0	1.9	1.7

	the off-ramp from I-66 WB						
40	BS - From the off-ramp from I-66 WB to the on-ramp from I-66 WB & EB	2013	0.41	6577	2.0	1.5	1.4
42	BS - From the on-ramp from I-66 WB and EB to the on-ramp from Lee Highway	2013	0.75	7755	6.0	2.7	2.7
44	BS - From the on-ramp from Lee Highway to the off-ramp to Gallows Road	2013	0.56	8732	0.0	2.1	1.8
46	BS - From the off-ramp to Gallows Road to the off-ramp to Braddock Road	2013	2.6	7353	20.0	9.1	10.4
48	BS - From the off-ramp to Braddock Road to the Southern SB Exit	2013	1.39	5861	10.0	4.8	5.6
	SubTotal BS&WS crashes	2013			56.0	29.3	30.7
24	BS - From Northern SB Entrance to the off-ramp to VA Rt 267	2014	0.15	5300	1.0	0.5	0.5
26	BS - From the off-ramp to VA Rt 267 to off-ramp to Jones Branch Connector	2014	0.21	4368	1.0	0.7	0.9
28	BS - From the off-ramp to Jones Branch Connector to the on-ramp from Jones Branch Connector	2014	0.35	10064	0.0	1.3	0.8
32	WS - From the on-ramp from VA Rt 267 to the off-ramp to Westpark Drive Connector	2014	0.17	7268	0.0	0.6	0.4
34	BS - From the off-ramp to Westpark Drive Connector to the on-ramp from Westpark Drive Connector	2014	0.45	9373	0.0	1.7	1.3
36	BS - From the on-ramp from Westpark Drive Connector to the on-ramp from Leesburg Pike (VA Rt 7)	2014	0.7	8646	3.0	2.6	2.4
38	BS - From the on-ramp from Leesburg Pike (VA Rt 7) to the off-ramp from I-66 WB	2014	0.53	9862	4.0	2.0	1.5
40	BS - From the off-ramp from I-66 WB to the on-ramp from I-66 WB & EB	2014	0.41	7806	1.0	1.5	1.3
42	BS - From the on-ramp from I-66 WB and EB to the on-ramp from Lee Highway	2014	0.75	9253	4.0	2.8	2.5
44	BS - From the on-ramp from Lee Highway to the off-ramp to Gallows Road	2014	0.56	10594	1.0	2.1	1.6
46	BS - From the off-ramp to Gallows Road to the off-ramp to Braddock Road	2014	2.6	8972	7.0	9.4	10.2

48	BS - From the off-ramp to Braddock Road to the Southern SB Exit	2014	1.39	7212	4.0	4.9	5.4
	SubTotal BS&WS crashes	2014			26.0	30.1	28.8
24	BS - From Northern SB Entrance to the off-ramp to VA Rt 267	2015	0.15	6446	0.0	0.5	0.4
26	BS - From the off-ramp to VA Rt 267 to off-ramp to Jones Branch Connector	2015	0.21	5379	3.0	0.7	0.8
28	BS - From the off-ramp to Jones Branch Connector to the on-ramp from Jones Branch Connector	2015	0.35	11394	0.0	1.3	0.6
32	WS - From the on-ramp from VA Rt 267 to the off-ramp to Westpark Drive Connector	2015	0.17	8748	0.0	0.6	0.2
34	BS - From the off-ramp to Westpark Drive Connector to the on-ramp from Westpark Drive Connector	2015	0.45	10422	0.0	1.7	1.1
36	BS - From the on-ramp from Westpark Drive Connector to the on-ramp from Leesburg Pike (VA Rt 7)	2015	0.7	10352	2.0	2.6	2.2
38	BS - From the on-ramp from Leesburg Pike (VA Rt 7) to the off-ramp from I-66 WB	2015	0.53	11785	1.0	2.0	1.3
40	BS - From the off-ramp from I-66 WB to the on-ramp from I-66 WB & EB	2015	0.41	9326	0.0	1.5	1.1
42	BS - From the on-ramp from I-66 WB and EB to the on-ramp from Lee Highway	2015	0.75	11083	5.0	2.8	2.3
44	BS - From the on-ramp from Lee Highway to the off-ramp to Gallows Road	2015	0.56	12754	3.0	2.2	1.3
46	BS - From the off-ramp to Gallows Road to the off-ramp to Braddock Road	2015	2.6	10880	5.0	9.7	10.0
48	BS - From the off-ramp to Braddock Road to the Southern SB Exit	2015	1.39	8930	5.0	5.1	5.2
	SubTotal BS&WS crashes	2015			24.0	30.8	26.5
24	BS - From Northern SB Entrance to the off-ramp to VA Rt 267	2016	0.15	7372	1.0	0.5	0.3
26	BS - From the off-ramp to VA Rt 267 to off-ramp to Jones Branch Connector	2016	0.21	6244	0.0	0.7	0.7
28	BS - From the off-ramp to Jones Branch Connector to the on-ramp from Jones Branch Connector	2016	0.35	11903	0.0	1.4	0.6

32	WS - From the on-ramp from VA Rt 267 to the off-ramp to Westpark Drive Connector	2016	0.17	9974	0.0	0.6	0.0
34	BS - From the off-ramp to Westpark Drive Connector to the on-ramp from Westpark Drive Connector	2016	0.45	10891	0.0	1.7	1.1
36	BS - From the on-ramp from Westpark Drive Connector to the on-ramp from Leesburg Pike (VA Rt 7)	2016	0.7	11851	2.0	2.7	2.0
38	BS - From the on-ramp from Leesburg Pike (VA Rt 7) to the off-ramp from I-66 WB	2016	0.53	13566	1.0	2.1	1.1
40	BS - From the off-ramp from I-66 WB to the on-ramp from I-66 WB & EB	2016	0.41	10685	1.0	1.6	0.9
42	BS - From the on-ramp from I-66 WB and EB to the on-ramp from Lee Highway	2016	0.75	12820	6.0	2.9	2.1
44	BS - From the on-ramp from Lee Highway to the off-ramp to Gallows Road	2016	0.56	14704	0.0	2.2	1.1
46	BS - From the off-ramp to Gallows Road to the off-ramp to Braddock Road	2016	2.6	12473	4.0	9.8	9.8
48	BS - From the off-ramp to Braddock Road to the Southern SB Exit	2016	1.39	10387	6.0	5.2	5.0
	SubTotal BS&WS crashes	2016			21.0	31.4	24.7
24	BS - From Northern SB Entrance to the off-ramp to VA Rt 267	2017	0.15	8446	0.0	0.6	0.1
26	BS - From the off-ramp to VA Rt 267 to off-ramp to Jones Branch Connector	2017	0.21	7177	0.0	0.8	0.5
28	BS - From the off-ramp to Jones Branch Connector to the on-ramp from Jones Branch Connector	2017	0.35	13103	0.0	1.4	0.4
32	WS - From the on-ramp from VA Rt 267 to the off-ramp to Westpark Drive Connector	2017	0.17	11196	2.0	0.7	0.0
34	BS - From the off-ramp to Westpark Drive Connector to the on-ramp from Westpark Drive Connector	2017	0.45	11793	0.0	1.7	1.0
36	BS - From the on-ramp from Westpark Drive Connector to the on-ramp from Leesburg Pike (VA Rt 7)	2017	0.7	13374	2.0	2.7	1.8
38	BS - From the on-ramp from Leesburg Pike (VA Rt 7) to the off-ramp from I-66 WB	2017	0.53	15226	1.0	2.1	0.9
40	BS - From the off-ramp from I-66 WB to the on-ramp from	2017	0.41	11907	0.0	1.6	0.8

	I-66 WB & EB						
42	BS - From the on-ramp from I-66 WB and EB to the on-ramp from Lee Highway	2017	0.75	14311	1.0	2.9	1.9
44	BS - From the on-ramp from Lee Highway to the off-ramp to Gallows Road	2017	0.56	16408	0.0	2.2	0.9
46	BS - From the off-ramp to Gallows Road to the off-ramp to Braddock Road	2017	2.6	13992	8.0	10.0	9.6
48	BS - From the off-ramp to Braddock Road to the Southern SB Exit	2017	1.39	11816	6.0	5.3	4.9
	SubTotal BS&WS crashes	2017			20.0	31.9	22.8
NB Express Lanes – MS Segments							
19	MS - on-ramp from Braddock Road	2013	0.2	1515	1.0	0.6	1.2
20	MS - on-ramp from Gallows Road	2013	0.2	1398	2.0	0.6	1.2
21	MS - on-ramp from I-66 EB	2013	0.2	3110	3.0	0.6	1.0
23	MS - on-ramp from Jones Branch Connector	2013	0.2	926	0.0	0.5	1.3
	SubTotal MS crashes	2013			6.0	2.3	4.7
19	MS - on-ramp from Braddock Road	2014	0.2	1820	0.0	0.6	1.2
20	MS - on-ramp from Gallows Road	2014	0.2	1768	0.0	0.6	1.2
21	MS - on-ramp from I-66 EB	2014	0.2	3640	2.0	0.7	0.9
23	MS - on-ramp from Jones Branch Connector	2014	0.2	1255	0.0	0.6	1.2
	SubTotal MS crashes	2014			2.0	2.4	4.5
19	MS - on-ramp from Braddock Road	2015	0.2	1930	1.0	0.6	1.1
20	MS - on-ramp from Gallows Road	2015	0.2	1803	2.0	0.6	1.2
21	MS - on-ramp from I-66 EB	2015	0.2	3941	1.0	0.7	0.9
23	MS - on-ramp from Jones Branch Connector	2015	0.2	1529	0.0	0.6	1.2
	SubTotal MS crashes	2015			4.0	2.4	4.4
19	MS - on-ramp from Braddock Road	2016	0.2	2013	2.0	0.6	1.1
20	MS - on-ramp from Gallows Road	2016	0.2	1751	0.0	0.6	1.2
21	MS - on-ramp from I-66 EB	2016	0.2	4211	0.0	0.7	0.9
23	MS - on-ramp from Jones Branch Connector	2016	0.2	1625	0.0	0.6	1.2
	SubTotal MS crashes	2016			2.0	2.5	4.3
19	MS - on-ramp from Braddock Road	2017	0.2	2171	1.0	0.6	1.1

20	MS - on-ramp from Gallows Road	2017	0.2	1846	0.0	0.6	1.2
21	MS - on-ramp from I-66 EB	2017	0.2	4658	1.0	0.7	0.8
23	MS - on-ramp from Jones Branch Connector	2017	0.2	1767	0.0	0.6	1.2
	SubTotal MS crashes	2017			2.0	2.5	4.2
SB Express Lanes – MS Segments							
29	MS - on-ramp from Jones Branch Connector	2013	0.08	926	1.0	0.2	0.8
35	MS - on-ramp from Westpark Drive Connector	2013	0.2	893	3.0	0.5	1.3
37	MS - on-ramp from Leesburg Pike (VA Rt 7)	2013	0.2	980	4.0	0.5	1.3
41	MS - on-ramp from I-66 WB & EB	2013	0.2	1178	0.0	0.6	1.2
43	MS - on-ramp from Lee Highway	2013	0.2	977	1.0	0.5	1.3
	SubTotal MS crashes	2013			9.0	2.4	5.8
29	MS - on-ramp from Jones Branch Connector	2014	0.08	1255	0.0	0.2	0.7
35	MS - on-ramp from Westpark Drive Connector	2014	0.2	1289	0.0	0.6	1.2
37	MS - on-ramp from Leesburg Pike (VA Rt 7)	2014	0.2	1216	2.0	0.6	1.2
41	MS - on-ramp from I-66 WB & EB	2014	0.2	1447	0.0	0.6	1.2
43	MS - on-ramp from Lee Highway	2014	0.2	1341	1.0	0.6	1.2
	SubTotal MS crashes	2014			3.0	2.5	5.6
29	MS - on-ramp from Jones Branch Connector	2015	0.08	1529	1.0	0.2	0.7
35	MS - on-ramp from Westpark Drive Connector	2015	0.2	1540	2.0	0.6	1.2
37	MS - on-ramp from Leesburg Pike (VA Rt 7)	2015	0.2	1432	2.0	0.6	1.2
41	MS - on-ramp from I-66 WB & EB	2015	0.2	1756	1.0	0.6	1.2
43	MS - on-ramp from Lee Highway	2015	0.2	1671	2.0	0.6	1.2
	SubTotal MS crashes	2015			8.0	2.6	5.4
29	MS - on-ramp from Jones Branch Connector	2016	0.08	1625	0.0	0.2	0.7
35	MS - on-ramp from Westpark Drive Connector	2016	0.2	1616	1.0	0.6	1.2
37	MS - on-ramp from Leesburg Pike (VA Rt 7)	2016	0.2	1715	3.0	0.6	1.2
41	MS - on-ramp from I-66 WB & EB	2016	0.2	2135	1.0	0.6	1.1
43	MS - on-ramp from Lee Highway	2016	0.2	1885	2.0	0.6	1.1
	SubTotal MS crashes	2016			7.0	2.6	5.3
29	MS - on-ramp from Jones Branch Connector	2017	0.08	1767	1.0	0.2	0.7
35	MS - on-ramp from Westpark Drive Connector	2017	0.2	1927	1.0	0.6	1.1

37	MS - on-ramp from Leesburg Pike (VA Rt 7)	2017	0.2	1852	3.0	0.6	1.2
41	MS - on-ramp from I-66 WB & EB	2017	0.2	2404	1.0	0.6	1.1
43	MS - on-ramp from Lee Highway	2017	0.2	2096	0.0	0.6	1.1
	SubTotal MS crashes	2017			6.0	2.7	5.2
NB Express Lanes – DS Segments							
13	DS - off-ramp to Lee Highway	2013	0.2	1138	3.0	0.6	1.2
14	DS - off-ramp to I-66	2013	0.2	2070	2.0	0.6	1.1
15	DS - off-ramp to Leesburg Pike (VA Rt 7)	2013	0.2	1461	0.0	0.6	1.2
16	DS - off-ramp to Westpark Drive Connector	2013	0.2	1249	3.0	0.6	1.2
18	DS - off-ramp to VA Rt 267 NB	2013	0.13	2786	0.0	0.4	0.8
	SubTotal DS crashes	2013			8.0	2.7	5.5
13	DS - off-ramp to Lee Highway	2014	0.2	1490	1.0	0.6	1.2
14	DS - off-ramp to I-66	2014	0.2	2431	2.0	0.6	1.1
15	DS - off-ramp to Leesburg Pike (VA Rt 7)	2014	0.2	1803	0.0	0.6	1.2
16	DS - off-ramp to Westpark Drive Connector	2014	0.2	1479	0.0	0.6	1.2
18	DS - off-ramp to VA Rt 267 NB	2014	0.13	3277	0.0	0.4	0.7
	SubTotal DS crashes	2014			3.0	2.8	5.3
13	DS - off-ramp to Lee Highway	2015	0.2	1784	1.0	0.6	1.2
14	DS - off-ramp to I-66	2015	0.2	2692	0.0	0.6	1.1
15	DS - off-ramp to Leesburg Pike (VA Rt 7)	2015	0.2	2011	0.0	0.6	1.1
16	DS - off-ramp to Westpark Drive Connector	2015	0.2	1549	2.0	0.6	1.2
18	DS - off-ramp to VA Rt 267 NB	2015	0.13	3714	0.0	0.4	0.6
	SubTotal DS crashes	2015			3.0	2.8	5.2
13	DS - off-ramp to Lee Highway	2016	0.2	1966	1.0	0.6	1.1
14	DS - off-ramp to I-66	2016	0.2	2933	1.0	0.6	1.0
15	DS - off-ramp to Leesburg Pike (VA Rt 7)	2016	0.2	2112	0.0	0.6	1.1
16	DS - off-ramp to Westpark Drive Connector	2016	0.2	1619	1.0	0.6	1.2
18	DS - off-ramp to VA Rt 267 NB	2016	0.13	3804	0.0	0.4	0.6
	SubTotal DS crashes	2016			3.0	2.9	5.1
13	DS - off-ramp to Lee Highway	2017	0.2	2144	2.0	0.6	1.1
14	DS - off-ramp to I-66	2017	0.2	3351	1.0	0.6	1.0

15	DS - off-ramp to Leesburg Pike (VA Rt 7)	2017	0.2	2181	0.0	0.6	1.1
16	DS - off-ramp to Westpark Drive Connector	2017	0.2	1712	1.0	0.6	1.2
18	DS - off-ramp to VA Rt 267 NB	2017	0.13	4180	0.0	0.4	0.6
	SubTotal DS crashes	2017			4.0	2.9	5.0
SB Express Lanes – DS Segments							
25	DS - off-ramp to VA Rt 267 SB	2013	0.2	835	0.0	0.5	1.3
27	DS - off-ramp to Jones Branch Connector	2013	0.2	619	0.0	0.5	1.3
39	DS - off-ramp from I-66 WB	2013	0.2	1759	2.0	0.6	1.2
45	DS - off-ramp to Gallows Road	2013	0.2	1379	3.0	0.6	1.2
47	DS - off-ramp to Braddock Road	2013	0.2	1492	4.0	0.6	1.2
	SubTotal DS crashes	2013			9.0	2.8	6.1
25	DS - off-ramp to VA Rt 267 SB	2014	0.2	932	1.0	0.5	1.3
27	DS - off-ramp to Jones Branch Connector	2014	0.2	599	0.0	0.5	1.3
39	DS - off-ramp from I-66 WB	2014	0.2	2055	0.0	0.6	1.1
45	DS - off-ramp to Gallows Road	2014	0.2	1623	1.0	0.6	1.2
47	DS - off-ramp to Braddock Road	2014	0.2	1760	0.0	0.6	1.2
	SubTotal DS crashes	2014			2.0	2.8	6.0
25	DS - off-ramp to VA Rt 267 SB	2015	0.2	1067	1.0	0.6	1.2
27	DS - off-ramp to Jones Branch Connector	2015	0.2	568	0.0	0.5	1.3
39	DS - off-ramp from I-66 WB	2015	0.2	2458	3.0	0.6	1.1
45	DS - off-ramp to Gallows Road	2015	0.2	1874	0.0	0.6	1.1
47	DS - off-ramp to Braddock Road	2015	0.2	1959	1.0	0.6	1.1
	SubTotal DS crashes	2015			5.0	2.9	5.9
25	DS - off-ramp to VA Rt 267 SB	2016	0.2	1128	2.0	0.6	1.2
27	DS - off-ramp to Jones Branch Connector	2016	0.2	604	0.0	0.5	1.3
39	DS - off-ramp from I-66 WB	2016	0.2	2881	1.0	0.6	1.0
45	DS - off-ramp to Gallows Road	2016	0.2	2231	1.0	0.6	1.1
47	DS - off-ramp to Braddock Road	2016	0.2	2086	0.0	0.6	1.1
	SubTotal DS crashes	2016			4.0	2.9	5.8
25	DS - off-ramp to VA Rt 267 SB	2017	0.2	1269	0.0	0.6	1.2
27	DS - off-ramp to Jones Branch Connector	2017	0.2	617	0.0	0.5	1.3

39	DS - off-ramp from I-66 WB	2017	0.2	3319	2.0	0.6	1.0
45	DS - off-ramp to Gallows Road	2017	0.2	2416	1.0	0.6	1.1
47	DS - off-ramp to Braddock Road	2017	0.2	2176	1.0	0.6	1.1
	SubTotal DS crashes	2017			4.0	3.0	5.7
	TOTAL CRASHES				396.0	381.6	396.9

Statistical Model Forms

Group 1: 1 - All Crashes as a function of AADT, segment length and segment type – Linear Regression

SUMMARY OUTPUT						
Regression Statistics						
Multiple R	0.753237136					
R Square	0.567366182					
Adjusted R Square	0.558924547					
Standard Error	2.016754958					
Observations	210					
ANOVA						
	df	*SS*	*MS*	*F*	*Significance F*	
Regression	4	1093.460528	273.3651319	67.21045757	2.98084E-36	
Residual	205	833.7966153	4.067300563			
Total	209	1927.257143				
	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*
Intercept	0.455099982	0.304427175	1.494938759	0.136468169	-0.1451097	1.055309665
Var - Segment Length	4.081164737	0.266583921	15.30911812	8.80903E-36	3.555566945	4.606762528
Var - AADT	-0.00017734	5.41114E-05	-3.277318667	0.001230816	-0.000284026	-7.0654E-05
Var - Model Type 1	0.775941561	0.542836101	1.429421438	0.154405258	-0.294315996	1.846199118
Var - Model Type 2	0.199571911	0.41442907	0.481558668	0.630633148	-0.617517893	1.016661714

Group 1: 2 - All Crashes as a function of AADT and segment length – Linear Regression

SUMMARY OUTPUT						
Regression Statistics						
Multiple R	0.750749642					
R Square	0.563625024					
Adjusted R Square	0.559408841					
Standard Error	2.015647471					
Observations	210					
ANOVA						
	df	*SS*	*MS*	*F*	*Significance F*	
Regression	2	1086.250354	543.125177	133.6813366	5.31488E-38	
Residual	207	841.0067888	4.062834729			
Total	209	1927.257143				
	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*
Intercept	0.550840245	0.231211878	2.382404616	0.018105085	0.095008249	1.006672241
X Variable 1	4.130999289	0.264245259	15.63320115	6.77688E-37	3.610042299	4.651956278
X Variable 2	-0.000121228	3.35931E-05	-3.608727273	0.00038588	-0.000187457	-5.49999E-05

Group 1: 3 - Basic and Weave Segment Crashes as a function of AADT and segment length – Linear Regression

SUMMARY OUTPUT						
Regression Statistics						
Multiple R	0.751786543					
R Square	0.565183006					
Adjusted R Square	0.557418417					
Standard Error	2.556090366					
Observations	115					
ANOVA						
	df	*SS*	*MS*	*F*	*Significance F*	
Regression	2	951.1587676	475.5793838	72.78981454	5.56115E-21	
Residual	112	731.7629715	6.53359796			
Total	114	1682.921739				
	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*
Intercept	1.299435488	0.723555074	1.795904052	0.075205939	-0.134196141	2.733067118
Var - Segment Length	4.085369457	0.338595845	12.06562196	5.52822E-22	3.414485194	4.75625372
Var - AADT	-0.000184639	7.03474E-05	-2.624668384	0.009883918	-0.000324023	-4.52542E-05

Group 1: 4 - Merge Segment Crashes as a function of AADT and segment length – Linear Regression

SUMMARY OUTPUT						
Regression Statistics						
Multiple R	0.167869458					
R Square	0.028180155					
Adjusted R Square	-0.018096981					
Standard Error	1.071774855					
Observations	45					
ANOVA						
	df	*SS*	*MS*	*F*	*Significance F*	
Regression	2	1.398988129	0.699494065	0.608943369	0.548657135	
Residual	42	48.24545632	1.148701341			
Total	44	49.64444444				
	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*
Intercept	0.280502347	0.835337028	0.335795419	0.738696895	-1.405276025	1.966280718
Var - Segment Length	4.754931687	4.309129521	1.103455272	0.276111891	-3.941243754	13.45110713
Var - AADT	-4.28738E-05	0.000196754	-0.217905741	0.828557812	-0.000439939	0.000354191

Group 1: 5 - Diverge Segment Crashes as a function of AADT and segment length – Linear Regression

SUMMARY OUTPUT						
Regression Statistics						
Multiple R	0.313987521					
R Square	0.098588163					
Adjusted R Square	0.059396344					
Standard Error	1.021656556					
Observations	49					
ANOVA						
	df	*SS*	*MS*	*F*	*Significance F*	
Regression	2	5.251328694	2.625664347	2.515529153	0.091882944	
Residual	46	48.01397743	1.043782118			
Total	48	53.26530612				
	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*
Intercept	-3.230890795	1.989573254	-1.623911453	0.111228507	-7.235694043	0.773912452
Var - Segment Length	19.24080239	8.811905381	2.183500794	0.034137274	1.503356834	36.97824795
Var - AADT	0.000205393	0.000213802	0.960671251	0.341740192	-0.000224967	0.000635754

Group 2: 6 - All Crashes as a function of AADT and segment type – Linear Regression

SUMMARY OUTPUT						
Regression Statistics						
Multiple R	0.269724972					
R Square	0.072751561					
Adjusted R Square	0.059247943					
Standard Error	2.945332145					
Observations	210					
ANOVA						
	df	*SS*	*MS*	*F*	*Significance F*	
Regression	3	140.2109648	46.73698827	5.387560603	0.001371167	
Residual	206	1787.046178	8.674981447			
Total	209	1927.257143				
	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*
Intercept	0.907172063	0.442498423	2.050113662	0.041619897	0.03476577	1.779578355
Var - AADT	-3.71069E-06	7.72706E-05	-0.048022058	0.961745188	-0.000156053	0.000148632
Var - Model Type 1	1.755330322	0.787250161	2.229698271	0.026846963	0.20322989	3.307430755
Var - Model Type 2	0.188571588	0.605244291	0.311562769	0.755687918	-1.004695779	1.381838954

Group 2: 7 - All Crashes as a function of AADT – Linear Regression

SUMMARY OUTPUT						
Regression Statistics						
Multiple R	0.221762994					
R Square	0.049178826					
Adjusted R Square	0.04460757					
Standard Error	2.968161905					
Observations	210					
ANOVA						
	df	*SS*	*MS*	*F*	*Significance F*	
Regression	1	94.78024298	94.78024298	10.75827507	0.001217095	
Residual	208	1832.4769	8.809985096			
Total	209	1927.257143				
	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*
Intercept	1.002623055	0.338290863	2.963789939	0.00339307	0.335704724	1.669541386
Var - AADT	0.000141744	4.32149E-05	3.279980955	0.001217095	5.65487E-05	0.000226939

Group 2: 8 - Basic and Weave Segment Crashes as a function of AADT – Linear Regression

SUMMARY OUTPUT						
Regression Statistics						
Multiple R	0.001239642					
R Square	1.53671E-06					
Adjusted R Square	-0.008848007					
Standard Error	3.859156624					
Observations	115					
ANOVA						
	df	*SS*	*MS*	*F*	*Significance F*	
Regression	1	0.002586165	0.002586165	0.000173649	0.989509353	
Residual	113	1682.919153	14.89308985			
Total	114	1682.921739				
	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*
Intercept	2.639498008	1.07946903	2.445181785	0.01602166	0.500875168	4.778120848
Var - AADT	-1.36657E-06	0.000103704	-0.013177582	0.989509353	-0.000206823	0.00020409

Group 2: 9 - Merge Segment Crashes as a function of AADT – Linear Regression

SUMMARY OUTPUT						
Regression Statistics						
Multiple R	0.002514256					
R Square	6.32148E-06					
Adjusted R Square	-0.023249345					
Standard Error	1.074483441					
Observations	45					
ANOVA						
	df	*SS*	*MS*	*F*	*Significance F*	
Regression	1	0.000313827	0.000313827	0.000271825	0.986922032	
Residual	43	49.64413062	1.154514666			
Total	44	49.64444444				
	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*
Intercept	1.094795327	0.392422755	2.789836502	0.007829064	0.303399417	1.886191237
Var - AADT	-3.19734E-06	0.000193929	-0.016487131	0.986922032	-0.000394293	0.000387898

Group 2: 10 - Basic and Weave Segment Crashes as a function of AADT – Linear Regression

SUMMARY OUTPUT								
Regression Statistics								
Multiple R	0.071841641							
R Square	0.005161221							
Adjusted R Square	-0.016005561							
Standard Error	1.06181691							
Observations	49							
ANOVA								
	df	*SS*	*MS*	*F*	*Significance F*			
Regression	1	0.274914037	0.274914037	0.243835896	0.62374909			
Residual	47	52.99039209	1.127455151					
Total	48	53.26530612						
	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*ower 95.0%*	*pper 95.0%*
Intercept	1.043630191	0.368954663	2.828613638	0.006851573	0.301389148	1.785871234	0.301389	1.785871
Var - AADT	-8.57686E-05	0.000173692	-0.493797424	0.62374909	-0.000435192	0.000263654	-0.00044	0.000264

Safety Performance Function for Managed Lanes

Predicted Crash Frequency for the HOT Lane Facility

2045 No Build Predicted Annual Crash Frequency for the HOT Managed Lanes along I-495 in Virginia

#	Interchange	Segment Number and Description		L (ft)	L (mi)	n	ADT	AADT	Fatal and Injury	PDO	Total
1	Southern Study Limit to GWMP	BS	SB ML MP 1.19 - MP 0.88	1649	0.31	2	14490	14056	0.33	0.90	1.24
		MS	SB ML MP 0.88 - MP 0.79	500	0.09	3	11403	7375	0.09	0.25	0.35
		BS	SB ML MP 0.79 - MP 0.00	4163	0.79	2	17105	16592	0.85	2.30	3.16
		BS	NB ML MP 0.00 - MP 0.63	3325	0.63	2	17555	17029	0.69	1.85	2.54
		DS	NB ML MP 0.63 - MP 0.72	500	0.09	2	17555	17029	0.11	0.29	0.39
		BS	NB ML MP 0.72 - MP 1.02	1565	0.30	2	15215	14759	0.32	0.86	1.18
			Subtotal		**2.22**				**2.39**	**6.46**	**8.85**

2045 Preferred Alternative Predicted Annual Crash Frequency for the HOT Managed Lanes along I-495 in Virginia

#	Interchange	Segment Number and Description		L (ft)	L (mi)	n	ADT	AADT	Fatal and Injury	PDO	Total
1	Southern Study Limit to GWMP	BS	NB ML MP 13.69 - 14.43	3930	0.74	2	19560	18974	0.82	2.22	3.04
		BS	NB ML MP 14.43 - 14.50	390	0.07	3	19560	12649	0.08	0.21	0.29
		DS	NB ML MP 14.50 - 14.59	500	0.09	3	19560	12649	0.10	0.27	0.37
		BS	NB ML MP 14.59 - 15.02	2245	0.43	2	17700	17169	0.47	1.26	1.72
		BS	SB ML MP 15.06 - 14.60	2412	0.46	2	16585	16088	0.49	1.34	1.83
		MS	SB ML MP 14.60 - 14.51	500	0.09	3	21575	13952	0.10	0.28	0.38
		BS	SB ML MP 14.51 - 14.46	239	0.05	3	21575	13952	0.05	0.13	0.18
		BS	SB ML MP 14.46 - MP 13.71	3956	0.75	2	21575	20928	0.84	2.26	3.10
			Subtotal		**2.68**				**2.95**	**7.98**	**10.93**
2		BS	NB ML MP 15.02 - 15.37	1704	0.32	2	17700	17169	0.35	0.96	1.31

#	Interchange	Segment Number and Description		L (ft)	L (mi)	n	ADT	AADT	Fatal and Injury	PDO	Total
	GWMP to Maryland State Line	MS	NB ML MP 15.37 - 15.39	124	0.02	3	25095	16229	0.03	0.07	0.10
		BS	SB ML MP 15.39 - 15.25	741	0.14	2	29360	28480	0.17	0.45	0.62
		BS	SB ML MP 15.25 - 15.23	118	0.02	3	29360	18987	0.03	0.07	0.10
		DS	SB ML MP 15.23 - 15.14	500	0.09	3	29360	18987	0.11	0.29	0.40
		BS	SB ML MP 15.14 - 15.06	441	0.08	2	16585	16088	0.09	0.25	0.34
	Subtotal				**0.69**				**0.77**	**2.09**	**2.87**
	Total				**6.74**				**3.72**	**10.07**	**13.79**

2045 Preferred Alternative Predicted Annual Crash Frequency for the HOT Managed Lanes along I-495 in Maryland

#	Interchange	Segment Number and Description		L (ft)	L (mi)	n	ADT	AADT	Fatal and Injury	PDO	Total
1	Virginia State Line to Clara Barton Parkway	MS	NB ML MP 0.00 - MP 0.07	376	0.07	3	25090	16225	0.08	0.21	0.29
		BS	NB ML MP 0.07 - MP 0.15	954	0.18	3	25090	16225	0.20	0.54	0.73
		BS	NB ML MP 0.15 - MP 0.39	1246	0.24	2	25090	24338	0.27	0.74	1.01
		BS	SB ML MP 0.49 - MP 0.00	2575	0.49	2	29360	28480	0.57	1.55	2.12
	Subtotal				**0.98**				**1.12**	**3.04**	**4.16**
2	Clara Barton Parkway to MD 190 (River Road) / Cabin John Parkway	BS	NB ML MP 0.39 - MP 1.74	7152	1.35	2	25090	24338	1.53	4.15	5.68
		BS	NB ML MP 1.74 - MP 1.85	601	0.11	3	25090	16225	0.13	0.34	0.47
		DS	NB ML MP 1.85 - MP 1.94	500	0.09	3	25090	16225	0.10	0.28	0.39
		BS	NB ML MP 1.94 - MP 2.08	760	0.14	2	20290	19682	0.16	0.44	0.60
		MS	NB ML MP 2.08 - MP 2.17	500	0.09	3	25095	16229	0.10	0.28	0.39
		BS	NB ML MP 2.17 - MP 2.25	435	0.08	3	25095	16229	0.09	0.25	0.34
		DS	SB ML MP 2.35 - MP 2.28	388	0.07	3	30165	19507	0.08	0.23	0.31

#	Interchange	Segment Number and Description		L (ft)	L (mi)	n	ADT	AADT	Fatal and Injury	PDO	Total
		BS	SB ML MP 2.28 - MP 2.13	815	0.15	2	25165	24411	0.18	0.49	0.67
		MS	SB ML MP 2.13 - MP 2.04	500	0.09	3	29360	18987	0.11	0.29	0.40
		BS	SB ML MP 2.04 - MP 1.99	275	0.05	3	29360	18987	0.06	0.16	0.22
		BS	SB ML MP 1.99 - MP 0.49	7909	1.50	2	29360	28480	1.73	4.68	6.42
				Subtotal	3.76				**4.29**	**11.59**	**15.88**
3	**MD 190 (River Road) / Cabin John Parkway to I-495/ I-270 Split**	BS	NB ML MP 2.25 - MP 2.47	1178	0.22	3	25095	16229	0.24	0.66	0.90
		MS	NB ML MP 2.47 - MP 2.56	500	0.09	4	30195	14645	0.10	0.28	0.38
		BS	NB ML MP 2.56 - MP 2.60	187	0.04	4	30195	14645	0.04	0.11	0.14
		BS	NB ML MP 2.60 - MP 3.25	3421	0.65	3	30195	19527	0.72	1.94	2.66
		DS	NB ML MP 3.25 - MP 3.34	500	0.09	3	30195	19527	0.11	0.29	0.40
		MS	SB ML MP 3.55 - MP 3.46	500	0.09	3	34650	22407	0.11	0.30	0.41
		BS	SB ML MP 3.46 - MP 2.70	4015	0.76	3	34650	22407	0.86	2.32	3.18
		BS	SB ML MP 2.70	22	0.00	4	34650	16806	0.00	0.01	0.02
		DS	SB ML MP 2.70 - MP 2.61	500	0.09	4	34650	16806	0.11	0.28	0.39
		BS	SB ML MP 2.61 - MP 2.37	1252	0.24	3	30165	19507	0.27	0.72	0.99
		DS	SB ML MP 2.37 - MP 2.35	112	0.02	3	30165	19507	0.02	0.07	0.09
				Subtotal	**2.31**				**2.58**	**6.98**	**9.56**
				Total	**14.08**				**7.99**	**21.61**	**29.60**

2045 Preferred Alternative Predicted Annual Crash Frequency for the HOT Managed Lanes along I-270 & East Spur

#	Interchange	Segment Number and Description		L (ft)	L (mi)	n	ADT	AADT	Fatal and Injury	PDO	Total
1	**I-495/ I-270 Split to MD 187**	BS	NB ML MP 0.61 - MP 1.54	4932	0.93	1	5225	10138	0.94	2.54	3.48
		BS	SB ML MP 1.54 - MP 0.96	3048	0.58	1	5735	11126	0.59	1.60	2.19
				Subtotal	**1.51**			**10632**	**1.53**	**4.14**	**5.67**
2	**MD 187 to Rockledge Boulevard**	BS	NB ML MP 1.54 - MP 1.83	1508	0.29	1	5225	10138	0.29	0.79	1.08
		BS	SB ML MP 1.83 - MP 1.54	1510	0.29	1	5735	11126	0.30	0.80	1.10
				Subtotal	**0.57**			**10632**	**0.59**	**1.59**	**2.18**
3	**Rockledge Boulevard to I-270 West Spur/I-270 Split**	BS	NB ML MP 1.83 - MP 2.73	4741	0.90	1	5225	10138	0.90	2.44	3.35
		BS	SB ML MP 2.68 - MP 1.83	4474	0.85	1	5735	11126	0.86	2.34	3.20
				Subtotal	**1.75**				**1.77**	**4.78**	**6.55**
4	**I-270 West Spur/I-270 Split to Montrose Road**	MS	NB ML MP 2.73 - MP 2.82	500	0.09	3	26320	17021	0.11	0.29	0.39
		BS	NB ML MP 2.82 - MP 4.13	6895	1.31	2	26320	25531	1.49	4.03	5.52
		BS	SB ML MP 4.15 - MP 2.85	6876	1.30	2	31385	30444	1.52	4.12	5.64
		BS	SB ML MP 2.85 - MP 2.77	422	0.08	3	31385	20296	0.09	0.25	0.34
		DS	SB ML MP 2.77 - MP 2.68	500	0.09	3	31385	20296	0.11	0.29	0.40
				Subtotal	**2.88**				**3.32**	**8.97**	**12.29**
5	**Montrose Road to Wootton Parkway**	BS	NB ML MP 4.13 - MP 4.51	1988	0.38	2	26320	25531	0.44	1.18	1.62
		DS	NB ML MP 4.51 - MP 4.52	62	0.01	2	26320	25531	0.01	0.04	0.05
		DS	NB ML MP 4.52 - MP 4.60	438	0.08	3	26320	17021	0.09	0.25	0.34

#	Interchange	Segment Number and Description		L (ft)	L (mi)	n	ADT	AADT	Fatal and Injury	PDO	Total
		BS	NB ML MP 4.60 - MP 4.89	1538	0.29	2	21755	21103	0.33	0.89	1.22
		BS	SB ML MP 4.91 - MP 4.60	1630	0.31	2	20210	19604	0.35	0.93	1.28
		MS	SB ML MP 4.60 - MP 4.51	500	0.09	3	31385	20296	0.11	0.29	0.40
		BS	SB ML MP 4.51 - MP 4.42	452	0.09	3	31385	20296	0.10	0.26	0.36
		BS	SB ML MP 4.42 - MP 4.15	1426	0.27	2	31385	30444	0.32	0.87	1.19
				Subtotal	**1.52**				**1.75**	**4.72**	**6.47**
6	**Wootton Parkway to MD 189**	BS	NB ML MP 4.89 - MP 5.11	1140	0.22	2	21755	21103	0.25	0.66	0.91
		MS	NB ML MP 5.11 - MP 5.20	500	0.09	3	31660	20474	0.11	0.29	0.40
		BS	NB ML MP 5.20 - MP 5.49	1525	0.29	2	31660	30711	0.34	0.93	1.28
		BS	SB ML MP 5.50 - MP 5.25	1405	0.27	2	26990	26181	0.31	0.84	1.15
		DS	SB ML MP 5.25 - MP 5.23	107	0.02	2	26990	26181	0.02	0.07	0.09
		DS	SB ML MP 5.23 - MP 5.16	393	0.07	3	26990	17454	0.08	0.23	0.31
		BS	SB ML MP 5.16 - MP 4.91	1233	0.23	2	20210	19604	0.26	0.71	0.97
				Subtotal	**1.19**				**1.38**	**3.73**	**5.11**
7	**MD 189 to MD 28**	BS	NB ML MP 5.49 - MP 6.46	5131	0.97	2	31660	30711	1.14	3.09	4.23
		BS	SB ML MP 6.47 - MP 5.50	5144	0.97	2	26990	26181	1.12	3.03	4.15
				Subtotal	**1.95**				**2.26**	**6.12**	**8.38**
8	**MD 28 to W. Gude Drive**	BS	NB ML MP 6.46 - MP 7.19	3858	0.73	2	31660	30711	0.86	2.33	3.19
		DS	NB ML MP 7.19 - MP 7.22	145	0.03	2	31660	30711	0.03	0.09	0.13
		DS	NB ML MP 7.22 - MP 7.29	355	0.07	3	31660	20474	0.08	0.21	0.29
		BS	NB ML MP 7.29 - MP 7.56	1422	0.27	2	18315	17766	0.30	0.81	1.10
		BS	SB ML MP 7.55 - MP 7.25	1605	0.30	2	16930	16423	0.33	0.90	1.23
		MS	SB ML MP 7.25 - MP 7.16	500	0.09	3	26990	17454	0.11	0.29	0.39

#	Interchange	Segment Number and Description		L (ft)	L (mi)	n	ADT	AADT	Fatal and Injury	PDO	Total
		BS	SB ML MP 7.16	15	0.00	3	26990	17454	0.00	0.01	0.01
		BS	SB ML MP 7.16 - MP 6.47	3644	0.69	2	26990	26181	0.80	2.15	2.95
				Subtotal	**2.19**				**2.51**	**6.78**	**9.29**
9	**W. Gude Drive to Shady Grove Road**	BS	NB ML MP 7.56 - MP 7.83	1409	0.27	2	18315	17766	0.30	0.80	1.09
		MS	NB ML MP 7.83 - MP 7.92	467	0.09	3	23305	15071	0.10	0.26	0.36
		MS	NB ML MP 7.92	33	0.01	2	23305	22606	0.01	0.02	0.03
		BS	NB ML MP 7.92 - MP 8.37	2370	0.45	2	23305	22606	0.51	1.38	1.89
		BS	SB ML MP 8.35 - MP 7.91	2331	0.44	2	23230	22534	0.50	1.36	1.86
		DS	SB ML MP 7.91	24	0.00	2	23230	22534	0.01	0.01	0.02
		DS	SB ML MP 7.91 - MP 7.82	476	0.09	3	23230	15023	0.10	0.27	0.37
		BS	SB ML MP 7.82 - MP 7.55	1416	0.27	2	16930	16423	0.29	0.79	1.09
				Subtotal	**1.61**				**1.81**	**4.89**	**6.70**
	Shady Grove Road to I-370	BS	NB ML MP 8.37 - MP 8.62	1316	0.25	2	23305	22606	0.29	0.77	1.06
		DS	NB ML MP 8.62 - MP 8.71	500	0.09	2	23305	22606	0.11	0.30	0.41
		MS	SB ML MP 8.64 - MP 8.55	500	0.09	2	23230	22534	0.11	0.30	0.41
		BS	SB ML MP 8.55 - MP 8.35	1059	0.20	2	23230	22534	0.23	0.62	0.85
				Subtotal	**0.64**				**0.74**	**1.99**	**2.72**
				Total	**15.81**				**17.65**	**47.72**	**65.37**

2045 Preferred Alternative Predicted Annual Crash Frequency for the HOT Managed Lanes along I-270 West Spur

#	Interchange	Segment Number and Description		L (ft)	L (mi)	n	ADT	AADT	Fatal and Injury	PDO	Total
1	I-495/ I-270 West Spur Split to Democracy Boulevard	BS	NB ML MP 0.00 - MP 1.09	5742	1.09	2	22885	22199	1.22	3.30	4.52
		BS	NB ML MP 1.08 - MP 1.11	105	0.02	3	22885	14799	0.02	0.06	0.08
		DS	NB ML MP 1.11 - MP 1.20	500	0.09	3	22885	14799	0.10	0.28	0.38
		BS	NB ML MP 1.20 - MP 1.21	57	0.01	2	19585	18998	0.01	0.03	0.05
		MS	SB ML MP 1.21 - MP 1.12	472	0.09	3	12940	8368	0.09	0.24	0.33
		BS	SB ML MP 1.12 - MP 1.07	290	0.05	3	12940	8368	0.06	0.15	0.21
		BS	SB ML MP 1.07 - MP 0.76	1614	0.31	2	12940	12552	0.32	0.87	1.19
		MS	SB ML MP 0.76 - MP 0.67	500	0.09	3	27160	17564	0.11	0.29	0.39
		BS	SB ML MP 0.67 - MP 0.58	456	0.09	3	27160	17564	0.10	0.26	0.36
		BS	SB ML MP 0.58 - MP 0.12	2449	0.46	2	27160	26346	0.54	1.46	2.00
			Subtotal		**2.31**				**1.36**	**3.67**	**5.03**
2	Democracy Boulevard to Westlake Terrace	BS	NB ML MP 1.21 - MP 1.25	215	0.04	2	19585	18998	0.05	0.13	0.17
		MS	NB ML MP 1.25 - MP 1.34	500	0.09	3	23025	14890	0.10	0.28	0.38
		BS	NB ML MP 1.34 - MP 1.55	1101	0.21	3	23025	14890	0.23	0.61	0.84
		BS	SB ML MP 1.55 - 1.45	510	0.10	2	19500	18915	0.11	0.30	0.40
		DS	SB ML MP 1.45 - 1.36	500	0.09	2	19500	18915	0.11	0.29	0.40
		BS	SB ML MP 1.36 - 1.22	763	0.14	2	10760	10438	0.15	0.40	0.55
		MS	SB ML MP 1.22 - 1.21	28	0.01	3	12940	8368	0.01	0.02	0.02
			Subtotal		**0.69**				**0.75**	**2.02**	**2.77**
3	Westlake Terrace to I-270	BS	NB ML MP 1.55 - MP 1.59	229	0.04	3	23025	14890	0.05	0.13	0.18
		DS	NB ML MP 1.59 - MP 1.68	500	0.09	3	23025	14890	0.10	0.28	0.38
		BS	NB ML MP 1.68 - MP 1.80	658	0.12	2	13650	13241	0.13	0.36	0.49

#	Interchange	Segment Number and Description		L (ft)	L (mi)	n	ADT	AADT	Fatal and Injury	PDO	Total
		MS	NB ML MP 1.80 - MP 1.89	500	0.09	3	21090	13639	0.10	0.28	0.38
		BS	NB ML MP 1.89 - MP 1.94	241	0.05	3	21090	13639	0.05	0.13	0.18
		BS	NB ML MP 1.94 - MP 2.33	2077	0.39	2	21090	20458	0.44	1.19	1.64
		BS	SB ML MP 2.26 - MP 1.94	1685	0.32	2	25650	24881	0.37	1.00	1.37
		BS	SB ML MP 1.94 - MP 1.91	157	0.03	3	25650	16587	0.03	0.09	0.12
		DS	SB ML MP 1.91 - MP 1.82	500	0.09	3	25650	16587	0.11	0.28	0.39
		BS	SB ML MP 1.82 - MP 1.55	1446	0.27	2	19500	18915	0.31	0.83	1.13
	Subtotal				**1.51**				**1.69**	**4.58**	**6.27**
	Total				**9.01**				**3.80**	**10.27**	**14.07**

Crash Prediction Tools for Unconventional Interchanges & Ramp Terminals

CRASH PREDICTION TOOLS FOR UNCONVENTIONAL INTERCHANGES & RAMP TERMINALS

Safety Performance Function for Single Point Diamond Interchange

The publication titled *Safpety Performance of Crossroad Ramp Terminals at Single-Point and Tight Diamond Interchanges* provides a Safety Performance Function for a Single Point Diamond interchange that predicts crashes based on traffic volumes on the ramps and crossroad, and number of free-flow right-turns from the exit ramps to the crossroad.

Equation

$$N_{spf,fatal\ \&\ injury} = e^{-1\ .71 + 0.88 \times \ln(AADT_{xrd}) + 0.88 \times \ln(AADT_{ramp})}$$

$$N_{spf,PDO} = e^{-15.60 + 0.61 \times \ln(AADT_{xrd}) + 1.15 \times \ln(AADT_{ramp})}$$

Where,

$N_{spf,\ fatal\ \&\ injury}$ = Predicted average fatal and injury crash frequency
$N_{spf,\ PDO}$ = Predicted average PDO crash frequency
$AADT_{xrd}$ = Annual Average Daily Traffic along the crossroad
$AADT_{ramp}$ = Annual Average Daily Traffic along the interchange ramps

Citation

Torbic, D.J., Porter R.J., Gooch, J., and Kersavage, K., Safety Performance of Crossroad Ramp Terminals at Single-Point and Tight Diamond Interchanges, Transportation Research Record: Journal of The Transportation Research Board, Volume 2675, No. 12, 2021.
<https://doi.org/10.1177/03611981211029931>

Safety Performance Function for Conventional Diamond Interchange

The Highway Safety Manual, Chapter 19 Table 19-15 supplies a Safety Performance Function for a Conventional Diamond interchange that predicts crashes at each of the ramp terminals based on traffic volumes on the ramps and crossroad, intensity of development, and number of crossroads through lanes.

Equation

$$N_{spf,fatal\ \&\ injury} = e^{-2.335 + 1.191 \times \ln(0.001 \times AADT_{xrd}) + 0.131 \times \ln(0.001 \times AADT_{ex}) + 0.001 \times AADT_{en})}$$

$$N_{spf,PDO} = -2.072 + 0.879 \times \ln(0.001 \times AADT_{xrd}) + 0.545 \times \ln(0.001 \times AADT_{ex} + 0.001 \times AADT_{en})$$

Where,

$N_{spf,\ fatal\ \&\ injury}$ = Predicted average fatal and injury crash frequency
$N_{spf,\ PDO}$ = Predicted average PDO crash frequency
$AADT_{xrd}$ = Annual Average Daily Traffic along the crossroad
$AADT_{ex}$ = Annual Average Daily Traffic along the exit ramp
$AADT_{en}$ = Annual Average Daily Traffic along the entrance ramp

Crash Modification Factor for Converting Conventional Diamond to Diverging Diamond Interchange

The publication titled *Systematic Safety Evaluation of Diverging Diamond Interchanges Based on Nationwide Implementation Data* supplies a Crash Modification Factor for converting a Conventional Diamond Interchange to a Diverging Diamond.

Crash Modification Factors

CMF ID	CMF Name	CMF	Quality	Crash Severity
10762	Convert diamond interchange to Diverging Diamond Interchange or Double Crossover Diamond	0.558	****	K (fatal), A (serious injury), B (minor injury), C (possible injury)
10763	Convert diamond interchange to Diverging Diamond Interchange or Double Crossover Diamond	0.92	****	O (property damage only)

Citation

Abdelrahman, A., M. Abdel-Aty, J. Yuan, and M. Al-Omari. Systematic Safety Evaluation of Diverging Diamond Interchanges Based on Nationwide Implementation Data. Transportation Research Record: Journal of The Transportation Research Board, Volume 2675, No. 9, 2021.
<https://doi.org/10.1177/03611981211004961>

Crash Prediction Tools for Unconventional Interchanges & Ramp Terminals

Predicted Crash Frequency for the I-270 at MD 189 Interchange

for the

No Build Scenario

Crash Prediction Model for Four-Leg Terminal with Diagonal Ramp (D4)

I-270 at MD 189 Great Falls Road - 2045 No Build

	Terminal 1	*Terminal 2*
$AADT_{xrd}$ (AADT on the crossroad, veh/day)	29290	30221
$AADT_{ex}$	10617	10282
$AADT_{en}$	11223	9875
Number of Cross Road Through Lanes	4	4

Crash Severity	a	b	c	d
FI Crashes	-2.335	1.191	0.001	0.131
PDO Crashes	-2.072	0.879	0.001	0.545

$N_{spf} = exp[a + b * ln (c * AADT_{xrd}) + d * ln(c * AADT_{ex} + c * AADT_{en})]$	*Terminal 1*	*Terminal 2*	*Total*
N_{spf} (predicted average crash frequency, crashes/year)	21.26	21.26	**42.52**
$N_{spf,FI}$ (predicted FI average crash frequency, crashes/year)	8.10	8.31	**16.41**
$N_{spf,PDO}$ (predicted PDO average crash frequency, crashes/year)	13.16	12.95	**26.11**

Table 19-15. SPF Coefficients for Crashes at Signalized Ramp Terminals—Four-Leg Terminal with Diagonal Ramps (*D-4*)

Crash Severity (*i*)	Area Type	Number of Crossroad Through Lanes (*x*)	SPF Coefficient *a*	*b*	*c*	*d*	Inverse Dispersion Parameter $K_{x,(base)}$
Fatal and injury (*fi*)	Rural or urban	2	−2.055	1.191	0.001	0.131	11.5
		3	−2.405	1.191	0.001	0.131	11.5
		4	−2.335	1.191	0.001	0.131	11.5
		5 (urban only)	−2.175	1.191	0.001	0.131	11.5
		6 (urban only)	−2.015	1.191	0.001	0.131	11.5
Property damage only (*pdo*)	Rural or urban	2	−2.248	0.879	0.001	0.545	7.21
		3	−2.160	0.879	0.001	0.545	7.21
		4	−2.072	0.879	0.001	0.545	7.21
		5 (urban only)	−1.985	0.879	0.001	0.545	7.21
		6 (urban only)	−1.897	0.879	0.001	0.545	7.21

Source: Highway Safety Manual 1st Edition Chapter 19, pg. 19-39

2045 No Build ADT Volumes

Terminal 1				*Terminal 2*			
Outside Crossroad WB	SBR	WBL	Inside Crossroad WB	Inside Crossroad WB	NBL	WBR	Outside Crossroad WB
15465	7525	7475	15415	15415	2870	3985	16530
15095	4095	3415	14415	14415	6195	7730	15950
Outside Crossroad EB	EBR	SBL	Inside Crossroad EB	Inside Crossroad EB	EBL	NBR	Outside Crossroad EB

Crash Prediction Model for Single-Point Diamond Interchange (SPUI)

I-270 at MD 189 Great Falls Road - 2045 No Build

$AADT_{xrd}$ (AADT on the crossroad, veh/day)	30575
$AADT_{ramp}$ (sum of ramp AADTs, veh/day)	41997
exit_free_right (number of exit ramps with free-flow right turns)	0

Crash Severity	a	b	c
Total Crashes	-15.31	0.69	1.08
FI Crashes	-16.71	0.88	0.88
PDO Crashes	-15.60	0.61	1.15

$N_{spf} = exp[a + b * ln(AADT_{xrd}) + c * ln(AADT_{ramp})]$

N_{spf} (predicted average crash frequency, crashes/year)	27.47		**27.47**
$N_{spf,FI}$ (predicted FI average crash frequency, crashes/year)	5.73	23%	**6.38**
$N_{spf,PDO}$ (predicted PDO average crash frequency, crashes/year)	18.96	77%	**21.09**

Table 4. SPF Coefficients for Crossroad Ramp Terminals at Single-Point Diamond Interchanges (Based on Equation 2) (4)

Crash Severity	Number of Free-Flow Right Turns from Exit Ramp to Crossroad	SPF Coefficient α	β	ϵ	Dispersion Parameter
Total Crashes	0	-15.31	0.69	1.08	0.10
	1	-15.91	0.69	1.08	0.10
	2	-16.51	0.69	1.08	0.10
Fatal-and-Injury Crashes	0	-16.71	0.88	0.88	0.11
	1	-17.29	0.88	0.88	0.11
	2	-17.87	0.88	0.88	0.11
Property-Damage-Only Crashes	0	-15.60	0.61	1.15	0.10
	1	-16.20	0.61	1.15	0.10
	2	-16.80	0.61	1.15	0.10

There are no additional base conditions.

Source: Torbic, Darren et al (July 2020), Safety Performance of Crossroad Ramp Terminals at Single-Point and Tight Diamond Interchanges, pg. 10

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Crash Prediction Tools for Unconventional Interchanges & Ramp Terminals

Predicted Crash Frequency for the I-270 at MD 189 Interchange

for the

Preferred Alternative

Crash Prediction Model for Diverging Diamond Interchange (DDI)

I-270 at MD 189 Great Falls Road - 2045 Phase 1 Build

	Terminal 1	*Terminal 2*
$AADT_{xrd}$ (AADT on the crossroad, veh/day)	29302	31504
$AADT_{ex}$	9075	9254
$AADT_{en}$	11272	9036
Number of Cross Road Through Lanes	4	4

Crash Severity	a	b	c	d
FI Crashes	-2.335	1.191	0.001	0.131
PDO Crashes	-2.072	0.879	0.001	0.545

Prediected Crash Frequency for D4 Configuration

$N_{spf} = exp[a + b * ln(c * AADT_{xrd}) + d * ln(c * AADT_{ex} + c * AADT_{en})]$	*Terminal 1*	*Terminal 2*	*Total*
N_{spf} (predicted average crash frequency, crashes/year)	20.69	21.36	42.06
$N_{spf,FI}$ (predicted FI average crash frequency, crashes/year)	8.02	8.63	16.65
$N_{spf,PDO}$ (predicted PDO average crash frequency, crashes/year)	12.67	12.74	25.41

$N_{pred} = N_{SPF} * C_i * CMF_j$

	Terminal 1		*Terminal 2*		*Total*			***D4 to DDI CMF***	
	FI	PDO	FI	PDO	FI	PDO		FI	PDO
N_{SPF} – predicted crash frequency for D4 ramp terminal SPF (crashes/year)	8.02	12.67	8.63	12.74					
C_i – Local calibration factor for ramp terminal SPF	1	1	1	1			CMF	0.558	0.92
CMF_j – crash modification factor for D4 to DDI	0.558	0.92	0.558	0.92			CMF ID	10762	10763
CMFk – crash modification factor for D4 to SPUI	0.389	0.808	0.389	0.808			Star Rating	****	****
CMFl - crash modification factor for SPUI to DDI	1.435	1.139	1.435	1.139					
N_{pred} – predicted crash frequency (crashes/year) for DDI	**4.48**	**11.65**	**4.81**	**11.72**					

2045 Build ADT Volumes

Terminal 1				*Terminal 2*			
Outside Crossroad WB	SBR	WBL	Inside Crossroad WB	Inside Crossroad WB	NBL	WBR	Outside Crossroad WB
14440	6290	8305	16455	16455	2445	3720	17730
14885	3315	3065	14635	14635	5595	7095	16135
Outside Crossroad EB	EBR	SBL	Inside Crossroad EB	Inside Crossroad EB	EBL	NBR	Outside Crossroad EB

Table 19-15. SPF Coefficients for Crashes at Signalized Ramp Terminals—Four-Leg Terminal with Diagonal Ramps (*D4*)

Crash Severity (*i*)	Area Type	Number of Crossroad Through Lanes (*n*)	SPF Coefficient *a*	*b*	*c*	*d*	Inverse Dispersion Parameter $K_{x,[b,c,d]}$
Fatal and injury (*fi*)	Rural or urban	2	−2.855	1.191	0.001	0.131	11.5
		3	−2.495	1.191	0.001	0.131	11.5
		4	−2.335	1.191	0.001	0.131	11.5
		5 (urban only)	−2.175	1.191	0.001	0.131	11.5
		6 (urban only)	−2.015	1.191	0.001	0.131	11.5
Property damage only (*pdo*)	Rural or urban	2	−2.248	0.879	0.001	0.545	7.21
		3	−2.160	0.879	0.001	0.545	7.21
		4	−2.072	0.879	0.001	0.545	7.21
		5 (urban only)	−1.985	0.879	0.001	0.545	7.21
		6 (urban only)	−1.897	0.879	0.001	0.545	7.21

Source: Highway Safety Manual 1st Edition Chapter 19, pg. 19-39

Crossroad Predictive Crash Analysis

Predicted Crash Frequency for the Urban and Suburban Arterials using Chapter 12 of the HSM

for the

No Build Scenario

Worksheet 2A -- General Information and Input Data for Urban and Suburban Arterial Intersections					
General Information				**Location Information**	
Analyst	PC			Roadway	Rockledge Drive
Agency or Company	ATCS			Intersection	Rockledge Dr at Rock Forest Dr
Date Performed	02/18/21			Jurisdiction	Montgomery County
				Analysis Year	2045
Input Data				**Base Conditions**	**Site Conditions**
Intersection type (3ST, 3SG, 4ST, 4SG)				--	4SG
AADT $_{major}$ (veh/day)	$AADT_{MAX}$ =	67,700	(veh/day)	--	25,464
AADT $_{minor}$ (veh/day)	$AADT_{MAX}$ =	33,400	(veh/day)	--	9,600
Intersection lighting (present/not present)				Not Present	Present
Calibration factor, C_i				1.00	1.00
Data for unsignalized intersections only:				--	--
Number of major-road approaches with left-turn lanes (0,1,2)				0	2
Number of major-road approaches with right-turn lanes (0,1,2)				0	1
Data for signalized intersections only:				--	--
Number of approaches with left-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]				0	4
Number of approaches with right-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]				0	3
Number of approaches with left-turn signal phasing [for 3SG, use maximum value of 3]				--	4
Type of left-turn signal phasing for Leg #1				Permissive	Permissive / Protected
Type of left-turn signal phasing for Leg #2				--	Protected
Type of left-turn signal phasing for Leg #3				--	Permissive / Protected
Type of left-turn signal phasing for Leg #4 (if applicable)				--	Protected
Number of approaches with right-turn-on-red prohibited [for 3SG, use maximum value of 3]				0	0
Intersection red light cameras (present/not present)				Not Present	Not Present
Sum of all pedestrian crossing volumes (PedVol) -- Signalized intersections only					424
Maximum number of lanes crossed by a pedestrian (n_{lanesx})				--	6
Number of bus stops within 300 m (1,000 ft) of the intersection				0	3
Schools within 300 m (1,000 ft) of the intersection (present/not present)				Not Present	Not Present
Number of alcohol sales establishments within 300 m (1,000 ft) of the intersection				0	0

Worksheet 2B -- Crash Modification Factors for Urban and Suburban Arterial Intersections						
(1)	(2)	(3)	(4)	(5)	(6)	(7)
CMF for Left-Turn Lanes	CMF for Left-Turn Signal Phasing	CMF for Right-Turn Lanes	CMF for Right Turn on Red	CMF for Lighting	CMF for Red Light Cameras	Combined CMF
CMF 1i	*CMF 2i*	*CMF 3i*	*CMF 4i*	*CMF 5i*	*CMF 6i*	*CMF* $_{COMB}$
from Table 12-24	from Table 12-25	from Table 12-26	from Equation 12-35	from Equation 12-36	from Equation 12-37	(1)*(2)*(3)*(4)*(5)*(6)
0.66	0.87	0.88	1.00	0.91	1.00	0.46

Worksheet 2C -- Multiple-Vehicle Collisions by Severity Level for Urban and Suburban Arterial Intersections

(1)	(2)			(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**			**Overdispersion Parameter, k**	**Initial N_{bimv}**	**Proportion of Total Crashes**	**Adjusted N_{bimv}**	**Combined CMFs**	**Calibration Factor, C_i**	**Predicted N_{bimv}**
	from Table 12-10			from Table 12-10	from Equation 12-21		$(4)_{TOTAL}$*(5)	(7) from Worksheet 2B		(6)*(7)*(8)
	a	b	c							
Total	-10.99	1.07	0.23	0.39	7.201	1.000	7.201	0.46	1.00	3.316
Fatal and Injury (FI)	-13.14	1.18	0.22	0.33	2.336	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.336	2.421	0.46	1.00	1.115
Property Damage Only (PDO)	-11.02	1.02	0.24	0.44	4.612	$(5)_{TOTAL}-(5)_{FI}$ = 0.664	4.780	0.46	1.00	2.201

Worksheet 2D -- Multiple-Vehicle Collisions by Collision Type for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{bimv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{bimv\ (PDO)}$ (crashes/year)**	**Predicted N $_{bimv\ (TOTAL)}$ (crashes/year)**
	from Table 12-11	$(9)_{FI}$ from Worksheet 2C	from Table 12-11	$(9)_{PDO}$ from Worksheet 2C	$(9)_{PDO}$ from Worksheet 2C
Total	1.000	1.115	1.000	2.201	3.316
		(2)*$(3)_{FI}$		(4)*$(5)_{PDO}$	(3)+(5)
Rear-end collision	0.450	0.502	0.483	1.063	1.565
Head-on collision	0.049	0.055	0.030	0.066	0.121
Angle collision	0.347	0.387	0.244	0.537	0.924
Sideswipe	0.099	0.110	0.032	0.070	0.181
Other multiple-vehicle collision	0.055	0.061	0.211	0.464	0.526

Worksheet 2E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Arterial Intersections

(1)	(2)			(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**			**Overdispersion Parameter, k**	**Initial N_{bisv}**	**Proportion of Total Crashes**	**Adjusted N_{bimv}**	**Combined CMFs**	**Calibration Factor, C_i**	**Predicted N_{bisv}**
	from Table 12-12			from Table 12-12	from Eqn. 12-24; (FI) from Eqn. 12-24 or 12-27		$(4)_{TOTAL}$*(5)	(7) from Worksheet 2B		(6)*(7)*(8)
	a	b	c							
Total	-10.21	0.68	0.27	0.36	0.434	1.000	0.434	0.46	1.00	0.200
Fatal and Injury (FI)	-9.25	0.43	0.29	0.09	0.108	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.251	0.109	0.46	1.00	0.050
Property Damage Only (PDO)	-11.34	0.78	0.25	0.44	0.322	$(5)_{TOTAL}-(5)_{FI}$ = 0.749	0.325	0.46	1.00	0.150

Worksheet 2F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{bisv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{bisv\ (PDO)}$ (crashes/year)**	**Predicted N $_{bisv\ (TOTAL)}$ (crashes/year)**
	from Table 12-13	(9)$_{FI}$ from Worksheet 2E	from Table 12-13	(9)$_{PDO}$ from Worksheet 2E	(9)$_{PDO}$ from Worksheet 2E
Total	1.000	0.050	1.000	0.150	0.200
		(2)*(3)$_{FI}$		(4)*(5)$_{PDO}$	(3)+(5)
Collision with parked vehicle	0.001	0.000	0.001	0.000	0.000
Collision with animal	0.002	0.000	0.002	0.000	0.000
Collision with fixed object	0.744	0.037	0.870	0.130	0.167
Collision with other object	0.072	0.004	0.070	0.010	0.014
Other single-vehicle collision	0.040	0.002	0.023	0.003	0.005
Single-vehicle noncollision	0.141	0.007	0.034	0.005	0.012

Worksheet 2G -- Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Stop-Controlled Intersections

(1)	(2)	(3)	(4)	(5)	(7)*
Crash Severity Level	**Predicted N_{bimv}**	**Predicted N_{bisv}**	**Predicted N_{bi}**	**f_{pedi}**	**Predicted N_{pedi}**
	(9) from Worksheet 2C	(9) from Worksheet 2E	(2) + (3)	from Table 12-16	(4)*(5)
Total	--	--	--	--	--
Fatal and injury (FI)	--	--	--	--	--

* Column 6 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-30

Worksheet 2H -- Crash Modification Factors for Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Signalized Intersections

(1)	(2)	(3)	(4)
CMF for Bus Stops	CMF for Schools	CMF for Alcohol Sales Establishments	Combined CMF
CMF_{1p}	CMF_{2p}	CMF_{3p}	
from Table 12-28	from Table 12-29	from Table 12-30	(1)*(2)*(3)
4.15	1.00	1.00	4.15

Worksheet 2I -- Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Signalized Intersections

(1)	(2)					(3)	(4)	(5)	(6)	(7)
Crash Severity Level	**SPF Coefficients**					**Overdispersion Parameter, k**	**$N_{pedbase}$**	**Combined CMF**	**Calibration factor, C_i**	**Predicted N_{pedi}**
	from Table 12-14						from Equation 12-29	(4) from Worksheet 2H		(4)*(5)*(6)
	a	b	c	d	e					
Total	-9.53	0.40	0.26	0.45	0.04	0.24	0.072	4.15	1.00	0.298
Fatal and Injury (FI)	--	--	--	--	--	--	--	--	1.00	0.298

Worksheet 2J -- Vehicle-Bicycle Collisions for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(7)*
Crash Severity Level	**Predicted N_{bimv}**	**Predicted N_{bisv}**	**Predicted N_{bi}**	**f_{bikei}**	**Predicted N_{bikei}**
	(9) from Worksheet 2C	(9) from Worksheet 2E	(2) + (3)	from Table 12-17	(4)*(5)
Total	3.316	0.200	3.516	0.015	0.053
Fatal and injury (FI)	--	--	--	--	0.053

* Column 6 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-31

Worksheet 2K -- Crash Severity Distribution for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)
	Fatal and injury (FI)	**Property damage only (PDO)**	**Total**
Collision type	(3) from Worksheet 2D and 2F; (7) from 2G or 2I and 2J	(5) from Worksheet 2D and 2F	(6) from Worksheet 2D and 2F; (7) from 2G or 2I and 2J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 2D)	0.502	1.063	1.565
Head-on collisions (from Worksheet 2D)	0.055	0.066	0.121
Angle collisions (from Worksheet 2D)	0.387	0.537	0.924
Sideswipe (from Worksheet 2D)	0.110	0.070	0.181
Other multiple-vehicle collision (from Worksheet 2D)	0.061	0.464	0.526
Subtotal	1.115	2.201	3.316
SINGLE-VEHICLE			
Collision with parked vehicle (from Worksheet 2F)	0.000	0.000	0.000
Collision with animal (from Worksheet 2F)	0.000	0.000	0.000
Collision with fixed object (from Worksheet 2F)	0.037	0.130	0.167
Collision with other object (from Worksheet 2F)	0.004	0.010	0.014
Other single-vehicle collision (from Worksheet 2F)	0.002	0.003	0.005
Single-vehicle noncollision (from Worksheet 2F)	0.007	0.005	0.012
Collision with pedestrian (from Worksheet 2G or 2I)	0.298	0.000	0.298
Collision with bicycle (from Worksheet 2J)	0.053	0.000	0.053
Subtotal	0.400	0.150	0.550
Total	1.515	2.351	3.866

Worksheet 2L -- Summary Results for Urban and Suburban Arterial Intersections

(1)	(2)
Crash severity level	**Predicted average crash frequency, $N_{predicted\ int}$ (crashes/year)**
	(Total) from Worksheet 2K
Total	3.9
Fatal and injury (FI)	1.5
Property damage only (PDO)	2.4

Worksheet 2A -- General Information and Input Data for Urban and Suburban Arterial Intersections						
General Information				**Location Information**		
Analyst	PC			Roadway	Rockledge Drive	
Agency or Company	ATCS			Intersection	ckledge Dr at I-270 SB Off-Ramp/I-270 SB Ramp Connect	
Date Performed	02/18/21			Jurisdiction	Montgomery County	
				Analysis Year	2045	
Input Data				**Base Conditions**	**Site Conditions**	
Intersection type (3ST, 3SG, 4ST, 4SG)				--	3SG	
AADT $_{major}$ (veh/day)	$AADT_{MAX}$ =	58,100	(veh/day)	--	24,333	
AADT $_{minor}$ (veh/day)	$AADT_{MAX}$ =	16,400	(veh/day)	--	13,337	
Intersection lighting (present/not present)				Not Present	Present	
Calibration factor, C_i				1.00	1.00	
Data for unsignalized intersections only:				--	--	
Number of major-road approaches with left-turn lanes (0,1,2)				0	0	
Number of major-road approaches with right-turn lanes (0,1,2)				0	1	
Data for signalized intersections only:				--	--	
Number of approaches with left-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]				0	0	
Number of approaches with right-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]				0	2	
Number of approaches with left-turn signal phasing [for 3SG, use maximum value of 3]				--	0	
Type of left-turn signal phasing for Leg #1				Permissive	Not Applicable	
Type of left-turn signal phasing for Leg #2				--	Not Applicable	
Type of left-turn signal phasing for Leg #3				--	Permissive	
Type of left-turn signal phasing for Leg #4 (if applicable)				--	Not Applicable	
Number of approaches with right-turn-on-red prohibited [for 3SG, use maximum value of 3]				0	1	
Intersection red light cameras (present/not present)				Not Present	Not Present	
Sum of all pedestrian crossing volumes (PedVol) -- Signalized intersections only					3	
Maximum number of lanes crossed by a pedestrian (n_{lanesx})				--	7	
Number of bus stops within 300 m (1,000 ft) of the intersection				0	2	
Schools within 300 m (1,000 ft) of the intersection (present/not present)				Not Present	Not Present	
Number of alcohol sales establishments within 300 m (1,000 ft) of the intersection				0	0	

Worksheet 2B -- Crash Modification Factors for Urban and Suburban Arterial Intersections						
(1)	(2)	(3)	(4)	(5)	(6)	(7)
CMF for Left-Turn Lanes	CMF for Left-Turn Signal Phasing	CMF for Right-Turn Lanes	CMF for Right Turn on Red	CMF for Lighting	CMF for Red Light Cameras	Combined CMF
CMF 1i	*CMF 2i*	*CMF 3i*	*CMF 4i*	*CMF 5i*	*CMF 6i*	*CMF $_{COMB}$*
from Table 12-24	from Table 12-25	from Table 12-26	from Equation 12-35	from Equation 12-36	from Equation 12-37	(1)*(2)*(3)*(4)*(5)*(6)
1.00	1.00	0.92	0.98	0.91	1.00	0.82

Worksheet 2C -- Multiple-Vehicle Collisions by Severity Level for Urban and Suburban Arterial Intersections

(1)	(2)			(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**			**Overdispersion Parameter, k**	**Initial N_{bimv}**	**Proportion of Total Crashes**	**Adjusted N_{bimv}**	**Combined CMFs**	**Calibration Factor, C_i**	**Predicted N_{bimv}**
	from Table 12-10			from Table 12-10	from Equation 12-21		$(4)_{TOTAL}$*(5)	(7) from Worksheet 2B		(6)*(7)*(8)
	a	b	c							
Total	-12.13	1.11	0.26	0.33	4.712	1.000	4.712	0.82	1.00	3.876
Fatal and Injury (FI)	-11.58	1.02	0.17	0.30	1.400	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ 0.313	1.474	0.82	1.00	1.213
Property Damage Only (PDO)	-13.24	1.14	0.30	0.36	3.074	$(5)_{TOTAL}-(5)_{FI}$ 0.687	3.238	0.82	1.00	2.663

Worksheet 2D -- Multiple-Vehicle Collisions by Collision Type for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{bimv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{bimv\ (PDO)}$ (crashes/year)**	**Predicted N $_{bimv\ (TOTAL)}$ (crashes/year)**
	from Table 12-11	$(9)_{FI}$ from Worksheet 2C	from Table 12-11	$(9)_{PDO}$ from Worksheet 2C	$(9)_{PDO}$ from Worksheet 2C
Total	1.000	1.213	1.000	2.663	3.876
		(2)*$(3)_{FI}$		(4)*$(5)_{PDO}$	(3)+(5)
Rear-end collision	0.549	0.666	0.546	1.454	2.120
Head-on collision	0.038	0.046	0.020	0.053	0.099
Angle collision	0.280	0.340	0.204	0.543	0.883
Sideswipe	0.076	0.092	0.032	0.085	0.177
Other multiple-vehicle collision	0.057	0.069	0.198	0.527	0.596

Worksheet 2E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Arterial Intersections

(1)	(2)			(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**			**Overdispersion Parameter, k**	**Initial N_{bisv}**	**Proportion of Total Crashes**	**Adjusted N_{bimv}**	**Combined CMFs**	**Calibration Factor, C_i**	**Predicted N_{bisv}**
	from Table 12-12			from Table 12-12	from Eqn. 12-24; (FI) from Eqn. 12-24 or 12-27		$(4)_{TOTAL}$*(5)	(7) from Worksheet 2B		(6)*(7)*(8)
	a	b	c							
Total	-9.02	0.42	0.40	0.36	0.376	1.000	0.376	0.82	1.00	0.309
Fatal and Injury (FI)	-9.75	0.27	0.51	0.24	0.113	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ 0.315	0.118	0.82	1.00	0.097
Property Damage Only (PDO)	-9.08	0.45	0.33	0.53	0.246	$(5)_{TOTAL}-(5)_{FI}$ 0.685	0.257	0.82	1.00	0.212

Worksheet 2F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{bisv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{bisv\ (PDO)}$ (crashes/year)**	**Predicted N $_{bisv\ (TOTAL)}$ (crashes/year)**
	from Table 12-13	(9)$_{FI}$ from Worksheet 2E	from Table 12-13	(9)$_{PDO}$ from Worksheet 2E	(9)$_{PDO}$ from Worksheet 2E
Total	1.000	0.097	1.000	0.212	0.309
		(2)*(3)$_{FI}$		(4)*(5)$_{PDO}$	(3)+(5)
Collision with parked vehicle	0.001	0.000	0.001	0.000	0.000
Collision with animal	0.001	0.000	0.003	0.001	0.001
Collision with fixed object	0.653	0.064	0.895	0.190	0.253
Collision with other object	0.091	0.009	0.069	0.015	0.023
Other single-vehicle collision	0.045	0.004	0.018	0.004	0.008
Single-vehicle noncollision	0.209	0.020	0.014	0.003	0.023

Worksheet 2G -- Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Stop-Controlled Intersections

(1)	(2)	(3)	(4)	(5)	(7)*
Crash Severity Level	**Predicted N_{bimv}**	**Predicted N_{bisv}**	**Predicted N_{bi}**	**f_{pedi}**	**Predicted N_{pedi}**
	(9) from Worksheet 2C	(9) from Worksheet 2E	(2) + (3)	from Table 12-16	(4)*(5)
Total	--	--	--	--	--
Fatal and injury (FI)	--	--	--	--	--

* Column 6 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-30

Worksheet 2H -- Crash Modification Factors for Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Signalized Intersections

(1)	(2)	(3)	(4)
CMF for Bus Stops	CMF for Schools	CMF for Alcohol Sales Establishments	Combined CMF
CMF_{1p}	CMF_{2p}	CMF_{3p}	
from Table 12-28	from Table 12-29	from Table 12-30	(1)*(2)*(3)
2.78	1.00	1.00	2.78

Worksheet 2I -- Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Signalized Intersections

(1)	(2)					(3)	(4)	(5)	(6)	(7)
Crash Severity Level	**SPF Coefficients**					**Overdispersion Parameter, k**	**$N_{pedbase}$**	**Combined CMF**	**Calibration factor, C_i**	**Predicted N_{pedi}**
	from Table 12-14						from Equation 12-29	(4) from Worksheet 2H		(4)*(5)*(6)
	a	b	c	d	e					
Total	-6.60	0.05	0.24	0.41	0.09	0.52	0.006	2.78	1.00	0.016
Fatal and Injury (FI)	--	--	--	--	--	--	--	--	1.00	0.016

Worksheet 2J -- Vehicle-Bicycle Collisions for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(7)*
Crash Severity Level	**Predicted N_{bimv}**	**Predicted N_{bisv}**	**Predicted N_{bi}**	**f_{bikei}**	**Predicted N_{bikei}**
	(9) from Worksheet 2C	(9) from Worksheet 2E	(2) + (3)	from Table 12-17	(4)*(5)
Total	3.876	0.309	4.185	0.011	0.046
Fatal and injury (FI)	--	--	--	--	0.046

* Column 6 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-31

Worksheet 2K -- Crash Severity Distribution for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)
	Fatal and injury (FI)	**Property damage only (PDO)**	**Total**
Collision type	(3) from Worksheet 2D and 2F; (7) from 2G or 2I and 2J	(5) from Worksheet 2D and 2F	(6) from Worksheet 2D and 2F; (7) from 2G or 2I and 2J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 2D)	0.666	1.454	2.120
Head-on collisions (from Worksheet 2D)	0.046	0.053	0.099
Angle collisions (from Worksheet 2D)	0.340	0.543	0.883
Sideswipe (from Worksheet 2D)	0.092	0.085	0.177
Other multiple-vehicle collision (from Worksheet 2D)	0.069	0.527	0.596
Subtotal	1.213	2.663	3.876
SINGLE-VEHICLE			
Collision with parked vehicle (from Worksheet 2F)	0.000	0.000	0.000
Collision with animal (from Worksheet 2F)	0.000	0.001	0.001
Collision with fixed object (from Worksheet 2F)	0.064	0.190	0.253
Collision with other object (from Worksheet 2F)	0.009	0.015	0.023
Other single-vehicle collision (from Worksheet 2F)	0.004	0.004	0.008
Single-vehicle noncollision (from Worksheet 2F)	0.020	0.003	0.023
Collision with pedestrian (from Worksheet 2G or 2I)	0.016	0.000	0.016
Collision with bicycle (from Worksheet 2J)	0.046	0.000	0.046
Subtotal	0.160	0.212	0.371
Total	1.372	2.875	4.247

Worksheet 2L -- Summary Results for Urban and Suburban Arterial Intersections

(1)	(2)
Crash severity level	**Predicted average crash frequency, $N_{predicted\ int}$ (crashes/year)**
	(Total) from Worksheet 2K
Total	4.2
Fatal and injury (FI)	1.4
Property damage only (PDO)	2.9

Worksheet 2A -- General Information and Input Data for Urban and Suburban Arterial Intersections						
General Information				**Location Information**		
Analyst	PC			Roadway	Rockledge Drive	
Agency or Company	ATCS			Intersection	ckledge Dr at I-270 SB On-Ramp/I-270 NB Ramp Connec	
Date Performed	02/18/21			Jurisdiction	Montgomery County	
				Analysis Year	2045	
Input Data				**Base Conditions**	**Site Conditions**	
Intersection type (3ST, 3SG, 4ST, 4SG)				--	3SG	
AADT $_{major}$ (veh/day)	$AADT_{MAX}$ =	58,100	(veh/day)	--	26,071	
AADT $_{minor}$ (veh/day)	$AADT_{MAX}$ =	16,400	(veh/day)	--	**18,530**	
Intersection lighting (present/not present)				Not Present	Present	
Calibration factor, C_i				1.00	1.00	
Data for unsignalized intersections only:				--	--	
Number of major-road approaches with left-turn lanes (0,1,2)				0	1	
Number of major-road approaches with right-turn lanes (0,1,2)				0	0	
Data for signalized intersections only:				--	--	
Number of approaches with left-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]				0	2	
Number of approaches with right-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]				0	0	
Number of approaches with left-turn signal phasing [for 3SG, use maximum value of 3]				--	2	
Type of left-turn signal phasing for Leg #1				Permissive	Protected	
Type of left-turn signal phasing for Leg #2				--	Protected	
Type of left-turn signal phasing for Leg #3				--	Not Applicable	
Type of left-turn signal phasing for Leg #4 (if applicable)				--	Not Applicable	
Number of approaches with right-turn-on-red prohibited [for 3SG, use maximum value of 3]				0	0	
Intersection red light cameras (present/not present)				Not Present	Not Present	
Sum of all pedestrian crossing volumes (PedVol) -- Signalized intersections only					6	
Maximum number of lanes crossed by a pedestrian (n_{lanesx})				--	5	
Number of bus stops within 300 m (1,000 ft) of the intersection				0	0	
Schools within 300 m (1,000 ft) of the intersection (present/not present)				Not Present	Not Present	
Number of alcohol sales establishments within 300 m (1,000 ft) of the intersection				0	0	

Worksheet 2B -- Crash Modification Factors for Urban and Suburban Arterial Intersections						
(1)	(2)	(3)	(4)	(5)	(6)	(7)
CMF for Left-Turn Lanes	CMF for Left-Turn Signal Phasing	CMF for Right-Turn Lanes	CMF for Right Turn on Red	CMF for Lighting	CMF for Red Light Cameras	Combined CMF
CMF 1i	*CMF 2i*	*CMF 3i*	*CMF 4i*	*CMF 5i*	*CMF 6i*	*CMF $_{COMB}$*
from Table 12-24	from Table 12-25	from Table 12-26	from Equation 12-35	from Equation 12-36	from Equation 12-37	(1)*(2)*(3)*(4)*(5)*(6)
0.86	0.88	1.00	1.00	0.91	1.00	0.69

Worksheet 2C -- Multiple-Vehicle Collisions by Severity Level for Urban and Suburban Arterial Intersections

(1)	(2)			(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**			**Overdispersion Parameter, k**	**Initial N_{bimv}**	**Proportion of Total Crashes**	**Adjusted N_{bimv}**	**Combined CMFs**	**Calibration Factor, C_i**	**Predicted N_{bimv}**
	from Table 12-10			from Table 12-10	from Equation 12-21		$(4)_{TOTAL}$*(5)	(7) from Worksheet 2B		(6)*(7)*(8)
	a	b	c							
Total	-12.13	1.11	0.26	0.33	5.541	1.000	5.541	0.69	1.00	3.835
Fatal and Injury (FI)	-11.58	1.02	0.17	0.30	1.588	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.302	1.673	0.69	1.00	1.158
Property Damage Only (PDO)	-13.24	1.14	0.30	0.36	3.670	$(5)_{TOTAL}-(5)_{FI}$ = 0.698	3.868	0.69	1.00	2.677

Worksheet 2D -- Multiple-Vehicle Collisions by Collision Type for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{bimv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{bimv\ (PDO)}$ (crashes/year)**	**Predicted N $_{bimv\ (TOTAL)}$ (crashes/year)**
	from Table 12-11	$(9)_{FI}$ from Worksheet 2C	from Table 12-11	$(9)_{PDO}$ from Worksheet 2C	$(9)_{PDO}$ from Worksheet 2C
Total	1.000	1.158	1.000	2.677	3.835
		(2)*$(3)_{FI}$		(4)*$(5)_{PDO}$	(3)+(5)
Rear-end collision	0.549	0.636	0.546	1.461	2.097
Head-on collision	0.038	0.044	0.020	0.054	0.098
Angle collision	0.280	0.324	0.204	0.546	0.870
Sideswipe	0.076	0.088	0.032	0.086	0.174
Other multiple-vehicle collision	0.057	0.066	0.198	0.530	0.596

Worksheet 2E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Arterial Intersections

(1)	(2)			(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**			**Overdispersion Parameter, k**	**Initial N_{bisv}**	**Proportion of Total Crashes**	**Adjusted N_{bimv}**	**Combined CMFs**	**Calibration Factor, C_i**	**Predicted N_{bisv}**
	from Table 12-12			from Table 12-12	from Eqn. 12-24; (FI) from Eqn. 12-24 or 12-27		$(4)_{TOTAL}$*(5)	(7) from Worksheet 2B		(6)*(7)*(8)
	a	b	c							
Total	-9.02	0.42	0.40	0.36	0.441	1.000	0.441	0.69	1.00	0.305
Fatal and Injury (FI)	-9.75	0.27	0.51	0.24	0.136	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.325	0.143	0.69	1.00	0.099
Property Damage Only (PDO)	-9.08	0.45	0.33	0.53	0.283	$(5)_{TOTAL}-(5)_{FI}$ = 0.675	0.298	0.69	1.00	0.206

Worksheet 2F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{bisv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{bisv\ (PDO)}$ (crashes/year)**	**Predicted N $_{bisv\ (TOTAL)}$ (crashes/year)**
	from Table 12-13	(9)$_{FI}$ from Worksheet 2E	from Table 12-13	(9)$_{PDO}$ from Worksheet 2E	(9)$_{PDO}$ from Worksheet 2E
Total	1.000	0.099	1.000	0.206	0.305
		(2)*(3)$_{FI}$		(4)*(5)$_{PDO}$	(3)+(5)
Collision with parked vehicle	0.001	0.000	0.001	0.000	0.000
Collision with animal	0.001	0.000	0.003	0.001	0.001
Collision with fixed object	0.653	0.065	0.895	0.184	0.249
Collision with other object	0.091	0.009	0.069	0.014	0.023
Other single-vehicle collision	0.045	0.004	0.018	0.004	0.008
Single-vehicle noncollision	0.209	0.021	0.014	0.003	0.024

Worksheet 2G -- Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Stop-Controlled Intersections

(1)	(2)	(3)	(4)	(5)	(7)*
Crash Severity Level	**Predicted N_{bimv}**	**Predicted N_{bisv}**	**Predicted N_{bi}**	**f_{pedi}**	**Predicted N_{pedi}**
	(9) from Worksheet 2C	(9) from Worksheet 2E	(2) + (3)	from Table 12-16	(4)*(5)
Total	--	--	--	--	--
Fatal and injury (FI)	--	--	--	--	--

* Column 6 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-30

Worksheet 2H -- Crash Modification Factors for Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Signalized Intersections

(1)	(2)	(3)	(4)
CMF for Bus Stops	CMF for Schools	CMF for Alcohol Sales Establishments	Combined CMF
CMF_{1p}	CMF_{2p}	CMF_{3p}	
from Table 12-28	from Table 12-29	from Table 12-30	(1)*(2)*(3)
1.00	1.00	1.00	1.00

Worksheet 2I -- Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Signalized Intersections

(1)	(2)					(3)	(4)	(5)	(6)	(7)
Crash Severity Level	**SPF Coefficients**					**Overdispersion Parameter, k**	**$N_{pedbase}$**	**Combined CMF**	**Calibration factor, C_i**	**Predicted N_{pedi}**
	from Table 12-14						from Equation 12-29	(4) from Worksheet 2H		(4)*(5)*(6)
	a	b	c	d	e					
Total	-6.60	0.05	0.24	0.41	0.09	0.52	0.007	1.00	1.00	0.007
Fatal and Injury (FI)	--	--	--	--	--	--	--	--	1.00	0.007

Worksheet 2J -- Vehicle-Bicycle Collisions for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(7)*
Crash Severity Level	**Predicted N_{bimv}**	**Predicted N_{bisv}**	**Predicted N_{bi}**	**f_{bikei}**	**Predicted N_{bikei}**
	(9) from Worksheet 2C	(9) from Worksheet 2E	(2) + (3)	from Table 12-17	(4)*(5)
Total	3.835	0.305	4.140	0.011	0.046
Fatal and injury (FI)	--	--	--	--	0.046

* Column 6 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-31

Worksheet 2K -- Crash Severity Distribution for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)
	Fatal and injury (FI)	**Property damage only (PDO)**	**Total**
Collision type	(3) from Worksheet 2D and 2F; (7) from 2G or 2I and 2J	(5) from Worksheet 2D and 2F	(6) from Worksheet 2D and 2F; (7) from 2G or 2I and 2J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 2D)	0.636	1.461	2.097
Head-on collisions (from Worksheet 2D)	0.044	0.054	0.098
Angle collisions (from Worksheet 2D)	0.324	0.546	0.870
Sideswipe (from Worksheet 2D)	0.088	0.086	0.174
Other multiple-vehicle collision (from Worksheet 2D)	0.066	0.530	0.596
Subtotal	1.158	2.677	3.835
SINGLE-VEHICLE			
Collision with parked vehicle (from Worksheet 2F)	0.000	0.000	0.000
Collision with animal (from Worksheet 2F)	0.000	0.001	0.001
Collision with fixed object (from Worksheet 2F)	0.065	0.184	0.249
Collision with other object (from Worksheet 2F)	0.009	0.014	0.023
Other single-vehicle collision (from Worksheet 2F)	0.004	0.004	0.008
Single-vehicle noncollision (from Worksheet 2F)	0.021	0.003	0.024
Collision with pedestrian (from Worksheet 2G or 2I)	0.007	0.000	0.007
Collision with bicycle (from Worksheet 2J)	0.046	0.000	0.046
Subtotal	0.152	0.206	0.358
Total	1.310	2.883	4.192

Worksheet 2L -- Summary Results for Urban and Suburban Arterial Intersections

(1)	(2)
Crash severity level	**Predicted average crash frequency, $N_{predicted\ int}$ (crashes/year)**
	(Total) from Worksheet 2K
Total	4.2
Fatal and injury (FI)	1.3
Property damage only (PDO)	2.9

Worksheet 2A -- General Information and Input Data for Urban and Suburban Arterial Intersections						
General Information				**Location Information**		
Analyst	ST			Roadway	MD 28	
Agency or Company	ATCS			Intersection	MD 28 at Hurley Ave.	
Date Performed	06/08/20			Jurisdiction	Montgomery County	
				Analysis Year	2045	
Input Data				**Base Conditions**	**Site Conditions**	
Intersection type (3ST, 3SG, 4ST, 4SG)				--	4SG	
AADT $_{major}$ (veh/day)	$AADT_{MAX}$ =	67,700	(veh/day)	--	55,220	
AADT $_{minor}$ (veh/day)	$AADT_{MAX}$ =	33,400	(veh/day)	--	7,147	
Intersection lighting (present/not present)				Not Present	Present	
Calibration factor, C_i				1.00	1.00	
Data for unsignalized intersections only:				--	--	
Number of major-road approaches with left-turn lanes (0,1,2)				0	0	
Number of major-road approaches with right-turn lanes (0,1,2)				0	0	
Data for signalized intersections only:				--	--	
Number of approaches with left-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]				0	2	
Number of approaches with right-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]				0	2	
Number of approaches with left-turn signal phasing [for 3SG, use maximum value of 3]				--	1	
Type of left-turn signal phasing for Leg #1				Permissive	Permissive	
Type of left-turn signal phasing for Leg #2				--	Protected	
Type of left-turn signal phasing for Leg #3				--	Permissive	
Type of left-turn signal phasing for Leg #4 (if applicable)				--	Permissive	
Number of approaches with right-turn-on-red prohibited [for 3SG, use maximum value of 3]				0	0	
Intersection red light cameras (present/not present)				Not Present	Not Present	
Sum of all pedestrian crossing volumes (PedVol) -- Signalized intersections only					108	
Maximum number of lanes crossed by a pedestrian (n_{lanesx})				--	7	
Number of bus stops within 300 m (1,000 ft) of the intersection				0	4	
Schools within 300 m (1,000 ft) of the intersection (present/not present)				Not Present	Not Present	
Number of alcohol sales establishments within 300 m (1,000 ft) of the intersection				0	1	

Worksheet 2B -- Crash Modification Factors for Urban and Suburban Arterial Intersections						
(1)	(2)	(3)	(4)	(5)	(6)	(7)
CMF for Left-Turn Lanes	CMF for Left-Turn Signal Phasing	CMF for Right-Turn Lanes	CMF for Right Turn on Red	CMF for Lighting	CMF for Red Light Cameras	Combined CMF
CMF 1i	*CMF 2i*	*CMF 3i*	*CMF 4i*	*CMF 5i*	*CMF 6i*	*CMF* $_{COMB}$
from Table 12-24	from Table 12-25	from Table 12-26	from Equation 12-35	from Equation 12-36	from Equation 12-37	(1)*(2)*(3)*(4)*(5)*(6)
0.81	1.00	0.92	1.00	0.91	1.00	0.68

Worksheet 2C -- Multiple-Vehicle Collisions by Severity Level for Urban and Suburban Arterial Intersections

(1)	(2)			(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**			**Overdispersion Parameter, k**	**Initial N_{bimv}**	**Proportion of Total Crashes**	**Adjusted N_{bimv}**	**Combined CMFs**	**Calibration Factor, C_i**	**Predicted N_{bimv}**
	from Table 12-10			from Table 12-10	from Equation 12-21		$(4)_{TOTAL}$*(5)	(7) from Worksheet 2B		(6)*(7)*(8)
	a	b	c							
Total	-10.99	1.07	0.23	0.39	15.403	1.000	15.403	0.68	1.00	10.466
Fatal and Injury (FI)	-13.14	1.18	0.22	0.33	5.457	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ 0.366	5.634	0.68	1.00	3.828
Property Damage Only (PDO)	-11.02	1.02	0.24	0.44	9.462	$(5)_{TOTAL}-(5)_{FI}$ 0.634	9.769	0.68	1.00	6.638

Worksheet 2D -- Multiple-Vehicle Collisions by Collision Type for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{bimv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{bimv\ (PDO)}$ (crashes/year)**	**Predicted N $_{bimv\ (TOTAL)}$ (crashes/year)**
	from Table 12-11	$(9)_{FI}$ from Worksheet 2C	from Table 12-11	$(9)_{PDO}$ from Worksheet 2C	$(9)_{PDO}$ from Worksheet 2C
Total	1.000	3.828	1.000	6.638	10.466
		(2)*$(3)_{FI}$		(4)*$(5)_{PDO}$	(3)+(5)
Rear-end collision	0.450	1.723	0.483	3.206	4.929
Head-on collision	0.049	0.188	0.030	0.199	0.387
Angle collision	0.347	1.328	0.244	1.620	2.948
Sideswipe	0.099	0.379	0.032	0.212	0.591
Other multiple-vehicle collision	0.055	0.211	0.211	1.401	1.611

Worksheet 2E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Arterial Intersections

(1)	(2)			(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**			**Overdispersion Parameter, k**	**Initial N_{bisv}**	**Proportion of Total Crashes**	**Adjusted N_{bimv}**	**Combined CMFs**	**Calibration Factor, C_i**	**Predicted N_{bisv}**
	from Table 12-12			from Table 12-12	from Eqn. 12-24; (FI) from Eqn. 12-24 or 12-27		$(4)_{TOTAL}$*(5)	(7) from Worksheet 2B		(6)*(7)*(8)
	a	b	c							
Total	-10.21	0.68	0.27	0.36	0.678	1.000	0.678	0.68	1.00	0.461
Fatal and Injury (FI)	-9.25	0.43	0.29	0.09	0.138	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ 0.202	0.137	0.68	1.00	0.093
Property Damage Only (PDO)	-11.34	0.78	0.25	0.44	0.546	$(5)_{TOTAL}-(5)_{FI}$ 0.798	0.541	0.68	1.00	0.368

Worksheet 2F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{bisv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{bisv\ (PDO)}$ (crashes/year)**	**Predicted N $_{bisv\ (TOTAL)}$ (crashes/year)**
	from Table 12-13	(9)$_{FI}$ from Worksheet 2E	from Table 12-13	(9)$_{PDO}$ from Worksheet 2E	(9)$_{PDO}$ from Worksheet 2E
Total	1.000	0.093	1.000	0.368	0.461
		(2)*(3)$_{FI}$		(4)*(5)$_{PDO}$	(3)+(5)
Collision with parked vehicle	0.001	0.000	0.001	0.000	0.000
Collision with animal	0.002	0.000	0.002	0.001	0.001
Collision with fixed object	0.744	0.069	0.870	0.320	0.389
Collision with other object	0.072	0.007	0.070	0.026	0.032
Other single-vehicle collision	0.040	0.004	0.023	0.008	0.012
Single-vehicle noncollision	0.141	0.013	0.034	0.013	0.026

Worksheet 2G -- Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Stop-Controlled Intersections

(1)	(2)	(3)	(4)	(5)	(7)*
Crash Severity Level	**Predicted N_{bimv}**	**Predicted N_{bisv}**	**Predicted N_{bi}**	**f_{pedi}**	**Predicted N_{pedi}**
	(9) from Worksheet 2C	(9) from Worksheet 2E	(2) + (3)	from Table 12-16	(4)*(5)
Total	--	--	--	--	--
Fatal and injury (FI)	--	--	--	--	--

* Column 6 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-30

Worksheet 2H -- Crash Modification Factors for Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Signalized Intersections

(1)	(2)	(3)	(4)
CMF for Bus Stops	CMF for Schools	CMF for Alcohol Sales Establishments	Combined CMF
CMF_{1p}	CMF_{2p}	CMF_{3p}	
from Table 12-28	from Table 12-29	from Table 12-30	(1)*(2)*(3)
4.15	1.00	1.12	4.65

Worksheet 2I -- Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Signalized Intersections

(1)	(2)					(3)	(4)	(5)	(6)	(7)
Crash Severity Level	**SPF Coefficients**					**Overdispersion Parameter, k**	**$N_{pedbase}$**	**Combined CMF**	**Calibration factor, C_i**	**Predicted N_{pedi}**
	from Table 12-14						from Equation 12-29	(4) from Worksheet 2H		(4)*(5)*(6)
	a	b	c	d	e					
Total	-9.53	0.40	0.26	0.45	0.04	0.24	0.038	4.65	1.00	0.179
Fatal and Injury (FI)	--	--	--	--	--	--	--	--	1.00	0.179

Worksheet 2J -- Vehicle-Bicycle Collisions for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(7)*
Crash Severity Level	**Predicted N_{bimv}**	**Predicted N_{bisv}**	**Predicted N_{bi}**	**f_{bikei}**	**Predicted N_{bikei}**
	(9) from Worksheet 2C	(9) from Worksheet 2E	(2) + (3)	from Table 12-17	(4)*(5)
Total	10.466	0.461	10.927	0.015	0.164
Fatal and injury (FI)	--	--	--	--	0.164

* Column 6 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-31

Worksheet 2K -- Crash Severity Distribution for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)
	Fatal and injury (FI)	**Property damage only (PDO)**	**Total**
Collision type	(3) from Worksheet 2D and 2F; (7) from 2G or 2I and 2J	(5) from Worksheet 2D and 2F	(6) from Worksheet 2D and 2F; (7) from 2G or 2I and 2J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 2D)	1.723	3.206	4.929
Head-on collisions (from Worksheet 2D)	0.188	0.199	0.387
Angle collisions (from Worksheet 2D)	1.328	1.620	2.948
Sideswipe (from Worksheet 2D)	0.379	0.212	0.591
Other multiple-vehicle collision (from Worksheet 2D)	0.211	1.401	1.611
Subtotal	3.828	6.638	10.466
SINGLE-VEHICLE			
Collision with parked vehicle (from Worksheet 2F)	0.000	0.000	0.000
Collision with animal (from Worksheet 2F)	0.000	0.001	0.001
Collision with fixed object (from Worksheet 2F)	0.069	0.320	0.389
Collision with other object (from Worksheet 2F)	0.007	0.026	0.032
Other single-vehicle collision (from Worksheet 2F)	0.004	0.008	0.012
Single-vehicle noncollision (from Worksheet 2F)	0.013	0.013	0.026
Collision with pedestrian (from Worksheet 2G or 2I)	0.179	0.000	0.179
Collision with bicycle (from Worksheet 2J)	0.164	0.000	0.164
Subtotal	0.435	0.368	0.803
Total	4.263	7.006	11.269

Worksheet 2L -- Summary Results for Urban and Suburban Arterial Intersections

(1)	(2)
Crash severity level	**Predicted average crash frequency, $N_{predicted\ int}$ (crashes/year)**
	(Total) from Worksheet 2K
Total	11.3
Fatal and injury (FI)	4.3
Property damage only (PDO)	7.0

Worksheet 1A -- General Information and Input Data for Urban and Suburban Roadway Segments

General Information		Location Information	
Analyst	ST	Roadway	MD 28
Agency or Company	ATCS	Roadway Section	250 ft east of Hurley Ave. to 250 ft west of I-270 Ramp
Date Performed	06/08/20	Jurisdiction	Montgomery County
		Analysis Year	2045

Input Data		Base Conditions	Site Conditions
Roadway type (2U, 3T, 4U, 4D, ST)		--	4D
Length of segment, L (mi)		--	0.05
AADT (veh/day)	$AADT_{MAX}$ = 66,000 (veh/day)	--	52,977
Type of on-street parking (none/parallel/angle)		None	None
Proportion of curb length with on-street parking		--	0
Median width (ft) - for divided only		15	10
Lighting (present / not present)		Not Present	Present
Auto speed enforcement (present / not present)		Not Present	Not Present
Major commercial driveways (number)		--	0
Minor commercial driveways (number)		--	1
Major industrial / institutional driveways (number)		--	0
Minor industrial / institutional driveways (number)		--	0
Major residential driveways (number)		--	0
Minor residential driveways (number)		--	0
Other driveways (number)		--	0
Speed Category		--	Posted Speed Greater than 30 mph
Roadside fixed object density (fixed objects / mi)		0	360
Offset to roadside fixed objects (ft) [If greater than 30 or Not Present, input 30]		30	18
Calibration Factor, Cr		1.00	1.00

Worksheet 1B -- Crash Modification Factors for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
CMF for On-Street Parking	CMF for Roadside Fixed Objects	CMF for Median Width	CMF for Lighting	CMF for Automated Speed Enforcement	Combined CMF
CMF 1r	*CMF 2r*	*CMF 3r*	*CMF 4r*	*CMF 5r*	*CMF comb*
from Equation 12-32	from Equation 12-33	from Table 12-22	from Equation 12-34	from Section 12.7.1	(1)*(2)*(3)*(4)*(5)
1.00	1.75	1.01	0.91	1.00	1.61

Worksheet 1C -- Multiple-Vehicle Nondriveway Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brmv}**	**Proportion of Total Crashes**	**Adjusted N_{brmv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brmv}**
	from Table 12-3		from Table 12-3	from Equation 12-10		$(4)_{TOTAL}$*(5)	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-12.34	1.36	1.32	0.581	1.000	0.581	1.61	1.00	0.938
Fatal and Injury (FI)	-12.76	1.28	1.31	0.160	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.262	0.152	1.61	1.00	0.245
Property Damage Only (PDO)	-12.81	1.38	1.34	0.452	$(5)_{TOTAL}-(5)_{FI}$ = 0.738	0.429	1.61	1.00	0.693

Worksheet 1D -- Multiple-Vehicle Nondriveway Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brmv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brmv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brmv\ (TOTAL)}$ (crashes/year)**
	from Table 12-4	$(9)_{FI}$ from Worksheet 1C	from Table 12-4	$(9)_{PDO}$ from Worksheet 1C	$(9)_{TOTAL}$ from Worksheet 1C
Total	1.000	0.245	1.000	0.693	0.938
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Rear-end collision	0.832	0.204	0.662	0.458	0.663
Head-on collision	0.020	0.005	0.007	0.005	0.010
Angle collision	0.040	0.010	0.036	0.025	0.035
Sideswipe, same direction	0.050	0.012	0.223	0.154	0.167
Sideswipe, opposite direction	0.010	0.002	0.001	0.001	0.003
Other multiple-vehicle collision	0.048	0.012	0.071	0.049	0.061

Worksheet 1E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brsv}**	**Proportion of Total Crashes**	**Adjusted N_{brsv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brsv}**
	from Table 12-5		from Table 12-5	from Equation 12-13		$(4)_{TOTAL}*(5)$	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-5.05	0.47	0.86	0.053	1.000	0.053	1.61	1.00	0.086
Fatal and Injury (FI)	-8.71	0.66	0.28	0.011	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.200	0.011	1.61	1.00	0.017
Property Damage Only (PDO)	-5.04	0.45	1.06	0.043	$(5)_{TOTAL}-(5)_{FI}$ = 0.800	0.043	1.61	1.00	0.069

Worksheet 1F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brsv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brsv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brsv\ (TOTAL)}$ (crashes/year)**
	from Table 12-6	$(9)_{FI}$ from Worksheet 1E	from Table 12-6	$(9)_{PDO}$ from Worksheet 1E	$(9)_{TOTAL}$ from Worksheet 1E
Total	1.000	0.017	1.000	0.069	0.086
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Collision with animal	0.001	0.000	0.063	0.004	0.004
Collision with fixed object	0.500	0.009	0.813	0.056	0.064
Collision with other object	0.028	0.000	0.016	0.001	0.002
Other single-vehicle collision	0.471	0.008	0.108	0.007	0.016

Worksheet 1G -- Multiple-Vehicle Driveway-Related Collisions by Driveway Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Driveway Type	**Number of driveways, n_j**	**Crashes per driveway per year, N_j**	**Coefficient for traffic adjustment, t**	**Initial N_{brdwy}**	**Overdispersion parameter, k**
		from Table 12-7	from Table 12-7	Equation 12-16 $n_j * N_j * (AADT/15,000)^t$	from Table 12-7
Major commercial	0	0.033	1.106	0.000	--
Minor commercial	1	0.011	1.106	0.044	
Major industrial/institutional	0	0.036	1.106	0.000	
Minor industrial/institutional	0	0.005	1.106	0.000	
Major residential	0	0.018	1.106	0.000	
Minor residential	0	0.003	1.106	0.000	
Other	0	0.005	1.106	0.000	
Total	--	--	--	0.044	1.39

Worksheet 1H -- Multiple-Vehicle Driveway-Related Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Crash Severity Level	**Initial N_{brdwy}**	**Proportion of total crashes (f_{dwy})**	**Adjusted N_{brdwy}**	**Combined CMFs**	**Calibration factor, C_r**	**Predicted N_{brdwy}**
	$(5)_{TOTAL}$ from Worksheet 1G	from Table 12-7	$(2)_{TOTAL}$ * (3)	(6) from Worksheet 1B		(4)*(5)*(6)
Total	0.044	1.000	0.044	1.61	1.00	0.072
Fatal and injury (FI)	--	0.284	0.013	1.61	1.00	0.020
Property damage only (PDO)	--	0.716	0.032	1.61	1.00	0.051

Worksheet 1I -- Vehicle-Pedestrian Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(8)*
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{pedr}**	**Predicted N_{pedr}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-8	(5)*(6)
Total	0.938	0.086	0.072	1.095	0.019	0.021
Fatal and injury (FI)	--	--	--	--	--	0.021

* Column 7 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-19

Worksheet 1J -- Vehicle-Bicycle Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(8)*
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{biker}**	**Predicted N_{biker}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-9	(5)*(6)
Total	0.938	0.086	0.072	1.095	0.005	0.005
Fatal and injury (FI)	--	--	--	--	--	0.005

* Column 7 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-20

Worksheet 1K -- Crash Severity Distribution for Urban and Suburban Roadway Segments			
(1)	(2)	(3)	(4)
Collision type	**Fatal and injury (FI)**	**Property damage only (PDO)**	**Total**
	(3) from Worksheet 1D and 1F; (7) from Worksheet 1H; and (8) from Worksheet 1I and 1J	(5) from Worksheet 1D and 1F; and (7) from Worksheet 1H	(6) from Worksheet 1D and 1F; (7) from Worksheet 1H; and (8) from Worksheet 1I and 1J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 1D)	0.204	0.458	0.663
Head-on collisions (from Worksheet 1D)	0.005	0.005	0.010
Angle collisions (from Worksheet 1D)	0.010	0.025	0.035
Sideswipe, same direction (from Worksheet 1D)	0.012	0.154	0.167
Sideswipe, opposite direction (from Worksheet 1D)	0.002	0.001	0.003
Driveway-related collisions (from Worksheet 1H)	0.020	0.051	0.072
Other multiple-vehicle collision (from Worksheet 1D)	0.012	0.049	0.061
Subtotal	0.266	0.744	1.010
SINGLE-VEHICLE			
Collision with animal (from Worksheet 1F)	0.000	0.004	0.004
Collision with fixed object (from Worksheet 1F)	0.009	0.056	0.064
Collision with other object (from Worksheet 1F)	0.000	0.001	0.002
Other single-vehicle collision (from Worksheet 1F)	0.008	0.007	0.016
Collision with pedestrian (from Worksheet 1I)	0.021	0.000	0.021
Collision with bicycle (from Worksheet 1J)	0.005	0.000	0.005
Subtotal	0.043	0.069	0.112
Total	0.309	0.813	1.122

Worksheet 1L -- Summary Results for Urban and Suburban Roadway Segments			
(1)	(2)	(3)	(4)
Crash Severity Level	**Predicted average crash frequency, $N_{predicted\ rs}$ (crashes/year)**	**Roadway segment length, L (mi)**	**Crash rate (crashes/mi/year)**
	(Total) from Worksheet 1K		(2) / (3)
Total	1.1	0.05	22.4
Fatal and injury (FI)	0.3	0.05	6.2
Property damage only (PDO)	0.8	0.05	16.3

Worksheet 2A -- General Information and Input Data for Urban and Suburban Arterial Intersections						
General Information				**Location Information**		
Analyst	ST			Roadway	MD 28	
Agency or Company	ATCS			Intersection	MD 28 at SB I-270 Ramp	
Date Performed	06/08/20			Jurisdiction	Montgomery County	
				Analysis Year	2045	
Input Data				**Base Conditions**	**Site Conditions**	
Intersection type (3ST, 3SG, 4ST, 4SG)				--	3SG	
AADT $_{major}$ (veh/day)	$AADT_{MAX}$ =	58,100	(veh/day)	--	53,961	
AADT $_{minor}$ (veh/day)	$AADT_{MAX}$ =	16,400	(veh/day)	--	8,432	
Intersection lighting (present/not present)				Not Present	Present	
Calibration factor, C_i				1.00	1.00	
Data for unsignalized intersections only:				--	--	
Number of major-road approaches with left-turn lanes (0,1,2)				0	0	
Number of major-road approaches with right-turn lanes (0,1,2)				0	0	
Data for signalized intersections only:				--	--	
Number of approaches with left-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]				0	1	
Number of approaches with right-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]				0	2	
Number of approaches with left-turn signal phasing [for 3SG, use maximum value of 3]				--	1	
Type of left-turn signal phasing for Leg #1				Permissive	Not Applicable	
Type of left-turn signal phasing for Leg #2				--	Not Applicable	
Type of left-turn signal phasing for Leg #3				--	Protected	
Type of left-turn signal phasing for Leg #4 (if applicable)				--	Not Applicable	
Number of approaches with right-turn-on-red prohibited [for 3SG, use maximum value of 3]				0	0	
Intersection red light cameras (present/not present)				Not Present	Not Present	
Sum of all pedestrian crossing volumes (PedVol) -- Signalized intersections only					82	
Maximum number of lanes crossed by a pedestrian (n_{lanesx})				--	6	
Number of bus stops within 300 m (1,000 ft) of the intersection				0	0	
Schools within 300 m (1,000 ft) of the intersection (present/not present)				Not Present	Not Present	
Number of alcohol sales establishments within 300 m (1,000 ft) of the intersection				0	0	

Worksheet 2B -- Crash Modification Factors for Urban and Suburban Arterial Intersections						
(1)	(2)	(3)	(4)	(5)	(6)	(7)
CMF for Left-Turn Lanes	CMF for Left-Turn Signal Phasing	CMF for Right-Turn Lanes	CMF for Right Turn on Red	CMF for Lighting	CMF for Red Light Cameras	Combined CMF
CMF 1i	*CMF 2i*	*CMF 3i*	*CMF 4i*	*CMF 5i*	*CMF 6i*	*CMF* $_{COMB}$
from Table 12-24	from Table 12-25	from Table 12-26	from Equation 12-35	from Equation 12-36	from Equation 12-37	(1)*(2)*(3)*(4)*(5)*(6)
0.93	0.99	0.92	1.00	0.91	1.00	0.77

Worksheet 2C -- Multiple-Vehicle Collisions by Severity Level for Urban and Suburban Arterial Intersections

(1)	(2)			(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**			**Overdispersion Parameter, k**	**Initial N_{bimv}**	**Proportion of Total Crashes**	**Adjusted N_{bimv}**	**Combined CMFs**	**Calibration Factor, C_i**	**Predicted N_{bimv}**
	from Table 12-10			from Table 12-10	from Equation 12-21		$(4)_{TOTAL}$*(5)	(7) from Worksheet 2B		(6)*(7)*(8)
	a	b	c							
Total	-12.13	1.11	0.26	0.33	10.124	1.000	10.124	0.77	1.00	7.823
Fatal and Injury (FI)	-11.58	1.02	0.17	0.30	2.917	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.305	3.090	0.77	1.00	2.388
Property Damage Only (PDO)	-13.24	1.14	0.30	0.36	6.642	$(5)_{TOTAL}-(5)_{FI}$ = 0.695	7.034	0.77	1.00	5.436

Worksheet 2D -- Multiple-Vehicle Collisions by Collision Type for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{bimv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{bimv\ (PDO)}$ (crashes/year)**	**Predicted N $_{bimv\ (TOTAL)}$ (crashes/year)**
	from Table 12-11	$(9)_{FI}$ from Worksheet 2C	from Table 12-11	$(9)_{PDO}$ from Worksheet 2C	$(9)_{PDO}$ from Worksheet 2C
Total	1.000	2.388	1.000	5.436	7.823
		(2)*$(3)_{FI}$		(4)*$(5)_{PDO}$	(3)+(5)
Rear-end collision	0.549	1.311	0.546	2.968	4.279
Head-on collision	0.038	0.091	0.020	0.109	0.199
Angle collision	0.280	0.669	0.204	1.109	1.777
Sideswipe	0.076	0.181	0.032	0.174	0.355
Other multiple-vehicle collision	0.057	0.136	0.198	1.076	1.212

Worksheet 2E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Arterial Intersections

(1)	(2)			(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**			**Overdispersion Parameter, k**	**Initial N_{bisv}**	**Proportion of Total Crashes**	**Adjusted N_{bimv}**	**Combined CMFs**	**Calibration Factor, C_i**	**Predicted N_{bisv}**
	from Table 12-12			from Table 12-12	from Eqn. 12-24; (FI) from Eqn. 12-24 or 12-27		$(4)_{TOTAL}$*(5)	(7) from Worksheet 2B		(6)*(7)*(8)
	a	b	c							
Total	-9.02	0.42	0.40	0.36	0.437	1.000	0.437	0.77	1.00	0.338
Fatal and Injury (FI)	-9.75	0.27	0.51	0.24	0.111	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.268	0.117	0.77	1.00	0.091
Property Damage Only (PDO)	-9.08	0.45	0.33	0.53	0.303	$(5)_{TOTAL}-(5)_{FI}$ = 0.732	0.320	0.77	1.00	0.247

Worksheet 2F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{bisv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{bisv\ (PDO)}$ (crashes/year)**	**Predicted N $_{bisv\ (TOTAL)}$ (crashes/year)**
	from Table 12-13	(9)$_{FI}$ from Worksheet 2E	from Table 12-13	(9)$_{PDO}$ from Worksheet 2E	(9)$_{PDO}$ from Worksheet 2E
Total	1.000	0.091	1.000	0.247	0.338
		(2)*(3)$_{FI}$		(4)*(5)$_{PDO}$	(3)+(5)
Collision with parked vehicle	0.001	0.000	0.001	0.000	0.000
Collision with animal	0.001	0.000	0.003	0.001	0.001
Collision with fixed object	0.653	0.059	0.895	0.221	0.280
Collision with other object	0.091	0.008	0.069	0.017	0.025
Other single-vehicle collision	0.045	0.004	0.018	0.004	0.009
Single-vehicle noncollision	0.209	0.019	0.014	0.003	0.022

Worksheet 2G -- Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Stop-Controlled Intersections

(1)	(2)	(3)	(4)	(5)	(7)*
Crash Severity Level	**Predicted N_{bimv}**	**Predicted N_{bisv}**	**Predicted N_{bi}**	**f_{pedi}**	**Predicted N_{pedi}**
	(9) from Worksheet 2C	(9) from Worksheet 2E	(2) + (3)	from Table 12-16	(4)*(5)
Total	--	--	--	--	--
Fatal and injury (FI)	--	--	--	--	--

* Column 6 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-30

Worksheet 2H -- Crash Modification Factors for Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Signalized Intersections

(1)	(2)	(3)	(4)
CMF for Bus Stops	CMF for Schools	CMF for Alcohol Sales Establishments	Combined CMF
CMF_{1p}	CMF_{2p}	CMF_{3p}	
from Table 12-28	from Table 12-29	from Table 12-30	(1)*(2)*(3)
1.00	1.00	1.00	1.00

Worksheet 2I -- Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Signalized Intersections

(1)	(2)					(3)	(4)	(5)	(6)	(7)
Crash Severity Level	**SPF Coefficients**					**Overdispersion Parameter, k**	**$N_{pedbase}$**	**Combined CMF**	**Calibration factor, C_i**	**Predicted N_{pedi}**
	from Table 12-14						from Equation 12-29	(4) from Worksheet 2H		(4)*(5)*(6)
	a	b	c	d	e					
Total	-6.60	0.05	0.24	0.41	0.09	0.52	0.016	1.00	1.00	0.016
Fatal and Injury (FI)	--	--	--	--	--	--	--	--	1.00	0.016

Worksheet 2J -- Vehicle-Bicycle Collisions for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(7)*
Crash Severity Level	**Predicted N_{bimv}**	**Predicted N_{bisv}**	**Predicted N_{bi}**	**f_{bikei}**	**Predicted N_{bikei}**
	(9) from Worksheet 2C	(9) from Worksheet 2E	(2) + (3)	from Table 12-17	(4)*(5)
Total	7.823	0.338	8.161	0.011	0.090
Fatal and injury (FI)	--	--	--	--	0.090

* Column 6 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-31

Worksheet 2K -- Crash Severity Distribution for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)
	Fatal and injury (FI)	**Property damage only (PDO)**	**Total**
Collision type	(3) from Worksheet 2D and 2F; (7) from 2G or 2I and 2J	(5) from Worksheet 2D and 2F	(6) from Worksheet 2D and 2F; (7) from 2G or 2I and 2J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 2D)	1.311	2.968	4.279
Head-on collisions (from Worksheet 2D)	0.091	0.109	0.199
Angle collisions (from Worksheet 2D)	0.669	1.109	1.777
Sideswipe (from Worksheet 2D)	0.181	0.174	0.355
Other multiple-vehicle collision (from Worksheet 2D)	0.136	1.076	1.212
Subtotal	2.388	5.436	7.823
SINGLE-VEHICLE			
Collision with parked vehicle (from Worksheet 2F)	0.000	0.000	0.000
Collision with animal (from Worksheet 2F)	0.000	0.001	0.001
Collision with fixed object (from Worksheet 2F)	0.059	0.221	0.280
Collision with other object (from Worksheet 2F)	0.008	0.017	0.025
Other single-vehicle collision (from Worksheet 2F)	0.004	0.004	0.009
Single-vehicle noncollision (from Worksheet 2F)	0.019	0.003	0.022
Collision with pedestrian (from Worksheet 2G or 2I)	0.016	0.000	0.016
Collision with bicycle (from Worksheet 2J)	0.090	0.000	0.090
Subtotal	0.196	0.247	0.443
Total	2.584	5.683	8.267

Worksheet 2L -- Summary Results for Urban and Suburban Arterial Intersections

(1)	(2)
Crash severity level	**Predicted average crash frequency, $N_{predicted\ int}$ (crashes/year)**
	(Total) from Worksheet 2K
Total	8.3
Fatal and injury (FI)	2.6
Property damage only (PDO)	5.7

Worksheet 1A -- General Information and Input Data for Urban and Suburban Roadway Segments

General Information		Location Information	
Analyst	ST	Roadway	MD 28
Agency or Company	ATCS	Roadway Section	250 ft east of SB I-270 Ramp to 250 ft west of Nelson St.
Date Performed	06/08/20	Jurisdiction	Montgomery County
		Analysis Year	2045

Input Data		Base Conditions	Site Conditions
Roadway type (2U, 3T, 4U, 4D, ST)		--	4D
Length of segment, L (mi)		--	0.25
AADT (veh/day)	$AADT_{MAX}$ = 66,000 (veh/day)	--	33,100
Type of on-street parking (none/parallel/angle)		None	None
Proportion of curb length with on-street parking		--	0
Median width (ft) - for divided only		15	15
Lighting (present / not present)		Not Present	Present
Auto speed enforcement (present / not present)		Not Present	Not Present
Major commercial driveways (number)		--	0
Minor commercial driveways (number)		--	0
Major industrial / institutional driveways (number)		--	0
Minor industrial / institutional driveways (number)		--	0
Major residential driveways (number)		--	0
Minor residential driveways (number)		--	0
Other driveways (number)		--	0
Speed Category		--	Posted Speed Greater than 30 mph
Roadside fixed object density (fixed objects / mi)		0	112
Offset to roadside fixed objects (ft) [If greater than 30 or Not Present, input 30]		30	11
Calibration Factor, Cr		1.00	1.00

Worksheet 1B -- Crash Modification Factors for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
CMF for On-Street Parking	CMF for Roadside Fixed Objects	CMF for Median Width	CMF for Lighting	CMF for Automated Speed Enforcement	Combined CMF
CMF 1r	*CMF 2r*	*CMF 3r*	*CMF 4r*	*CMF 5r*	*CMF comb*
from Equation 12-32	from Equation 12-33	from Table 12-22	from Equation 12-34	from Section 12.7.1	(1)*(2)*(3)*(4)*(5)
1.00	1.29	1.00	0.91	1.00	1.18

Worksheet 1C -- Multiple-Vehicle Nondriveway Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brmv}**	**Proportion of Total Crashes**	**Adjusted N_{brmv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brmv}**
	from Table 12-3		from Table 12-3	from Equation 12-10		$(4)_{TOTAL}$*(5)	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-12.34	1.36	1.32	1.534	1.000	1.534	1.18	1.00	1.813
Fatal and Injury (FI)	-12.76	1.28	1.31	0.438	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.271	0.415	1.18	1.00	0.491
Property Damage Only (PDO)	-12.81	1.38	1.34	1.180	$(5)_{TOTAL}-(5)_{FI}$ = 0.729	1.118	1.18	1.00	1.322

Worksheet 1D -- Multiple-Vehicle Nondriveway Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brmv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brmv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brmv\ (TOTAL)}$ (crashes/year)**
	from Table 12-4	$(9)_{FI}$ from Worksheet 1C	from Table 12-4	$(9)_{PDO}$ from Worksheet 1C	$(9)_{TOTAL}$ from Worksheet 1C
Total	1.000	0.491	1.000	1.322	1.813
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Rear-end collision	0.832	0.409	0.662	0.875	1.284
Head-on collision	0.020	0.010	0.007	0.009	0.019
Angle collision	0.040	0.020	0.036	0.048	0.067
Sideswipe, same direction	0.050	0.025	0.223	0.295	0.319
Sideswipe, opposite direction	0.010	0.005	0.001	0.001	0.006
Other multiple-vehicle collision	0.048	0.024	0.071	0.094	0.117

Worksheet 1E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brsv}**	**Proportion of Total Crashes**	**Adjusted N_{brsv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brsv}**
	from Table 12-5		from Table 12-5	from Equation 12-13		$(4)_{TOTAL}*(5)$	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-5.05	0.47	0.86	0.213	1.000	0.213	1.18	1.00	0.252
Fatal and Injury (FI)	-8.71	0.66	0.28	0.040	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.185	0.039	1.18	1.00	0.047
Property Damage Only (PDO)	-5.04	0.45	1.06	0.175	$(5)_{TOTAL}-(5)_{FI}$ = 0.815	0.174	1.18	1.00	0.206

Worksheet 1F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brsv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brsv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brsv\ (TOTAL)}$ (crashes/year)**
	from Table 12-6	$(9)_{FI}$ from Worksheet 1E	from Table 12-6	$(9)_{PDO}$ from Worksheet 1E	$(9)_{TOTAL}$ from Worksheet 1E
Total	1.000	0.047	1.000	0.206	0.252
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Collision with animal	0.001	0.000	0.063	0.013	0.013
Collision with fixed object	0.500	0.023	0.813	0.167	0.190
Collision with other object	0.028	0.001	0.016	0.003	0.005
Other single-vehicle collision	0.471	0.022	0.108	0.022	0.044

Worksheet 1G -- Multiple-Vehicle Driveway-Related Collisions by Driveway Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Driveway Type	**Number of driveways, n_j**	**Crashes per driveway per year, N_j**	**Coefficient for traffic adjustment, t**	**Initial N_{brdwy}**	**Overdispersion parameter, k**
		from Table 12-7	from Table 12-7	Equation 12-16 $n_j * N_j * (AADT/15,000)^t$	from Table 12-7
Major commercial	0	0.033	1.106	0.000	
Minor commercial	0	0.011	1.106	0.000	
Major industrial/institutional	0	0.036	1.106	0.000	
Minor industrial/institutional	0	0.005	1.106	0.000	--
Major residential	0	0.018	1.106	0.000	
Minor residential	0	0.003	1.106	0.000	
Other	0	0.005	1.106	0.000	
Total	--	--	--	0.000	1.39

Worksheet 1H -- Multiple-Vehicle Driveway-Related Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Crash Severity Level	**Initial N_{brdwy}**	**Proportion of total crashes (f_{dwy})**	**Adjusted N_{brdwy}**	**Combined CMFs**	**Calibration factor, C_r**	**Predicted N_{brdwy}**
	$(5)_{TOTAL}$ from Worksheet 1G	from Table 12-7	$(2)_{TOTAL}$ * (3)	(6) from Worksheet 1B		(4)*(5)*(6)
Total	0.000	1.000	0.000	1.18	1.00	0.000
Fatal and injury (FI)	--	0.284	0.000	1.18	1.00	0.000
Property damage only (PDO)	--	0.716	0.000	1.18	1.00	0.000

Worksheet 1I -- Vehicle-Pedestrian Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(8)*
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{pedr}**	**Predicted N_{pedr}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-8	(5)*(6)
Total	1.813	0.252	0.000	2.066	0.019	0.039
Fatal and injury (FI)	--	--	--	--	--	0.039

* Column 7 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-19

Worksheet 1J -- Vehicle-Bicycle Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(8)*
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{biker}**	**Predicted N_{biker}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-9	(5)*(6)
Total	1.813	0.252	0.000	2.066	0.005	0.010
Fatal and injury (FI)	--	--	--	--	--	0.010

* Column 7 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-20

Worksheet 1K -- Crash Severity Distribution for Urban and Suburban Roadway Segments			
(1)	(2)	(3)	(4)
Collision type	**Fatal and injury (FI)**	**Property damage only (PDO)**	**Total**
	(3) from Worksheet 1D and 1F; (7) from Worksheet 1H; and (8) from Worksheet 1I and 1J	(5) from Worksheet 1D and 1F; and (7) from Worksheet 1H	(6) from Worksheet 1D and 1F; (7) from Worksheet 1H; and (8) from Worksheet 1I and 1J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 1D)	0.409	0.875	1.284
Head-on collisions (from Worksheet 1D)	0.010	0.009	0.019
Angle collisions (from Worksheet 1D)	0.020	0.048	0.067
Sideswipe, same direction (from Worksheet 1D)	0.025	0.295	0.319
Sideswipe, opposite direction (from Worksheet 1D)	0.005	0.001	0.006
Driveway-related collisions (from Worksheet 1H)	0.000	0.000	0.000
Other multiple-vehicle collision (from Worksheet 1D)	0.024	0.094	0.117
Subtotal	0.491	1.322	1.813
SINGLE-VEHICLE			
Collision with animal (from Worksheet 1F)	0.000	0.013	0.013
Collision with fixed object (from Worksheet 1F)	0.023	0.167	0.190
Collision with other object (from Worksheet 1F)	0.001	0.003	0.005
Other single-vehicle collision (from Worksheet 1F)	0.022	0.022	0.044
Collision with pedestrian (from Worksheet 1I)	0.039	0.000	0.039
Collision with bicycle (from Worksheet 1J)	0.010	0.000	0.010
Subtotal	0.096	0.206	0.302
Total	0.587	1.528	2.115

Worksheet 1L -- Summary Results for Urban and Suburban Roadway Segments			
(1)	(2)	(3)	(4)
Crash Severity Level	**Predicted average crash frequency, $N_{predicted\ rs}$ (crashes/year)**	**Roadway segment length, L (mi)**	**Crash rate (crashes/mi/year)**
	(Total) from Worksheet 1K		(2) / (3)
Total	2.1	0.25	8.5
Fatal and injury (FI)	0.6	0.25	2.3
Property damage only (PDO)	1.5	0.25	6.1

Worksheet 2A -- General Information and Input Data for Urban and Suburban Arterial Intersections						
General Information				**Location Information**		
Analyst	ST			Roadway	MD 28	
Agency or Company	ATCS			Intersection	MD 28 at I-270 Ramp and Nelson St.	
Date Performed	06/08/20			Jurisdiction	Montgomery County	
				Analysis Year	2045	
Input Data				**Base Conditions**	**Site Conditions**	
Intersection type (3ST, 3SG, 4ST, 4SG)				--	4SG	
AADT $_{major}$ (veh/day)	$AADT_{MAX}$ =	67,700	(veh/day)	--	27,538	
AADT $_{minor}$ (veh/day)	$AADT_{MAX}$ =	33,400	(veh/day)	--	9,337	
Intersection lighting (present/not present)				Not Present	Present	
Calibration factor, C_i				1.00	1.00	
Data for unsignalized intersections only:				--	--	
Number of major-road approaches with left-turn lanes (0,1,2)				0	0	
Number of major-road approaches with right-turn lanes (0,1,2)				0	0	
Data for signalized intersections only:				--	--	
Number of approaches with left-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]				0	2	
Number of approaches with right-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]				0	2	
Number of approaches with left-turn signal phasing [for 3SG, use maximum value of 3]				--	2	
Type of left-turn signal phasing for Leg #1				Permissive	Permissive / Protected	
Type of left-turn signal phasing for Leg #2				--	Not Applicable	
Type of left-turn signal phasing for Leg #3				--	Not Applicable	
Type of left-turn signal phasing for Leg #4 (if applicable)				--	Protected	
Number of approaches with right-turn-on-red prohibited [for 3SG, use maximum value of 3]				0	0	
Intersection red light cameras (present/not present)				Not Present	Not Present	
Sum of all pedestrian crossing volumes (PedVol) -- Signalized intersections only					82	
Maximum number of lanes crossed by a pedestrian (n_{lanesx})				--	6	
Number of bus stops within 300 m (1,000 ft) of the intersection				0	2	
Schools within 300 m (1,000 ft) of the intersection (present/not present)				Not Present	Not Present	
Number of alcohol sales establishments within 300 m (1,000 ft) of the intersection				0	0	

Worksheet 2B -- Crash Modification Factors for Urban and Suburban Arterial Intersections						
(1)	(2)	(3)	(4)	(5)	(6)	(7)
CMF for Left-Turn Lanes	CMF for Left-Turn Signal Phasing	CMF for Right-Turn Lanes	CMF for Right Turn on Red	CMF for Lighting	CMF for Red Light Cameras	Combined CMF
CMF 1i	*CMF 2i*	*CMF 3i*	*CMF 4i*	*CMF 5i*	*CMF 6i*	*CMF $_{COMB}$*
from Table 12-24	from Table 12-25	from Table 12-26	from Equation 12-35	from Equation 12-36	from Equation 12-37	(1)*(2)*(3)*(4)*(5)*(6)
0.81	0.92	0.92	1.00	0.91	1.00	0.63

Worksheet 2C -- Multiple-Vehicle Collisions by Severity Level for Urban and Suburban Arterial Intersections

(1)	(2)			(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**			**Overdispersion Parameter, k**	**Initial N_{bimv}**	**Proportion of Total Crashes**	**Adjusted N_{bimv}**	**Combined CMFs**	**Calibration Factor, C_i**	**Predicted N_{bimv}**
	from Table 12-10			from Table 12-10	from Equation 12-21		$(4)_{TOTAL}$*(5)	(7) from Worksheet 2B		(6)*(7)*(8)
	a	b	c							
Total	-10.99	1.07	0.23	0.39	7.780	1.000	7.780	0.63	1.00	4.873
Fatal and Injury (FI)	-13.14	1.18	0.22	0.33	2.546	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ 0.339	2.639	0.63	1.00	1.653
Property Damage Only (PDO)	-11.02	1.02	0.24	0.44	4.962	$(5)_{TOTAL}-(5)_{FI}$ 0.661	5.141	0.63	1.00	3.220

Worksheet 2D -- Multiple-Vehicle Collisions by Collision Type for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{bimv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{bimv\ (PDO)}$ (crashes/year)**	**Predicted N $_{bimv\ (TOTAL)}$ (crashes/year)**
	from Table 12-11	$(9)_{FI}$ from Worksheet 2C	from Table 12-11	$(9)_{PDO}$ from Worksheet 2C	$(9)_{PDO}$ from Worksheet 2C
Total	1.000	1.653	1.000	3.220	4.873
		(2)*$(3)_{FI}$		(4)*$(5)_{PDO}$	(3)+(5)
Rear-end collision	0.450	0.744	0.483	1.555	2.299
Head-on collision	0.049	0.081	0.030	0.097	0.178
Angle collision	0.347	0.573	0.244	0.786	1.359
Sideswipe	0.099	0.164	0.032	0.103	0.267
Other multiple-vehicle collision	0.055	0.091	0.211	0.679	0.770

Worksheet 2E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Arterial Intersections

(1)	(2)			(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**			**Overdispersion Parameter, k**	**Initial N_{bisv}**	**Proportion of Total Crashes**	**Adjusted N_{bimv}**	**Combined CMFs**	**Calibration Factor, C_i**	**Predicted N_{bisv}**
	from Table 12-12			from Table 12-12	from Eqn. 12-24; (FI) from Eqn. 12-24 or 12-27		$(4)_{TOTAL}$*(5)	(7) from Worksheet 2B		(6)*(7)*(8)
	a	b	c							
Total	-10.21	0.68	0.27	0.36	0.454	1.000	0.454	0.63	1.00	0.284
Fatal and Injury (FI)	-9.25	0.43	0.29	0.09	0.110	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ 0.246	0.111	0.63	1.00	0.070
Property Damage Only (PDO)	-11.34	0.78	0.25	0.44	0.339	$(5)_{TOTAL}-(5)_{FI}$ 0.754	0.342	0.63	1.00	0.214

Worksheet 2F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{bisv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{bisv\ (PDO)}$ (crashes/year)**	**Predicted N $_{bisv\ (TOTAL)}$ (crashes/year)**
	from Table 12-13	(9)$_{FI}$ from Worksheet 2E	from Table 12-13	(9)$_{PDO}$ from Worksheet 2E	(9)$_{PDO}$ from Worksheet 2E
Total	1.000	0.070	1.000	0.214	0.284
		(2)*(3)$_{FI}$		(4)*(5)$_{PDO}$	(3)+(5)
Collision with parked vehicle	0.001	0.000	0.001	0.000	0.000
Collision with animal	0.002	0.000	0.002	0.000	0.001
Collision with fixed object	0.744	0.052	0.870	0.187	0.239
Collision with other object	0.072	0.005	0.070	0.015	0.020
Other single-vehicle collision	0.040	0.003	0.023	0.005	0.008
Single-vehicle noncollision	0.141	0.010	0.034	0.007	0.017

Worksheet 2G -- Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Stop-Controlled Intersections

(1)	(2)	(3)	(4)	(5)	(7)*
Crash Severity Level	**Predicted N_{bimv}**	**Predicted N_{bisv}**	**Predicted N_{bi}**	**f_{pedi}**	**Predicted N_{pedi}**
	(9) from Worksheet 2C	(9) from Worksheet 2E	(2) + (3)	from Table 12-16	(4)*(5)
Total	--	--	--	--	--
Fatal and injury (FI)	--	--	--	--	--

* Column 6 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-30

Worksheet 2H -- Crash Modification Factors for Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Signalized Intersections

(1)	(2)	(3)	(4)
CMF for Bus Stops	CMF for Schools	CMF for Alcohol Sales Establishments	Combined CMF
CMF_{1p}	CMF_{2p}	CMF_{3p}	
from Table 12-28	from Table 12-29	from Table 12-30	(1)*(2)*(3)
2.78	1.00	1.00	2.78

Worksheet 2I -- Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Signalized Intersections

(1)	(2)					(3)	(4)	(5)	(6)	(7)
Crash Severity Level	**SPF Coefficients**					**Overdispersion Parameter, k**	**$N_{pedbase}$**	**Combined CMF**	**Calibration factor, C_i**	**Predicted N_{pedi}**
	from Table 12-14						from Equation 12-29	(4) from Worksheet 2H		(4)*(5)*(6)
	a	b	c	d	e					
Total	-9.53	0.40	0.26	0.45	0.04	0.24	0.034	2.78	1.00	0.094
Fatal and Injury (FI)	--	--	--	--	--	--	--	--	1.00	0.094

Worksheet 2J -- Vehicle-Bicycle Collisions for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(7)*
Crash Severity Level	**Predicted N_{bimv}**	**Predicted N_{bisv}**	**Predicted N_{bi}**	**f_{bikei}**	**Predicted N_{bikei}**
	(9) from Worksheet 2C	(9) from Worksheet 2E	(2) + (3)	from Table 12-17	(4)*(5)
Total	4.873	0.284	5.157	0.015	0.077
Fatal and injury (FI)	--	--	--	--	0.077

* Column 6 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-31

Worksheet 2K -- Crash Severity Distribution for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)
	Fatal and injury (FI)	**Property damage only (PDO)**	**Total**
Collision type	(3) from Worksheet 2D and 2F; (7) from 2G or 2I and 2J	(5) from Worksheet 2D and 2F	(6) from Worksheet 2D and 2F; (7) from 2G or 2I and 2J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 2D)	0.744	1.555	2.299
Head-on collisions (from Worksheet 2D)	0.081	0.097	0.178
Angle collisions (from Worksheet 2D)	0.573	0.786	1.359
Sideswipe (from Worksheet 2D)	0.164	0.103	0.267
Other multiple-vehicle collision (from Worksheet 2D)	0.091	0.679	0.770
Subtotal	1.653	3.220	4.873
SINGLE-VEHICLE			
Collision with parked vehicle (from Worksheet 2F)	0.000	0.000	0.000
Collision with animal (from Worksheet 2F)	0.000	0.000	0.001
Collision with fixed object (from Worksheet 2F)	0.052	0.187	0.239
Collision with other object (from Worksheet 2F)	0.005	0.015	0.020
Other single-vehicle collision (from Worksheet 2F)	0.003	0.005	0.008
Single-vehicle noncollision (from Worksheet 2F)	0.010	0.007	0.017
Collision with pedestrian (from Worksheet 2G or 2I)	0.094	0.000	0.094
Collision with bicycle (from Worksheet 2J)	0.077	0.000	0.077
Subtotal	0.242	0.214	0.456
Total	1.894	3.435	5.329

Worksheet 2L -- Summary Results for Urban and Suburban Arterial Intersections

(1)	(2)
Crash severity level	**Predicted average crash frequency, $N_{predicted\ int}$ (crashes/year)**
	(Total) from Worksheet 2K
Total	5.3
Fatal and injury (FI)	1.9
Property damage only (PDO)	3.4

Worksheet 1A -- General Information and Input Data for Urban and Suburban Roadway Segments

General Information		Location Information	
Analyst	ST	Roadway	MD 28
Agency or Company	ATCS	Roadway Section	250 ft east of Nelson St. to 250 ft west of Laird St.
Date Performed	06/08/20	Jurisdiction	Montgomery County
		Analysis Year	2045

Input Data		Base Conditions	Site Conditions
Roadway type (2U, 3T, 4U, 4D, ST)		--	3T
Length of segment, L (mi)		--	0.35
AADT (veh/day)	$AADT_{MAX}$ = 32,900 (veh/day)	--	26,900
Type of on-street parking (none/parallel/angle)		None	None
Proportion of curb length with on-street parking		--	0
Median width (ft) - for divided only		15	Not Present
Lighting (present / not present)		Not Present	Present
Auto speed enforcement (present / not present)		Not Present	Present
Major commercial driveways (number)		--	0
Minor commercial driveways (number)		--	0
Major industrial / institutional driveways (number)		--	0
Minor industrial / institutional driveways (number)		--	0
Major residential driveways (number)		--	4
Minor residential driveways (number)		--	35
Other driveways (number)		--	0
Speed Category		--	Posted Speed Greater than 30 mph
Roadside fixed object density (fixed objects / mi)		0	163
Offset to roadside fixed objects (ft) [If greater than 30 or Not Present, input 30]		30	17
Calibration Factor, Cr		1.00	1.00

Worksheet 1B -- Crash Modification Factors for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
CMF for On-Street Parking	CMF for Roadside Fixed Objects	CMF for Median Width	CMF for Lighting	CMF for Automated Speed Enforcement	Combined CMF
CMF 1r	*CMF 2r*	*CMF 3r*	*CMF 4r*	*CMF 5r*	*CMF comb*
from Equation 12-32	from Equation 12-33	from Table 12-22	from Equation 12-34	from Section 12.7.1	(1)*(2)*(3)*(4)*(5)
1.00	1.31	1.00	0.93	0.95	1.16

Worksheet 1C -- Multiple-Vehicle Nondriveway Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brmv}**	**Proportion of Total Crashes**	**Adjusted N_{brmv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brmv}**
	from Table 12-3		from Table 12-3	from Equation 12-10		$(4)_{TOTAL}$*(5)	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-12.40	1.41	0.66	2.540	1.000	2.540	1.16	1.00	2.958
Fatal and Injury (FI)	-16.45	1.69	0.59	0.769	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.304	0.772	1.16	1.00	0.899
Property Damage Only (PDO)	-11.95	1.33	0.59	1.761	$(5)_{TOTAL}-(5)_{FI}$ = 0.696	1.767	1.16	1.00	2.059

Worksheet 1D -- Multiple-Vehicle Nondriveway Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brmv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brmv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brmv\ (TOTAL)}$ (crashes/year)**
	from Table 12-4	$(9)_{FI}$ from Worksheet 1C	from Table 12-4	$(9)_{PDO}$ from Worksheet 1C	$(9)_{TOTAL}$ from Worksheet 1C
Total	1.000	0.899	1.000	2.059	2.958
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Rear-end collision	0.845	0.760	0.842	1.733	2.493
Head-on collision	0.034	0.031	0.020	0.041	0.072
Angle collision	0.069	0.062	0.020	0.041	0.103
Sideswipe, same direction	0.001	0.001	0.078	0.161	0.161
Sideswipe, opposite direction	0.017	0.015	0.020	0.041	0.056
Other multiple-vehicle collision	0.034	0.031	0.020	0.041	0.072

Worksheet 1E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brsv}**	**Proportion of Total Crashes**	**Adjusted N_{brsv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brsv}**
	from Table 12-5		from Table 12-5	from Equation 12-13		$(4)_{TOTAL}*(5)$	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-5.74	0.54	1.37	0.278	1.000	0.278	1.16	1.00	0.323
Fatal and Injury (FI)	-6.37	0.47	1.06	0.072	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.269	0.075	1.16	1.00	0.087
Property Damage Only (PDO)	-6.29	0.56	1.93	0.196	$(5)_{TOTAL}-(5)_{FI}$ = 0.731	0.203	1.16	1.00	0.236

Worksheet 1F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brsv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brsv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brsv\ (TOTAL)}$ (crashes/year)**
	from Table 12-6	$(9)_{FI}$ from Worksheet 1E	from Table 12-6	$(9)_{PDO}$ from Worksheet 1E	$(9)_{TOTAL}$ from Worksheet 1E
Total	1.000	0.087	1.000	0.236	0.323
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Collision with animal	0.001	0.000	0.001	0.000	0.000
Collision with fixed object	0.688	0.060	0.963	0.227	0.287
Collision with other object	0.001	0.000	0.001	0.000	0.000
Other single-vehicle collision	0.310	0.027	0.035	0.008	0.035

Worksheet 1G -- Multiple-Vehicle Driveway-Related Collisions by Driveway Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Driveway Type	**Number of driveways, n_j**	**Crashes per driveway per year, N_j**	**Coefficient for traffic adjustment, t**	**Initial N_{brdwy}**	**Overdispersion parameter, k**
		from Table 12-7	from Table 12-7	Equation 12-16 $n_j * N_j * (AADT/15,000)^t$	from Table 12-7
Major commercial	0	0.102	1.000	0.000	
Minor commercial	0	0.032	1.000	0.000	
Major industrial/institutional	0	0.110	1.000	0.000	
Minor industrial/institutional	0	0.015	1.000	0.000	--
Major residential	4	0.053	1.000	0.380	
Minor residential	35	0.010	1.000	0.628	
Other	0	0.016	1.000	0.000	
Total	--	--	--	1.008	1.10

Worksheet 1H -- Multiple-Vehicle Driveway-Related Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Crash Severity Level	**Initial N_{brdwy}**	**Proportion of total crashes (f_{dwy})**	**Adjusted N_{brdwy}**	**Combined CMFs**	**Calibration factor, C_r**	**Predicted N_{brdwy}**
	$(5)_{TOTAL}$ from Worksheet 1G	from Table 12-7	$(2)_{TOTAL}$ * (3)	(6) from Worksheet 1B		(4)*(5)*(6)
Total	1.008	1.000	1.008	1.16	1.00	1.174
Fatal and injury (FI)	--	0.243	0.245	1.16	1.00	0.285
Property damage only (PDO)	--	0.757	0.763	1.16	1.00	0.889

Worksheet 1I -- Vehicle-Pedestrian Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(8)*
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{pedr}**	**Predicted N_{pedr}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-8	(5)*(6)
Total	2.958	0.323	1.174	4.455	0.013	0.058
Fatal and injury (FI)	--	--	--	--	--	0.058

* Column 7 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-19

Worksheet 1J -- Vehicle-Bicycle Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(8)*
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{biker}**	**Predicted N_{biker}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-9	(5)*(6)
Total	2.958	0.323	1.174	4.455	0.007	0.031
Fatal and injury (FI)	--	--	--	--	--	0.031

* Column 7 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-20

Worksheet 1K -- Crash Severity Distribution for Urban and Suburban Roadway Segments			
(1)	(2)	(3)	(4)
Collision type	**Fatal and injury (FI)**	**Property damage only (PDO)**	**Total**
	(3) from Worksheet 1D and 1F; (7) from Worksheet 1H; and (8) from Worksheet 1I and 1J	(5) from Worksheet 1D and 1F; and (7) from Worksheet 1H	(6) from Worksheet 1D and 1F; (7) from Worksheet 1H; and (8) from Worksheet 1I and 1J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 1D)	0.760	1.733	2.493
Head-on collisions (from Worksheet 1D)	0.031	0.041	0.072
Angle collisions (from Worksheet 1D)	0.062	0.041	0.103
Sideswipe, same direction (from Worksheet 1D)	0.001	0.161	0.161
Sideswipe, opposite direction (from Worksheet 1D)	0.015	0.041	0.056
Driveway-related collisions (from Worksheet 1H)	0.285	0.889	1.174
Other multiple-vehicle collision (from Worksheet 1D)	0.031	0.041	0.072
Subtotal	1.185	2.947	4.132
SINGLE-VEHICLE			
Collision with animal (from Worksheet 1F)	0.000	0.000	0.000
Collision with fixed object (from Worksheet 1F)	0.060	0.227	0.287
Collision with other object (from Worksheet 1F)	0.000	0.000	0.000
Other single-vehicle collision (from Worksheet 1F)	0.027	0.008	0.035
Collision with pedestrian (from Worksheet 1I)	0.058	0.000	0.058
Collision with bicycle (from Worksheet 1J)	0.031	0.000	0.031
Subtotal	0.176	0.236	0.412
Total	1.361	3.183	4.544

Worksheet 1L -- Summary Results for Urban and Suburban Roadway Segments			
(1)	(2)	(3)	(4)
Crash Severity Level	**Predicted average crash frequency, $N_{predicted\ rs}$ (crashes/year)**	**Roadway segment length, L (mi)**	**Crash rate (crashes/mi/year)**
	(Total) from Worksheet 1K		(2) / (3)
Total	4.5	0.35	13.0
Fatal and injury (FI)	1.4	0.35	3.9
Property damage only (PDO)	3.2	0.35	9.1

Worksheet 2A -- General Information and Input Data for Urban and Suburban Arterial Intersections						
General Information				**Location Information**		
Analyst	ST			Roadway	MD 28	
Agency or Company	ATCS			Intersection	MD 28 at Laird St.	
Date Performed	06/08/20			Jurisdiction	Montgomery County	
				Analysis Year	2045	
Input Data				**Base Conditions**	**Site Conditions**	
Intersection type (3ST, 3SG, 4ST, 4SG)				--	4SG	
AADT $_{major}$ (veh/day)	$AADT_{MAX}$ =	67,700	(veh/day)	--	28,055	
AADT $_{minor}$ (veh/day)	$AADT_{MAX}$ =	33,400	(veh/day)	--	1,274	
Intersection lighting (present/not present)				Not Present	Present	
Calibration factor, C_i				1.00	1.00	
Data for unsignalized intersections only:				--	--	
Number of major-road approaches with left-turn lanes (0,1,2)				0	0	
Number of major-road approaches with right-turn lanes (0,1,2)				0	0	
Data for signalized intersections only:				--	--	
Number of approaches with left-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]				0	2	
Number of approaches with right-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]				0	1	
Number of approaches with left-turn signal phasing [for 3SG, use maximum value of 3]				--	0	
Type of left-turn signal phasing for Leg #1				Permissive	Permissive	
Type of left-turn signal phasing for Leg #2				--	Permissive	
Type of left-turn signal phasing for Leg #3				--	Permissive	
Type of left-turn signal phasing for Leg #4 (if applicable)				--	Permissive	
Number of approaches with right-turn-on-red prohibited [for 3SG, use maximum value of 3]				0	0	
Intersection red light cameras (present/not present)				Not Present	Not Present	
Sum of all pedestrian crossing volumes (PedVol) -- Signalized intersections only					240	
Maximum number of lanes crossed by a pedestrian (n_{lanesx})				--	3	
Number of bus stops within 300 m (1,000 ft) of the intersection				0	4	
Schools within 300 m (1,000 ft) of the intersection (present/not present)				Not Present	Present	
Number of alcohol sales establishments within 300 m (1,000 ft) of the intersection				0	0	

Worksheet 2B -- Crash Modification Factors for Urban and Suburban Arterial Intersections						
(1)	(2)	(3)	(4)	(5)	(6)	(7)
CMF for Left-Turn Lanes	CMF for Left-Turn Signal Phasing	CMF for Right-Turn Lanes	CMF for Right Turn on Red	CMF for Lighting	CMF for Red Light Cameras	Combined CMF
CMF 1i	*CMF 2i*	*CMF 3i*	*CMF 4i*	*CMF 5i*	*CMF 6i*	*CMF* $_{COMB}$
from Table 12-24	from Table 12-25	from Table 12-26	from Equation 12-35	from Equation 12-36	from Equation 12-37	(1)*(2)*(3)*(4)*(5)*(6)
0.81	1.00	0.96	1.00	0.91	1.00	0.71

Worksheet 2C -- Multiple-Vehicle Collisions by Severity Level for Urban and Suburban Arterial Intersections

(1)	(2)			(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**			**Overdispersion Parameter, k**	**Initial N_{bimv}**	**Proportion of Total Crashes**	**Adjusted N_{bimv}**	**Combined CMFs**	**Calibration Factor, C_i**	**Predicted N_{bimv}**
	from Table 12-10			from Table 12-10	from Equation 12-21		$(4)_{TOTAL}$*(5)	(7) from Worksheet 2B		(6)*(7)*(8)
	a	b	c							
Total	-10.99	1.07	0.23	0.39	5.020	1.000	5.020	0.71	1.00	3.555
Fatal and Injury (FI)	-13.14	1.18	0.22	0.33	1.679	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.349	1.751	0.71	1.00	1.240
Property Damage Only (PDO)	-11.02	1.02	0.24	0.44	3.135	$(5)_{TOTAL}-(5)_{FI}$ = 0.651	3.269	0.71	1.00	2.315

Worksheet 2D -- Multiple-Vehicle Collisions by Collision Type for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{bimv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{bimv\ (PDO)}$ (crashes/year)**	**Predicted N $_{bimv\ (TOTAL)}$ (crashes/year)**
	from Table 12-11	$(9)_{FI}$ from Worksheet 2C	from Table 12-11	$(9)_{PDO}$ from Worksheet 2C	$(9)_{PDO}$ from Worksheet 2C
Total	1.000	1.240	1.000	2.315	3.555
		(2)*$(3)_{FI}$		(4)*$(5)_{PDO}$	(3)+(5)
Rear-end collision	0.450	0.558	0.483	1.118	1.676
Head-on collision	0.049	0.061	0.030	0.069	0.130
Angle collision	0.347	0.430	0.244	0.565	0.995
Sideswipe	0.099	0.123	0.032	0.074	0.197
Other multiple-vehicle collision	0.055	0.068	0.211	0.488	0.557

Worksheet 2E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Arterial Intersections

(1)	(2)			(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**			**Overdispersion Parameter, k**	**Initial N_{bisv}**	**Proportion of Total Crashes**	**Adjusted N_{bimv}**	**Combined CMFs**	**Calibration Factor, C_i**	**Predicted N_{bisv}**
	from Table 12-12			from Table 12-12	from Eqn. 12-24; (FI) from Eqn. 12-24 or 12-27		$(4)_{TOTAL}$*(5)	(7) from Worksheet 2B		(6)*(7)*(8)
	a	b	c							
Total	-10.21	0.68	0.27	0.36	0.268	1.000	0.268	0.71	1.00	0.190
Fatal and Injury (FI)	-9.25	0.43	0.29	0.09	0.063	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.230	0.062	0.71	1.00	0.044
Property Damage Only (PDO)	-11.34	0.78	0.25	0.44	0.209	$(5)_{TOTAL}-(5)_{FI}$ = 0.770	0.207	0.71	1.00	0.146

Worksheet 2F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{bisv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{bisv\ (PDO)}$ (crashes/year)**	**Predicted N $_{bisv\ (TOTAL)}$ (crashes/year)**
	from Table 12-13	(9)$_{FI}$ from Worksheet 2E	from Table 12-13	(9)$_{PDO}$ from Worksheet 2E	(9)$_{PDO}$ from Worksheet 2E
Total	1.000	0.044	1.000	0.146	0.190
		(2)*(3)$_{FI}$		(4)*(5)$_{PDO}$	(3)+(5)
Collision with parked vehicle	0.001	0.000	0.001	0.000	0.000
Collision with animal	0.002	0.000	0.002	0.000	0.000
Collision with fixed object	0.744	0.033	0.870	0.127	0.160
Collision with other object	0.072	0.003	0.070	0.010	0.013
Other single-vehicle collision	0.040	0.002	0.023	0.003	0.005
Single-vehicle noncollision	0.141	0.006	0.034	0.005	0.011

Worksheet 2G -- Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Stop-Controlled Intersections

(1)	(2)	(3)	(4)	(5)	(7)*
Crash Severity Level	**Predicted N_{bimv}**	**Predicted N_{bisv}**	**Predicted N_{bi}**	**f_{pedi}**	**Predicted N_{pedi}**
	(9) from Worksheet 2C	(9) from Worksheet 2E	(2) + (3)	from Table 12-16	(4)*(5)
Total	--	--	--	--	--
Fatal and injury (FI)	--	--	--	--	--

* Column 6 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-30

Worksheet 2H -- Crash Modification Factors for Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Signalized Intersections

(1)	(2)	(3)	(4)
CMF for Bus Stops	CMF for Schools	CMF for Alcohol Sales Establishments	Combined CMF
CMF_{1p}	CMF_{2p}	CMF_{3p}	
from Table 12-28	from Table 12-29	from Table 12-30	(1)*(2)*(3)
4.15	1.35	1.00	5.60

Worksheet 2I -- Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Signalized Intersections

(1)	(2)					(3)	(4)	(5)	(6)	(7)
Crash Severity Level	**SPF Coefficients**					**Overdispersion Parameter, k**	**$N_{pedbase}$**	**Combined CMF**	**Calibration factor, C_i**	**Predicted N_{pedi}**
	from Table 12-14						from Equation 12-29	(4) from Worksheet 2H		(4)*(5)*(6)
	a	b	c	d	e					
Total	-9.53	0.40	0.26	0.45	0.04	0.24	0.026	5.60	1.00	0.148
Fatal and Injury (FI)	--	--	--	--	--	--	--	--	1.00	0.148

Worksheet 2J -- Vehicle-Bicycle Collisions for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(7)*
Crash Severity Level	**Predicted N_{bimv}**	**Predicted N_{bisv}**	**Predicted N_{bi}**	**f_{bikei}**	**Predicted N_{bikei}**
	(9) from Worksheet 2C	(9) from Worksheet 2E	(2) + (3)	from Table 12-17	(4)*(5)
Total	3.555	0.190	3.745	0.015	0.056
Fatal and injury (FI)	--	--	--	--	0.056

* Column 6 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-31

Worksheet 2K -- Crash Severity Distribution for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)
	Fatal and injury (FI)	**Property damage only (PDO)**	**Total**
Collision type	(3) from Worksheet 2D and 2F; (7) from 2G or 2I and 2J	(5) from Worksheet 2D and 2F	(6) from Worksheet 2D and 2F; (7) from 2G or 2I and 2J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 2D)	0.558	1.118	1.676
Head-on collisions (from Worksheet 2D)	0.061	0.069	0.130
Angle collisions (from Worksheet 2D)	0.430	0.565	0.995
Sideswipe (from Worksheet 2D)	0.123	0.074	0.197
Other multiple-vehicle collision (from Worksheet 2D)	0.068	0.488	0.557
Subtotal	1.240	2.315	3.555
SINGLE-VEHICLE			
Collision with parked vehicle (from Worksheet 2F)	0.000	0.000	0.000
Collision with animal (from Worksheet 2F)	0.000	0.000	0.000
Collision with fixed object (from Worksheet 2F)	0.033	0.127	0.160
Collision with other object (from Worksheet 2F)	0.003	0.010	0.013
Other single-vehicle collision (from Worksheet 2F)	0.002	0.003	0.005
Single-vehicle noncollision (from Worksheet 2F)	0.006	0.005	0.011
Collision with pedestrian (from Worksheet 2G or 2I)	0.148	0.000	0.148
Collision with bicycle (from Worksheet 2J)	0.056	0.000	0.056
Subtotal	0.248	0.146	0.394
Total	1.488	2.461	3.949

Worksheet 2L -- Summary Results for Urban and Suburban Arterial Intersections

(1)	(2)
Crash severity level	**Predicted average crash frequency, $N_{predicted\ int}$ (crashes/year)**
	(Total) from Worksheet 2K
Total	3.9
Fatal and injury (FI)	1.5
Property damage only (PDO)	2.5

Worksheet 1A -- General Information and Input Data for Urban and Suburban Roadway Segments

General Information		Location Information	
Analyst	TL	Roadway	MD 117 W Diamond Ave
Agency or Company	ATCS	Roadway Section	I-270 SB On-Ramp to I-270 NB Off-Ramp
Date Performed	02/16/21	Jurisdiction	Montgomery County
		Analysis Year	2045

Input Data		Base Conditions	Site Conditions
Roadway type (2U, 3T, 4U, 4D, ST)		--	4U
Length of segment, L (mi)		--	0.09
AADT (veh/day)	$AADT_{MAX}$ = 40,100 (veh/day)	--	39,324
Type of on-street parking (none/parallel/angle)		None	None
Proportion of curb length with on-street parking		--	0
Median width (ft) - for divided only		15	Not Present
Lighting (present / not present)		Not Present	Not Present
Auto speed enforcement (present / not present)		Not Present	Not Present
Major commercial driveways (number)		--	0
Minor commercial driveways (number)		--	0
Major industrial / institutional driveways (number)		--	0
Minor industrial / institutional driveways (number)		--	0
Major residential driveways (number)		--	0
Minor residential driveways (number)		--	0
Other driveways (number)		--	0
Speed Category		--	Posted Speed Greater than 30 mph
Roadside fixed object density (fixed objects / mi)		0	67
Offset to roadside fixed objects (ft) [If greater than 30 or Not Present, input 30]		30	10
Calibration Factor, Cr		1.00	1.00

Worksheet 1B -- Crash Modification Factors for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
CMF for On-Street Parking	CMF for Roadside Fixed Objects	CMF for Median Width	CMF for Lighting	CMF for Automated Speed Enforcement	Combined CMF
CMF 1r	*CMF 2r*	*CMF 3r*	*CMF 4r*	*CMF 5r*	*CMF comb*
from Equation 12-32	from Equation 12-33	from Table 12-22	from Equation 12-34	from Section 12.7.1	(1)*(2)*(3)*(4)*(5)
1.00	1.18	1.00	1.00	1.00	1.18

Worksheet 1C -- Multiple-Vehicle Nondriveway Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brmv}**	**Proportion of Total Crashes**	**Adjusted N_{brmv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brmv}**
	from Table 12-3		from Table 12-3	from Equation 12-10		$(4)_{TOTAL}$*(5)	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-11.63	1.33	1.01	1.033	1.000	1.033	1.18	1.00	1.216
Fatal and Injury (FI)	-12.08	1.25	0.99	0.283	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.284	0.293	1.18	1.00	0.345
Property Damage Only (PDO)	-12.53	1.38	1.08	0.713	$(5)_{TOTAL}-(5)_{FI}$ = 0.716	0.740	1.18	1.00	0.871

Worksheet 1D -- Multiple-Vehicle Nondriveway Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brmv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brmv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brmv\ (TOTAL)}$ (crashes/year)**
	from Table 12-4	$(9)_{FI}$ from Worksheet 1C	from Table 12-4	$(9)_{PDO}$ from Worksheet 1C	$(9)_{TOTAL}$ from Worksheet 1C
Total	1.000	0.345	1.000	0.871	1.216
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Rear-end collision	0.511	0.176	0.506	0.441	0.617
Head-on collision	0.077	0.027	0.004	0.003	0.030
Angle collision	0.181	0.062	0.130	0.113	0.176
Sideswipe, same direction	0.093	0.032	0.249	0.217	0.249
Sideswipe, opposite direction	0.082	0.028	0.031	0.027	0.055
Other multiple-vehicle collision	0.056	0.019	0.080	0.070	0.089

Worksheet 1E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brsv}**	**Proportion of Total Crashes**	**Adjusted N_{brsv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brsv}**
	from Table 12-5		from Table 12-5	from Equation 12-13		$(4)_{TOTAL}*(5)$	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-7.99	0.81	0.91	0.161	1.000	0.161	1.18	1.00	0.189
Fatal and Injury (FI)	-7.37	0.61	0.54	0.036	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.214	0.034	1.18	1.00	0.040
Property Damage Only (PDO)	-8.50	0.84	0.97	0.133	$(5)_{TOTAL}-(5)_{FI}$ = 0.786	0.126	1.18	1.00	0.149

Worksheet 1F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brsv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brsv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brsv\ (TOTAL)}$ (crashes/year)**
	from Table 12-6	$(9)_{FI}$ from Worksheet 1E	from Table 12-6	$(9)_{PDO}$ from Worksheet 1E	$(9)_{TOTAL}$ from Worksheet 1E
Total	1.000	0.040	1.000	0.149	0.189
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Collision with animal	0.001	0.000	0.001	0.000	0.000
Collision with fixed object	0.612	0.025	0.809	0.120	0.145
Collision with other object	0.020	0.001	0.029	0.004	0.005
Other single-vehicle collision	0.367	0.015	0.161	0.024	0.039

Worksheet 1G -- Multiple-Vehicle Driveway-Related Collisions by Driveway Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Driveway Type	**Number of driveways, n_j**	**Crashes per driveway per year, N_j**	**Coefficient for traffic adjustment, t**	**Initial N_{brdwy}**	**Overdispersion parameter, k**
		from Table 12-7	from Table 12-7	Equation 12-16 $n_j * N_j * (AADT/15,000)^t$	from Table 12-7
Major commercial	0	0.182	1.172	0.000	
Minor commercial	0	0.058	1.172	0.000	
Major industrial/institutional	0	0.198	1.172	0.000	
Minor industrial/institutional	0	0.026	1.172	0.000	--
Major residential	0	0.096	1.172	0.000	
Minor residential	0	0.018	1.172	0.000	
Other	0	0.029	1.172	0.000	
Total	--	--	--	0.000	0.81

Worksheet 1H -- Multiple-Vehicle Driveway-Related Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Crash Severity Level	**Initial N_{brdwy}**	**Proportion of total crashes (f_{dwy})**	**Adjusted N_{brdwy}**	**Combined CMFs**	**Calibration factor, C_r**	**Predicted N_{brdwy}**
	$(5)_{TOTAL}$ from Worksheet 1G	from Table 12-7	$(2)_{TOTAL}$ * (3)	(6) from Worksheet 1B		(4)*(5)*(6)
Total	0.000	1.000	0.000	1.18	1.00	0.000
Fatal and injury (FI)	--	0.342	0.000	1.18	1.00	0.000
Property damage only (PDO)	--	0.658	0.000	1.18	1.00	0.000

Worksheet 1I -- Vehicle-Pedestrian Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(8)*
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{pedr}**	**Predicted N_{pedr}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-8	(5)*(6)
Total	1.216	0.189	0.000	1.405	0.009	0.013
Fatal and injury (FI)	--	--	--	--	--	0.013

* Column 7 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-19

Worksheet 1J -- Vehicle-Bicycle Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(8)*
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{biker}**	**Predicted N_{biker}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-9	(5)*(6)
Total	1.216	0.189	0.000	1.405	0.002	0.003
Fatal and injury (FI)	--	--	--	--	--	0.003

* Column 7 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-20

Worksheet 1K -- Crash Severity Distribution for Urban and Suburban Roadway Segments			
(1)	(2)	(3)	(4)
Collision type	**Fatal and injury (FI)**	**Property damage only (PDO)**	**Total**
	(3) from Worksheet 1D and 1F; (7) from Worksheet 1H; and (8) from Worksheet 1I and 1J	(5) from Worksheet 1D and 1F; and (7) from Worksheet 1H	(6) from Worksheet 1D and 1F; (7) from Worksheet 1H; and (8) from Worksheet 1I and 1J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 1D)	0.176	0.441	0.617
Head-on collisions (from Worksheet 1D)	0.027	0.003	0.030
Angle collisions (from Worksheet 1D)	0.062	0.113	0.176
Sideswipe, same direction (from Worksheet 1D)	0.032	0.217	0.249
Sideswipe, opposite direction (from Worksheet 1D)	0.028	0.027	0.055
Driveway-related collisions (from Worksheet 1H)	0.000	0.000	0.000
Other multiple-vehicle collision (from Worksheet 1D)	0.019	0.070	0.089
Subtotal	0.345	0.871	1.216
SINGLE-VEHICLE			
Collision with animal (from Worksheet 1F)	0.000	0.000	0.000
Collision with fixed object (from Worksheet 1F)	0.025	0.120	0.145
Collision with other object (from Worksheet 1F)	0.001	0.004	0.005
Other single-vehicle collision (from Worksheet 1F)	0.015	0.024	0.039
Collision with pedestrian (from Worksheet 1I)	0.013	0.000	0.013
Collision with bicycle (from Worksheet 1J)	0.003	0.000	0.003
Subtotal	0.056	0.149	0.205
Total	0.401	1.020	1.421

Worksheet 1L -- Summary Results for Urban and Suburban Roadway Segments			
(1)	(2)	(3)	(4)
Crash Severity Level	**Predicted average crash frequency, $N_{predicted\ rs}$ (crashes/year)**	**Roadway segment length, L (mi)**	**Crash rate (crashes/mi/year)**
	(Total) from Worksheet 1K		(2) / (3)
Total	1.4	0.09	15.8
Fatal and injury (FI)	0.4	0.09	4.5
Property damage only (PDO)	1.0	0.09	11.3

Worksheet 2A -- General Information and Input Data for Urban and Suburban Arterial Intersections						
General Information				**Location Information**		
Analyst	ST			Roadway	MD 189 (Falls Road)	
Agency or Company	ATCS			Intersection	MD 189 at Wootton Pkwy	
Date Performed	06/11/20			Jurisdiction	Montgomery County	
				Analysis Year	2045	
Input Data				**Base Conditions**	**Site Conditions**	
Intersection type (3ST, 3SG, 4ST, 4SG)				--	4SG	
AADT $_{major}$ (veh/day)	$AADT_{MAX}$ =	67,700	(veh/day)	--	23,996	
AADT $_{minor}$ (veh/day)	$AADT_{MAX}$ =	33,400	(veh/day)	--	17,867	
Intersection lighting (present/not present)				Not Present	Present	
Calibration factor, C_i				1.00	1.00	
Data for unsignalized intersections only:				--	--	
Number of major-road approaches with left-turn lanes (0,1,2)				0	0	
Number of major-road approaches with right-turn lanes (0,1,2)				0	0	
Data for signalized intersections only:				--	--	
Number of approaches with left-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]				0	4	
Number of approaches with right-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]				0	3	
Number of approaches with left-turn signal phasing [for 3SG, use maximum value of 3]				--	4	
Type of left-turn signal phasing for Leg #1				Permissive	Protected	
Type of left-turn signal phasing for Leg #2				--	Protected	
Type of left-turn signal phasing for Leg #3				--	Permissive / Protected	
Type of left-turn signal phasing for Leg #4 (if applicable)				--	Permissive / Protected	
Number of approaches with right-turn-on-red prohibited [for 3SG, use maximum value of 3]				0	0	
Intersection red light cameras (present/not present)				Not Present	Not Present	
Sum of all pedestrian crossing volumes (PedVol) -- Signalized intersections only					120	
Maximum number of lanes crossed by a pedestrian (n_{lanesx})				--	7	
Number of bus stops within 300 m (1,000 ft) of the intersection				0	10	
Schools within 300 m (1,000 ft) of the intersection (present/not present)				Not Present	Not Present	
Number of alcohol sales establishments within 300 m (1,000 ft) of the intersection				0	0	

Worksheet 2B -- Crash Modification Factors for Urban and Suburban Arterial Intersections						
(1)	(2)	(3)	(4)	(5)	(6)	(7)
CMF for Left-Turn Lanes	CMF for Left-Turn Signal Phasing	CMF for Right-Turn Lanes	CMF for Right Turn on Red	CMF for Lighting	CMF for Red Light Cameras	Combined CMF
CMF 1i	*CMF 2i*	*CMF 3i*	*CMF 4i*	*CMF 5i*	*CMF 6i*	*CMF $_{COMB}$*
from Table 12-24	from Table 12-25	from Table 12-26	from Equation 12-35	from Equation 12-36	from Equation 12-37	(1)*(2)*(3)*(4)*(5)*(6)
0.66	0.87	0.88	1.00	0.91	1.00	0.46

Worksheet 2C -- Multiple-Vehicle Collisions by Severity Level for Urban and Suburban Arterial Intersections

(1)	(2)			(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**			**Overdispersion Parameter, k**	**Initial N_{bimv}**	**Proportion of Total Crashes**	**Adjusted N_{bimv}**	**Combined CMFs**	**Calibration Factor, C_i**	**Predicted N_{bimv}**
	from Table 12-10			from Table 12-10	from Equation 12-21		$(4)_{TOTAL}$*(5)	(7) from Worksheet 2B		(6)*(7)*(8)
	a	b	c							
Total	-10.99	1.07	0.23	0.39	7.795	1.000	7.795	0.46	1.00	3.590
Fatal and Injury (FI)	-13.14	1.18	0.22	0.33	2.497	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ 0.331	2.583	0.46	1.00	1.189
Property Damage Only (PDO)	-11.02	1.02	0.24	0.44	5.039	$(5)_{TOTAL}-(5)_{FI}$ 0.669	5.212	0.46	1.00	2.400

Worksheet 2D -- Multiple-Vehicle Collisions by Collision Type for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{bimv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{bimv\ (PDO)}$ (crashes/year)**	**Predicted N $_{bimv\ (TOTAL)}$ (crashes/year)**
	from Table 12-11	$(9)_{FI}$ from Worksheet 2C	from Table 12-11	$(9)_{PDO}$ from Worksheet 2C	$(9)_{PDO}$ from Worksheet 2C
Total	1.000	1.189	1.000	2.400	3.590
		(2)*$(3)_{FI}$		(4)*$(5)_{PDO}$	(3)+(5)
Rear-end collision	0.450	0.535	0.483	1.159	1.695
Head-on collision	0.049	0.058	0.030	0.072	0.130
Angle collision	0.347	0.413	0.244	0.586	0.998
Sideswipe	0.099	0.118	0.032	0.077	0.195
Other multiple-vehicle collision	0.055	0.065	0.211	0.506	0.572

Worksheet 2E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Arterial Intersections

(1)	(2)			(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**			**Overdispersion Parameter, k**	**Initial N_{bisv}**	**Proportion of Total Crashes**	**Adjusted N_{bimv}**	**Combined CMFs**	**Calibration Factor, C_i**	**Predicted N_{bisv}**
	from Table 12-12			from Table 12-12	from Eqn. 12-24; (FI) from Eqn. 12-24 or 12-27		$(4)_{TOTAL}$*(5)	(7) from Worksheet 2B		(6)*(7)*(8)
	a	b	c							
Total	-10.21	0.68	0.27	0.36	0.492	1.000	0.492	0.46	1.00	0.227
Fatal and Injury (FI)	-9.25	0.43	0.29	0.09	0.126	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ 0.260	0.128	0.46	1.00	0.059
Property Damage Only (PDO)	-11.34	0.78	0.25	0.44	0.359	$(5)_{TOTAL}-(5)_{FI}$ 0.740	0.365	0.46	1.00	0.168

Worksheet 2F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{bisv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{bisv\ (PDO)}$ (crashes/year)**	**Predicted N $_{bisv\ (TOTAL)}$ (crashes/year)**
	from Table 12-13	(9)$_{FI}$ from Worksheet 2E	from Table 12-13	(9)$_{PDO}$ from Worksheet 2E	(9)$_{PDO}$ from Worksheet 2E
Total	1.000	0.059	1.000	0.168	0.227
		(2)*(3)$_{FI}$		(4)*(5)$_{PDO}$	(3)+(5)
Collision with parked vehicle	0.001	0.000	0.001	0.000	0.000
Collision with animal	0.002	0.000	0.002	0.000	0.000
Collision with fixed object	0.744	0.044	0.870	0.146	0.190
Collision with other object	0.072	0.004	0.070	0.012	0.016
Other single-vehicle collision	0.040	0.002	0.023	0.004	0.006
Single-vehicle noncollision	0.141	0.008	0.034	0.006	0.014

Worksheet 2G -- Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Stop-Controlled Intersections

(1)	(2)	(3)	(4)	(5)	(7)*
Crash Severity Level	**Predicted N_{bimv}**	**Predicted N_{bisv}**	**Predicted N_{bi}**	**f_{pedi}**	**Predicted N_{pedi}**
	(9) from Worksheet 2C	(9) from Worksheet 2E	(2) + (3)	from Table 12-16	(4)*(5)
Total	--	--	--	--	--
Fatal and injury (FI)	--	--	--	--	--

* Column 6 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-30

Worksheet 2H -- Crash Modification Factors for Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Signalized Intersections

(1)	(2)	(3)	(4)
CMF for Bus Stops	CMF for Schools	CMF for Alcohol Sales Establishments	Combined CMF
CMF_{1p}	CMF_{2p}	CMF_{3p}	
from Table 12-28	from Table 12-29	from Table 12-30	(1)*(2)*(3)
4.15	1.00	1.00	4.15

Worksheet 2I -- Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Signalized Intersections

(1)	(2)					(3)	(4)	(5)	(6)	(7)
Crash Severity Level	**SPF Coefficients**					**Overdispersion Parameter, k**	**$N_{pedbase}$**	**Combined CMF**	**Calibration factor, C_i**	**Predicted N_{pedi}**
	from Table 12-14						from Equation 12-29	(4) from Worksheet 2H		(4)*(5)*(6)
	a	b	c	d	e					
Total	-9.53	0.40	0.26	0.45	0.04	0.24	0.054	4.15	1.00	0.225
Fatal and Injury (FI)	--	--	--	--	--	--	--	--	1.00	0.225

Worksheet 2J -- Vehicle-Bicycle Collisions for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(7)*
Crash Severity Level	**Predicted N_{bimv}**	**Predicted N_{bisv}**	**Predicted N_{bi}**	**f_{bikei}**	**Predicted N_{bikei}**
	(9) from Worksheet 2C	(9) from Worksheet 2E	(2) + (3)	from Table 12-17	(4)*(5)
Total	3.590	0.227	3.817	0.015	0.057
Fatal and injury (FI)	--	--	--	--	0.057

* Column 6 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-31

Worksheet 2K -- Crash Severity Distribution for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)
	Fatal and injury (FI)	**Property damage only (PDO)**	**Total**
Collision type	(3) from Worksheet 2D and 2F; (7) from 2G or 2I and 2J	(5) from Worksheet 2D and 2F	(6) from Worksheet 2D and 2F; (7) from 2G or 2I and 2J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 2D)	0.535	1.159	1.695
Head-on collisions (from Worksheet 2D)	0.058	0.072	0.130
Angle collisions (from Worksheet 2D)	0.413	0.586	0.998
Sideswipe (from Worksheet 2D)	0.118	0.077	0.195
Other multiple-vehicle collision (from Worksheet 2D)	0.065	0.506	0.572
Subtotal	1.189	2.400	3.590
SINGLE-VEHICLE			
Collision with parked vehicle (from Worksheet 2F)	0.000	0.000	0.000
Collision with animal (from Worksheet 2F)	0.000	0.000	0.000
Collision with fixed object (from Worksheet 2F)	0.044	0.146	0.190
Collision with other object (from Worksheet 2F)	0.004	0.012	0.016
Other single-vehicle collision (from Worksheet 2F)	0.002	0.004	0.006
Single-vehicle noncollision (from Worksheet 2F)	0.008	0.006	0.014
Collision with pedestrian (from Worksheet 2G or 2I)	0.225	0.000	0.225
Collision with bicycle (from Worksheet 2J)	0.057	0.000	0.057
Subtotal	0.341	0.168	0.509
Total	1.530	2.568	4.099

Worksheet 2L -- Summary Results for Urban and Suburban Arterial Intersections

(1)	(2)
Crash severity level	**Predicted average crash frequency, $N_{predicted\ int}$ (crashes/year)**
	(Total) from Worksheet 2K
Total	4.1
Fatal and injury (FI)	1.5
Property damage only (PDO)	2.6

Worksheet 1A -- General Information and Input Data for Urban and Suburban Roadway Segments

General Information		Location Information	
Analyst	ST	Roadway	MD 189 (Falls Road)
Agency or Company	ATCS	Roadway Section	250 ft east of Wootton Pkwy to I-270 SPUI
Date Performed	06/10/20	Jurisdiction	Montgomery County
		Analysis Year	2045

Input Data		Base Conditions	Site Conditions
Roadway type (2U, 3T, 4U, 4D, ST)		--	4D
Length of segment, L (mi)		--	0.24
AADT (veh/day)	$AADT_{MAX}$ = 66,000 (veh/day)	--	29,072
Type of on-street parking (none/parallel/angle)		None	None
Proportion of curb length with on-street parking		--	0
Median width (ft) - for divided only		15	30
Lighting (present / not present)		Not Present	Present
Auto speed enforcement (present / not present)		Not Present	Not Present
Major commercial driveways (number)		--	0
Minor commercial driveways (number)		--	0
Major industrial / institutional driveways (number)		--	0
Minor industrial / institutional driveways (number)		--	0
Major residential driveways (number)		--	1
Minor residential driveways (number)		--	0
Other driveways (number)		--	1
Speed Category		--	Posted Speed Greater than 30 mph
Roadside fixed object density (fixed objects / mi)		0	250
Offset to roadside fixed objects (ft) [If greater than 30 or Not Present, input 30]		30	18
Calibration Factor, Cr		1.00	1.00

Worksheet 1B -- Crash Modification Factors for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
CMF for On-Street Parking	CMF for Roadside Fixed Objects	CMF for Median Width	CMF for Lighting	CMF for Automated Speed Enforcement	Combined CMF
CMF 1r	*CMF 2r*	*CMF 3r*	*CMF 4r*	*CMF 5r*	*CMF comb*
from Equation 12-32	from Equation 12-33	from Table 12-22	from Equation 12-34	from Section 12.7.1	(1)*(2)*(3)*(4)*(5)
1.00	1.51	0.98	0.91	1.00	1.35

Worksheet 1C -- Multiple-Vehicle Nondriveway Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brmv}**	**Proportion of Total Crashes**	**Adjusted N_{brmv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brmv}**
	from Table 12-3		from Table 12-3	from Equation 12-10		$(4)_{TOTAL}$*(5)	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-12.34	1.36	1.32	1.234	1.000	1.234	1.35	1.00	1.667
Fatal and Injury (FI)	-12.76	1.28	1.31	0.356	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.273	0.337	1.35	1.00	0.456
Property Damage Only (PDO)	-12.81	1.38	1.34	0.947	$(5)_{TOTAL}-(5)_{FI}$ = 0.727	0.897	1.35	1.00	1.211

Worksheet 1D -- Multiple-Vehicle Nondriveway Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brmv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brmv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brmv\ (TOTAL)}$ (crashes/year)**
	from Table 12-4	$(9)_{FI}$ from Worksheet 1C	from Table 12-4	$(9)_{PDO}$ from Worksheet 1C	$(9)_{TOTAL}$ from Worksheet 1C
Total	1.000	0.456	1.000	1.211	1.667
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Rear-end collision	0.832	0.379	0.662	0.802	1.181
Head-on collision	0.020	0.009	0.007	0.008	0.018
Angle collision	0.040	0.018	0.036	0.044	0.062
Sideswipe, same direction	0.050	0.023	0.223	0.270	0.293
Sideswipe, opposite direction	0.010	0.005	0.001	0.001	0.006
Other multiple-vehicle collision	0.048	0.022	0.071	0.086	0.108

Worksheet 1E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brsv}**	**Proportion of Total Crashes**	**Adjusted N_{brsv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brsv}**
	from Table 12-5		from Table 12-5	from Equation 12-13		$(4)_{TOTAL}*(5)$	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-5.05	0.47	0.86	0.193	1.000	0.193	1.35	1.00	0.260
Fatal and Injury (FI)	-8.71	0.66	0.28	0.035	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.181	0.035	1.35	1.00	0.047
Property Damage Only (PDO)	-5.04	0.45	1.06	0.158	$(5)_{TOTAL}-(5)_{FI}$ = 0.819	0.158	1.35	1.00	0.213

Worksheet 1F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brsv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brsv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brsv\ (TOTAL)}$ (crashes/year)**
	from Table 12-6	$(9)_{FI}$ from Worksheet 1E	from Table 12-6	$(9)_{PDO}$ from Worksheet 1E	$(9)_{TOTAL}$ from Worksheet 1E
Total	1.000	0.047	1.000	0.213	0.260
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Collision with animal	0.001	0.000	0.063	0.013	0.013
Collision with fixed object	0.500	0.024	0.813	0.173	0.197
Collision with other object	0.028	0.001	0.016	0.003	0.005
Other single-vehicle collision	0.471	0.022	0.108	0.023	0.045

Worksheet 1G -- Multiple-Vehicle Driveway-Related Collisions by Driveway Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Driveway Type	**Number of driveways, n_j**	**Crashes per driveway per year, N_j**	**Coefficient for traffic adjustment, t**	**Initial N_{brdwy}**	**Overdispersion parameter, k**
		from Table 12-7	from Table 12-7	Equation 12-16 $n_j * N_j * (AADT/15,000)^t$	from Table 12-7
Major commercial	0	0.033	1.106	0.000	--
Minor commercial	0	0.011	1.106	0.000	
Major industrial/institutional	0	0.036	1.106	0.000	
Minor industrial/institutional	0	0.005	1.106	0.000	
Major residential	1	0.018	1.106	0.037	
Minor residential	0	0.003	1.106	0.000	
Other	1	0.005	1.106	0.010	
Total	--	--	--	0.048	1.39

Worksheet 1H -- Multiple-Vehicle Driveway-Related Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Crash Severity Level	**Initial N_{brdwy}**	**Proportion of total crashes (f_{dwy})**	**Adjusted N_{brdwy}**	**Combined CMFs**	**Calibration factor, C_r**	**Predicted N_{brdwy}**
	$(5)_{TOTAL}$ from Worksheet 1G	from Table 12-7	$(2)_{TOTAL}$ * (3)	(6) from Worksheet 1B		(4)*(5)*(6)
Total	0.048	1.000	0.048	1.35	1.00	0.065
Fatal and injury (FI)	--	0.284	0.014	1.35	1.00	0.018
Property damage only (PDO)	--	0.716	0.034	1.35	1.00	0.046

Worksheet 1I -- Vehicle-Pedestrian Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(8)*
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{pedr}**	**Predicted N_{pedr}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-8	(5)*(6)
Total	1.667	0.260	0.065	1.992	0.019	0.038
Fatal and injury (FI)	--	--	--	--	--	0.038

* Column 7 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-19

Worksheet 1J -- Vehicle-Bicycle Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(8)*
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{biker}**	**Predicted N_{biker}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-9	(5)*(6)
Total	1.667	0.260	0.065	1.992	0.005	0.010
Fatal and injury (FI)	--	--	--	--	--	0.010

* Column 7 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-20

Worksheet 1K -- Crash Severity Distribution for Urban and Suburban Roadway Segments			
(1)	(2)	(3)	(4)
Collision type	**Fatal and injury (FI)**	**Property damage only (PDO)**	**Total**
	(3) from Worksheet 1D and 1F; (7) from Worksheet 1H; and (8) from Worksheet 1I and 1J	(5) from Worksheet 1D and 1F; and (7) from Worksheet 1H	(6) from Worksheet 1D and 1F; (7) from Worksheet 1H; and (8) from Worksheet 1I and 1J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 1D)	0.379	0.802	1.181
Head-on collisions (from Worksheet 1D)	0.009	0.008	0.018
Angle collisions (from Worksheet 1D)	0.018	0.044	0.062
Sideswipe, same direction (from Worksheet 1D)	0.023	0.270	0.293
Sideswipe, opposite direction (from Worksheet 1D)	0.005	0.001	0.006
Driveway-related collisions (from Worksheet 1H)	0.018	0.046	0.065
Other multiple-vehicle collision (from Worksheet 1D)	0.022	0.086	0.108
Subtotal	0.474	1.257	1.731
SINGLE-VEHICLE			
Collision with animal (from Worksheet 1F)	0.000	0.013	0.013
Collision with fixed object (from Worksheet 1F)	0.024	0.173	0.197
Collision with other object (from Worksheet 1F)	0.001	0.003	0.005
Other single-vehicle collision (from Worksheet 1F)	0.022	0.023	0.045
Collision with pedestrian (from Worksheet 1I)	0.038	0.000	0.038
Collision with bicycle (from Worksheet 1J)	0.010	0.000	0.010
Subtotal	0.095	0.213	0.308
Total	0.569	1.471	2.039

Worksheet 1L -- Summary Results for Urban and Suburban Roadway Segments			
(1)	(2)	(3)	(4)
Crash Severity Level	**Predicted average crash frequency, $N_{predicted\ rs}$ (crashes/year)**	**Roadway segment length, L (mi)**	**Crash rate (crashes/mi/year)**
	(Total) from Worksheet 1K		(2) / (3)
Total	2.0	0.24	8.5
Fatal and injury (FI)	0.6	0.24	2.4
Property damage only (PDO)	1.5	0.24	6.1

Worksheet 1A -- General Information and Input Data for Urban and Suburban Roadway Segments

General Information		Location Information	
Analyst	ST	Roadway	MD 189 (Falls Road)
Agency or Company	ATCS	Roadway Section	I-279 SPUI to 250 ft west of Great Falls Rd.
Date Performed	06/11/20	Jurisdiction	Montgomery County
		Analysis Year	2045

Input Data		Base Conditions	Site Conditions
Roadway type (2U, 3T, 4U, 4D, ST)		--	4D
Length of segment, L (mi)		--	0.02
AADT (veh/day)	$AADT_{MAX}$ = 66,000 (veh/day)	--	21,254
Type of on-street parking (none/parallel/angle)		None	None
Proportion of curb length with on-street parking		--	0
Median width (ft) - for divided only		15	15
Lighting (present / not present)		Not Present	Present
Auto speed enforcement (present / not present)		Not Present	Not Present
Major commercial driveways (number)		--	0
Minor commercial driveways (number)		--	0
Major industrial / institutional driveways (number)		--	0
Minor industrial / institutional driveways (number)		--	0
Major residential driveways (number)		--	0
Minor residential driveways (number)		--	0
Other driveways (number)		--	0
Speed Category		--	Posted Speed 30 mph or Lower
Roadside fixed object density (fixed objects / mi)		0	100
Offset to roadside fixed objects (ft) [If greater than 30 or Not Present, input 30]		30	11
Calibration Factor, Cr		1.00	1.00

Worksheet 1B -- Crash Modification Factors for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
CMF for On-Street Parking	CMF for Roadside Fixed Objects	CMF for Median Width	CMF for Lighting	CMF for Automated Speed Enforcement	Combined CMF
CMF 1r	*CMF 2r*	*CMF 3r*	*CMF 4r*	*CMF 5r*	*CMF comb*
from Equation 12-32	from Equation 12-33	from Table 12-22	from Equation 12-34	from Section 12.7.1	(1)*(2)*(3)*(4)*(5)
1.00	1.26	1.00	0.91	1.00	1.15

Worksheet 1C -- Multiple-Vehicle Nondriveway Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brmv}**	**Proportion of Total Crashes**	**Adjusted N_{brmv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brmv}**
	from Table 12-3		from Table 12-3	from Equation 12-10		$(4)_{TOTAL}$*(5)	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-12.34	1.36	1.32	0.067	1.000	0.067	1.15	1.00	0.077
Fatal and Injury (FI)	-12.76	1.28	1.31	0.020	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.280	0.019	1.15	1.00	0.022
Property Damage Only (PDO)	-12.81	1.38	1.34	0.051	$(5)_{TOTAL}-(5)_{FI}$ = 0.720	0.048	1.15	1.00	0.056

Worksheet 1D -- Multiple-Vehicle Nondriveway Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brmv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brmv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brmv\ (TOTAL)}$ (crashes/year)**
	from Table 12-4	$(9)_{FI}$ from Worksheet 1C	from Table 12-4	$(9)_{PDO}$ from Worksheet 1C	$(9)_{TOTAL}$ from Worksheet 1C
Total	1.000	0.022	1.000	0.056	0.077
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Rear-end collision	0.832	0.018	0.662	0.037	0.055
Head-on collision	0.020	0.000	0.007	0.000	0.001
Angle collision	0.040	0.001	0.036	0.002	0.003
Sideswipe, same direction	0.050	0.001	0.223	0.012	0.013
Sideswipe, opposite direction	0.010	0.000	0.001	0.000	0.000
Other multiple-vehicle collision	0.048	0.001	0.071	0.004	0.005

Worksheet 1E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brsv}**	**Proportion of Total Crashes**	**Adjusted N_{brsv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brsv}**
	from Table 12-5		from Table 12-5	from Equation 12-13		$(4)_{TOTAL}*(5)$	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-5.05	0.47	0.86	0.014	1.000	0.014	1.15	1.00	0.016
Fatal and Injury (FI)	-8.71	0.66	0.28	0.002	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.171	0.002	1.15	1.00	0.003
Property Damage Only (PDO)	-5.04	0.45	1.06	0.011	$(5)_{TOTAL}-(5)_{FI}$ = 0.829	0.011	1.15	1.00	0.013

Worksheet 1F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brsv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brsv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brsv\ (TOTAL)}$ (crashes/year)**
	from Table 12-6	$(9)_{FI}$ from Worksheet 1E	from Table 12-6	$(9)_{PDO}$ from Worksheet 1E	$(9)_{TOTAL}$ from Worksheet 1E
Total	1.000	0.003	1.000	0.013	0.016
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Collision with animal	0.001	0.000	0.063	0.001	0.001
Collision with fixed object	0.500	0.001	0.813	0.011	0.012
Collision with other object	0.028	0.000	0.016	0.000	0.000
Other single-vehicle collision	0.471	0.001	0.108	0.001	0.003

Worksheet 1G -- Multiple-Vehicle Driveway-Related Collisions by Driveway Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Driveway Type	**Number of driveways, n_j**	**Crashes per driveway per year, N_j**	**Coefficient for traffic adjustment, t**	**Initial N_{brdwy}**	**Overdispersion parameter, k**
		from Table 12-7	from Table 12-7	Equation 12-16 $n_j * N_j * (AADT/15,000)^t$	from Table 12-7
Major commercial	0	0.033	1.106	0.000	--
Minor commercial	0	0.011	1.106	0.000	
Major industrial/institutional	0	0.036	1.106	0.000	
Minor industrial/institutional	0	0.005	1.106	0.000	
Major residential	0	0.018	1.106	0.000	
Minor residential	0	0.003	1.106	0.000	
Other	0	0.005	1.106	0.000	
Total	--	--	--	0.000	1.39

Worksheet 1H -- Multiple-Vehicle Driveway-Related Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Crash Severity Level	**Initial N_{brdwy}**	**Proportion of total crashes (f_{dwy})**	**Adjusted N_{brdwy}**	**Combined CMFs**	**Calibration factor, C_r**	**Predicted N_{brdwy}**
	$(5)_{TOTAL}$ from Worksheet 1G	from Table 12-7	$(2)_{TOTAL}$ * (3)	(6) from Worksheet 1B		(4)*(5)*(6)
Total	0.000	1.000	0.000	1.15	1.00	0.000
Fatal and injury (FI)	--	0.284	0.000	1.15	1.00	0.000
Property damage only (PDO)	--	0.716	0.000	1.15	1.00	0.000

Worksheet 1I -- Vehicle-Pedestrian Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(8)*
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{pedr}**	**Predicted N_{pedr}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-8	(5)*(6)
Total	0.077	0.016	0.000	0.093	0.067	0.006
Fatal and injury (FI)	--	--	--	--	--	0.006

* Column 7 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-19

Worksheet 1J -- Vehicle-Bicycle Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(8)*
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{biker}**	**Predicted N_{biker}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-9	(5)*(6)
Total	0.077	0.016	0.000	0.093	0.013	0.001
Fatal and injury (FI)	--	--	--	--	--	0.001

* Column 7 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-20

Worksheet 1K -- Crash Severity Distribution for Urban and Suburban Roadway Segments			
(1)	(2)	(3)	(4)
Collision type	**Fatal and injury (FI)**	**Property damage only (PDO)**	**Total**
	(3) from Worksheet 1D and 1F; (7) from Worksheet 1H; and (8) from Worksheet 1I and 1J	(5) from Worksheet 1D and 1F; and (7) from Worksheet 1H	(6) from Worksheet 1D and 1F; (7) from Worksheet 1H; and (8) from Worksheet 1I and 1J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 1D)	0.018	0.037	0.055
Head-on collisions (from Worksheet 1D)	0.000	0.000	0.001
Angle collisions (from Worksheet 1D)	0.001	0.002	0.003
Sideswipe, same direction (from Worksheet 1D)	0.001	0.012	0.013
Sideswipe, opposite direction (from Worksheet 1D)	0.000	0.000	0.000
Driveway-related collisions (from Worksheet 1H)	0.000	0.000	0.000
Other multiple-vehicle collision (from Worksheet 1D)	0.001	0.004	0.005
Subtotal	0.022	0.056	0.077
SINGLE-VEHICLE			
Collision with animal (from Worksheet 1F)	0.000	0.001	0.001
Collision with fixed object (from Worksheet 1F)	0.001	0.011	0.012
Collision with other object (from Worksheet 1F)	0.000	0.000	0.000
Other single-vehicle collision (from Worksheet 1F)	0.001	0.001	0.003
Collision with pedestrian (from Worksheet 1I)	0.006	0.000	0.006
Collision with bicycle (from Worksheet 1J)	0.001	0.000	0.001
Subtotal	0.010	0.013	0.023
Total	0.032	0.069	0.101

Worksheet 1L -- Summary Results for Urban and Suburban Roadway Segments			
(1)	(2)	(3)	(4)
Crash Severity Level	**Predicted average crash frequency, $N_{predicted\ rs}$ (crashes/year)**	**Roadway segment length, L (mi)**	**Crash rate (crashes/mi/year)**
	(Total) from Worksheet 1K		(2) / (3)
Total	0.1	0.02	5.0
Fatal and injury (FI)	0.0	0.02	1.6
Property damage only (PDO)	0.1	0.02	3.4

Worksheet 2A -- General Information and Input Data for Urban and Suburban Arterial Intersections						
General Information				**Location Information**		
Analyst	ST			Roadway	MD 189 (Falls Road)	
Agency or Company	ATCS			Intersection	MD 189 at Great Falls Road	
Date Performed	06/11/20			Jurisdiction	Montgomery County	
				Analysis Year	2045	
Input Data				**Base Conditions**	**Site Conditions**	
Intersection type (3ST, 3SG, 4ST, 4SG)				--	4SG	
AADT $_{major}$ (veh/day)	$AADT_{MAX}$ =	67,700	(veh/day)	--	19,543	
AADT $_{minor}$ (veh/day)	$AADT_{MAX}$ =	33,400	(veh/day)	--	5,748	
Intersection lighting (present/not present)				Not Present	Present	
Calibration factor, C_i				1.00	1.00	
Data for unsignalized intersections only:				--	--	
Number of major-road approaches with left-turn lanes (0,1,2)				0	0	
Number of major-road approaches with right-turn lanes (0,1,2)				0	0	
Data for signalized intersections only:				--	--	
Number of approaches with left-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]				0	3	
Number of approaches with right-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]				0	1	
Number of approaches with left-turn signal phasing [for 3SG, use maximum value of 3]				--	1	
Type of left-turn signal phasing for Leg #1				Permissive	Permissive / Protected	
Type of left-turn signal phasing for Leg #2				--	Permissive	
Type of left-turn signal phasing for Leg #3				--	Permissive	
Type of left-turn signal phasing for Leg #4 (if applicable)				--	Permissive	
Number of approaches with right-turn-on-red prohibited [for 3SG, use maximum value of 3]				0	0	
Intersection red light cameras (present/not present)				Not Present	Not Present	
Sum of all pedestrian crossing volumes (PedVol) -- Signalized intersections only					491	
Maximum number of lanes crossed by a pedestrian (n_{lanesx})				--	6	
Number of bus stops within 300 m (1,000 ft) of the intersection				0	4	
Schools within 300 m (1,000 ft) of the intersection (present/not present)				Not Present	Not Present	
Number of alcohol sales establishments within 300 m (1,000 ft) of the intersection				0	0	

Worksheet 2B -- Crash Modification Factors for Urban and Suburban Arterial Intersections						
(1)	(2)	(3)	(4)	(5)	(6)	(7)
CMF for Left-Turn Lanes	CMF for Left-Turn Signal Phasing	CMF for Right-Turn Lanes	CMF for Right Turn on Red	CMF for Lighting	CMF for Red Light Cameras	Combined CMF
CMF 1i	*CMF 2i*	*CMF 3i*	*CMF 4i*	*CMF 5i*	*CMF 6i*	*CMF $_{COMB}$*
from Table 12-24	from Table 12-25	from Table 12-26	from Equation 12-35	from Equation 12-36	from Equation 12-37	(1)*(2)*(3)*(4)*(5)*(6)
0.73	0.99	0.96	1.00	0.91	1.00	0.63

Worksheet 2C -- Multiple-Vehicle Collisions by Severity Level for Urban and Suburban Arterial Intersections

(1)	(2)			(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**			**Overdispersion Parameter, k**	**Initial N_{bimv}**	**Proportion of Total Crashes**	**Adjusted N_{bimv}**	**Combined CMFs**	**Calibration Factor, C_i**	**Predicted N_{bimv}**
	from Table 12-10			from Table 12-10	from Equation 12-21		$(4)_{TOTAL}$*(5)	(7) from Worksheet 2B		(6)*(7)*(8)
	a	b	c							
Total	-10.99	1.07	0.23	0.39	4.821	1.000	4.821	0.63	1.00	3.046
Fatal and Injury (FI)	-13.14	1.18	0.22	0.33	1.527	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ 0.329	1.587	0.63	1.00	1.002
Property Damage Only (PDO)	-11.02	1.02	0.24	0.44	3.113	$(5)_{TOTAL}-(5)_{FI}$ 0.671	3.235	0.63	1.00	2.044

Worksheet 2D -- Multiple-Vehicle Collisions by Collision Type for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{bimv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{bimv\ (PDO)}$ (crashes/year)**	**Predicted N $_{bimv\ (TOTAL)}$ (crashes/year)**
	from Table 12-11	$(9)_{FI}$ from Worksheet 2C	from Table 12-11	$(9)_{PDO}$ from Worksheet 2C	$(9)_{PDO}$ from Worksheet 2C
Total	1.000	1.002	1.000	2.044	3.046
		(2)*$(3)_{FI}$		(4)*$(5)_{PDO}$	(3)+(5)
Rear-end collision	0.450	0.451	0.483	0.987	1.438
Head-on collision	0.049	0.049	0.030	0.061	0.110
Angle collision	0.347	0.348	0.244	0.499	0.847
Sideswipe	0.099	0.099	0.032	0.065	0.165
Other multiple-vehicle collision	0.055	0.055	0.211	0.431	0.486

Worksheet 2E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Arterial Intersections

(1)	(2)			(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**			**Overdispersion Parameter, k**	**Initial N_{bisv}**	**Proportion of Total Crashes**	**Adjusted N_{bimv}**	**Combined CMFs**	**Calibration Factor, C_i**	**Predicted N_{bisv}**
	from Table 12-12			from Table 12-12	from Eqn. 12-24; (FI) from Eqn. 12-24 or 12-27		$(4)_{TOTAL}$*(5)	(7) from Worksheet 2B		(6)*(7)*(8)
	a	b	c							
Total	-10.21	0.68	0.27	0.36	0.315	1.000	0.315	0.63	1.00	0.199
Fatal and Injury (FI)	-9.25	0.43	0.29	0.09	0.083	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ 0.265	0.083	0.63	1.00	0.053
Property Damage Only (PDO)	-11.34	0.78	0.25	0.44	0.230	$(5)_{TOTAL}-(5)_{FI}$ 0.735	0.232	0.63	1.00	0.147

Worksheet 2F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{bisv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{bisv\ (PDO)}$ (crashes/year)**	**Predicted N $_{bisv\ (TOTAL)}$ (crashes/year)**
	from Table 12-13	(9)$_{FI}$ from Worksheet 2E	from Table 12-13	(9)$_{PDO}$ from Worksheet 2E	(9)$_{PDO}$ from Worksheet 2E
Total	1.000	0.053	1.000	0.147	0.199
		(2)*(3)$_{FI}$		(4)*(5)$_{PDO}$	(3)+(5)
Collision with parked vehicle	0.001	0.000	0.001	0.000	0.000
Collision with animal	0.002	0.000	0.002	0.000	0.000
Collision with fixed object	0.744	0.039	0.870	0.127	0.167
Collision with other object	0.072	0.004	0.070	0.010	0.014
Other single-vehicle collision	0.040	0.002	0.023	0.003	0.005
Single-vehicle noncollision	0.141	0.007	0.034	0.005	0.012

Worksheet 2G -- Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Stop-Controlled Intersections

(1)	(2)	(3)	(4)	(5)	(7)*
Crash Severity Level	**Predicted N_{bimv}**	**Predicted N_{bisv}**	**Predicted N_{bi}**	**f_{pedi}**	**Predicted N_{pedi}**
	(9) from Worksheet 2C	(9) from Worksheet 2E	(2) + (3)	from Table 12-16	(4)*(5)
Total	--	--	--	--	--
Fatal and injury (FI)	--	--	--	--	--

* Column 6 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-30

Worksheet 2H -- Crash Modification Factors for Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Signalized Intersections

(1)	(2)	(3)	(4)
CMF for Bus Stops	CMF for Schools	CMF for Alcohol Sales Establishments	Combined CMF
CMF_{1p}	CMF_{2p}	CMF_{3p}	
from Table 12-28	from Table 12-29	from Table 12-30	(1)*(2)*(3)
4.15	1.00	1.00	4.15

Worksheet 2I -- Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Signalized Intersections

(1)	(2)					(3)	(4)	(5)	(6)	(7)
Crash Severity Level	**SPF Coefficients**					**Overdispersion Parameter, k**	**$N_{pedbase}$**	**Combined CMF**	**Calibration factor, C_i**	**Predicted N_{pedi}**
	from Table 12-14						from Equation 12-29	(4) from Worksheet 2H		(4)*(5)*(6)
	a	b	c	d	e					
Total	-9.53	0.40	0.26	0.45	0.04	0.24	0.063	4.15	1.00	0.261
Fatal and Injury (FI)	--	--	--	--	--	--	--	--	1.00	0.261

Worksheet 2J -- Vehicle-Bicycle Collisions for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(7)*
Crash Severity Level	**Predicted N_{bimv}**	**Predicted N_{bisv}**	**Predicted N_{bi}**	**f_{bikei}**	**Predicted N_{bikei}**
	(9) from Worksheet 2C	(9) from Worksheet 2E	(2) + (3)	from Table 12-17	(4)*(5)
Total	3.046	0.199	3.245	0.015	0.049
Fatal and injury (FI)	--	--	--	--	0.049

* Column 6 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-31

Worksheet 2K -- Crash Severity Distribution for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)
	Fatal and injury (FI)	**Property damage only (PDO)**	**Total**
Collision type	(3) from Worksheet 2D and 2F; (7) from 2G or 2I and 2J	(5) from Worksheet 2D and 2F	(6) from Worksheet 2D and 2F; (7) from 2G or 2I and 2J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 2D)	0.451	0.987	1.438
Head-on collisions (from Worksheet 2D)	0.049	0.061	0.110
Angle collisions (from Worksheet 2D)	0.348	0.499	0.847
Sideswipe (from Worksheet 2D)	0.099	0.065	0.165
Other multiple-vehicle collision (from Worksheet 2D)	0.055	0.431	0.486
Subtotal	1.002	2.044	3.046
SINGLE-VEHICLE			
Collision with parked vehicle (from Worksheet 2F)	0.000	0.000	0.000
Collision with animal (from Worksheet 2F)	0.000	0.000	0.000
Collision with fixed object (from Worksheet 2F)	0.039	0.127	0.167
Collision with other object (from Worksheet 2F)	0.004	0.010	0.014
Other single-vehicle collision (from Worksheet 2F)	0.002	0.003	0.005
Single-vehicle noncollision (from Worksheet 2F)	0.007	0.005	0.012
Collision with pedestrian (from Worksheet 2G or 2I)	0.261	0.000	0.261
Collision with bicycle (from Worksheet 2J)	0.049	0.000	0.049
Subtotal	0.363	0.147	0.509
Total	1.365	2.190	3.556

Worksheet 2L -- Summary Results for Urban and Suburban Arterial Intersections

(1)	(2)
Crash severity level	**Predicted average crash frequency, $N_{predicted\ int}$ (crashes/year)**
	(Total) from Worksheet 2K
Total	3.6
Fatal and injury (FI)	1.4
Property damage only (PDO)	2.2

Worksheet 2A -- General Information and Input Data for Urban and Suburban Arterial Intersections						
General Information				**Location Information**		
Analyst	PK			Roadway	MD 190 River Road	
Agency or Company	ATCS			Intersection	At Seven Locks Road	
Date Performed	10/09/20			Jurisdiction	Montgomery County	
				Analysis Year	2045	
Input Data				**Base Conditions**	**Site Conditions**	
Intersection type (3ST, 3SG, 4ST, 4SG)				--	4SG	
AADT $_{major}$ (veh/day)	$AADT_{MAX}$ =	67,700	(veh/day)	--	25,262	
AADT $_{minor}$ (veh/day)	$AADT_{MAX}$ =	33,400	(veh/day)	--	12,947	
Intersection lighting (present/not present)				Not Present	Present	
Calibration factor, C_i				1.00	1.00	
Data for unsignalized intersections only:				--	--	
Number of major-road approaches with left-turn lanes (0,1,2)				0	0	
Number of major-road approaches with right-turn lanes (0,1,2)				0	0	
Data for signalized intersections only:				--	--	
Number of approaches with left-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]				0	4	
Number of approaches with right-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]				0	2	
Number of approaches with left-turn signal phasing [for 3SG, use maximum value of 3]				--	3	
Type of left-turn signal phasing for Leg #1				Permissive	Permissive	
Type of left-turn signal phasing for Leg #2				--	Permissive / Protected	
Type of left-turn signal phasing for Leg #3				--	Protected	
Type of left-turn signal phasing for Leg #4 (if applicable)				--	Protected	
Number of approaches with right-turn-on-red prohibited [for 3SG, use maximum value of 3]				0	0	
Intersection red light cameras (present/not present)				Not Present	Not Present	
Sum of all pedestrian crossing volumes (PedVol) -- Signalized intersections only					44	
Maximum number of lanes crossed by a pedestrian (n_{lanesx})				--	6	
Number of bus stops within 300 m (1,000 ft) of the intersection				0	4	
Schools within 300 m (1,000 ft) of the intersection (present/not present)				Not Present	Not Present	
Number of alcohol sales establishments within 300 m (1,000 ft) of the intersection				0	0	

Worksheet 2B -- Crash Modification Factors for Urban and Suburban Arterial Intersections						
(1)	(2)	(3)	(4)	(5)	(6)	(7)
CMF for Left-Turn Lanes	CMF for Left-Turn Signal Phasing	CMF for Right-Turn Lanes	CMF for Right Turn on Red	CMF for Lighting	CMF for Red Light Cameras	Combined CMF
CMF 1i	*CMF 2i*	*CMF 3i*	*CMF 4i*	*CMF 5i*	*CMF 6i*	*CMF $_{COMB}$*
from Table 12-24	from Table 12-25	from Table 12-26	from Equation 12-35	from Equation 12-36	from Equation 12-37	(1)*(2)*(3)*(4)*(5)*(6)
0.66	0.87	0.92	1.00	0.91	1.00	0.48

Worksheet 2C -- Multiple-Vehicle Collisions by Severity Level for Urban and Suburban Arterial Intersections

(1)	(2)			(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**			**Overdispersion Parameter, k**	**Initial N_{bimv}**	**Proportion of Total Crashes**	**Adjusted N_{bimv}**	**Combined CMFs**	**Calibration Factor, C_i**	**Predicted N_{bimv}**
	from Table 12-10			from Table 12-10	from Equation 12-21		$(4)_{TOTAL}$*(5)	(7) from Worksheet 2B		(6)*(7)*(8)
	a	b	c							
Total	-10.99	1.07	0.23	0.39	7.648	1.000	7.648	0.48	1.00	3.706
Fatal and Injury (FI)	-13.14	1.18	0.22	0.33	2.471	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ 0.335	2.559	0.48	1.00	1.240
Property Damage Only (PDO)	-11.02	1.02	0.24	0.44	4.915	$(5)_{TOTAL}-(5)_{FI}$ 0.665	5.089	0.48	1.00	2.466

Worksheet 2D -- Multiple-Vehicle Collisions by Collision Type for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{bimv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{bimv\ (PDO)}$ (crashes/year)**	**Predicted N $_{bimv\ (TOTAL)}$ (crashes/year)**
	from Table 12-11	$(9)_{FI}$ from Worksheet 2C	from Table 12-11	$(9)_{PDO}$ from Worksheet 2C	$(9)_{PDO}$ from Worksheet 2C
Total	1.000	1.240	1.000	2.466	3.706
		(2)*$(3)_{FI}$		(4)*$(5)_{PDO}$	(3)+(5)
Rear-end collision	0.450	0.558	0.483	1.191	1.749
Head-on collision	0.049	0.061	0.030	0.074	0.135
Angle collision	0.347	0.430	0.244	0.602	1.032
Sideswipe	0.099	0.123	0.032	0.079	0.202
Other multiple-vehicle collision	0.055	0.068	0.211	0.520	0.589

Worksheet 2E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Arterial Intersections

(1)	(2)			(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**			**Overdispersion Parameter, k**	**Initial N_{bisv}**	**Proportion of Total Crashes**	**Adjusted N_{bimv}**	**Combined CMFs**	**Calibration Factor, C_i**	**Predicted N_{bisv}**
	from Table 12-12			from Table 12-12	from Eqn. 12-24; (FI) from Eqn. 12-24 or 12-27		$(4)_{TOTAL}$*(5)	(7) from Worksheet 2B		(6)*(7)*(8)
	a	b	c							
Total	-10.21	0.68	0.27	0.36	0.468	1.000	0.468	0.48	1.00	0.227
Fatal and Injury (FI)	-9.25	0.43	0.29	0.09	0.117	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ 0.254	0.119	0.48	1.00	0.057
Property Damage Only (PDO)	-11.34	0.78	0.25	0.44	0.344	$(5)_{TOTAL}-(5)_{FI}$ 0.746	0.349	0.48	1.00	0.169

Worksheet 2F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{bisv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{bisv\ (PDO)}$ (crashes/year)**	**Predicted N $_{bisv\ (TOTAL)}$ (crashes/year)**
	from Table 12-13	(9)$_{FI}$ from Worksheet 2E	from Table 12-13	(9)$_{PDO}$ from Worksheet 2E	(9)$_{PDO}$ from Worksheet 2E
Total	1.000	0.057	1.000	0.169	0.227
		(2)*(3)$_{FI}$		(4)*(5)$_{PDO}$	(3)+(5)
Collision with parked vehicle	0.001	0.000	0.001	0.000	0.000
Collision with animal	0.002	0.000	0.002	0.000	0.000
Collision with fixed object	0.744	0.043	0.870	0.147	0.190
Collision with other object	0.072	0.004	0.070	0.012	0.016
Other single-vehicle collision	0.040	0.002	0.023	0.004	0.006
Single-vehicle noncollision	0.141	0.008	0.034	0.006	0.014

Worksheet 2G -- Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Stop-Controlled Intersections

(1)	(2)	(3)	(4)	(5)	(7)*
Crash Severity Level	**Predicted N_{bimv}**	**Predicted N_{bisv}**	**Predicted N_{bi}**	**f_{pedi}**	**Predicted N_{pedi}**
	(9) from Worksheet 2C	(9) from Worksheet 2E	(2) + (3)	from Table 12-16	(4)*(5)
Total	--	--	--	--	--
Fatal and injury (FI)	--	--	--	--	--

* Column 6 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-30

Worksheet 2H -- Crash Modification Factors for Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Signalized Intersections

(1)	(2)	(3)	(4)
CMF for Bus Stops	CMF for Schools	CMF for Alcohol Sales Establishments	Combined CMF
CMF_{1p}	CMF_{2p}	CMF_{3p}	
from Table 12-28	from Table 12-29	from Table 12-30	(1)*(2)*(3)
4.15	1.00	1.00	4.15

Worksheet 2I -- Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Signalized Intersections

(1)	(2)					(3)	(4)	(5)	(6)	(7)
Crash Severity Level	**SPF Coefficients**					**Overdispersion Parameter, k**	**$N_{pedbase}$**	**Combined CMF**	**Calibration factor, C_i**	**Predicted N_{pedi}**
	from Table 12-14						from Equation 12-29	(4) from Worksheet 2H		(4)*(5)*(6)
	a	b	c	d	e					
Total	-9.53	0.40	0.26	0.45	0.04	0.24	0.029	4.15	1.00	0.120
Fatal and Injury (FI)	--	--	--	--	--	--	--	--	1.00	0.120

Worksheet 2J -- Vehicle-Bicycle Collisions for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(7)*
Crash Severity Level	**Predicted N_{bimv}**	**Predicted N_{bisv}**	**Predicted N_{bi}**	**f_{bikei}**	**Predicted N_{bikei}**
	(9) from Worksheet 2C	(9) from Worksheet 2E	(2) + (3)	from Table 12-17	(4)*(5)
Total	3.706	0.227	3.932	0.015	0.059
Fatal and injury (FI)	--	--	--	--	0.059

* Column 6 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-31

Worksheet 2K -- Crash Severity Distribution for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)
	Fatal and injury (FI)	**Property damage only (PDO)**	**Total**
Collision type	(3) from Worksheet 2D and 2F; (7) from 2G or 2I and 2J	(5) from Worksheet 2D and 2F	(6) from Worksheet 2D and 2F; (7) from 2G or 2I and 2J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 2D)	0.558	1.191	1.749
Head-on collisions (from Worksheet 2D)	0.061	0.074	0.135
Angle collisions (from Worksheet 2D)	0.430	0.602	1.032
Sideswipe (from Worksheet 2D)	0.123	0.079	0.202
Other multiple-vehicle collision (from Worksheet 2D)	0.068	0.520	0.589
Subtotal	1.240	2.466	3.706
SINGLE-VEHICLE			
Collision with parked vehicle (from Worksheet 2F)	0.000	0.000	0.000
Collision with animal (from Worksheet 2F)	0.000	0.000	0.000
Collision with fixed object (from Worksheet 2F)	0.043	0.147	0.190
Collision with other object (from Worksheet 2F)	0.004	0.012	0.016
Other single-vehicle collision (from Worksheet 2F)	0.002	0.004	0.006
Single-vehicle noncollision (from Worksheet 2F)	0.008	0.006	0.014
Collision with pedestrian (from Worksheet 2G or 2I)	0.120	0.000	0.120
Collision with bicycle (from Worksheet 2J)	0.059	0.000	0.059
Subtotal	0.237	0.169	0.406
Total	1.477	2.635	4.112

Worksheet 2L -- Summary Results for Urban and Suburban Arterial Intersections

(1)	(2)
Crash severity level	**Predicted average crash frequency, $N_{predicted\ int}$ (crashes/year)**
	(Total) from Worksheet 2K
Total	4.1
Fatal and injury (FI)	1.5
Property damage only (PDO)	2.6

Worksheet 1A -- General Information and Input Data for Urban and Suburban Roadway Segments

General Information		Location Information	
Analyst	PK	Roadway	MD 190 River Road
Agency or Company	ATCS	Roadway Section	Seven Locks Road to I-495 SB Terminal
Date Performed	10/09/20	Jurisdiction	Montgomery County
		Analysis Year	2045

Input Data		Base Conditions	Site Conditions
Roadway type (2U, 3T, 4U, 4D, ST)		--	4D
Length of segment, L (mi)		--	0.09
AADT (veh/day)	$AADT_{MAX}$ = 66,000 (veh/day)	--	25,793
Type of on-street parking (none/parallel/angle)		None	None
Proportion of curb length with on-street parking		--	0
Median width (ft) - for divided only		15	15
Lighting (present / not present)		Not Present	Present
Auto speed enforcement (present / not present)		Not Present	Not Present
Major commercial driveways (number)		--	0
Minor commercial driveways (number)		--	0
Major industrial / institutional driveways (number)		--	0
Minor industrial / institutional driveways (number)		--	0
Major residential driveways (number)		--	0
Minor residential driveways (number)		--	1
Other driveways (number)		--	0
Speed Category		--	Posted Speed Greater than 30 mph
Roadside fixed object density (fixed objects / mi)		0	44
Offset to roadside fixed objects (ft) [If greater than 30 or Not Present, input 30]		30	8
Calibration Factor, Cr		1.00	1.00

Worksheet 1B -- Crash Modification Factors for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
CMF for On-Street Parking	CMF for Roadside Fixed Objects	CMF for Median Width	CMF for Lighting	CMF for Automated Speed Enforcement	Combined CMF
CMF 1r	*CMF 2r*	*CMF 3r*	*CMF 4r*	*CMF 5r*	*CMF comb*
from Equation 12-32	from Equation 12-33	from Table 12-22	from Equation 12-34	from Section 12.7.1	(1)*(2)*(3)*(4)*(5)
1.00	1.12	1.00	0.91	1.00	1.03

Worksheet 1C -- Multiple-Vehicle Nondriveway Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brmv}**	**Proportion of Total Crashes**	**Adjusted N_{brmv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brmv}**
	from Table 12-3		from Table 12-3	from Equation 12-10		$(4)_{TOTAL}$*(5)	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-12.34	1.36	1.32	0.393	1.000	0.393	1.03	1.00	0.404
Fatal and Injury (FI)	-12.76	1.28	1.31	0.115	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.276	0.108	1.03	1.00	0.111
Property Damage Only (PDO)	-12.81	1.38	1.34	0.301	$(5)_{TOTAL}-(5)_{FI}$ = 0.724	0.285	1.03	1.00	0.292

Worksheet 1D -- Multiple-Vehicle Nondriveway Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brmv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brmv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brmv\ (TOTAL)}$ (crashes/year)**
	from Table 12-4	$(9)_{FI}$ from Worksheet 1C	from Table 12-4	$(9)_{PDO}$ from Worksheet 1C	$(9)_{TOTAL}$ from Worksheet 1C
Total	1.000	0.111	1.000	0.292	0.404
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Rear-end collision	0.832	0.093	0.662	0.194	0.286
Head-on collision	0.020	0.002	0.007	0.002	0.004
Angle collision	0.040	0.004	0.036	0.011	0.015
Sideswipe, same direction	0.050	0.006	0.223	0.065	0.071
Sideswipe, opposite direction	0.010	0.001	0.001	0.000	0.001
Other multiple-vehicle collision	0.048	0.005	0.071	0.021	0.026

Worksheet 1E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brsv}**	**Proportion of Total Crashes**	**Adjusted N_{brsv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brsv}**
	from Table 12-5		from Table 12-5	from Equation 12-13		$(4)_{TOTAL}*(5)$	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-5.05	0.47	0.86	0.068	1.000	0.068	1.03	1.00	0.070
Fatal and Injury (FI)	-8.71	0.66	0.28	0.012	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.177	0.012	1.03	1.00	0.012
Property Damage Only (PDO)	-5.04	0.45	1.06	0.056	$(5)_{TOTAL}-(5)_{FI}$ = 0.823	0.056	1.03	1.00	0.058

Worksheet 1F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brsv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brsv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brsv\ (TOTAL)}$ (crashes/year)**
	from Table 12-6	$(9)_{FI}$ from Worksheet 1E	from Table 12-6	$(9)_{PDO}$ from Worksheet 1E	$(9)_{TOTAL}$ from Worksheet 1E
Total	1.000	0.012	1.000	0.058	0.070
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Collision with animal	0.001	0.000	0.063	0.004	0.004
Collision with fixed object	0.500	0.006	0.813	0.047	0.053
Collision with other object	0.028	0.000	0.016	0.001	0.001
Other single-vehicle collision	0.471	0.006	0.108	0.006	0.012

Worksheet 1G -- Multiple-Vehicle Driveway-Related Collisions by Driveway Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Driveway Type	**Number of driveways, n_j**	**Crashes per driveway per year, N_j**	**Coefficient for traffic adjustment, t**	**Initial N_{brdwy}**	**Overdispersion parameter, k**
		from Table 12-7	from Table 12-7	Equation 12-16 $n_j * N_j * (AADT/15,000)^t$	from Table 12-7
Major commercial	0	0.033	1.106	0.000	
Minor commercial	0	0.011	1.106	0.000	
Major industrial/institutional	0	0.036	1.106	0.000	
Minor industrial/institutional	0	0.005	1.106	0.000	--
Major residential	0	0.018	1.106	0.000	
Minor residential	1	0.003	1.106	0.005	
Other	0	0.005	1.106	0.000	
Total	--	--	--	0.005	1.39

Worksheet 1H -- Multiple-Vehicle Driveway-Related Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Crash Severity Level	**Initial N_{brdwy}**	**Proportion of total crashes (f_{dwy})**	**Adjusted N_{brdwy}**	**Combined CMFs**	**Calibration factor, C_r**	**Predicted N_{brdwy}**
	$(5)_{TOTAL}$ from Worksheet 1G	from Table 12-7	$(2)_{TOTAL}$ * (3)	(6) from Worksheet 1B		(4)*(5)*(6)
Total	0.005	1.000	0.005	1.03	1.00	0.006
Fatal and injury (FI)	--	0.284	0.002	1.03	1.00	0.002
Property damage only (PDO)	--	0.716	0.004	1.03	1.00	0.004

Worksheet 1I -- Vehicle-Pedestrian Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(8)*
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{pedr}**	**Predicted N_{pedr}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-8	(5)*(6)
Total	0.404	0.070	0.006	0.479	0.019	0.009
Fatal and injury (FI)	--	--	--	--	--	0.009

* Column 7 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-19

Worksheet 1J -- Vehicle-Bicycle Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(8)*
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{biker}**	**Predicted N_{biker}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-9	(5)*(6)
Total	0.404	0.070	0.006	0.479	0.005	0.002
Fatal and injury (FI)	--	--	--	--	--	0.002

* Column 7 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-20

Worksheet 1K -- Crash Severity Distribution for Urban and Suburban Roadway Segments			
(1)	(2)	(3)	(4)
Collision type	**Fatal and injury (FI)**	**Property damage only (PDO)**	**Total**
	(3) from Worksheet 1D and 1F; (7) from Worksheet 1H; and (8) from Worksheet 1I and 1J	(5) from Worksheet 1D and 1F; and (7) from Worksheet 1H	(6) from Worksheet 1D and 1F; (7) from Worksheet 1H; and (8) from Worksheet 1I and 1J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 1D)	0.093	0.194	0.286
Head-on collisions (from Worksheet 1D)	0.002	0.002	0.004
Angle collisions (from Worksheet 1D)	0.004	0.011	0.015
Sideswipe, same direction (from Worksheet 1D)	0.006	0.065	0.071
Sideswipe, opposite direction (from Worksheet 1D)	0.001	0.000	0.001
Driveway-related collisions (from Worksheet 1H)	0.002	0.004	0.006
Other multiple-vehicle collision (from Worksheet 1D)	0.005	0.021	0.026
Subtotal	0.113	0.296	0.409
SINGLE-VEHICLE			
Collision with animal (from Worksheet 1F)	0.000	0.004	0.004
Collision with fixed object (from Worksheet 1F)	0.006	0.047	0.053
Collision with other object (from Worksheet 1F)	0.000	0.001	0.001
Other single-vehicle collision (from Worksheet 1F)	0.006	0.006	0.012
Collision with pedestrian (from Worksheet 1I)	0.009	0.000	0.009
Collision with bicycle (from Worksheet 1J)	0.002	0.000	0.002
Subtotal	0.024	0.058	0.082
Total	0.137	0.354	0.491

Worksheet 1L -- Summary Results for Urban and Suburban Roadway Segments			
(1)	(2)	(3)	(4)
Crash Severity Level	**Predicted average crash frequency, $N_{predicted\ rs}$ (crashes/year)**	**Roadway segment length, L (mi)**	**Crash rate (crashes/mi/year)**
	(Total) from Worksheet 1K		(2) / (3)
Total	0.5	0.09	5.5
Fatal and injury (FI)	0.1	0.09	1.5
Property damage only (PDO)	0.4	0.09	3.9

Worksheet 1A -- General Information and Input Data for Urban and Suburban Roadway Segments

General Information		Location Information	
Analyst	PK	Roadway	MD 190 River Road
Agency or Company	ATCS	Roadway Section	I-495 SB Terminal to I-495 NB Terminal
Date Performed	10/09/20	Jurisdiction	Montgomery County
		Analysis Year	2045

Input Data		Base Conditions	Site Conditions
Roadway type (2U, 3T, 4U, 4D, ST)		--	4D
Length of segment, L (mi)		--	0.08
AADT (veh/day)	$AADT_{MAX}$ = 66,000 (veh/day)	--	37,501
Type of on-street parking (none/parallel/angle)		None	None
Proportion of curb length with on-street parking		--	0
Median width (ft) - for divided only		15	10
Lighting (present / not present)		Not Present	Present
Auto speed enforcement (present / not present)		Not Present	Not Present
Major commercial driveways (number)		--	0
Minor commercial driveways (number)		--	0
Major industrial / institutional driveways (number)		--	0
Minor industrial / institutional driveways (number)		--	0
Major residential driveways (number)		--	0
Minor residential driveways (number)		--	0
Other driveways (number)		--	0
Speed Category		--	Posted Speed Greater than 30 mph
Roadside fixed object density (fixed objects / mi)		0	50
Offset to roadside fixed objects (ft) [If greater than 30 or Not Present, input 30]		30	14
Calibration Factor, Cr		1.00	1.00

Worksheet 1B -- Crash Modification Factors for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
CMF for On-Street Parking	CMF for Roadside Fixed Objects	CMF for Median Width	CMF for Lighting	CMF for Automated Speed Enforcement	Combined CMF
CMF 1r	*CMF 2r*	*CMF 3r*	*CMF 4r*	*CMF 5r*	*CMF comb*
from Equation 12-32	from Equation 12-33	from Table 12-22	from Equation 12-34	from Section 12.7.1	(1)*(2)*(3)*(4)*(5)
1.00	1.09	1.01	0.91	1.00	1.01

Worksheet 1C -- Multiple-Vehicle Nondriveway Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brmv}**	**Proportion of Total Crashes**	**Adjusted N_{brmv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brmv}**
	from Table 12-3		from Table 12-3	from Equation 12-10		$(4)_{TOTAL}$*(5)	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-12.34	1.36	1.32	0.582	1.000	0.582	1.01	1.00	0.586
Fatal and Injury (FI)	-12.76	1.28	1.31	0.165	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.268	0.156	1.01	1.00	0.157
Property Damage Only (PDO)	-12.81	1.38	1.34	0.449	$(5)_{TOTAL}-(5)_{FI}$ = 0.732	0.426	1.01	1.00	0.428

Worksheet 1D -- Multiple-Vehicle Nondriveway Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brmv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brmv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brmv\ (TOTAL)}$ (crashes/year)**
	from Table 12-4	$(9)_{FI}$ from Worksheet 1C	from Table 12-4	$(9)_{PDO}$ from Worksheet 1C	$(9)_{TOTAL}$ from Worksheet 1C
Total	1.000	0.157	1.000	0.428	0.586
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Rear-end collision	0.832	0.131	0.662	0.284	0.414
Head-on collision	0.020	0.003	0.007	0.003	0.006
Angle collision	0.040	0.006	0.036	0.015	0.022
Sideswipe, same direction	0.050	0.008	0.223	0.096	0.103
Sideswipe, opposite direction	0.010	0.002	0.001	0.000	0.002
Other multiple-vehicle collision	0.048	0.008	0.071	0.030	0.038

Worksheet 1E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brsv}**	**Proportion of Total Crashes**	**Adjusted N_{brsv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brsv}**
	from Table 12-5		from Table 12-5	from Equation 12-13		$(4)_{TOTAL}*(5)$	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-5.05	0.47	0.86	0.072	1.000	0.072	1.01	1.00	0.073
Fatal and Injury (FI)	-8.71	0.66	0.28	0.014	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$	0.014	1.01	1.00	0.014
					0.189				
Property Damage Only (PDO)	-5.04	0.45	1.06	0.059	$(5)_{TOTAL}-(5)_{FI}$	0.059	1.01	1.00	0.059
					0.811				

Worksheet 1F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brsv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brsv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brsv\ (TOTAL)}$ (crashes/year)**
	from Table 12-6	$(9)_{FI}$ from Worksheet 1E	from Table 12-6	$(9)_{PDO}$ from Worksheet 1E	$(9)_{TOTAL}$ from Worksheet 1E
Total	1.000	0.014	1.000	0.059	0.073
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Collision with animal	0.001	0.000	0.063	0.004	0.004
Collision with fixed object	0.500	0.007	0.813	0.048	0.055
Collision with other object	0.028	0.000	0.016	0.001	0.001
Other single-vehicle collision	0.471	0.006	0.108	0.006	0.013

Worksheet 1G -- Multiple-Vehicle Driveway-Related Collisions by Driveway Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Driveway Type	**Number of driveways, n_j**	**Crashes per driveway per year, N_j**	**Coefficient for traffic adjustment, t**	**Initial N_{brdwy}**	**Overdispersion parameter, k**
		from Table 12-7	from Table 12-7	Equation 12-16 $n_j * N_j * (AADT/15,000)^t$	from Table 12-7
Major commercial	0	0.033	1.106	0.000	
Minor commercial	0	0.011	1.106	0.000	
Major industrial/institutional	0	0.036	1.106	0.000	
Minor industrial/institutional	0	0.005	1.106	0.000	--
Major residential	0	0.018	1.106	0.000	
Minor residential	0	0.003	1.106	0.000	
Other	0	0.005	1.106	0.000	
Total	--	--	--	0.000	1.39

Worksheet 1H -- Multiple-Vehicle Driveway-Related Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Crash Severity Level	**Initial N_{brdwy}**	**Proportion of total crashes (f_{dwy})**	**Adjusted N_{brdwy}**	**Combined CMFs**	**Calibration factor, C_r**	**Predicted N_{brdwy}**
	$(5)_{TOTAL}$ from Worksheet 1G	from Table 12-7	$(2)_{TOTAL}$ * (3)	(6) from Worksheet 1B		(4)*(5)*(6)
Total	0.000	1.000	0.000	1.01	1.00	0.000
Fatal and injury (FI)	--	0.284	0.000	1.01	1.00	0.000
Property damage only (PDO)	--	0.716	0.000	1.01	1.00	0.000

Worksheet 1I -- Vehicle-Pedestrian Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(8)*
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{pedr}**	**Predicted N_{pedr}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-8	(5)*(6)
Total	0.586	0.073	0.000	0.659	0.019	0.013
Fatal and injury (FI)	--	--	--	--	--	0.013

* Column 7 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-19

Worksheet 1J -- Vehicle-Bicycle Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(8)*
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{biker}**	**Predicted N_{biker}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-9	(5)*(6)
Total	0.586	0.073	0.000	0.659	0.005	0.003
Fatal and injury (FI)	--	--	--	--	--	0.003

* Column 7 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-20

Worksheet 1K -- Crash Severity Distribution for Urban and Suburban Roadway Segments			
(1)	(2)	(3)	(4)
Collision type	**Fatal and injury (FI)**	**Property damage only (PDO)**	**Total**
	(3) from Worksheet 1D and 1F; (7) from Worksheet 1H; and (8) from Worksheet 1I and 1J	(5) from Worksheet 1D and 1F; and (7) from Worksheet 1H	(6) from Worksheet 1D and 1F; (7) from Worksheet 1H; and (8) from Worksheet 1I and 1J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 1D)	0.131	0.284	0.414
Head-on collisions (from Worksheet 1D)	0.003	0.003	0.006
Angle collisions (from Worksheet 1D)	0.006	0.015	0.022
Sideswipe, same direction (from Worksheet 1D)	0.008	0.096	0.103
Sideswipe, opposite direction (from Worksheet 1D)	0.002	0.000	0.002
Driveway-related collisions (from Worksheet 1H)	0.000	0.000	0.000
Other multiple-vehicle collision (from Worksheet 1D)	0.008	0.030	0.038
Subtotal	0.157	0.428	0.586
SINGLE-VEHICLE			
Collision with animal (from Worksheet 1F)	0.000	0.004	0.004
Collision with fixed object (from Worksheet 1F)	0.007	0.048	0.055
Collision with other object (from Worksheet 1F)	0.000	0.001	0.001
Other single-vehicle collision (from Worksheet 1F)	0.006	0.006	0.013
Collision with pedestrian (from Worksheet 1I)	0.013	0.000	0.013
Collision with bicycle (from Worksheet 1J)	0.003	0.000	0.003
Subtotal	0.030	0.059	0.089
Total	0.187	0.488	0.674

Worksheet 1L -- Summary Results for Urban and Suburban Roadway Segments			
(1)	(2)	(3)	(4)
Crash Severity Level	**Predicted average crash frequency, $N_{predicted\ rs}$ (crashes/year)**	**Roadway segment length, L (mi)**	**Crash rate (crashes/mi/year)**
	(Total) from Worksheet 1K		(2) / (3)
Total	0.7	0.08	8.4
Fatal and injury (FI)	0.2	0.08	2.3
Property damage only (PDO)	0.5	0.08	6.1

Worksheet 1A -- General Information and Input Data for Urban and Suburban Roadway Segments

General Information		Location Information	
Analyst	TL	Roadway	MD 190 River Road
Agency or Company	ATCS	Roadway Section	I-495 NB Terminal to Burdette Rd
Date Performed	02/22/21	Jurisdiction	Montgomery County
		Analysis Year	2045

Input Data		Base Conditions	Site Conditions
Roadway type (2U, 3T, 4U, 4D, ST)		--	4D
Length of segment, L (mi)		--	0.08
AADT (veh/day)	$AADT_{MAX}$ = 66,000 (veh/day)	--	50,875
Type of on-street parking (none/parallel/angle)		None	None
Proportion of curb length with on-street parking		--	0
Median width (ft) - for divided only		15	20
Lighting (present / not present)		Not Present	Present
Auto speed enforcement (present / not present)		Not Present	Not Present
Major commercial driveways (number)		--	0
Minor commercial driveways (number)		--	0
Major industrial / institutional driveways (number)		--	0
Minor industrial / institutional driveways (number)		--	0
Major residential driveways (number)		--	0
Minor residential driveways (number)		--	0
Other driveways (number)		--	0
Speed Category		--	Posted Speed Greater than 30 mph
Roadside fixed object density (fixed objects / mi)		0	25
Offset to roadside fixed objects (ft) [If greater than 30 or Not Present, input 30]		30	5
Calibration Factor, Cr		1.00	1.00

Worksheet 1B -- Crash Modification Factors for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
CMF for On-Street Parking	CMF for Roadside Fixed Objects	CMF for Median Width	CMF for Lighting	CMF for Automated Speed Enforcement	Combined CMF
CMF 1r	*CMF 2r*	*CMF 3r*	*CMF 4r*	*CMF 5r*	*CMF comb*
from Equation 12-32	from Equation 12-33	from Table 12-22	from Equation 12-34	from Section 12.7.1	(1)*(2)*(3)*(4)*(5)
1.00	1.08	0.99	0.91	1.00	0.98

Worksheet 1C -- Multiple-Vehicle Nondriveway Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brmv}**	**Proportion of Total Crashes**	**Adjusted N_{brmv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brmv}**
	from Table 12-3		from Table 12-3	from Equation 12-10		$(4)_{TOTAL}$*(5)	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-12.34	1.36	1.32	0.881	1.000	0.881	0.98	1.00	0.863
Fatal and Injury (FI)	-12.76	1.28	1.31	0.243	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.262	0.231	0.98	1.00	0.226
Property Damage Only (PDO)	-12.81	1.38	1.34	0.684	$(5)_{TOTAL}-(5)_{FI}$ = 0.738	0.650	0.98	1.00	0.637

Worksheet 1D -- Multiple-Vehicle Nondriveway Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brmv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brmv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brmv\ (TOTAL)}$ (crashes/year)**
	from Table 12-4	$(9)_{FI}$ from Worksheet 1C	from Table 12-4	$(9)_{PDO}$ from Worksheet 1C	$(9)_{TOTAL}$ from Worksheet 1C
Total	1.000	0.226	1.000	0.637	0.863
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Rear-end collision	0.832	0.188	0.662	0.421	0.610
Head-on collision	0.020	0.005	0.007	0.004	0.009
Angle collision	0.040	0.009	0.036	0.023	0.032
Sideswipe, same direction	0.050	0.011	0.223	0.142	0.153
Sideswipe, opposite direction	0.010	0.002	0.001	0.001	0.003
Other multiple-vehicle collision	0.048	0.011	0.071	0.045	0.056

Worksheet 1E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brsv}**	**Proportion of Total Crashes**	**Adjusted N_{brsv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brsv}**
	from Table 12-5		from Table 12-5	from Equation 12-13		$(4)_{TOTAL}*(5)$	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-5.05	0.47	0.86	0.084	1.000	0.084	0.98	1.00	0.082
Fatal and Injury (FI)	-8.71	0.66	0.28	0.017	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.199	0.017	0.98	1.00	0.016
Property Damage Only (PDO)	-5.04	0.45	1.06	0.068	$(5)_{TOTAL}-(5)_{FI}$ = 0.801	0.067	0.98	1.00	0.066

Worksheet 1F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brsv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brsv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brsv\ (TOTAL)}$ (crashes/year)**
	from Table 12-6	$(9)_{FI}$ from Worksheet 1E	from Table 12-6	$(9)_{PDO}$ from Worksheet 1E	$(9)_{TOTAL}$ from Worksheet 1E
Total	1.000	0.016	1.000	0.066	0.082
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Collision with animal	0.001	0.000	0.063	0.004	0.004
Collision with fixed object	0.500	0.008	0.813	0.053	0.061
Collision with other object	0.028	0.000	0.016	0.001	0.002
Other single-vehicle collision	0.471	0.008	0.108	0.007	0.015

Worksheet 1G -- Multiple-Vehicle Driveway-Related Collisions by Driveway Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Driveway Type	**Number of driveways, n_j**	**Crashes per driveway per year, N_j**	**Coefficient for traffic adjustment, t**	**Initial N_{brdwy}**	**Overdispersion parameter, k**
		from Table 12-7	from Table 12-7	Equation 12-16 $n_j * N_j * (AADT/15,000)^t$	from Table 12-7
Major commercial	0	0.033	1.106	0.000	
Minor commercial	0	0.011	1.106	0.000	
Major industrial/institutional	0	0.036	1.106	0.000	
Minor industrial/institutional	0	0.005	1.106	0.000	--
Major residential	0	0.018	1.106	0.000	
Minor residential	0	0.003	1.106	0.000	
Other	0	0.005	1.106	0.000	
Total	--	--	--	0.000	1.39

Worksheet 1H -- Multiple-Vehicle Driveway-Related Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Crash Severity Level	**Initial N_{brdwy}**	**Proportion of total crashes (f_{dwy})**	**Adjusted N_{brdwy}**	**Combined CMFs**	**Calibration factor, C_r**	**Predicted N_{brdwy}**
	$(5)_{TOTAL}$ from Worksheet 1G	from Table 12-7	$(2)_{TOTAL}$ * (3)	(6) from Worksheet 1B		(4)*(5)*(6)
Total	0.000	1.000	0.000	0.98	1.00	0.000
Fatal and injury (FI)	--	0.284	0.000	0.98	1.00	0.000
Property damage only (PDO)	--	0.716	0.000	0.98	1.00	0.000

Worksheet 1I -- Vehicle-Pedestrian Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(8)*
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{pedr}**	**Predicted N_{pedr}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-8	(5)*(6)
Total	0.863	0.082	0.000	0.945	0.019	0.018
Fatal and injury (FI)	--	--	--	--	--	0.018

* Column 7 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-19

Worksheet 1J -- Vehicle-Bicycle Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(8)*
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{biker}**	**Predicted N_{biker}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-9	(5)*(6)
Total	0.863	0.082	0.000	0.945	0.005	0.005
Fatal and injury (FI)	--	--	--	--	--	0.005

* Column 7 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-20

Worksheet 1K -- Crash Severity Distribution for Urban and Suburban Roadway Segments			
(1)	(2)	(3)	(4)
Collision type	**Fatal and injury (FI)**	**Property damage only (PDO)**	**Total**
	(3) from Worksheet 1D and 1F; (7) from Worksheet 1H; and (8) from Worksheet 1I and 1J	(5) from Worksheet 1D and 1F; and (7) from Worksheet 1H	(6) from Worksheet 1D and 1F; (7) from Worksheet 1H; and (8) from Worksheet 1I and 1J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 1D)	0.188	0.421	0.610
Head-on collisions (from Worksheet 1D)	0.005	0.004	0.009
Angle collisions (from Worksheet 1D)	0.009	0.023	0.032
Sideswipe, same direction (from Worksheet 1D)	0.011	0.142	0.153
Sideswipe, opposite direction (from Worksheet 1D)	0.002	0.001	0.003
Driveway-related collisions (from Worksheet 1H)	0.000	0.000	0.000
Other multiple-vehicle collision (from Worksheet 1D)	0.011	0.045	0.056
Subtotal	0.226	0.637	0.863
SINGLE-VEHICLE			
Collision with animal (from Worksheet 1F)	0.000	0.004	0.004
Collision with fixed object (from Worksheet 1F)	0.008	0.053	0.061
Collision with other object (from Worksheet 1F)	0.000	0.001	0.002
Other single-vehicle collision (from Worksheet 1F)	0.008	0.007	0.015
Collision with pedestrian (from Worksheet 1I)	0.018	0.000	0.018
Collision with bicycle (from Worksheet 1J)	0.005	0.000	0.005
Subtotal	0.039	0.066	0.105
Total	0.265	0.702	0.968

Worksheet 1L -- Summary Results for Urban and Suburban Roadway Segments			
(1)	(2)	(3)	(4)
Crash Severity Level	**Predicted average crash frequency, $N_{predicted\ rs}$ (crashes/year)**	**Roadway segment length, L (mi)**	**Crash rate (crashes/mi/year)**
	(Total) from Worksheet 1K		(2) / (3)
Total	1.0	0.08	12.1
Fatal and injury (FI)	0.3	0.08	3.3
Property damage only (PDO)	0.7	0.08	8.8

Worksheet 2A -- General Information and Input Data for Urban and Suburban Arterial Intersections						
General Information				**Location Information**		
Analyst	PK			Roadway	MD 190 River Road	
Agency or Company	ATCS			Intersection	At Burdette Road	
Date Performed	10/09/20			Jurisdiction	Montgomery County	
				Analysis Year	2045	
Input Data				**Base Conditions**	**Site Conditions**	
Intersection type (3ST, 3SG, 4ST, 4SG)				--	4SG	
AADT $_{major}$ (veh/day)	$AADT_{MAX}$ =	67,700	(veh/day)	--	50,511	
AADT $_{minor}$ (veh/day)	$AADT_{MAX}$ =	33,400	(veh/day)	--	4,183	
Intersection lighting (present/not present)				Not Present	Present	
Calibration factor, C_i				1.00	1.00	
Data for unsignalized intersections only:				--	--	
Number of major-road approaches with left-turn lanes (0,1,2)				0	0	
Number of major-road approaches with right-turn lanes (0,1,2)				0	0	
Data for signalized intersections only:				--	--	
Number of approaches with left-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]				0	2	
Number of approaches with right-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]				0	2	
Number of approaches with left-turn signal phasing [for 3SG, use maximum value of 3]				--	2	
Type of left-turn signal phasing for Leg #1				Permissive	Permissive / Protected	
Type of left-turn signal phasing for Leg #2				--	Permissive / Protected	
Type of left-turn signal phasing for Leg #3				--	Permissive	
Type of left-turn signal phasing for Leg #4 (if applicable)				--	Permissive	
Number of approaches with right-turn-on-red prohibited [for 3SG, use maximum value of 3]				0	0	
Intersection red light cameras (present/not present)				Not Present	Not Present	
Sum of all pedestrian crossing volumes (PedVol) -- Signalized intersections only					140	
Maximum number of lanes crossed by a pedestrian (n_{lanesx})				--	7	
Number of bus stops within 300 m (1,000 ft) of the intersection				0	3	
Schools within 300 m (1,000 ft) of the intersection (present/not present)				Not Present	Not Present	
Number of alcohol sales establishments within 300 m (1,000 ft) of the intersection				0	0	

Worksheet 2B -- Crash Modification Factors for Urban and Suburban Arterial Intersections						
(1)	(2)	(3)	(4)	(5)	(6)	(7)
CMF for Left-Turn Lanes	CMF for Left-Turn Signal Phasing	CMF for Right-Turn Lanes	CMF for Right Turn on Red	CMF for Lighting	CMF for Red Light Cameras	Combined CMF
CMF 1i	*CMF 2i*	*CMF 3i*	*CMF 4i*	*CMF 5i*	*CMF 6i*	*CMF $_{COMB}$*
from Table 12-24	from Table 12-25	from Table 12-26	from Equation 12-35	from Equation 12-36	from Equation 12-37	(1)*(2)*(3)*(4)*(5)*(6)
0.81	0.98	0.92	1.00	0.91	1.00	0.67

Worksheet 2C -- Multiple-Vehicle Collisions by Severity Level for Urban and Suburban Arterial Intersections

(1)	(2)			(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**			**Overdispersion Parameter, k**	**Initial N_{bimv}**	**Proportion of Total Crashes**	**Adjusted N_{bimv}**	**Combined CMFs**	**Calibration Factor, C_i**	**Predicted N_{bimv}**
	from Table 12-10			from Table 12-10	from Equation 12-21		$(4)_{TOTAL}$*(5)	(7) from Worksheet 2B		(6)*(7)*(8)
	a	b	c							
Total	-10.99	1.07	0.23	0.39	12.379	1.000	12.379	0.67	1.00	8.248
Fatal and Injury (FI)	-13.14	1.18	0.22	0.33	4.366	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ 0.365	4.517	0.67	1.00	3.010
Property Damage Only (PDO)	-11.02	1.02	0.24	0.44	7.598	$(5)_{TOTAL}-(5)_{FI}$ 0.635	7.861	0.67	1.00	5.238

Worksheet 2D -- Multiple-Vehicle Collisions by Collision Type for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{bimv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{bimv\ (PDO)}$ (crashes/year)**	**Predicted N $_{bimv\ (TOTAL)}$ (crashes/year)**
	from Table 12-11	$(9)_{FI}$ from Worksheet 2C	from Table 12-11	$(9)_{PDO}$ from Worksheet 2C	$(9)_{PDO}$ from Worksheet 2C
Total	1.000	3.010	1.000	5.238	8.248
		(2)*$(3)_{FI}$		(4)*$(5)_{PDO}$	(3)+(5)
Rear-end collision	0.450	1.354	0.483	2.530	3.884
Head-on collision	0.049	0.147	0.030	0.157	0.305
Angle collision	0.347	1.044	0.244	1.278	2.323
Sideswipe	0.099	0.298	0.032	0.168	0.466
Other multiple-vehicle collision	0.055	0.166	0.211	1.105	1.271

Worksheet 2E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Arterial Intersections

(1)	(2)			(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**			**Overdispersion Parameter, k**	**Initial N_{bisv}**	**Proportion of Total Crashes**	**Adjusted N_{bimv}**	**Combined CMFs**	**Calibration Factor, C_i**	**Predicted N_{bisv}**
	from Table 12-12			from Table 12-12	from Eqn. 12-24; (FI) from Eqn. 12-24 or 12-27		$(4)_{TOTAL}$*(5)	(7) from Worksheet 2B		(6)*(7)*(8)
	a	b	c							
Total	-10.21	0.68	0.27	0.36	0.552	1.000	0.552	0.67	1.00	0.368
Fatal and Injury (FI)	-9.25	0.43	0.29	0.09	0.114	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ 0.203	0.112	0.67	1.00	0.075
Property Damage Only (PDO)	-11.34	0.78	0.25	0.44	0.446	$(5)_{TOTAL}-(5)_{FI}$ 0.797	0.440	0.67	1.00	0.293

Worksheet 2F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{bisv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{bisv\ (PDO)}$ (crashes/year)**	**Predicted N $_{bisv\ (TOTAL)}$ (crashes/year)**
	from Table 12-13	$(9)_{FI}$ from Worksheet 2E	from Table 12-13	$(9)_{PDO}$ from Worksheet 2E	$(9)_{PDO}$ from Worksheet 2E
Total	1.000	0.075	1.000	0.293	0.368
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Collision with parked vehicle	0.001	0.000	0.001	0.000	0.000
Collision with animal	0.002	0.000	0.002	0.001	0.001
Collision with fixed object	0.744	0.056	0.870	0.255	0.311
Collision with other object	0.072	0.005	0.070	0.021	0.026
Other single-vehicle collision	0.040	0.003	0.023	0.007	0.010
Single-vehicle noncollision	0.141	0.011	0.034	0.010	0.020

Worksheet 2G -- Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Stop-Controlled Intersections

(1)	(2)	(3)	(4)	(5)	(7)*
Crash Severity Level	**Predicted N_{bimv}**	**Predicted N_{bisv}**	**Predicted N_{bi}**	**f_{pedi}**	**Predicted N_{pedi}**
	(9) from Worksheet 2C	(9) from Worksheet 2E	(2) + (3)	from Table 12-16	(4)*(5)
Total	--	--	--	--	--
Fatal and injury (FI)	--	--	--	--	--

* Column 6 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-30

Worksheet 2H -- Crash Modification Factors for Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Signalized Intersections

(1)	(2)	(3)	(4)
CMF for Bus Stops	CMF for Schools	CMF for Alcohol Sales Establishments	Combined CMF
CMF_{1p}	CMF_{2p}	CMF_{3p}	
from Table 12-28	from Table 12-29	from Table 12-30	(1)*(2)*(3)
4.15	1.00	1.00	4.15

Worksheet 2I -- Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Signalized Intersections

(1)	(2)					(3)	(4)	(5)	(6)	(7)
Crash Severity Level	**SPF Coefficients**					**Overdispersion Parameter, k**	**$N_{pedbase}$**	**Combined CMF**	**Calibration factor, C_i**	**Predicted N_{pedi}**
	from Table 12-14						from Equation 12-29	(4) from Worksheet 2H		(4)*(5)*(6)
	a	b	c	d	e					
Total	-9.53	0.40	0.26	0.45	0.04	0.24	0.037	4.15	1.00	0.152
Fatal and Injury (FI)	--	--	--	--	--	--	--	--	1.00	0.152

Worksheet 2J -- Vehicle-Bicycle Collisions for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(7)*
Crash Severity Level	**Predicted N_{bimv}**	**Predicted N_{bisv}**	**Predicted N_{bi}**	**f_{bikei}**	**Predicted N_{bikei}**
	(9) from Worksheet 2C	(9) from Worksheet 2E	(2) + (3)	from Table 12-17	(4)*(5)
Total	8.248	0.368	8.616	0.015	0.129
Fatal and injury (FI)	--	--	--	--	0.129

* Column 6 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-31

Worksheet 2K -- Crash Severity Distribution for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)
	Fatal and injury (FI)	**Property damage only (PDO)**	**Total**
Collision type	(3) from Worksheet 2D and 2F; (7) from 2G or 2I and 2J	(5) from Worksheet 2D and 2F	(6) from Worksheet 2D and 2F; (7) from 2G or 2I and 2J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 2D)	1.354	2.530	3.884
Head-on collisions (from Worksheet 2D)	0.147	0.157	0.305
Angle collisions (from Worksheet 2D)	1.044	1.278	2.323
Sideswipe (from Worksheet 2D)	0.298	0.168	0.466
Other multiple-vehicle collision (from Worksheet 2D)	0.166	1.105	1.271
Subtotal	3.010	5.238	8.248
SINGLE-VEHICLE			
Collision with parked vehicle (from Worksheet 2F)	0.000	0.000	0.000
Collision with animal (from Worksheet 2F)	0.000	0.001	0.001
Collision with fixed object (from Worksheet 2F)	0.056	0.255	0.311
Collision with other object (from Worksheet 2F)	0.005	0.021	0.026
Other single-vehicle collision (from Worksheet 2F)	0.003	0.007	0.010
Single-vehicle noncollision (from Worksheet 2F)	0.011	0.010	0.020
Collision with pedestrian (from Worksheet 2G or 2I)	0.152	0.000	0.152
Collision with bicycle (from Worksheet 2J)	0.129	0.000	0.129
Subtotal	0.355	0.293	0.649
Total	3.365	5.531	8.896

Worksheet 2L -- Summary Results for Urban and Suburban Arterial Intersections

(1)	(2)
Crash severity level	**Predicted average crash frequency, $N_{predicted\ int}$ (crashes/year)**
	(Total) from Worksheet 2K
Total	8.9
Fatal and injury (FI)	3.4
Property damage only (PDO)	5.5

Worksheet 2A -- General Information and Input Data for Urban and Suburban Arterial Intersections						
General Information				**Location Information**		
Analyst	TL			Roadway	Montrose Rd	
Agency or Company	ATCS			Intersection	At Seven Locks Rd	
Date Performed	02/19/21			Jurisdiction	Montgomery County	
				Analysis Year	2045	
Input Data				**Base Conditions**	**Site Conditions**	
Intersection type (3ST, 3SG, 4ST, 4SG)				--	4SG	
AADT $_{major}$ (veh/day)	$AADT_{MAX}$ =	67,700	(veh/day)	--	23,207	
AADT $_{minor}$ (veh/day)	$AADT_{MAX}$ =	33,400	(veh/day)	--	11,199	
Intersection lighting (present/not present)				Not Present	Present	
Calibration factor, C_i				1.00	1.00	
Data for unsignalized intersections only:				--	--	
Number of major-road approaches with left-turn lanes (0,1,2)				0	0	
Number of major-road approaches with right-turn lanes (0,1,2)				0	0	
Data for signalized intersections only:				--	--	
Number of approaches with left-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]				0	4	
Number of approaches with right-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]				0	2	
Number of approaches with left-turn signal phasing [for 3SG, use maximum value of 3]				--	3	
Type of left-turn signal phasing for Leg #1				Permissive	Protected	
Type of left-turn signal phasing for Leg #2				--	Protected	
Type of left-turn signal phasing for Leg #3				--	Protected	
Type of left-turn signal phasing for Leg #4 (if applicable)				--	Permissive	
Number of approaches with right-turn-on-red prohibited [for 3SG, use maximum value of 3]				0	0	
Intersection red light cameras (present/not present)				Not Present	Not Present	
Sum of all pedestrian crossing volumes (PedVol) -- Signalized intersections only					164	
Maximum number of lanes crossed by a pedestrian (n_{lanesx})				--	7	
Number of bus stops within 300 m (1,000 ft) of the intersection				0	4	
Schools within 300 m (1,000 ft) of the intersection (present/not present)				Not Present	Not Present	
Number of alcohol sales establishments within 300 m (1,000 ft) of the intersection				0	0	

Worksheet 2B -- Crash Modification Factors for Urban and Suburban Arterial Intersections						
(1)	(2)	(3)	(4)	(5)	(6)	(7)
CMF for Left-Turn Lanes	CMF for Left-Turn Signal Phasing	CMF for Right-Turn Lanes	CMF for Right Turn on Red	CMF for Lighting	CMF for Red Light Cameras	Combined CMF
CMF 1i	*CMF 2i*	*CMF 3i*	*CMF 4i*	*CMF 5i*	*CMF 6i*	*CMF $_{COMB}$*
from Table 12-24	from Table 12-25	from Table 12-26	from Equation 12-35	from Equation 12-36	from Equation 12-37	(1)*(2)*(3)*(4)*(5)*(6)
0.66	0.83	0.92	1.00	0.91	1.00	0.46

Worksheet 2C -- Multiple-Vehicle Collisions by Severity Level for Urban and Suburban Arterial Intersections

(1)	(2)			(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**			**Overdispersion Parameter, k**	**Initial N_{bimv}**	**Proportion of Total Crashes**	**Adjusted N_{bimv}**	**Combined CMFs**	**Calibration Factor, C_i**	**Predicted N_{bimv}**
	from Table 12-10			from Table 12-10	from Equation 12-21		$(4)_{TOTAL}$*(5)	(7) from Worksheet 2B		(6)*(7)*(8)
	a	b	c							
Total	-10.99	1.07	0.23	0.39	6.755	1.000	6.755	0.46	1.00	3.108
Fatal and Injury (FI)	-13.14	1.18	0.22	0.33	2.166	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ 0.332	2.244	0.46	1.00	1.033
Property Damage Only (PDO)	-11.02	1.02	0.24	0.44	4.353	$(5)_{TOTAL}-(5)_{FI}$ 0.668	4.511	0.46	1.00	2.075

Worksheet 2D -- Multiple-Vehicle Collisions by Collision Type for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{bimv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{bimv\ (PDO)}$ (crashes/year)**	**Predicted N $_{bimv\ (TOTAL)}$ (crashes/year)**
	from Table 12-11	$(9)_{FI}$ from Worksheet 2C	from Table 12-11	$(9)_{PDO}$ from Worksheet 2C	$(9)_{PDO}$ from Worksheet 2C
Total	1.000	1.033	1.000	2.075	3.108
		(2)*$(3)_{FI}$		(4)*$(5)_{PDO}$	(3)+(5)
Rear-end collision	0.450	0.465	0.483	1.002	1.467
Head-on collision	0.049	0.051	0.030	0.062	0.113
Angle collision	0.347	0.358	0.244	0.506	0.865
Sideswipe	0.099	0.102	0.032	0.066	0.169
Other multiple-vehicle collision	0.055	0.057	0.211	0.438	0.495

Worksheet 2E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Arterial Intersections

(1)	(2)			(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**			**Overdispersion Parameter, k**	**Initial N_{bisv}**	**Proportion of Total Crashes**	**Adjusted N_{bimv}**	**Combined CMFs**	**Calibration Factor, C_i**	**Predicted N_{bisv}**
	from Table 12-12			from Table 12-12	from Eqn. 12-24; (FI) from Eqn. 12-24 or 12-27		$(4)_{TOTAL}$*(5)	(7) from Worksheet 2B		(6)*(7)*(8)
	a	b	c							
Total	-10.21	0.68	0.27	0.36	0.424	1.000	0.424	0.46	1.00	0.195
Fatal and Injury (FI)	-9.25	0.43	0.29	0.09	0.108	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ 0.258	0.110	0.46	1.00	0.050
Property Damage Only (PDO)	-11.34	0.78	0.25	0.44	0.311	$(5)_{TOTAL}-(5)_{FI}$ 0.742	0.315	0.46	1.00	0.145

Worksheet 2F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{bisv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{bisv\ (PDO)}$ (crashes/year)**	**Predicted N $_{bisv\ (TOTAL)}$ (crashes/year)**
	from Table 12-13	(9)$_{FI}$ from Worksheet 2E	from Table 12-13	(9)$_{PDO}$ from Worksheet 2E	(9)$_{PDO}$ from Worksheet 2E
Total	1.000	0.050	1.000	0.145	0.195
		(2)*(3)$_{FI}$		(4)*(5)$_{PDO}$	(3)+(5)
Collision with parked vehicle	0.001	0.000	0.001	0.000	0.000
Collision with animal	0.002	0.000	0.002	0.000	0.000
Collision with fixed object	0.744	0.038	0.870	0.126	0.164
Collision with other object	0.072	0.004	0.070	0.010	0.014
Other single-vehicle collision	0.040	0.002	0.023	0.003	0.005
Single-vehicle noncollision	0.141	0.007	0.034	0.005	0.012

Worksheet 2G -- Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Stop-Controlled Intersections

(1)	(2)	(3)	(4)	(5)	(7)*
Crash Severity Level	**Predicted N_{bimv}**	**Predicted N_{bisv}**	**Predicted N_{bi}**	**f_{pedi}**	**Predicted N_{pedi}**
	(9) from Worksheet 2C	(9) from Worksheet 2E	(2) + (3)	from Table 12-16	(4)*(5)
Total	--	--	--	--	--
Fatal and injury (FI)	--	--	--	--	--

* Column 6 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-30

Worksheet 2H -- Crash Modification Factors for Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Signalized Intersections

(1)	(2)	(3)	(4)
CMF for Bus Stops	CMF for Schools	CMF for Alcohol Sales Establishments	Combined CMF
CMF_{1p}	CMF_{2p}	CMF_{3p}	
from Table 12-28	from Table 12-29	from Table 12-30	(1)*(2)*(3)
4.15	1.00	1.00	4.15

Worksheet 2I -- Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Signalized Intersections

(1)	(2)					(3)	(4)	(5)	(6)	(7)
Crash Severity Level	**SPF Coefficients**					**Overdispersion Parameter, k**	**$N_{pedbase}$**	**Combined CMF**	**Calibration factor, C_i**	**Predicted N_{pedi}**
	from Table 12-14						from Equation 12-29	(4) from Worksheet 2H		(4)*(5)*(6)
	a	b	c	d	e					
Total	-9.53	0.40	0.26	0.45	0.04	0.24	0.052	4.15	1.00	0.214
Fatal and Injury (FI)	--	--	--	--	--	--	--	--	1.00	0.214

Worksheet 2J -- Vehicle-Bicycle Collisions for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(7)*
Crash Severity Level	**Predicted N_{bimv}**	**Predicted N_{bisv}**	**Predicted N_{bi}**	**f_{bikei}**	**Predicted N_{bikei}**
	(9) from Worksheet 2C	(9) from Worksheet 2E	(2) + (3)	from Table 12-17	(4)*(5)
Total	3.108	0.195	3.303	0.015	0.050
Fatal and injury (FI)	--	--	--	--	0.050

* Column 6 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-31

Worksheet 2K -- Crash Severity Distribution for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)
	Fatal and injury (FI)	**Property damage only (PDO)**	**Total**
Collision type	(3) from Worksheet 2D and 2F; (7) from 2G or 2I and 2J	(5) from Worksheet 2D and 2F	(6) from Worksheet 2D and 2F; (7) from 2G or 2I and 2J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 2D)	0.465	1.002	1.467
Head-on collisions (from Worksheet 2D)	0.051	0.062	0.113
Angle collisions (from Worksheet 2D)	0.358	0.506	0.865
Sideswipe (from Worksheet 2D)	0.102	0.066	0.169
Other multiple-vehicle collision (from Worksheet 2D)	0.057	0.438	0.495
Subtotal	1.033	2.075	3.108
SINGLE-VEHICLE			
Collision with parked vehicle (from Worksheet 2F)	0.000	0.000	0.000
Collision with animal (from Worksheet 2F)	0.000	0.000	0.000
Collision with fixed object (from Worksheet 2F)	0.038	0.126	0.164
Collision with other object (from Worksheet 2F)	0.004	0.010	0.014
Other single-vehicle collision (from Worksheet 2F)	0.002	0.003	0.005
Single-vehicle noncollision (from Worksheet 2F)	0.007	0.005	0.012
Collision with pedestrian (from Worksheet 2G or 2I)	0.214	0.000	0.214
Collision with bicycle (from Worksheet 2J)	0.050	0.000	0.050
Subtotal	0.314	0.145	0.459
Total	1.346	2.220	3.566

Worksheet 2L -- Summary Results for Urban and Suburban Arterial Intersections

(1)	(2)
Crash severity level	**Predicted average crash frequency, $N_{predicted\ int}$ (crashes/year)**
	(Total) from Worksheet 2K
Total	3.6
Fatal and injury (FI)	1.3
Property damage only (PDO)	2.2

Worksheet 1A -- General Information and Input Data for Urban and Suburban Roadway Segments

General Information		Location Information	
Analyst	TL	Roadway	Montrose Rd
Agency or Company	ATCS	Roadway Section	Seven Locks Rd to Potomac Ave
Date Performed	02/19/21	Jurisdiction	Montgomery County
		Analysis Year	2045

Input Data		Base Conditions	Site Conditions
Roadway type (2U, 3T, 4U, 4D, ST)		--	4D
Length of segment, L (mi)		--	0.02
AADT (veh/day)	$AADT_{MAX}$ = 66,000 (veh/day)	--	11,086
Type of on-street parking (none/parallel/angle)		None	None
Proportion of curb length with on-street parking		--	0
Median width (ft) - for divided only		15	10
Lighting (present / not present)		Not Present	Not Present
Auto speed enforcement (present / not present)		Not Present	Not Present
Major commercial driveways (number)		--	0
Minor commercial driveways (number)		--	0
Major industrial / institutional driveways (number)		--	0
Minor industrial / institutional driveways (number)		--	1
Major residential driveways (number)		--	0
Minor residential driveways (number)		--	0
Other driveways (number)		--	0
Speed Category		--	Posted Speed Greater than 30 mph
Roadside fixed object density (fixed objects / mi)		0	42
Offset to roadside fixed objects (ft) [If greater than 30 or Not Present, input 30]		30	15
Calibration Factor, Cr		1.00	1.00

Worksheet 1B -- Crash Modification Factors for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
CMF for On-Street Parking	CMF for Roadside Fixed Objects	CMF for Median Width	CMF for Lighting	CMF for Automated Speed Enforcement	Combined CMF
CMF 1r	*CMF 2r*	*CMF 3r*	*CMF 4r*	*CMF 5r*	*CMF comb*
from Equation 12-32	from Equation 12-33	from Table 12-22	from Equation 12-34	from Section 12.7.1	(1)*(2)*(3)*(4)*(5)
1.00	1.07	1.01	1.00	1.00	1.08

Worksheet 1C -- Multiple-Vehicle Nondriveway Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brmv}**	**Proportion of Total Crashes**	**Adjusted N_{brmv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brmv}**
	from Table 12-3		from Table 12-3	from Equation 12-10		$(4)_{TOTAL}$*(5)	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-12.34	1.36	1.32	0.028	1.000	0.028	1.08	1.00	0.030
Fatal and Injury (FI)	-12.76	1.28	1.31	0.009	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.293	0.008	1.08	1.00	0.009
Property Damage Only (PDO)	-12.81	1.38	1.34	0.021	$(5)_{TOTAL}-(5)_{FI}$ = 0.707	0.020	1.08	1.00	0.021

Worksheet 1D -- Multiple-Vehicle Nondriveway Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brmv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brmv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brmv\ (TOTAL)}$ (crashes/year)**
	from Table 12-4	$(9)_{FI}$ from Worksheet 1C	from Table 12-4	$(9)_{PDO}$ from Worksheet 1C	$(9)_{TOTAL}$ from Worksheet 1C
Total	1.000	0.009	1.000	0.021	0.030
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Rear-end collision	0.832	0.007	0.662	0.014	0.021
Head-on collision	0.020	0.000	0.007	0.000	0.000
Angle collision	0.040	0.000	0.036	0.001	0.001
Sideswipe, same direction	0.050	0.000	0.223	0.005	0.005
Sideswipe, opposite direction	0.010	0.000	0.001	0.000	0.000
Other multiple-vehicle collision	0.048	0.000	0.071	0.001	0.002

Worksheet 1E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brsv}**	**Proportion of Total Crashes**	**Adjusted N_{brsv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brsv}**
	from Table 12-5		from Table 12-5	from Equation 12-13		$(4)_{TOTAL}*(5)$	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-5.05	0.47	0.86	0.010	1.000	0.010	1.08	1.00	0.011
Fatal and Injury (FI)	-8.71	0.66	0.28	0.002	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.153	0.002	1.08	1.00	0.002
Property Damage Only (PDO)	-5.04	0.45	1.06	0.009	$(5)_{TOTAL}-(5)_{FI}$ = 0.847	0.009	1.08	1.00	0.009

Worksheet 1F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brsv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brsv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brsv\ (TOTAL)}$ (crashes/year)**
	from Table 12-6	$(9)_{FI}$ from Worksheet 1E	from Table 12-6	$(9)_{PDO}$ from Worksheet 1E	$(9)_{TOTAL}$ from Worksheet 1E
Total	1.000	0.002	1.000	0.009	0.011
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Collision with animal	0.001	0.000	0.063	0.001	0.001
Collision with fixed object	0.500	0.001	0.813	0.008	0.008
Collision with other object	0.028	0.000	0.016	0.000	0.000
Other single-vehicle collision	0.471	0.001	0.108	0.001	0.002

Worksheet 1G -- Multiple-Vehicle Driveway-Related Collisions by Driveway Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Driveway Type	**Number of driveways, n_j**	**Crashes per driveway per year, N_j**	**Coefficient for traffic adjustment, t**	**Initial N_{brdwy}**	**Overdispersion parameter, k**
		from Table 12-7	from Table 12-7	Equation 12-16 $n_j * N_j * (AADT/15,000)^t$	from Table 12-7
Major commercial	0	0.033	1.106	0.000	
Minor commercial	0	0.011	1.106	0.000	
Major industrial/institutional	0	0.036	1.106	0.000	
Minor industrial/institutional	1	0.005	1.106	0.004	--
Major residential	0	0.018	1.106	0.000	
Minor residential	0	0.003	1.106	0.000	
Other	0	0.005	1.106	0.000	
Total	--	--	--	0.004	1.39

Worksheet 1H -- Multiple-Vehicle Driveway-Related Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Crash Severity Level	**Initial N_{brdwy}**	**Proportion of total crashes (f_{dwy})**	**Adjusted N_{brdwy}**	**Combined CMFs**	**Calibration factor, C_r**	**Predicted N_{brdwy}**
	$(5)_{TOTAL}$ from Worksheet 1G	from Table 12-7	$(2)_{TOTAL}$ * (3)	(6) from Worksheet 1B		(4)*(5)*(6)
Total	0.004	1.000	0.004	1.08	1.00	0.004
Fatal and injury (FI)	--	0.284	0.001	1.08	1.00	0.001
Property damage only (PDO)	--	0.716	0.003	1.08	1.00	0.003

Worksheet 1I -- Vehicle-Pedestrian Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(8)*
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{pedr}**	**Predicted N_{pedr}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-8	(5)*(6)
Total	0.030	0.011	0.004	0.045	0.019	0.001
Fatal and injury (FI)	--	--	--	--	--	0.001

* Column 7 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-19

Worksheet 1J -- Vehicle-Bicycle Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(8)*
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{biker}**	**Predicted N_{biker}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-9	(5)*(6)
Total	0.030	0.011	0.004	0.045	0.005	0.000
Fatal and injury (FI)	--	--	--	--	--	0.000

* Column 7 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-20

Worksheet 1K -- Crash Severity Distribution for Urban and Suburban Roadway Segments			
(1)	(2)	(3)	(4)
Collision type	**Fatal and injury (FI)**	**Property damage only (PDO)**	**Total**
	(3) from Worksheet 1D and 1F; (7) from Worksheet 1H; and (8) from Worksheet 1I and 1J	(5) from Worksheet 1D and 1F; and (7) from Worksheet 1H	(6) from Worksheet 1D and 1F; (7) from Worksheet 1H; and (8) from Worksheet 1I and 1J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 1D)	0.007	0.014	0.021
Head-on collisions (from Worksheet 1D)	0.000	0.000	0.000
Angle collisions (from Worksheet 1D)	0.000	0.001	0.001
Sideswipe, same direction (from Worksheet 1D)	0.000	0.005	0.005
Sideswipe, opposite direction (from Worksheet 1D)	0.000	0.000	0.000
Driveway-related collisions (from Worksheet 1H)	0.001	0.003	0.004
Other multiple-vehicle collision (from Worksheet 1D)	0.000	0.001	0.002
Subtotal	0.010	0.024	0.034
SINGLE-VEHICLE			
Collision with animal (from Worksheet 1F)	0.000	0.001	0.001
Collision with fixed object (from Worksheet 1F)	0.001	0.008	0.008
Collision with other object (from Worksheet 1F)	0.000	0.000	0.000
Other single-vehicle collision (from Worksheet 1F)	0.001	0.001	0.002
Collision with pedestrian (from Worksheet 1I)	0.001	0.000	0.001
Collision with bicycle (from Worksheet 1J)	0.000	0.000	0.000
Subtotal	0.003	0.009	0.012
Total	0.013	0.033	0.046

Worksheet 1L -- Summary Results for Urban and Suburban Roadway Segments			
(1)	(2)	(3)	(4)
Crash Severity Level	**Predicted average crash frequency, $N_{predicted\ rs}$ (crashes/year)**	**Roadway segment length, L (mi)**	**Crash rate (crashes/mi/year)**
	(Total) from Worksheet 1K		(2) / (3)
Total	0.0	0.02	2.3
Fatal and injury (FI)	0.0	0.02	0.6
Property damage only (PDO)	0.0	0.02	1.7

Worksheet 2A -- General Information and Input Data for Urban and Suburban Arterial Intersections						
General Information				**Location Information**		
Analyst	TL			Roadway	Montrose Rd	
Agency or Company	ATCS			Intersection	At Potomac Ave	
Date Performed	02/19/21			Jurisdiction	Montgomery County	
				Analysis Year	2045	
Input Data				**Base Conditions**	**Site Conditions**	
Intersection type (3ST, 3SG, 4ST, 4SG)				--	4ST	
AADT $_{major}$ (veh/day)	$AADT_{MAX}$ =	46,800	(veh/day)	--	11,330	
AADT $_{minor}$ (veh/day)	$AADT_{MAX}$ =	5,900	(veh/day)	--	3,526	
Intersection lighting (present/not present)				Not Present	Present	
Calibration factor, C_i				1.00	1.00	
Data for unsignalized intersections only:				--	--	
Number of major-road approaches with left-turn lanes (0,1,2)				0	0	
Number of major-road approaches with right-turn lanes (0,1,2)				0	0	
Data for signalized intersections only:				--	--	
Number of approaches with left-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]				0		
Number of approaches with right-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]				0		
Number of approaches with left-turn signal phasing [for 3SG, use maximum value of 3]				--		
Type of left-turn signal phasing for Leg #1				Permissive		
Type of left-turn signal phasing for Leg #2				--		
Type of left-turn signal phasing for Leg #3				--		
Type of left-turn signal phasing for Leg #4 (if applicable)				--		
Number of approaches with right-turn-on-red prohibited [for 3SG, use maximum value of 3]				0		
Intersection red light cameras (present/not present)				Not Present		
Sum of all pedestrian crossing volumes (PedVol) -- Signalized intersections only						
Maximum number of lanes crossed by a pedestrian (n_{lanesx})				--		
Number of bus stops within 300 m (1,000 ft) of the intersection				0		
Schools within 300 m (1,000 ft) of the intersection (present/not present)				Not Present		
Number of alcohol sales establishments within 300 m (1,000 ft) of the intersection				0		

Worksheet 2B -- Crash Modification Factors for Urban and Suburban Arterial Intersections						
(1)	(2)	(3)	(4)	(5)	(6)	(7)
CMF for Left-Turn Lanes	CMF for Left-Turn Signal Phasing	CMF for Right-Turn Lanes	CMF for Right Turn on Red	CMF for Lighting	CMF for Red Light Cameras	Combined CMF
CMF 1i	*CMF 2i*	*CMF 3i*	*CMF 4i*	*CMF 5i*	*CMF 6i*	*CMF $_{COMB}$*
from Table 12-24	from Table 12-25	from Table 12-26	from Equation 12-35	from Equation 12-36	from Equation 12-37	(1)*(2)*(3)*(4)*(5)*(6)
1.00	1.00	1.00	1.00	0.91	0.97	0.89

Worksheet 2C -- Multiple-Vehicle Collisions by Severity Level for Urban and Suburban Arterial Intersections

(1)	(2)			(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**			**Overdispersion Parameter, k**	**Initial N_{bimv}**	**Proportion of Total Crashes**	**Adjusted N_{bimv}**	**Combined CMFs**	**Calibration Factor, C_i**	**Predicted N_{bimv}**
	from Table 12-10			from Table 12-10	from Equation 12-21		$(4)_{TOTAL}$*(5)	(7) from Worksheet 2B		(6)*(7)*(8)
	a	b	c							
Total	-8.90	0.82	0.25	0.40	2.219	1.000	2.219	0.89	1.00	1.967
Fatal and Injury (FI)	-11.13	0.93	0.28	0.48	0.851	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.380	0.844	0.89	1.00	0.748
Property Damage Only (PDO)	-8.74	0.77	0.23	0.40	1.386	$(5)_{TOTAL}-(5)_{FI}$ = 0.620	1.375	0.89	1.00	1.219

Worksheet 2D -- Multiple-Vehicle Collisions by Collision Type for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{bimv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{bimv\ (PDO)}$ (crashes/year)**	**Predicted N $_{bimv\ (TOTAL)}$ (crashes/year)**
	from Table 12-11	$(9)_{FI}$ from Worksheet 2C	from Table 12-11	$(9)_{PDO}$ from Worksheet 2C	$(9)_{PDO}$ from Worksheet 2C
Total	1.000	0.748	1.000	1.219	1.967
		(2)*$(3)_{FI}$		(4)*$(5)_{PDO}$	(3)+(5)
Rear-end collision	0.338	0.253	0.374	0.456	0.709
Head-on collision	0.041	0.031	0.030	0.037	0.067
Angle collision	0.440	0.329	0.335	0.408	0.737
Sideswipe	0.121	0.091	0.044	0.054	0.144
Other multiple-vehicle collision	0.060	0.045	0.217	0.264	0.309

Worksheet 2E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Arterial Intersections

(1)	(2)			(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**			**Overdispersion Parameter, k**	**Initial N_{bisv}**	**Proportion of Total Crashes**	**Adjusted N_{bimv}**	**Combined CMFs**	**Calibration Factor, C_i**	**Predicted N_{bisv}**
	from Table 12-12			from Table 12-12	from Eqn. 12-24; (FI) from Eqn. 12-24 or 12-27		$(4)_{TOTAL}$*(5)	(7) from Worksheet 2B		(6)*(7)*(8)
	a	b	c							
Total	-5.33	0.33	0.12	0.65	0.281	1.000	0.281	0.89	1.00	0.249
Fatal and Injury (FI)	--	--	--	--	0.079	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.288	0.081	0.89	1.00	0.072
Property Damage Only (PDO)	-7.04	0.36	0.25	0.54	0.194	$(5)_{TOTAL}-(5)_{FI}$ = 0.712	0.200	0.89	1.00	0.177

Worksheet 2F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{bisv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{bisv\ (PDO)}$ (crashes/year)**	**Predicted N $_{bisv\ (TOTAL)}$ (crashes/year)**
	from Table 12-13	(9)$_{FI}$ from Worksheet 2E	from Table 12-13	(9)$_{PDO}$ from Worksheet 2E	(9)$_{PDO}$ from Worksheet 2E
Total	1.000	0.072	1.000	0.177	0.249
		(2)*(3)$_{FI}$		(4)*(5)$_{PDO}$	(3)+(5)
Collision with parked vehicle	0.001	0.000	0.001	0.000	0.000
Collision with animal	0.001	0.000	0.026	0.005	0.005
Collision with fixed object	0.679	0.049	0.847	0.150	0.199
Collision with other object	0.089	0.006	0.070	0.012	0.019
Other single-vehicle collision	0.051	0.004	0.007	0.001	0.005
Single-vehicle noncollision	0.179	0.013	0.049	0.009	0.022

Worksheet 2G -- Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Stop-Controlled Intersections

(1)	(2)	(3)	(4)	(5)	(7)*
Crash Severity Level	**Predicted N_{bimv}**	**Predicted N_{bisv}**	**Predicted N_{bi}**	**f_{pedi}**	**Predicted N_{pedi}**
	(9) from Worksheet 2C	(9) from Worksheet 2E	(2) + (3)	from Table 12-16	(4)*(5)
Total	1.967	0.249	2.216	0.022	0.049
Fatal and injury (FI)	--	--	--	--	0.049

* Column 6 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-30

Worksheet 2H -- Crash Modification Factors for Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Signalized Intersections

(1)	(2)	(3)	(4)
CMF for Bus Stops	CMF for Schools	CMF for Alcohol Sales Establishments	Combined CMF
CMF_{1p}	CMF_{2p}	CMF_{3p}	
from Table 12-28	from Table 12-29	from Table 12-30	(1)*(2)*(3)
--	--	--	--

Worksheet 2I -- Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Signalized Intersections

(1)	(2)					(3)	(4)	(5)	(6)	(7)
Crash Severity Level	**SPF Coefficients**					**Overdispersion Parameter, k**	**$N_{pedbase}$**	**Combined CMF**	**Calibration factor, C_i**	**Predicted N_{pedi}**
	from Table 12-14						from Equation 12-29	(4) from Worksheet 2H		(4)*(5)*(6)
	a	b	c	d	e					
Total	--	--	--	--	--	--	--	--	1.00	--
Fatal and Injury (FI)	--	--	--	--	--	--	--	--	1.00	--

Worksheet 2J -- Vehicle-Bicycle Collisions for Urban and Suburban Arterial Intersections					
(1)	(2)	(3)	(4)	(5)	(7)*
Crash Severity Level	**Predicted N_{bimv}**	**Predicted N_{bisv}**	**Predicted N_{bi}**	**f_{bikei}**	**Predicted N_{bikei}**
	(9) from Worksheet 2C	(9) from Worksheet 2E	(2) + (3)	from Table 12-17	(4)*(5)
Total	1.967	0.249	2.216	0.018	0.040
Fatal and injury (FI)	--	--	--	--	0.040

* Column 6 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-31

Worksheet 2K -- Crash Severity Distribution for Urban and Suburban Arterial Intersections			
(1)	(2)	(3)	(4)
Collision type	**Fatal and injury (FI)**	**Property damage only (PDO)**	**Total**
	(3) from Worksheet 2D and 2F; (7) from 2G or 2I and 2J	(5) from Worksheet 2D and 2F	(6) from Worksheet 2D and 2F; (7) from 2G or 2I and 2J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 2D)	0.253	0.456	0.709
Head-on collisions (from Worksheet 2D)	0.031	0.037	0.067
Angle collisions (from Worksheet 2D)	0.329	0.408	0.737
Sideswipe (from Worksheet 2D)	0.091	0.054	0.144
Other multiple-vehicle collision (from Worksheet 2D)	0.045	0.264	0.309
Subtotal	0.748	1.219	1.967
SINGLE-VEHICLE			
Collision with parked vehicle (from Worksheet 2F)	0.000	0.000	0.000
Collision with animal (from Worksheet 2F)	0.000	0.005	0.005
Collision with fixed object (from Worksheet 2F)	0.049	0.150	0.199
Collision with other object (from Worksheet 2F)	0.006	0.012	0.019
Other single-vehicle collision (from Worksheet 2F)	0.004	0.001	0.005
Single-vehicle noncollision (from Worksheet 2F)	0.013	0.009	0.022
Collision with pedestrian (from Worksheet 2G or 2I)	0.049	0.000	0.049
Collision with bicycle (from Worksheet 2J)	0.040	0.000	0.040
Subtotal	0.160	0.177	0.338
Total	0.909	1.396	2.305

Worksheet 2L -- Summary Results for Urban and Suburban Arterial Intersections	
(1)	(2)
Crash severity level	**Predicted average crash frequency, $N_{predicted\ int}$ (crashes/year)**
	(Total) from Worksheet 2K
Total	2.3
Fatal and injury (FI)	0.9
Property damage only (PDO)	1.4

Worksheet 1A -- General Information and Input Data for Urban and Suburban Roadway Segments

General Information		Location Information	
Analyst	TL	Roadway	Montrose Rd
Agency or Company	ATCS	Roadway Section	Potomac Ave to Tower Oaks Blvd
Date Performed	02/19/21	Jurisdiction	Montgomery County
		Analysis Year	2045

Input Data		Base Conditions	Site Conditions
Roadway type (2U, 3T, 4U, 4D, ST)		--	4D
Length of segment, L (mi)		--	0.45
AADT (veh/day)	$AADT_{MAX}$ = 66,000 (veh/day)	--	42,387
Type of on-street parking (none/parallel/angle)		None	None
Proportion of curb length with on-street parking		--	0
Median width (ft) - for divided only		15	10
Lighting (present / not present)		Not Present	Present
Auto speed enforcement (present / not present)		Not Present	Not Present
Major commercial driveways (number)		--	0
Minor commercial driveways (number)		--	0
Major industrial / institutional driveways (number)		--	0
Minor industrial / institutional driveways (number)		--	0
Major residential driveways (number)		--	0
Minor residential driveways (number)		--	0
Other driveways (number)		--	0
Speed Category		--	Posted Speed Greater than 30 mph
Roadside fixed object density (fixed objects / mi)		0	61
Offset to roadside fixed objects (ft) [If greater than 30 or Not Present, input 30]		30	9
Calibration Factor, Cr		1.00	1.00

Worksheet 1B -- Crash Modification Factors for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
CMF for On-Street Parking	CMF for Roadside Fixed Objects	CMF for Median Width	CMF for Lighting	CMF for Automated Speed Enforcement	Combined CMF
CMF 1r	*CMF 2r*	*CMF 3r*	*CMF 4r*	*CMF 5r*	*CMF comb*
from Equation 12-32	from Equation 12-33	from Table 12-22	from Equation 12-34	from Section 12.7.1	(1)*(2)*(3)*(4)*(5)
1.00	1.17	1.01	0.91	1.00	1.08

Worksheet 1C -- Multiple-Vehicle Nondriveway Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brmv}**	**Proportion of Total Crashes**	**Adjusted N_{brmv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brmv}**
	from Table 12-3		from Table 12-3	from Equation 12-10		$(4)_{TOTAL}$*(5)	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-12.34	1.36	1.32	3.864	1.000	3.864	1.08	1.00	4.163
Fatal and Injury (FI)	-12.76	1.28	1.31	1.083	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.266	1.028	1.08	1.00	1.107
Property Damage Only (PDO)	-12.81	1.38	1.34	2.989	$(5)_{TOTAL}-(5)_{FI}$ = 0.734	2.837	1.08	1.00	3.056

Worksheet 1D -- Multiple-Vehicle Nondriveway Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brmv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brmv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brmv\ (TOTAL)}$ (crashes/year)**
	from Table 12-4	$(9)_{FI}$ from Worksheet 1C	from Table 12-4	$(9)_{PDO}$ from Worksheet 1C	$(9)_{TOTAL}$ from Worksheet 1C
Total	1.000	1.107	1.000	3.056	4.163
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Rear-end collision	0.832	0.921	0.662	2.023	2.944
Head-on collision	0.020	0.022	0.007	0.021	0.044
Angle collision	0.040	0.044	0.036	0.110	0.154
Sideswipe, same direction	0.050	0.055	0.223	0.681	0.737
Sideswipe, opposite direction	0.010	0.011	0.001	0.003	0.014
Other multiple-vehicle collision	0.048	0.053	0.071	0.217	0.270

Worksheet 1E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brsv}**	**Proportion of Total Crashes**	**Adjusted N_{brsv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brsv}**
	from Table 12-5		from Table 12-5	from Equation 12-13		$(4)_{TOTAL}*(5)$	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-5.05	0.47	0.86	0.431	1.000	0.431	1.08	1.00	0.465
Fatal and Injury (FI)	-8.71	0.66	0.28	0.084	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.193	0.083	1.08	1.00	0.090
Property Damage Only (PDO)	-5.04	0.45	1.06	0.352	$(5)_{TOTAL}-(5)_{FI}$ = 0.807	0.348	1.08	1.00	0.375

Worksheet 1F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brsv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brsv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brsv\ (TOTAL)}$ (crashes/year)**
	from Table 12-6	$(9)_{FI}$ from Worksheet 1E	from Table 12-6	$(9)_{PDO}$ from Worksheet 1E	$(9)_{TOTAL}$ from Worksheet 1E
Total	1.000	0.090	1.000	0.375	0.465
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Collision with animal	0.001	0.000	0.063	0.024	0.024
Collision with fixed object	0.500	0.045	0.813	0.305	0.350
Collision with other object	0.028	0.003	0.016	0.006	0.009
Other single-vehicle collision	0.471	0.042	0.108	0.041	0.083

Worksheet 1G -- Multiple-Vehicle Driveway-Related Collisions by Driveway Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Driveway Type	**Number of driveways, n_j**	**Crashes per driveway per year, N_j**	**Coefficient for traffic adjustment, t**	**Initial N_{brdwy}**	**Overdispersion parameter, k**
		from Table 12-7	from Table 12-7	Equation 12-16 $n_j * N_j * (AADT/15,000)^t$	from Table 12-7
Major commercial	0	0.033	1.106	0.000	
Minor commercial	0	0.011	1.106	0.000	
Major industrial/institutional	0	0.036	1.106	0.000	
Minor industrial/institutional	0	0.005	1.106	0.000	--
Major residential	0	0.018	1.106	0.000	
Minor residential	0	0.003	1.106	0.000	
Other	0	0.005	1.106	0.000	
Total	--	--	--	0.000	1.39

Worksheet 1H -- Multiple-Vehicle Driveway-Related Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Crash Severity Level	**Initial N_{brdwy}**	**Proportion of total crashes (f_{dwy})**	**Adjusted N_{brdwy}**	**Combined CMFs**	**Calibration factor, C_r**	**Predicted N_{brdwy}**
	$(5)_{TOTAL}$ from Worksheet 1G	from Table 12-7	$(2)_{TOTAL}$ * (3)	(6) from Worksheet 1B		(4)*(5)*(6)
Total	0.000	1.000	0.000	1.08	1.00	0.000
Fatal and injury (FI)	--	0.284	0.000	1.08	1.00	0.000
Property damage only (PDO)	--	0.716	0.000	1.08	1.00	0.000

Worksheet 1I -- Vehicle-Pedestrian Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(8)*
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{pedr}**	**Predicted N_{pedr}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-8	(5)*(6)
Total	4.163	0.465	0.000	4.628	0.019	0.088
Fatal and injury (FI)	--	--	--	--	--	0.088

* Column 7 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-19

Worksheet 1J -- Vehicle-Bicycle Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(8)*
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{biker}**	**Predicted N_{biker}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-9	(5)*(6)
Total	4.163	0.465	0.000	4.628	0.005	0.023
Fatal and injury (FI)	--	--	--	--	--	0.023

* Column 7 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-20

Worksheet 1K -- Crash Severity Distribution for Urban and Suburban Roadway Segments			
(1)	(2)	(3)	(4)
Collision type	**Fatal and injury (FI)**	**Property damage only (PDO)**	**Total**
	(3) from Worksheet 1D and 1F; (7) from Worksheet 1H; and (8) from Worksheet 1I and 1J	(5) from Worksheet 1D and 1F; and (7) from Worksheet 1H	(6) from Worksheet 1D and 1F; (7) from Worksheet 1H; and (8) from Worksheet 1I and 1J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 1D)	0.921	2.023	2.944
Head-on collisions (from Worksheet 1D)	0.022	0.021	0.044
Angle collisions (from Worksheet 1D)	0.044	0.110	0.154
Sideswipe, same direction (from Worksheet 1D)	0.055	0.681	0.737
Sideswipe, opposite direction (from Worksheet 1D)	0.011	0.003	0.014
Driveway-related collisions (from Worksheet 1H)	0.000	0.000	0.000
Other multiple-vehicle collision (from Worksheet 1D)	0.053	0.217	0.270
Subtotal	1.107	3.056	4.163
SINGLE-VEHICLE			
Collision with animal (from Worksheet 1F)	0.000	0.024	0.024
Collision with fixed object (from Worksheet 1F)	0.045	0.305	0.350
Collision with other object (from Worksheet 1F)	0.003	0.006	0.009
Other single-vehicle collision (from Worksheet 1F)	0.042	0.041	0.083
Collision with pedestrian (from Worksheet 1I)	0.088	0.000	0.088
Collision with bicycle (from Worksheet 1J)	0.023	0.000	0.023
Subtotal	0.201	0.375	0.576
Total	1.308	3.431	4.739

Worksheet 1L -- Summary Results for Urban and Suburban Roadway Segments			
(1)	(2)	(3)	(4)
Crash Severity Level	**Predicted average crash frequency, $N_{predicted\ rs}$ (crashes/year)**	**Roadway segment length, L (mi)**	**Crash rate (crashes/mi/year)**
	(Total) from Worksheet 1K		(2) / (3)
Total	4.7	0.45	10.5
Fatal and injury (FI)	1.3	0.45	2.9
Property damage only (PDO)	3.4	0.45	7.6

Worksheet 2A -- General Information and Input Data for Urban and Suburban Arterial Intersections						
General Information				**Location Information**		
Analyst	TL			Roadway	Montrose Rd	
Agency or Company	ATCS			Intersection	At Tower Oaks Blvd	
Date Performed	02/19/21			Jurisdiction	Montgomery County	
				Analysis Year	2045	
Input Data				**Base Conditions**	**Site Conditions**	
Intersection type (3ST, 3SG, 4ST, 4SG)				--	3SG	
AADT $_{major}$ (veh/day)	$AADT_{MAX}$ =	58,100	(veh/day)	--	**70,150**	
AADT $_{minor}$ (veh/day)	$AADT_{MAX}$ =	16,400	(veh/day)	--	12,655	
Intersection lighting (present/not present)				Not Present	Present	
Calibration factor, C_i				1.00	1.00	
Data for unsignalized intersections only:				--	--	
Number of major-road approaches with left-turn lanes (0,1,2)				0	0	
Number of major-road approaches with right-turn lanes (0,1,2)				0	0	
Data for signalized intersections only:				--	--	
Number of approaches with left-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]				0	2	
Number of approaches with right-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]				0	2	
Number of approaches with left-turn signal phasing [for 3SG, use maximum value of 3]				--	2	
Type of left-turn signal phasing for Leg #1				Permissive	Permissive / Protected	
Type of left-turn signal phasing for Leg #2				--	Protected	
Type of left-turn signal phasing for Leg #3				--	Not Applicable	
Type of left-turn signal phasing for Leg #4 (if applicable)				--	Not Applicable	
Number of approaches with right-turn-on-red prohibited [for 3SG, use maximum value of 3]				0	1	
Intersection red light cameras (present/not present)				Not Present	Not Present	
Sum of all pedestrian crossing volumes (PedVol) -- Signalized intersections only					6	
Maximum number of lanes crossed by a pedestrian (n_{lanesx})				--	6	
Number of bus stops within 300 m (1,000 ft) of the intersection				0	4	
Schools within 300 m (1,000 ft) of the intersection (present/not present)				Not Present	Not Present	
Number of alcohol sales establishments within 300 m (1,000 ft) of the intersection				0	0	

Worksheet 2B -- Crash Modification Factors for Urban and Suburban Arterial Intersections						
(1)	(2)	(3)	(4)	(5)	(6)	(7)
CMF for Left-Turn Lanes	CMF for Left-Turn Signal Phasing	CMF for Right-Turn Lanes	CMF for Right Turn on Red	CMF for Lighting	CMF for Red Light Cameras	Combined CMF
CMF 1i	*CMF 2i*	*CMF 3i*	*CMF 4i*	*CMF 5i*	*CMF 6i*	*CMF $_{COMB}$*
from Table 12-24	from Table 12-25	from Table 12-26	from Equation 12-35	from Equation 12-36	from Equation 12-37	(1)*(2)*(3)*(4)*(5)*(6)
0.86	0.93	0.92	0.98	0.91	1.00	0.66

Worksheet 2C -- Multiple-Vehicle Collisions by Severity Level for Urban and Suburban Arterial Intersections

(1)	(2)			(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**			**Overdispersion Parameter, k**	**Initial N_{bimv}**	**Proportion of Total Crashes**	**Adjusted N_{bimv}**	**Combined CMFs**	**Calibration Factor, C_i**	**Predicted N_{bimv}**
	from Table 12-10			from Table 12-10	from Equation 12-21		$(4)_{TOTAL}$*(5)	(7) from Worksheet 2B		(6)*(7)*(8)
	a	b	c							
Total	-12.13	1.11	0.26	0.33	15.055	1.000	15.055	0.66	1.00	9.910
Fatal and Injury (FI)	-11.58	1.02	0.17	0.30	4.085	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.288	4.330	0.66	1.00	2.850
Property Damage Only (PDO)	-13.24	1.14	0.30	0.36	10.118	$(5)_{TOTAL}-(5)_{FI}$ = 0.712	10.725	0.66	1.00	7.060

Worksheet 2D -- Multiple-Vehicle Collisions by Collision Type for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{bimv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{bimv\ (PDO)}$ (crashes/year)**	**Predicted N $_{bimv\ (TOTAL)}$ (crashes/year)**
	from Table 12-11	$(9)_{FI}$ from Worksheet 2C	from Table 12-11	$(9)_{PDO}$ from Worksheet 2C	$(9)_{PDO}$ from Worksheet 2C
Total	1.000	2.850	1.000	7.060	9.910
		(2)*$(3)_{FI}$		(4)*$(5)_{PDO}$	(3)+(5)
Rear-end collision	0.549	1.565	0.546	3.855	5.420
Head-on collision	0.038	0.108	0.020	0.141	0.250
Angle collision	0.280	0.798	0.204	1.440	2.238
Sideswipe	0.076	0.217	0.032	0.226	0.443
Other multiple-vehicle collision	0.057	0.162	0.198	1.398	1.560

Worksheet 2E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Arterial Intersections

(1)	(2)			(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**			**Overdispersion Parameter, k**	**Initial N_{bisv}**	**Proportion of Total Crashes**	**Adjusted N_{bimv}**	**Combined CMFs**	**Calibration Factor, C_i**	**Predicted N_{bisv}**
	from Table 12-12			from Table 12-12	from Eqn. 12-24; (FI) from Eqn. 12-24 or 12-27		$(4)_{TOTAL}$*(5)	(7) from Worksheet 2B		(6)*(7)*(8)
	a	b	c							
Total	-9.02	0.42	0.40	0.36	0.574	1.000	0.574	0.66	1.00	0.378
Fatal and Injury (FI)	-9.75	0.27	0.51	0.24	0.147	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.273	0.157	0.66	1.00	0.103
Property Damage Only (PDO)	-9.08	0.45	0.33	0.53	0.390	$(5)_{TOTAL}-(5)_{FI}$ = 0.727	0.417	0.66	1.00	0.275

Worksheet 2F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{bisv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{bisv\ (PDO)}$ (crashes/year)**	**Predicted N $_{bisv\ (TOTAL)}$ (crashes/year)**
	from Table 12-13	(9)$_{FI}$ from Worksheet 2E	from Table 12-13	(9)$_{PDO}$ from Worksheet 2E	(9)$_{PDO}$ from Worksheet 2E
Total	1.000	0.103	1.000	0.275	0.378
		(2)*(3)$_{FI}$		(4)*(5)$_{PDO}$	(3)+(5)
Collision with parked vehicle	0.001	0.000	0.001	0.000	0.000
Collision with animal	0.001	0.000	0.003	0.001	0.001
Collision with fixed object	0.653	0.067	0.895	0.246	0.313
Collision with other object	0.091	0.009	0.069	0.019	0.028
Other single-vehicle collision	0.045	0.005	0.018	0.005	0.010
Single-vehicle noncollision	0.209	0.022	0.014	0.004	0.025

Worksheet 2G -- Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Stop-Controlled Intersections

(1)	(2)	(3)	(4)	(5)	(7)*
Crash Severity Level	**Predicted N_{bimv}**	**Predicted N_{bisv}**	**Predicted N_{bi}**	**f_{pedi}**	**Predicted N_{pedi}**
	(9) from Worksheet 2C	(9) from Worksheet 2E	(2) + (3)	from Table 12-16	(4)*(5)
Total	--	--	--	--	--
Fatal and injury (FI)	--	--	--	--	--

* Column 6 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-30

Worksheet 2H -- Crash Modification Factors for Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Signalized Intersections

(1)	(2)	(3)	(4)
CMF for Bus Stops	CMF for Schools	CMF for Alcohol Sales Establishments	Combined CMF
CMF_{1p}	CMF_{2p}	CMF_{3p}	
from Table 12-28	from Table 12-29	from Table 12-30	(1)*(2)*(3)
4.15	1.00	1.00	4.15

Worksheet 2I -- Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Signalized Intersections

(1)	(2)					(3)	(4)	(5)	(6)	(7)
Crash Severity Level	**SPF Coefficients**					**Overdispersion Parameter, k**	**$N_{pedbase}$**	**Combined CMF**	**Calibration factor, C_i**	**Predicted N_{pedi}**
	from Table 12-14						from Equation 12-29	(4) from Worksheet 2H		(4)*(5)*(6)
	a	b	c	d	e					
Total	-6.60	0.05	0.24	0.41	0.09	0.52	0.006	4.15	1.00	0.024
Fatal and Injury (FI)	--	--	--	--	--	--	--	--	1.00	0.024

Worksheet 2J -- Vehicle-Bicycle Collisions for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(7)*
Crash Severity Level	**Predicted N_{bimv}**	**Predicted N_{bisv}**	**Predicted N_{bi}**	**f_{bikei}**	**Predicted N_{bikei}**
	(9) from Worksheet 2C	(9) from Worksheet 2E	(2) + (3)	from Table 12-17	(4)*(5)
Total	9.910	0.378	10.288	0.011	0.113
Fatal and injury (FI)	--	--	--	--	0.113

* Column 6 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-31

Worksheet 2K -- Crash Severity Distribution for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)
	Fatal and injury (FI)	**Property damage only (PDO)**	**Total**
Collision type	(3) from Worksheet 2D and 2F; (7) from 2G or 2I and 2J	(5) from Worksheet 2D and 2F	(6) from Worksheet 2D and 2F; (7) from 2G or 2I and 2J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 2D)	1.565	3.855	5.420
Head-on collisions (from Worksheet 2D)	0.108	0.141	0.250
Angle collisions (from Worksheet 2D)	0.798	1.440	2.238
Sideswipe (from Worksheet 2D)	0.217	0.226	0.443
Other multiple-vehicle collision (from Worksheet 2D)	0.162	1.398	1.560
Subtotal	2.850	7.060	9.910
SINGLE-VEHICLE			
Collision with parked vehicle (from Worksheet 2F)	0.000	0.000	0.000
Collision with animal (from Worksheet 2F)	0.000	0.001	0.001
Collision with fixed object (from Worksheet 2F)	0.067	0.246	0.313
Collision with other object (from Worksheet 2F)	0.009	0.019	0.028
Other single-vehicle collision (from Worksheet 2F)	0.005	0.005	0.010
Single-vehicle noncollision (from Worksheet 2F)	0.022	0.004	0.025
Collision with pedestrian (from Worksheet 2G or 2I)	0.024	0.000	0.024
Collision with bicycle (from Worksheet 2J)	0.113	0.000	0.113
Subtotal	0.240	0.275	0.515
Total	3.090	7.335	10.425

Worksheet 2L -- Summary Results for Urban and Suburban Arterial Intersections

(1)	(2)
Crash severity level	**Predicted average crash frequency, $N_{predicted\ int}$ (crashes/year)**
	(Total) from Worksheet 2K
Total	10.4
Fatal and injury (FI)	3.1
Property damage only (PDO)	7.3

Worksheet 1A -- General Information and Input Data for Urban and Suburban Roadway Segments

General Information		Location Information	
Analyst	TL	Roadway	Tower Oaks Blvd
Agency or Company	ATCS	Roadway Section	Montrose Rd to I-270 NB Ramps
Date Performed	02/19/21	Jurisdiction	Montgomery County
		Analysis Year	2045

Input Data		Base Conditions	Site Conditions
Roadway type (2U, 3T, 4U, 4D, ST)		--	4U
Length of segment, L (mi)		--	0.17
AADT (veh/day)	$AADT_{MAX}$ = 40,100 (veh/day)	--	13,608
Type of on-street parking (none/parallel/angle)		None	None
Proportion of curb length with on-street parking		--	0
Median width (ft) - for divided only		15	Not Present
Lighting (present / not present)		Not Present	Present
Auto speed enforcement (present / not present)		Not Present	Not Present
Major commercial driveways (number)		--	0
Minor commercial driveways (number)		--	1
Major industrial / institutional driveways (number)		--	0
Minor industrial / institutional driveways (number)		--	0
Major residential driveways (number)		--	0
Minor residential driveways (number)		--	0
Other driveways (number)		--	0
Speed Category		--	Posted Speed Greater than 30 mph
Roadside fixed object density (fixed objects / mi)		0	195
Offset to roadside fixed objects (ft) [If greater than 30 or Not Present, input 30]		30	14
Calibration Factor, Cr		1.00	1.00

Worksheet 1B -- Crash Modification Factors for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
CMF for On-Street Parking	CMF for Roadside Fixed Objects	CMF for Median Width	CMF for Lighting	CMF for Automated Speed Enforcement	Combined CMF
CMF 1r	*CMF 2r*	*CMF 3r*	*CMF 4r*	*CMF 5r*	*CMF comb*
from Equation 12-32	from Equation 12-33	from Table 12-22	from Equation 12-34	from Section 12.7.1	(1)*(2)*(3)*(4)*(5)
1.00	1.47	1.00	0.92	1.00	1.35

Worksheet 1C -- Multiple-Vehicle Nondriveway Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brmv}**	**Proportion of Total Crashes**	**Adjusted N_{brmv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brmv}**
	from Table 12-3		from Table 12-3	from Equation 12-10		$(4)_{TOTAL}$*(5)	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-11.63	1.33	1.01	0.476	1.000	0.476	1.35	1.00	0.643
Fatal and Injury (FI)	-12.08	1.25	0.99	0.142	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.313	0.149	1.35	1.00	0.201
Property Damage Only (PDO)	-12.53	1.38	1.08	0.311	$(5)_{TOTAL}-(5)_{FI}$ = 0.687	0.327	1.35	1.00	0.442

Worksheet 1D -- Multiple-Vehicle Nondriveway Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brmv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brmv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brmv\ (TOTAL)}$ (crashes/year)**
	from Table 12-4	$(9)_{FI}$ from Worksheet 1C	from Table 12-4	$(9)_{PDO}$ from Worksheet 1C	$(9)_{TOTAL}$ from Worksheet 1C
Total	1.000	0.201	1.000	0.442	0.643
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Rear-end collision	0.511	0.103	0.506	0.223	0.326
Head-on collision	0.077	0.015	0.004	0.002	0.017
Angle collision	0.181	0.036	0.130	0.057	0.094
Sideswipe, same direction	0.093	0.019	0.249	0.110	0.129
Sideswipe, opposite direction	0.082	0.016	0.031	0.014	0.030
Other multiple-vehicle collision	0.056	0.011	0.080	0.035	0.047

Worksheet 1E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brsv}**	**Proportion of Total Crashes**	**Adjusted N_{brsv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brsv}**
	from Table 12-5		from Table 12-5	from Equation 12-13		$(4)_{TOTAL}*(5)$	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-7.99	0.81	0.91	0.128	1.000	0.128	1.35	1.00	0.173
Fatal and Injury (FI)	-7.37	0.61	0.54	0.036	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.257	0.033	1.35	1.00	0.045
Property Damage Only (PDO)	-8.50	0.84	0.97	0.103	$(5)_{TOTAL}-(5)_{FI}$ = 0.743	0.095	1.35	1.00	0.129

Worksheet 1F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brsv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brsv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brsv\ (TOTAL)}$ (crashes/year)**
	from Table 12-6	$(9)_{FI}$ from Worksheet 1E	from Table 12-6	$(9)_{PDO}$ from Worksheet 1E	$(9)_{TOTAL}$ from Worksheet 1E
Total	1.000	0.045	1.000	0.129	0.173
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Collision with animal	0.001	0.000	0.001	0.000	0.000
Collision with fixed object	0.612	0.027	0.809	0.104	0.132
Collision with other object	0.020	0.001	0.029	0.004	0.005
Other single-vehicle collision	0.367	0.016	0.161	0.021	0.037

Worksheet 1G -- Multiple-Vehicle Driveway-Related Collisions by Driveway Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Driveway Type	**Number of driveways, n_j**	**Crashes per driveway per year, N_j**	**Coefficient for traffic adjustment, t**	**Initial N_{brdwy}**	**Overdispersion parameter, k**
		from Table 12-7	from Table 12-7	Equation 12-16 $n_j * N_j * (AADT/15,000)^t$	from Table 12-7
Major commercial	0	0.182	1.172	0.000	
Minor commercial	1	0.058	1.172	0.052	
Major industrial/institutional	0	0.198	1.172	0.000	
Minor industrial/institutional	0	0.026	1.172	0.000	--
Major residential	0	0.096	1.172	0.000	
Minor residential	0	0.018	1.172	0.000	
Other	0	0.029	1.172	0.000	
Total	--	--	--	0.052	0.81

Worksheet 1H -- Multiple-Vehicle Driveway-Related Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Crash Severity Level	**Initial N_{brdwy}**	**Proportion of total crashes (f_{dwy})**	**Adjusted N_{brdwy}**	**Combined CMFs**	**Calibration factor, C_r**	**Predicted N_{brdwy}**
	$(5)_{TOTAL}$ from Worksheet 1G	from Table 12-7	$(2)_{TOTAL}$ * (3)	(6) from Worksheet 1B		(4)*(5)*(6)
Total	0.052	1.000	0.052	1.35	1.00	0.070
Fatal and injury (FI)	--	0.342	0.018	1.35	1.00	0.024
Property damage only (PDO)	--	0.658	0.034	1.35	1.00	0.046

Worksheet 1I -- Vehicle-Pedestrian Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(8)*
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{pedr}**	**Predicted N_{pedr}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-8	(5)*(6)
Total	0.643	0.173	0.070	0.886	0.009	0.008
Fatal and injury (FI)	--	--	--	--	--	0.008

* Column 7 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-19

Worksheet 1J -- Vehicle-Bicycle Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(8)*
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{biker}**	**Predicted N_{biker}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-9	(5)*(6)
Total	0.643	0.173	0.070	0.886	0.002	0.002
Fatal and injury (FI)	--	--	--	--	--	0.002

* Column 7 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-20

Worksheet 1K -- Crash Severity Distribution for Urban and Suburban Roadway Segments			
(1)	(2)	(3)	(4)
Collision type	**Fatal and injury (FI)**	**Property damage only (PDO)**	**Total**
	(3) from Worksheet 1D and 1F; (7) from Worksheet 1H; and (8) from Worksheet 1I and 1J	(5) from Worksheet 1D and 1F; and (7) from Worksheet 1H	(6) from Worksheet 1D and 1F; (7) from Worksheet 1H; and (8) from Worksheet 1I and 1J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 1D)	0.103	0.223	0.326
Head-on collisions (from Worksheet 1D)	0.015	0.002	0.017
Angle collisions (from Worksheet 1D)	0.036	0.057	0.094
Sideswipe, same direction (from Worksheet 1D)	0.019	0.110	0.129
Sideswipe, opposite direction (from Worksheet 1D)	0.016	0.014	0.030
Driveway-related collisions (from Worksheet 1H)	0.024	0.046	0.070
Other multiple-vehicle collision (from Worksheet 1D)	0.011	0.035	0.047
Subtotal	0.225	0.488	0.712
SINGLE-VEHICLE			
Collision with animal (from Worksheet 1F)	0.000	0.000	0.000
Collision with fixed object (from Worksheet 1F)	0.027	0.104	0.132
Collision with other object (from Worksheet 1F)	0.001	0.004	0.005
Other single-vehicle collision (from Worksheet 1F)	0.016	0.021	0.037
Collision with pedestrian (from Worksheet 1I)	0.008	0.000	0.008
Collision with bicycle (from Worksheet 1J)	0.002	0.000	0.002
Subtotal	0.054	0.129	0.183
Total	0.279	0.616	0.896

Worksheet 1L -- Summary Results for Urban and Suburban Roadway Segments			
(1)	(2)	(3)	(4)
Crash Severity Level	**Predicted average crash frequency, $N_{predicted\ rs}$ (crashes/year)**	**Roadway segment length, L (mi)**	**Crash rate (crashes/mi/year)**
	(Total) from Worksheet 1K		(2) / (3)
Total	0.9	0.17	5.3
Fatal and injury (FI)	0.3	0.17	1.6
Property damage only (PDO)	0.6	0.17	3.6

Worksheet 2A -- General Information and Input Data for Urban and Suburban Arterial Intersections						
General Information				**Location Information**		
Analyst	TL			Roadway	Tower Oaks Blvd	
Agency or Company	ATCS			Intersection	At I-270 NB Ramps/Geico Ent.	
Date Performed	02/19/21			Jurisdiction	Montgomery County	
				Analysis Year	2045	
Input Data				**Base Conditions**	**Site Conditions**	
Intersection type (3ST, 3SG, 4ST, 4SG)				--	4SG	
AADT $_{major}$ (veh/day)	$AADT_{MAX}$ =	67,700	(veh/day)	--	12,484	
AADT $_{minor}$ (veh/day)	$AADT_{MAX}$ =	33,400	(veh/day)	--	9,272	
Intersection lighting (present/not present)				Not Present	Present	
Calibration factor, C_i				1.00	1.00	
Data for unsignalized intersections only:				--	--	
Number of major-road approaches with left-turn lanes (0,1,2)				0	0	
Number of major-road approaches with right-turn lanes (0,1,2)				0	0	
Data for signalized intersections only:				--	--	
Number of approaches with left-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]				0	1	
Number of approaches with right-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]				0	1	
Number of approaches with left-turn signal phasing [for 3SG, use maximum value of 3]				--	2	
Type of left-turn signal phasing for Leg #1				Permissive	Protected	
Type of left-turn signal phasing for Leg #2				--	Permissive	
Type of left-turn signal phasing for Leg #3				--	Protected	
Type of left-turn signal phasing for Leg #4 (if applicable)				--	Permissive	
Number of approaches with right-turn-on-red prohibited [for 3SG, use maximum value of 3]				0	0	
Intersection red light cameras (present/not present)				Not Present	Not Present	
Sum of all pedestrian crossing volumes (PedVol) -- Signalized intersections only					123	
Maximum number of lanes crossed by a pedestrian (n_{lanesx})				--	4	
Number of bus stops within 300 m (1,000 ft) of the intersection				0	4	
Schools within 300 m (1,000 ft) of the intersection (present/not present)				Not Present	Not Present	
Number of alcohol sales establishments within 300 m (1,000 ft) of the intersection				0	0	

Worksheet 2B -- Crash Modification Factors for Urban and Suburban Arterial Intersections						
(1)	(2)	(3)	(4)	(5)	(6)	(7)
CMF for Left-Turn Lanes	CMF for Left-Turn Signal Phasing	CMF for Right-Turn Lanes	CMF for Right Turn on Red	CMF for Lighting	CMF for Red Light Cameras	Combined CMF
CMF 1i	*CMF 2i*	*CMF 3i*	*CMF 4i*	*CMF 5i*	*CMF 6i*	*CMF $_{COMB}$*
from Table 12-24	from Table 12-25	from Table 12-26	from Equation 12-35	from Equation 12-36	from Equation 12-37	(1)*(2)*(3)*(4)*(5)*(6)
0.90	0.94	0.96	1.00	0.91	1.00	0.74

Worksheet 2C -- Multiple-Vehicle Collisions by Severity Level for Urban and Suburban Arterial Intersections

(1)	(2)			(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**			**Overdispersion Parameter, k**	**Initial N_{bimv}**	**Proportion of Total Crashes**	**Adjusted N_{bimv}**	**Combined CMFs**	**Calibration Factor, C_i**	**Predicted N_{bimv}**
	from Table 12-10			from Table 12-10	from Equation 12-21		$(4)_{TOTAL}$*(5)	(7) from Worksheet 2B		(6)*(7)*(8)
	a	b	c							
Total	-10.99	1.07	0.23	0.39	3.332	1.000	3.332	0.74	1.00	2.464
Fatal and Injury (FI)	-13.14	1.18	0.22	0.33	1.000	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ 0.311	1.037	0.74	1.00	0.767
Property Damage Only (PDO)	-11.02	1.02	0.24	0.44	2.210	$(5)_{TOTAL}-(5)_{FI}$ 0.689	2.294	0.74	1.00	1.697

Worksheet 2D -- Multiple-Vehicle Collisions by Collision Type for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{bimv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{bimv\ (PDO)}$ (crashes/year)**	**Predicted N $_{bimv\ (TOTAL)}$ (crashes/year)**
	from Table 12-11	$(9)_{FI}$ from Worksheet 2C	from Table 12-11	$(9)_{PDO}$ from Worksheet 2C	$(9)_{PDO}$ from Worksheet 2C
Total	1.000	0.767	1.000	1.697	2.464
		(2)*$(3)_{FI}$		(4)*$(5)_{PDO}$	(3)+(5)
Rear-end collision	0.450	0.345	0.483	0.820	1.165
Head-on collision	0.049	0.038	0.030	0.051	0.089
Angle collision	0.347	0.266	0.244	0.414	0.680
Sideswipe	0.099	0.076	0.032	0.054	0.130
Other multiple-vehicle collision	0.055	0.042	0.211	0.358	0.400

Worksheet 2E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Arterial Intersections

(1)	(2)			(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**			**Overdispersion Parameter, k**	**Initial N_{bisv}**	**Proportion of Total Crashes**	**Adjusted N_{bimv}**	**Combined CMFs**	**Calibration Factor, C_i**	**Predicted N_{bisv}**
	from Table 12-12			from Table 12-12	from Eqn. 12-24; (FI) from Eqn. 12-24 or 12-27		$(4)_{TOTAL}$*(5)	(7) from Worksheet 2B		(6)*(7)*(8)
	a	b	c							
Total	-10.21	0.68	0.27	0.36	0.265	1.000	0.265	0.74	1.00	0.196
Fatal and Injury (FI)	-9.25	0.43	0.29	0.09	0.078	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ 0.300	0.079	0.74	1.00	0.059
Property Damage Only (PDO)	-11.34	0.78	0.25	0.44	0.183	$(5)_{TOTAL}-(5)_{FI}$ 0.700	0.185	0.74	1.00	0.137

Worksheet 2F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{bisv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{bisv\ (PDO)}$ (crashes/year)**	**Predicted N $_{bisv\ (TOTAL)}$ (crashes/year)**
	from Table 12-13	(9)$_{FI}$ from Worksheet 2E	from Table 12-13	(9)$_{PDO}$ from Worksheet 2E	(9)$_{PDO}$ from Worksheet 2E
Total	1.000	0.059	1.000	0.137	0.196
		(2)*(3)$_{FI}$		(4)*(5)$_{PDO}$	(3)+(5)
Collision with parked vehicle	0.001	0.000	0.001	0.000	0.000
Collision with animal	0.002	0.000	0.002	0.000	0.000
Collision with fixed object	0.744	0.044	0.870	0.119	0.163
Collision with other object	0.072	0.004	0.070	0.010	0.014
Other single-vehicle collision	0.040	0.002	0.023	0.003	0.005
Single-vehicle noncollision	0.141	0.008	0.034	0.005	0.013

Worksheet 2G -- Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Stop-Controlled Intersections

(1)	(2)	(3)	(4)	(5)	(7)*
Crash Severity Level	**Predicted N_{bimv}**	**Predicted N_{bisv}**	**Predicted N_{bi}**	**f_{pedi}**	**Predicted N_{pedi}**
	(9) from Worksheet 2C	(9) from Worksheet 2E	(2) + (3)	from Table 12-16	(4)*(5)
Total	--	--	--	--	--
Fatal and injury (FI)	--	--	--	--	--

* Column 6 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-30

Worksheet 2H -- Crash Modification Factors for Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Signalized Intersections

(1)	(2)	(3)	(4)
CMF for Bus Stops	CMF for Schools	CMF for Alcohol Sales Establishments	Combined CMF
CMF_{1p}	CMF_{2p}	CMF_{3p}	
from Table 12-28	from Table 12-29	from Table 12-30	(1)*(2)*(3)
4.15	1.00	1.00	4.15

Worksheet 2I -- Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Signalized Intersections

(1)	(2)					(3)	(4)	(5)	(6)	(7)
Crash Severity Level	**SPF Coefficients**					**Overdispersion Parameter, k**	**$N_{pedbase}$**	**Combined CMF**	**Calibration factor, C_i**	**Predicted N_{pedi}**
	from Table 12-14						from Equation 12-29	(4) from Worksheet 2H		(4)*(5)*(6)
	a	b	c	d	e					
Total	-9.53	0.40	0.26	0.45	0.04	0.24	0.037	4.15	1.00	0.155
Fatal and Injury (FI)	--	--	--	--	--	--	--	--	1.00	0.155

Worksheet 2J -- Vehicle-Bicycle Collisions for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(7)*
Crash Severity Level	**Predicted N_{bimv}**	**Predicted N_{bisv}**	**Predicted N_{bi}**	**f_{bikei}**	**Predicted N_{bikei}**
	(9) from Worksheet 2C	(9) from Worksheet 2E	(2) + (3)	from Table 12-17	(4)*(5)
Total	2.464	0.196	2.660	0.015	0.040
Fatal and injury (FI)	--	--	--	--	0.040

* Column 6 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-31

Worksheet 2K -- Crash Severity Distribution for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)
	Fatal and injury (FI)	**Property damage only (PDO)**	**Total**
Collision type	(3) from Worksheet 2D and 2F; (7) from 2G or 2I and 2J	(5) from Worksheet 2D and 2F	(6) from Worksheet 2D and 2F; (7) from 2G or 2I and 2J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 2D)	0.345	0.820	1.165
Head-on collisions (from Worksheet 2D)	0.038	0.051	0.089
Angle collisions (from Worksheet 2D)	0.266	0.414	0.680
Sideswipe (from Worksheet 2D)	0.076	0.054	0.130
Other multiple-vehicle collision (from Worksheet 2D)	0.042	0.358	0.400
Subtotal	0.767	1.697	2.464
SINGLE-VEHICLE			
Collision with parked vehicle (from Worksheet 2F)	0.000	0.000	0.000
Collision with animal (from Worksheet 2F)	0.000	0.000	0.000
Collision with fixed object (from Worksheet 2F)	0.044	0.119	0.163
Collision with other object (from Worksheet 2F)	0.004	0.010	0.014
Other single-vehicle collision (from Worksheet 2F)	0.002	0.003	0.005
Single-vehicle noncollision (from Worksheet 2F)	0.008	0.005	0.013
Collision with pedestrian (from Worksheet 2G or 2I)	0.155	0.000	0.155
Collision with bicycle (from Worksheet 2J)	0.040	0.000	0.040
Subtotal	0.254	0.137	0.391
Total	1.021	1.834	2.855

Worksheet 2L -- Summary Results for Urban and Suburban Arterial Intersections

(1)	(2)
Crash severity level	**Predicted average crash frequency, $N_{predicted\ int}$ (crashes/year)**
	(Total) from Worksheet 2K
Total	2.9
Fatal and injury (FI)	1.0
Property damage only (PDO)	1.8

Worksheet 2A -- General Information and Input Data for Urban and Suburban Arterial Intersections						
General Information				**Location Information**		
Analyst	TL			Roadway	MD 28 Key W Ave	
Agency or Company	ATCS			Intersection	At Omega Dr/Medical Center Dr	
Date Performed	02/17/21			Jurisdiction	Montgomery County	
				Analysis Year	2045	
Input Data				**Base Conditions**	**Site Conditions**	
Intersection type (3ST, 3SG, 4ST, 4SG)				--	4SG	
AADT $_{major}$ (veh/day)	$AADT_{MAX}$ =	67,700	(veh/day)	--	28,732	
AADT $_{minor}$ (veh/day)	$AADT_{MAX}$ =	33,400	(veh/day)	--	11,341	
Intersection lighting (present/not present)				Not Present	Present	
Calibration factor, C_i				1.00	1.00	
Data for unsignalized intersections only:				--	--	
Number of major-road approaches with left-turn lanes (0,1,2)				0	0	
Number of major-road approaches with right-turn lanes (0,1,2)				0	0	
Data for signalized intersections only:				--	--	
Number of approaches with left-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]				0	4	
Number of approaches with right-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]				0	4	
Number of approaches with left-turn signal phasing [for 3SG, use maximum value of 3]				--	4	
Type of left-turn signal phasing for Leg #1				Permissive	Protected	
Type of left-turn signal phasing for Leg #2				--	Protected	
Type of left-turn signal phasing for Leg #3				--	Protected	
Type of left-turn signal phasing for Leg #4 (if applicable)				--	Protected	
Number of approaches with right-turn-on-red prohibited [for 3SG, use maximum value of 3]				0	0	
Intersection red light cameras (present/not present)				Not Present	Not Present	
Sum of all pedestrian crossing volumes (PedVol) -- Signalized intersections only					260	
Maximum number of lanes crossed by a pedestrian (n_{lanesx})				--	9	
Number of bus stops within 300 m (1,000 ft) of the intersection				0	10	
Schools within 300 m (1,000 ft) of the intersection (present/not present)				Not Present	Not Present	
Number of alcohol sales establishments within 300 m (1,000 ft) of the intersection				0	0	

Worksheet 2B -- Crash Modification Factors for Urban and Suburban Arterial Intersections						
(1)	(2)	(3)	(4)	(5)	(6)	(7)
CMF for Left-Turn Lanes	CMF for Left-Turn Signal Phasing	CMF for Right-Turn Lanes	CMF for Right Turn on Red	CMF for Lighting	CMF for Red Light Cameras	Combined CMF
CMF 1i	*CMF 2i*	*CMF 3i*	*CMF 4i*	*CMF 5i*	*CMF 6i*	*CMF $_{COMB}$*
from Table 12-24	from Table 12-25	from Table 12-26	from Equation 12-35	from Equation 12-36	from Equation 12-37	(1)*(2)*(3)*(4)*(5)*(6)
0.66	0.78	0.85	1.00	0.91	1.00	0.40

Worksheet 2C -- Multiple-Vehicle Collisions by Severity Level for Urban and Suburban Arterial Intersections

(1)	(2)			(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**			**Overdispersion Parameter, k**	**Initial N_{bimv}**	**Proportion of Total Crashes**	**Adjusted N_{bimv}**	**Combined CMFs**	**Calibration Factor, C_i**	**Predicted N_{bimv}**
	from Table 12-10			from Table 12-10	from Equation 12-21		$(4)_{TOTAL}$*(5)	(7) from Worksheet 2B		(6)*(7)*(8)
	a	b	c							
Total	-10.99	1.07	0.23	0.39	8.514	1.000	8.514	0.40	1.00	3.393
Fatal and Injury (FI)	-13.14	1.18	0.22	0.33	2.794	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ 0.340	2.893	0.40	1.00	1.153
Property Damage Only (PDO)	-11.02	1.02	0.24	0.44	5.429	$(5)_{TOTAL}-(5)_{FI}$ 0.660	5.621	0.40	1.00	2.240

Worksheet 2D -- Multiple-Vehicle Collisions by Collision Type for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{bimv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{bimv\ (PDO)}$ (crashes/year)**	**Predicted N $_{bimv\ (TOTAL)}$ (crashes/year)**
	from Table 12-11	$(9)_{FI}$ from Worksheet 2C	from Table 12-11	$(9)_{PDO}$ from Worksheet 2C	$(9)_{PDO}$ from Worksheet 2C
Total	1.000	1.153	1.000	2.240	3.393
		(2)*$(3)_{FI}$		(4)*$(5)_{PDO}$	(3)+(5)
Rear-end collision	0.450	0.519	0.483	1.082	1.601
Head-on collision	0.049	0.057	0.030	0.067	0.124
Angle collision	0.347	0.400	0.244	0.547	0.947
Sideswipe	0.099	0.114	0.032	0.072	0.186
Other multiple-vehicle collision	0.055	0.063	0.211	0.473	0.536

Worksheet 2E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Arterial Intersections

(1)	(2)			(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**			**Overdispersion Parameter, k**	**Initial N_{bisv}**	**Proportion of Total Crashes**	**Adjusted N_{bimv}**	**Combined CMFs**	**Calibration Factor, C_i**	**Predicted N_{bisv}**
	from Table 12-12			from Table 12-12	from Eqn. 12-24; (FI) from Eqn. 12-24 or 12-27		$(4)_{TOTAL}$*(5)	(7) from Worksheet 2B		(6)*(7)*(8)
	a	b	c							
Total	-10.21	0.68	0.27	0.36	0.492	1.000	0.492	0.40	1.00	0.196
Fatal and Injury (FI)	-9.25	0.43	0.29	0.09	0.119	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ 0.244	0.120	0.40	1.00	0.048
Property Damage Only (PDO)	-11.34	0.78	0.25	0.44	0.368	$(5)_{TOTAL}-(5)_{FI}$ 0.756	0.372	0.40	1.00	0.148

Worksheet 2F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{bisv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{bisv\ (PDO)}$ (crashes/year)**	**Predicted N $_{bisv\ (TOTAL)}$ (crashes/year)**
	from Table 12-13	(9)$_{FI}$ from Worksheet 2E	from Table 12-13	(9)$_{PDO}$ from Worksheet 2E	(9)$_{PDO}$ from Worksheet 2E
Total	1.000	0.048	1.000	0.148	0.196
		(2)*(3)$_{FI}$		(4)*(5)$_{PDO}$	(3)+(5)
Collision with parked vehicle	0.001	0.000	0.001	0.000	0.000
Collision with animal	0.002	0.000	0.002	0.000	0.000
Collision with fixed object	0.744	0.036	0.870	0.129	0.165
Collision with other object	0.072	0.003	0.070	0.010	0.014
Other single-vehicle collision	0.040	0.002	0.023	0.003	0.005
Single-vehicle noncollision	0.141	0.007	0.034	0.005	0.012

Worksheet 2G -- Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Stop-Controlled Intersections

(1)	(2)	(3)	(4)	(5)	(7)*
Crash Severity Level	**Predicted N_{bimv}**	**Predicted N_{bisv}**	**Predicted N_{bi}**	**f_{pedi}**	**Predicted N_{pedi}**
	(9) from Worksheet 2C	(9) from Worksheet 2E	(2) + (3)	from Table 12-16	(4)*(5)
Total	--	--	--	--	--
Fatal and injury (FI)	--	--	--	--	--

* Column 6 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-30

Worksheet 2H -- Crash Modification Factors for Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Signalized Intersections

(1)	(2)	(3)	(4)
CMF for Bus Stops	CMF for Schools	CMF for Alcohol Sales Establishments	Combined CMF
CMF_{1p}	CMF_{2p}	CMF_{3p}	
from Table 12-28	from Table 12-29	from Table 12-30	(1)*(2)*(3)
4.15	1.00	1.00	4.15

Worksheet 2I -- Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Signalized Intersections

(1)	(2)					(3)	(4)	(5)	(6)	(7)
Crash Severity Level	**SPF Coefficients**					**Overdispersion Parameter, k**	**$N_{pedbase}$**	**Combined CMF**	**Calibration factor, C_i**	**Predicted N_{pedi}**
	from Table 12-14						from Equation 12-29	(4) from Worksheet 2H		(4)*(5)*(6)
	a	b	c	d	e					
Total	-9.53	0.40	0.26	0.45	0.04	0.24	0.069	4.15	1.00	0.287
Fatal and Injury (FI)	--	--	--	--	--	--	--	--	1.00	0.287

Worksheet 2J -- Vehicle-Bicycle Collisions for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(7)*
Crash Severity Level	**Predicted N_{bimv}**	**Predicted N_{bisv}**	**Predicted N_{bi}**	**f_{bikei}**	**Predicted N_{bikei}**
	(9) from Worksheet 2C	(9) from Worksheet 2E	(2) + (3)	from Table 12-17	(4)*(5)
Total	3.393	0.196	3.590	0.015	0.054
Fatal and injury (FI)	--	--	--	--	0.054

* Column 6 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-31

Worksheet 2K -- Crash Severity Distribution for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)
	Fatal and injury (FI)	**Property damage only (PDO)**	**Total**
Collision type	(3) from Worksheet 2D and 2F; (7) from 2G or 2I and 2J	(5) from Worksheet 2D and 2F	(6) from Worksheet 2D and 2F; (7) from 2G or 2I and 2J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 2D)	0.519	1.082	1.601
Head-on collisions (from Worksheet 2D)	0.057	0.067	0.124
Angle collisions (from Worksheet 2D)	0.400	0.547	0.947
Sideswipe (from Worksheet 2D)	0.114	0.072	0.186
Other multiple-vehicle collision (from Worksheet 2D)	0.063	0.473	0.536
Subtotal	1.153	2.240	3.393
SINGLE-VEHICLE			
Collision with parked vehicle (from Worksheet 2F)	0.000	0.000	0.000
Collision with animal (from Worksheet 2F)	0.000	0.000	0.000
Collision with fixed object (from Worksheet 2F)	0.036	0.129	0.165
Collision with other object (from Worksheet 2F)	0.003	0.010	0.014
Other single-vehicle collision (from Worksheet 2F)	0.002	0.003	0.005
Single-vehicle noncollision (from Worksheet 2F)	0.007	0.005	0.012
Collision with pedestrian (from Worksheet 2G or 2I)	0.287	0.000	0.287
Collision with bicycle (from Worksheet 2J)	0.054	0.000	0.054
Subtotal	0.389	0.148	0.537
Total	1.542	2.389	3.931

Worksheet 2L -- Summary Results for Urban and Suburban Arterial Intersections

(1)	(2)
Crash severity level	**Predicted average crash frequency, $N_{predicted\ int}$ (crashes/year)**
	(Total) from Worksheet 2K
Total	3.9
Fatal and injury (FI)	1.5
Property damage only (PDO)	2.4

Worksheet 1A -- General Information and Input Data for Urban and Suburban Roadway Segments

General Information		Location Information	
Analyst	TL	Roadway	Omega Dr
Agency or Company	ATCS	Roadway Section	MD 28 to Research Blvd
Date Performed	02/17/21	Jurisdiction	Montgomery County
		Analysis Year	2045

Input Data		Base Conditions	Site Conditions
Roadway type (2U, 3T, 4U, 4D, ST)		--	4D
Length of segment, L (mi)		--	0.04
AADT (veh/day)	$AADT_{MAX}$ = 66,000 (veh/day)	--	11,796
Type of on-street parking (none/parallel/angle)		None	None
Proportion of curb length with on-street parking		--	0
Median width (ft) - for divided only		15	10
Lighting (present / not present)		Not Present	Present
Auto speed enforcement (present / not present)		Not Present	Not Present
Major commercial driveways (number)		--	0
Minor commercial driveways (number)		--	0
Major industrial / institutional driveways (number)		--	0
Minor industrial / institutional driveways (number)		--	0
Major residential driveways (number)		--	0
Minor residential driveways (number)		--	0
Other driveways (number)		--	0
Speed Category		--	Posted Speed Greater than 30 mph
Roadside fixed object density (fixed objects / mi)		0	0
Offset to roadside fixed objects (ft) [If greater than 30 or Not Present, input 30]		30	30
Calibration Factor, Cr		1.00	1.00

Worksheet 1B -- Crash Modification Factors for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
CMF for On-Street Parking	CMF for Roadside Fixed Objects	CMF for Median Width	CMF for Lighting	CMF for Automated Speed Enforcement	Combined CMF
CMF 1r	*CMF 2r*	*CMF 3r*	*CMF 4r*	*CMF 5r*	*CMF comb*
from Equation 12-32	from Equation 12-33	from Table 12-22	from Equation 12-34	from Section 12.7.1	(1)*(2)*(3)*(4)*(5)
1.00	1.00	1.01	0.91	1.00	0.92

Worksheet 1C -- Multiple-Vehicle Nondriveway Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brmv}**	**Proportion of Total Crashes**	**Adjusted N_{brmv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brmv}**
	from Table 12-3		from Table 12-3	from Equation 12-10		$(4)_{TOTAL}$*(5)	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-12.34	1.36	1.32	0.060	1.000	0.060	0.92	1.00	0.056
Fatal and Injury (FI)	-12.76	1.28	1.31	0.019	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.292	0.018	0.92	1.00	0.016
Property Damage Only (PDO)	-12.81	1.38	1.34	0.045	$(5)_{TOTAL}-(5)_{FI}$ = 0.708	0.043	0.92	1.00	0.039

Worksheet 1D -- Multiple-Vehicle Nondriveway Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brmv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brmv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brmv\ (TOTAL)}$ (crashes/year)**
	from Table 12-4	$(9)_{FI}$ from Worksheet 1C	from Table 12-4	$(9)_{PDO}$ from Worksheet 1C	$(9)_{TOTAL}$ from Worksheet 1C
Total	1.000	0.016	1.000	0.039	0.056
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Rear-end collision	0.832	0.014	0.662	0.026	0.040
Head-on collision	0.020	0.000	0.007	0.000	0.001
Angle collision	0.040	0.001	0.036	0.001	0.002
Sideswipe, same direction	0.050	0.001	0.223	0.009	0.010
Sideswipe, opposite direction	0.010	0.000	0.001	0.000	0.000
Other multiple-vehicle collision	0.048	0.001	0.071	0.003	0.004

Worksheet 1E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brsv}**	**Proportion of Total Crashes**	**Adjusted N_{brsv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brsv}**
	from Table 12-5		from Table 12-5	from Equation 12-13		$(4)_{TOTAL}*(5)$	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-5.05	0.47	0.86	0.021	1.000	0.021	0.92	1.00	0.019
Fatal and Injury (FI)	-8.71	0.66	0.28	0.003	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.154	0.003	0.92	1.00	0.003
Property Damage Only (PDO)	-5.04	0.45	1.06	0.018	$(5)_{TOTAL}-(5)_{FI}$ = 0.846	0.018	0.92	1.00	0.016

Worksheet 1F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brsv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brsv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brsv\ (TOTAL)}$ (crashes/year)**
	from Table 12-6	$(9)_{FI}$ from Worksheet 1E	from Table 12-6	$(9)_{PDO}$ from Worksheet 1E	$(9)_{TOTAL}$ from Worksheet 1E
Total	1.000	0.003	1.000	0.016	0.019
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Collision with animal	0.001	0.000	0.063	0.001	0.001
Collision with fixed object	0.500	0.001	0.813	0.013	0.015
Collision with other object	0.028	0.000	0.016	0.000	0.000
Other single-vehicle collision	0.471	0.001	0.108	0.002	0.003

Worksheet 1G -- Multiple-Vehicle Driveway-Related Collisions by Driveway Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Driveway Type	**Number of driveways, n_j**	**Crashes per driveway per year, N_j**	**Coefficient for traffic adjustment, t**	**Initial N_{brdwy}**	**Overdispersion parameter, k**
		from Table 12-7	from Table 12-7	Equation 12-16 $n_j * N_j * (AADT/15,000)^t$	from Table 12-7
Major commercial	0	0.033	1.106	0.000	
Minor commercial	0	0.011	1.106	0.000	
Major industrial/institutional	0	0.036	1.106	0.000	
Minor industrial/institutional	0	0.005	1.106	0.000	--
Major residential	0	0.018	1.106	0.000	
Minor residential	0	0.003	1.106	0.000	
Other	0	0.005	1.106	0.000	
Total	--	--	--	0.000	1.39

Worksheet 1H -- Multiple-Vehicle Driveway-Related Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Crash Severity Level	**Initial N_{brdwy}**	**Proportion of total crashes (f_{dwy})**	**Adjusted N_{brdwy}**	**Combined CMFs**	**Calibration factor, C_r**	**Predicted N_{brdwy}**
	$(5)_{TOTAL}$ from Worksheet 1G	from Table 12-7	$(2)_{TOTAL}$ * (3)	(6) from Worksheet 1B		(4)*(5)*(6)
Total	0.000	1.000	0.000	0.92	1.00	0.000
Fatal and injury (FI)	--	0.284	0.000	0.92	1.00	0.000
Property damage only (PDO)	--	0.716	0.000	0.92	1.00	0.000

Worksheet 1I -- Vehicle-Pedestrian Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(8)*
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{pedr}**	**Predicted N_{pedr}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-8	(5)*(6)
Total	0.056	0.019	0.000	0.075	0.019	0.001
Fatal and injury (FI)	--	--	--	--	--	0.001

* Column 7 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-19

Worksheet 1J -- Vehicle-Bicycle Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(8)*
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{biker}**	**Predicted N_{biker}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-9	(5)*(6)
Total	0.056	0.019	0.000	0.075	0.005	0.000
Fatal and injury (FI)	--	--	--	--	--	0.000

* Column 7 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-20

Worksheet 1K -- Crash Severity Distribution for Urban and Suburban Roadway Segments			
(1)	(2)	(3)	(4)
Collision type	**Fatal and injury (FI)**	**Property damage only (PDO)**	**Total**
	(3) from Worksheet 1D and 1F; (7) from Worksheet 1H; and (8) from Worksheet 1I and 1J	(5) from Worksheet 1D and 1F; and (7) from Worksheet 1H	(6) from Worksheet 1D and 1F; (7) from Worksheet 1H; and (8) from Worksheet 1I and 1J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 1D)	0.014	0.026	0.040
Head-on collisions (from Worksheet 1D)	0.000	0.000	0.001
Angle collisions (from Worksheet 1D)	0.001	0.001	0.002
Sideswipe, same direction (from Worksheet 1D)	0.001	0.009	0.010
Sideswipe, opposite direction (from Worksheet 1D)	0.000	0.000	0.000
Driveway-related collisions (from Worksheet 1H)	0.000	0.000	0.000
Other multiple-vehicle collision (from Worksheet 1D)	0.001	0.003	0.004
Subtotal	0.016	0.039	0.056
SINGLE-VEHICLE			
Collision with animal (from Worksheet 1F)	0.000	0.001	0.001
Collision with fixed object (from Worksheet 1F)	0.001	0.013	0.015
Collision with other object (from Worksheet 1F)	0.000	0.000	0.000
Other single-vehicle collision (from Worksheet 1F)	0.001	0.002	0.003
Collision with pedestrian (from Worksheet 1I)	0.001	0.000	0.001
Collision with bicycle (from Worksheet 1J)	0.000	0.000	0.000
Subtotal	0.005	0.016	0.021
Total	0.021	0.056	0.077

Worksheet 1L -- Summary Results for Urban and Suburban Roadway Segments			
(1)	(2)	(3)	(4)
Crash Severity Level	**Predicted average crash frequency, $N_{predicted\ rs}$ (crashes/year)**	**Roadway segment length, L (mi)**	**Crash rate (crashes/mi/year)**
	(Total) from Worksheet 1K		(2) / (3)
Total	0.1	0.04	1.9
Fatal and injury (FI)	0.0	0.04	0.5
Property damage only (PDO)	0.1	0.04	1.4

Worksheet 2A -- General Information and Input Data for Urban and Suburban Arterial Intersections						
General Information				**Location Information**		
Analyst	TL			Roadway	Omega Dr	
Agency or Company	ATCS			Intersection	At Research Blvd/Driveway	
Date Performed	02/17/21			Jurisdiction	Montgomery County	
				Analysis Year	2045	
Input Data				**Base Conditions**	**Site Conditions**	
Intersection type (3ST, 3SG, 4ST, 4SG)				--	3ST	
AADT $_{major}$ (veh/day)	$AADT_{MAX}$ =	45,700	(veh/day)	--	11,757	
AADT $_{minor}$ (veh/day)	$AADT_{MAX}$ =	9,300	(veh/day)	--	4,178	
Intersection lighting (present/not present)				Not Present	Present	
Calibration factor, C_i				1.00	1.00	
Data for unsignalized intersections only:				--	--	
Number of major-road approaches with left-turn lanes (0,1,2)				0	1	
Number of major-road approaches with right-turn lanes (0,1,2)				0	0	
Data for signalized intersections only:				--	--	
Number of approaches with left-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]				0		
Number of approaches with right-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]				0		
Number of approaches with left-turn signal phasing [for 3SG, use maximum value of 3]				--		
Type of left-turn signal phasing for Leg #1				Permissive		
Type of left-turn signal phasing for Leg #2				--		
Type of left-turn signal phasing for Leg #3				--		
Type of left-turn signal phasing for Leg #4 (if applicable)				--		
Number of approaches with right-turn-on-red prohibited [for 3SG, use maximum value of 3]				0		
Intersection red light cameras (present/not present)				Not Present		
Sum of all pedestrian crossing volumes (PedVol) -- Signalized intersections only						
Maximum number of lanes crossed by a pedestrian (n_{lanesx})				--		
Number of bus stops within 300 m (1,000 ft) of the intersection				0		
Schools within 300 m (1,000 ft) of the intersection (present/not present)				Not Present		
Number of alcohol sales establishments within 300 m (1,000 ft) of the intersection				0		

Worksheet 2B -- Crash Modification Factors for Urban and Suburban Arterial Intersections						
(1)	(2)	(3)	(4)	(5)	(6)	(7)
CMF for Left-Turn Lanes	CMF for Left-Turn Signal Phasing	CMF for Right-Turn Lanes	CMF for Right Turn on Red	CMF for Lighting	CMF for Red Light Cameras	Combined CMF
CMF 1i	*CMF 2i*	*CMF 3i*	*CMF 4i*	*CMF 5i*	*CMF 6i*	*CMF $_{COMB}$*
from Table 12-24	from Table 12-25	from Table 12-26	from Equation 12-35	from Equation 12-36	from Equation 12-37	(1)*(2)*(3)*(4)*(5)*(6)
0.67	1.00	1.00	1.00	0.91	1.00	0.61

Worksheet 2C -- Multiple-Vehicle Collisions by Severity Level for Urban and Suburban Arterial Intersections

(1)	(2)			(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**			**Overdispersion Parameter, k**	**Initial N_{bimv}**	**Proportion of Total Crashes**	**Adjusted N_{bimv}**	**Combined CMFs**	**Calibration Factor, C_i**	**Predicted N_{bimv}**
	from Table 12-10			from Table 12-10	from Equation 12-21		$(4)_{TOTAL}$*(5)	(7) from Worksheet 2B		(6)*(7)*(8)
	a	b	c							
Total	-13.36	1.11	0.41	0.80	1.587	1.000	1.587	0.61	1.00	0.969
Fatal and Injury (FI)	-14.01	1.16	0.30	0.69	0.529	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.320	0.507	0.61	1.00	0.310
Property Damage Only (PDO)	-15.38	1.20	0.51	0.77	1.126	$(5)_{TOTAL}-(5)_{FI}$ = 0.680	1.080	0.61	1.00	0.660

Worksheet 2D -- Multiple-Vehicle Collisions by Collision Type for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{bimv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{bimv\ (PDO)}$ (crashes/year)**	**Predicted N $_{bimv\ (TOTAL)}$ (crashes/year)**
	from Table 12-11	$(9)_{FI}$ from Worksheet 2C	from Table 12-11	$(9)_{PDO}$ from Worksheet 2C	$(9)_{PDO}$ from Worksheet 2C
Total	1.000	0.310	1.000	0.660	0.969
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Rear-end collision	0.421	0.130	0.440	0.290	0.421
Head-on collision	0.045	0.014	0.023	0.015	0.029
Angle collision	0.343	0.106	0.262	0.173	0.279
Sideswipe	0.126	0.039	0.040	0.026	0.065
Other multiple-vehicle collision	0.065	0.020	0.235	0.155	0.175

Worksheet 2E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Arterial Intersections

(1)	(2)			(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**			**Overdispersion Parameter, k**	**Initial N_{bisv}**	**Proportion of Total Crashes**	**Adjusted N_{bimv}**	**Combined CMFs**	**Calibration Factor, C_i**	**Predicted N_{bisv}**
	from Table 12-12			from Table 12-12	from Eqn. 12-24; (FI) from Eqn. 12-24 or 12-27		$(4)_{TOTAL}$*(5)	(7) from Worksheet 2B		(6)*(7)*(8)
	a	b	c							
Total	-6.81	0.16	0.51	1.14	0.347	1.000	0.347	0.61	1.00	0.212
Fatal and Injury (FI)	--	--	--	--	0.108	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.310	0.108	0.61	1.00	0.066
Property Damage Only (PDO)	-8.36	0.25	0.55	1.29	0.239	$(5)_{TOTAL}-(5)_{FI}$ = 0.690	0.239	0.61	1.00	0.146

Worksheet 2F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{bisv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{bisv\ (PDO)}$ (crashes/year)**	**Predicted N $_{bisv\ (TOTAL)}$ (crashes/year)**
	from Table 12-13	(9)$_{FI}$ from Worksheet 2E	from Table 12-13	(9)$_{PDO}$ from Worksheet 2E	(9)$_{PDO}$ from Worksheet 2E
Total	1.000	0.066	1.000	0.146	0.212
		(2)*(3)$_{FI}$		(4)*(5)$_{PDO}$	(3)+(5)
Collision with parked vehicle	0.001	0.000	0.003	0.000	0.001
Collision with animal	0.003	0.000	0.018	0.003	0.003
Collision with fixed object	0.762	0.050	0.834	0.122	0.172
Collision with other object	0.090	0.006	0.092	0.013	0.019
Other single-vehicle collision	0.039	0.003	0.023	0.003	0.006
Single-vehicle noncollision	0.105	0.007	0.030	0.004	0.011

Worksheet 2G -- Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Stop-Controlled Intersections

(1)	(2)	(3)	(4)	(5)	(7)*
Crash Severity Level	**Predicted N_{bimv}**	**Predicted N_{bisv}**	**Predicted N_{bi}**	**f_{pedi}**	**Predicted N_{pedi}**
	(9) from Worksheet 2C	(9) from Worksheet 2E	(2) + (3)	from Table 12-16	(4)*(5)
Total	0.969	0.212	1.181	0.021	0.025
Fatal and injury (FI)	--	--	--	--	0.025

* Column 6 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-30

Worksheet 2H -- Crash Modification Factors for Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Signalized Intersections

(1)	(2)	(3)	(4)
CMF for Bus Stops	CMF for Schools	CMF for Alcohol Sales Establishments	Combined CMF
CMF_{1p}	CMF_{2p}	CMF_{3p}	
from Table 12-28	from Table 12-29	from Table 12-30	(1)*(2)*(3)
--	--	--	--

Worksheet 2I -- Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Signalized Intersections

(1)	(2)					(3)	(4)	(5)	(6)	(7)
Crash Severity Level	**SPF Coefficients**					**Overdispersion Parameter, k**	**$N_{pedbase}$**	**Combined CMF**	**Calibration factor, C_i**	**Predicted N_{pedi}**
	from Table 12-14						from Equation 12-29	(4) from Worksheet 2H		(4)*(5)*(6)
	a	b	c	d	e					
Total	--	--	--	--	--	--	--	--	1.00	--
Fatal and Injury (FI)	--	--	--	--	--	--	--	--	1.00	--

Worksheet 2J -- Vehicle-Bicycle Collisions for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(7)*
Crash Severity Level	**Predicted N_{bimv}**	**Predicted N_{bisv}**	**Predicted N_{bi}**	**f_{bikei}**	**Predicted N_{bikei}**
	(9) from Worksheet 2C	(9) from Worksheet 2E	(2) + (3)	from Table 12-17	(4)*(5)
Total	0.969	0.212	1.181	0.016	0.019
Fatal and injury (FI)	--	--	--	--	0.019

* Column 6 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-31

Worksheet 2K -- Crash Severity Distribution for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)
	Fatal and injury (FI)	**Property damage only (PDO)**	**Total**
Collision type	(3) from Worksheet 2D and 2F; (7) from 2G or 2I and 2J	(5) from Worksheet 2D and 2F	(6) from Worksheet 2D and 2F; (7) from 2G or 2I and 2J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 2D)	0.130	0.290	0.421
Head-on collisions (from Worksheet 2D)	0.014	0.015	0.029
Angle collisions (from Worksheet 2D)	0.106	0.173	0.279
Sideswipe (from Worksheet 2D)	0.039	0.026	0.065
Other multiple-vehicle collision (from Worksheet 2D)	0.020	0.155	0.175
Subtotal	0.310	0.660	0.969
SINGLE-VEHICLE			
Collision with parked vehicle (from Worksheet 2F)	0.000	0.000	0.001
Collision with animal (from Worksheet 2F)	0.000	0.003	0.003
Collision with fixed object (from Worksheet 2F)	0.050	0.122	0.172
Collision with other object (from Worksheet 2F)	0.006	0.013	0.019
Other single-vehicle collision (from Worksheet 2F)	0.003	0.003	0.006
Single-vehicle noncollision (from Worksheet 2F)	0.007	0.004	0.011
Collision with pedestrian (from Worksheet 2G or 2I)	0.025	0.000	0.025
Collision with bicycle (from Worksheet 2J)	0.019	0.000	0.019
Subtotal	0.110	0.146	0.256
Total	0.419	0.806	1.225

Worksheet 2L -- Summary Results for Urban and Suburban Arterial Intersections

(1)	(2)
Crash severity level	**Predicted average crash frequency, $N_{predicted\ int}$ (crashes/year)**
	(Total) from Worksheet 2K
Total	1.2
Fatal and injury (FI)	0.4
Property damage only (PDO)	0.8

Worksheet 1A -- General Information and Input Data for Urban and Suburban Roadway Segments

General Information		Location Information	
Analyst	TL	Roadway	Omega Dr
Agency or Company	ATCS	Roadway Section	Research Blvd to I-270 SB Off-Ramp
Date Performed	02/17/21	Jurisdiction	Montgomery County
		Analysis Year	2045

Input Data		Base Conditions	Site Conditions
Roadway type (2U, 3T, 4U, 4D, ST)		--	4D
Length of segment, L (mi)		--	0.24
AADT (veh/day)	$AADT_{MAX}$ = 66,000 (veh/day)	--	11,724
Type of on-street parking (none/parallel/angle)		None	None
Proportion of curb length with on-street parking		--	0
Median width (ft) - for divided only		15	15
Lighting (present / not present)		Not Present	Present
Auto speed enforcement (present / not present)		Not Present	Not Present
Major commercial driveways (number)		--	0
Minor commercial driveways (number)		--	0
Major industrial / institutional driveways (number)		--	0
Minor industrial / institutional driveways (number)		--	0
Major residential driveways (number)		--	1
Minor residential driveways (number)		--	0
Other driveways (number)		--	1
Speed Category		--	Posted Speed Greater than 30 mph
Roadside fixed object density (fixed objects / mi)		0	0
Offset to roadside fixed objects (ft) [If greater than 30 or Not Present, input 30]		30	30
Calibration Factor, Cr		1.00	1.00

Worksheet 1B -- Crash Modification Factors for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
CMF for On-Street Parking	CMF for Roadside Fixed Objects	CMF for Median Width	CMF for Lighting	CMF for Automated Speed Enforcement	Combined CMF
CMF 1r	*CMF 2r*	*CMF 3r*	*CMF 4r*	*CMF 5r*	*CMF comb*
from Equation 12-32	from Equation 12-33	from Table 12-22	from Equation 12-34	from Section 12.7.1	(1)*(2)*(3)*(4)*(5)
1.00	1.00	1.00	0.91	1.00	0.91

Worksheet 1C -- Multiple-Vehicle Nondriveway Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brmv}**	**Proportion of Total Crashes**	**Adjusted N_{brmv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brmv}**
	from Table 12-3		from Table 12-3	from Equation 12-10		$(4)_{TOTAL}$*(5)	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-12.34	1.36	1.32	0.359	1.000	0.359	0.91	1.00	0.328
Fatal and Injury (FI)	-12.76	1.28	1.31	0.111	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.292	0.105	0.91	1.00	0.096
Property Damage Only (PDO)	-12.81	1.38	1.34	0.271	$(5)_{TOTAL}-(5)_{FI}$ = 0.708	0.254	0.91	1.00	0.232

Worksheet 1D -- Multiple-Vehicle Nondriveway Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brmv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brmv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brmv\ (TOTAL)}$ (crashes/year)**
	from Table 12-4	$(9)_{FI}$ from Worksheet 1C	from Table 12-4	$(9)_{PDO}$ from Worksheet 1C	$(9)_{TOTAL}$ from Worksheet 1C
Total	1.000	0.096	1.000	0.232	0.328
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Rear-end collision	0.832	0.080	0.662	0.154	0.233
Head-on collision	0.020	0.002	0.007	0.002	0.004
Angle collision	0.040	0.004	0.036	0.008	0.012
Sideswipe, same direction	0.050	0.005	0.223	0.052	0.057
Sideswipe, opposite direction	0.010	0.001	0.001	0.000	0.001
Other multiple-vehicle collision	0.048	0.005	0.071	0.016	0.021

Worksheet 1E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brsv}**	**Proportion of Total Crashes**	**Adjusted N_{brsv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brsv}**
	from Table 12-5		from Table 12-5	from Equation 12-13		$(4)_{TOTAL}*(5)$	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-5.05	0.47	0.86	0.126	1.000	0.126	0.91	1.00	0.115
Fatal and Injury (FI)	-8.71	0.66	0.28	0.019	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.154	0.019	0.91	1.00	0.018
Property Damage Only (PDO)	-5.04	0.45	1.06	0.105	$(5)_{TOTAL}-(5)_{FI}$ = 0.846	0.106	0.91	1.00	0.097

Worksheet 1F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brsv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brsv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brsv\ (TOTAL)}$ (crashes/year)**
	from Table 12-6	$(9)_{FI}$ from Worksheet 1E	from Table 12-6	$(9)_{PDO}$ from Worksheet 1E	$(9)_{TOTAL}$ from Worksheet 1E
Total	1.000	0.018	1.000	0.097	0.115
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Collision with animal	0.001	0.000	0.063	0.006	0.006
Collision with fixed object	0.500	0.009	0.813	0.079	0.088
Collision with other object	0.028	0.000	0.016	0.002	0.002
Other single-vehicle collision	0.471	0.008	0.108	0.010	0.019

Worksheet 1G -- Multiple-Vehicle Driveway-Related Collisions by Driveway Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Driveway Type	**Number of driveways, n_j**	**Crashes per driveway per year, N_j**	**Coefficient for traffic adjustment, t**	**Initial N_{brdwy}**	**Overdispersion parameter, k**
		from Table 12-7	from Table 12-7	Equation 12-16 $n_j * N_j * (AADT/15,000)^t$	from Table 12-7
Major commercial	0	0.033	1.106	0.000	
Minor commercial	0	0.011	1.106	0.000	
Major industrial/institutional	0	0.036	1.106	0.000	
Minor industrial/institutional	0	0.005	1.106	0.000	--
Major residential	1	0.018	1.106	0.014	
Minor residential	0	0.003	1.106	0.000	
Other	1	0.005	1.106	0.004	
Total	--	--	--	0.018	1.39

Worksheet 1H -- Multiple-Vehicle Driveway-Related Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Crash Severity Level	**Initial N_{brdwy}**	**Proportion of total crashes (f_{dwy})**	**Adjusted N_{brdwy}**	**Combined CMFs**	**Calibration factor, C_r**	**Predicted N_{brdwy}**
	$(5)_{TOTAL}$ from Worksheet 1G	from Table 12-7	$(2)_{TOTAL}$ * (3)	(6) from Worksheet 1B		(4)*(5)*(6)
Total	0.018	1.000	0.018	0.91	1.00	0.016
Fatal and injury (FI)	--	0.284	0.005	0.91	1.00	0.005
Property damage only (PDO)	--	0.716	0.013	0.91	1.00	0.011

Worksheet 1I -- Vehicle-Pedestrian Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(8)*
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{pedr}**	**Predicted N_{pedr}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-8	(5)*(6)
Total	0.328	0.115	0.016	0.459	0.019	0.009
Fatal and injury (FI)	--	--	--	--	--	0.009

* Column 7 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-19

Worksheet 1J -- Vehicle-Bicycle Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(8)*
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{biker}**	**Predicted N_{biker}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-9	(5)*(6)
Total	0.328	0.115	0.016	0.459	0.005	0.002
Fatal and injury (FI)	--	--	--	--	--	0.002

* Column 7 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-20

Worksheet 1K -- Crash Severity Distribution for Urban and Suburban Roadway Segments			
(1)	(2)	(3)	(4)
Collision type	**Fatal and injury (FI)**	**Property damage only (PDO)**	**Total**
	(3) from Worksheet 1D and 1F; (7) from Worksheet 1H; and (8) from Worksheet 1I and 1J	(5) from Worksheet 1D and 1F; and (7) from Worksheet 1H	(6) from Worksheet 1D and 1F; (7) from Worksheet 1H; and (8) from Worksheet 1I and 1J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 1D)	0.080	0.154	0.233
Head-on collisions (from Worksheet 1D)	0.002	0.002	0.004
Angle collisions (from Worksheet 1D)	0.004	0.008	0.012
Sideswipe, same direction (from Worksheet 1D)	0.005	0.052	0.057
Sideswipe, opposite direction (from Worksheet 1D)	0.001	0.000	0.001
Driveway-related collisions (from Worksheet 1H)	0.005	0.011	0.016
Other multiple-vehicle collision (from Worksheet 1D)	0.005	0.016	0.021
Subtotal	0.100	0.244	0.344
SINGLE-VEHICLE			
Collision with animal (from Worksheet 1F)	0.000	0.006	0.006
Collision with fixed object (from Worksheet 1F)	0.009	0.079	0.088
Collision with other object (from Worksheet 1F)	0.000	0.002	0.002
Other single-vehicle collision (from Worksheet 1F)	0.008	0.010	0.019
Collision with pedestrian (from Worksheet 1I)	0.009	0.000	0.009
Collision with bicycle (from Worksheet 1J)	0.002	0.000	0.002
Subtotal	0.029	0.097	0.126
Total	0.129	0.341	0.470

Worksheet 1L -- Summary Results for Urban and Suburban Roadway Segments			
(1)	(2)	(3)	(4)
Crash Severity Level	**Predicted average crash frequency, $N_{predicted\ rs}$ (crashes/year)**	**Roadway segment length, L (mi)**	**Crash rate (crashes/mi/year)**
	(Total) from Worksheet 1K		(2) / (3)
Total	0.5	0.24	2.0
Fatal and injury (FI)	0.1	0.24	0.5
Property damage only (PDO)	0.3	0.24	1.4

Worksheet 2A -- General Information and Input Data for Urban and Suburban Arterial Intersections						
General Information				**Location Information**		
Analyst	TL			Roadway	Omega Dr/Fields Rd	
Agency or Company	ATCS			Intersection	At I-270 SB Off-Ramp	
Date Performed	02/17/21			Jurisdiction	Montgomery County	
				Analysis Year	2045	
Input Data				**Base Conditions**	**Site Conditions**	
Intersection type (3ST, 3SG, 4ST, 4SG)				--	3ST	
AADT $_{major}$ (veh/day)	$AADT_{MAX}$ =	45,700	(veh/day)	--	11,723	
AADT $_{minor}$ (veh/day)	$AADT_{MAX}$ =	9,300	(veh/day)	--	3,039	
Intersection lighting (present/not present)				Not Present	Present	
Calibration factor, C_i				1.00	1.00	
Data for unsignalized intersections only:				--	--	
Number of major-road approaches with left-turn lanes (0,1,2)				0	0	
Number of major-road approaches with right-turn lanes (0,1,2)				0	0	
Data for signalized intersections only:				--	--	
				0		
Number of approaches with right-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]				0		
Number of approaches with left-turn signal phasing [for 3SG, use maximum value of 3]				--		
Type of left-turn signal phasing for Leg #1				Permissive		
Type of left-turn signal phasing for Leg #2				--		
Type of left-turn signal phasing for Leg #3				--		
Type of left-turn signal phasing for Leg #4 (if applicable)				--		
Number of approaches with right-turn-on-red prohibited [for 3SG, use maximum value of 3]				0		
Intersection red light cameras (present/not present)				Not Present		
Sum of all pedestrian crossing volumes (PedVol) -- Signalized intersections only						
Maximum number of lanes crossed by a pedestrian (n_{lanesx})				--		
Number of bus stops within 300 m (1,000 ft) of the intersection				0		
Schools within 300 m (1,000 ft) of the intersection (present/not present)				Not Present		
Number of alcohol sales establishments within 300 m (1,000 ft) of the intersection				0		

Worksheet 2B -- Crash Modification Factors for Urban and Suburban Arterial Intersections						
(1)	(2)	(3)	(4)	(5)	(6)	(7)
CMF for Left-Turn Lanes	CMF for Left-Turn Signal Phasing	CMF for Right-Turn Lanes	CMF for Right Turn on Red	CMF for Lighting	CMF for Red Light Cameras	Combined CMF
CMF 1i	*CMF 2i*	*CMF 3i*	*CMF 4i*	*CMF 5i*	*CMF 6i*	*CMF $_{COMB}$*
from Table 12-24	from Table 12-25	from Table 12-26	from Equation 12-35	from Equation 12-36	from Equation 12-37	(1)*(2)*(3)*(4)*(5)*(6)
1.00	1.00	1.00	1.00	0.91	1.00	0.91

Worksheet 2C -- Multiple-Vehicle Collisions by Severity Level for Urban and Suburban Arterial Intersections

(1)	(2)			(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**			**Overdispersion Parameter, k**	**Initial N_{bimv}**	**Proportion of Total Crashes**	**Adjusted N_{bimv}**	**Combined CMFs**	**Calibration Factor, C_i**	**Predicted N_{bimv}**
	from Table 12-10			from Table 12-10	from Equation 12-21		$(4)_{TOTAL}$*(5)	(7) from Worksheet 2B		(6)*(7)*(8)
	a	b	c							
Total	-13.36	1.11	0.41	0.80	1.388	1.000	1.388	0.91	1.00	1.265
Fatal and Injury (FI)	-14.01	1.16	0.30	0.69	0.479	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.334	0.464	0.91	1.00	0.423
Property Damage Only (PDO)	-15.38	1.20	0.51	0.77	0.954	$(5)_{TOTAL}-(5)_{FI}$ = 0.666	0.924	0.91	1.00	0.842

Worksheet 2D -- Multiple-Vehicle Collisions by Collision Type for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{bimv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{bimv\ (PDO)}$ (crashes/year)**	**Predicted N $_{bimv\ (TOTAL)}$ (crashes/year)**
	from Table 12-11	$(9)_{FI}$ from Worksheet 2C	from Table 12-11	$(9)_{PDO}$ from Worksheet 2C	$(9)_{PDO}$ from Worksheet 2C
Total	1.000	0.423	1.000	0.842	1.265
		(2)*$(3)_{FI}$		(4)*$(5)_{PDO}$	(3)+(5)
Rear-end collision	0.421	0.178	0.440	0.371	0.549
Head-on collision	0.045	0.019	0.023	0.019	0.038
Angle collision	0.343	0.145	0.262	0.221	0.366
Sideswipe	0.126	0.053	0.040	0.034	0.087
Other multiple-vehicle collision	0.065	0.027	0.235	0.198	0.225

Worksheet 2E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Arterial Intersections

(1)	(2)			(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**			**Overdispersion Parameter, k**	**Initial N_{bisv}**	**Proportion of Total Crashes**	**Adjusted N_{bimv}**	**Combined CMFs**	**Calibration Factor, C_i**	**Predicted N_{bisv}**
	from Table 12-12			from Table 12-12	from Eqn. 12-24; (FI) from Eqn. 12-24 or 12-27		$(4)_{TOTAL}$*(5)	(7) from Worksheet 2B		(6)*(7)*(8)
	a	b	c							
Total	-6.81	0.16	0.51	1.14	0.295	1.000	0.295	0.91	1.00	0.269
Fatal and Injury (FI)	--	--	--	--	0.091	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.313	0.092	0.91	1.00	0.084
Property Damage Only (PDO)	-8.36	0.25	0.55	1.29	0.200	$(5)_{TOTAL}-(5)_{FI}$ = 0.687	0.203	0.91	1.00	0.185

Worksheet 2F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{bisv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{bisv\ (PDO)}$ (crashes/year)**	**Predicted N $_{bisv\ (TOTAL)}$ (crashes/year)**
	from Table 12-13	(9)$_{FI}$ from Worksheet 2E	from Table 12-13	(9)$_{PDO}$ from Worksheet 2E	(9)$_{PDO}$ from Worksheet 2E
Total	1.000	0.084	1.000	0.185	0.269
		(2)*(3)$_{FI}$		(4)*(5)$_{PDO}$	(3)+(5)
Collision with parked vehicle	0.001	0.000	0.003	0.001	0.001
Collision with animal	0.003	0.000	0.018	0.003	0.004
Collision with fixed object	0.762	0.064	0.834	0.154	0.218
Collision with other object	0.090	0.008	0.092	0.017	0.025
Other single-vehicle collision	0.039	0.003	0.023	0.004	0.008
Single-vehicle noncollision	0.105	0.009	0.030	0.006	0.014

Worksheet 2G -- Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Stop-Controlled Intersections

(1)	(2)	(3)	(4)	(5)	(7)*
Crash Severity Level	**Predicted N_{bimv}**	**Predicted N_{bisv}**	**Predicted N_{bi}**	**f_{pedi}**	**Predicted N_{pedi}**
	(9) from Worksheet 2C	(9) from Worksheet 2E	(2) + (3)	from Table 12-16	(4)*(5)
Total	1.265	0.269	1.534	0.021	0.032
Fatal and injury (FI)	--	--	--	--	0.032

* Column 6 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-30

Worksheet 2H -- Crash Modification Factors for Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Signalized Intersections

(1)	(2)	(3)	(4)
CMF for Bus Stops	CMF for Schools	CMF for Alcohol Sales Establishments	Combined CMF
CMF_{1p}	CMF_{2p}	CMF_{3p}	
from Table 12-28	from Table 12-29	from Table 12-30	(1)*(2)*(3)
--	--	--	--

Worksheet 2I -- Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Signalized Intersections

(1)	(2)					(3)	(4)	(5)	(6)	(7)
Crash Severity Level	**SPF Coefficients**					**Overdispersion Parameter, k**	**$N_{pedbase}$**	**Combined CMF**	**Calibration factor, C_i**	**Predicted N_{pedi}**
	from Table 12-14						from Equation 12-29	(4) from Worksheet 2H		(4)*(5)*(6)
	a	b	c	d	e					
Total	--	--	--	--	--	--	--	--	1.00	--
Fatal and Injury (FI)	--	--	--	--	--	--	--	--	1.00	--

Worksheet 2J -- Vehicle-Bicycle Collisions for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(7)*
Crash Severity Level	**Predicted N_{bimv}**	**Predicted N_{bisv}**	**Predicted N_{bi}**	**f_{bikei}**	**Predicted N_{bikei}**
	(9) from Worksheet 2C	(9) from Worksheet 2E	(2) + (3)	from Table 12-17	(4)*(5)
Total	1.265	0.269	1.534	0.016	0.025
Fatal and injury (FI)	--	--	--	--	0.025

* Column 6 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-31

Worksheet 2K -- Crash Severity Distribution for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)
	Fatal and injury (FI)	**Property damage only (PDO)**	**Total**
Collision type	(3) from Worksheet 2D and 2F; (7) from 2G or 2I and 2J	(5) from Worksheet 2D and 2F	(6) from Worksheet 2D and 2F; (7) from 2G or 2I and 2J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 2D)	0.178	0.371	0.549
Head-on collisions (from Worksheet 2D)	0.019	0.019	0.038
Angle collisions (from Worksheet 2D)	0.145	0.221	0.366
Sideswipe (from Worksheet 2D)	0.053	0.034	0.087
Other multiple-vehicle collision (from Worksheet 2D)	0.027	0.198	0.225
Subtotal	0.423	0.842	1.265
SINGLE-VEHICLE			
Collision with parked vehicle (from Worksheet 2F)	0.000	0.001	0.001
Collision with animal (from Worksheet 2F)	0.000	0.003	0.004
Collision with fixed object (from Worksheet 2F)	0.064	0.154	0.218
Collision with other object (from Worksheet 2F)	0.008	0.017	0.025
Other single-vehicle collision (from Worksheet 2F)	0.003	0.004	0.008
Single-vehicle noncollision (from Worksheet 2F)	0.009	0.006	0.014
Collision with pedestrian (from Worksheet 2G or 2I)	0.032	0.000	0.032
Collision with bicycle (from Worksheet 2J)	0.025	0.000	0.025
Subtotal	0.141	0.185	0.326
Total	0.564	1.027	1.591

Worksheet 2L -- Summary Results for Urban and Suburban Arterial Intersections

(1)	(2)
Crash severity level	**Predicted average crash frequency, $N_{predicted\ int}$ (crashes/year)**
	(Total) from Worksheet 2K
Total	1.6
Fatal and injury (FI)	0.6
Property damage only (PDO)	1.0

Worksheet 2A -- General Information and Input Data for Urban and Suburban Arterial Intersections						
General Information				**Location Information**		
Analyst	PK			Roadway	W. Gude Drive	
Agency or Company	ATCS			Intersection	W. Gude Drive at Research Boulevard	
Date Performed	06/15/20			Jurisdiction	Montgomery County	
				Analysis Year	2045	
Input Data				**Base Conditions**	**Site Conditions**	
Intersection type (3ST, 3SG, 4ST, 4SG)				--	4SG	
AADT $_{major}$ (veh/day)	$AADT_{MAX}$ =	67,700	(veh/day)	--	26,281	
AADT $_{minor}$ (veh/day)	$AADT_{MAX}$ =	33,400	(veh/day)	--	11,992	
Intersection lighting (present/not present)				Not Present	Present	
Calibration factor, C_i				1.00	1.00	
Data for unsignalized intersections only:				--		
Number of major-road approaches with left-turn lanes (0,1,2)				0		
Number of major-road approaches with right-turn lanes (0,1,2)				0		
Data for signalized intersections only:				--		
Number of approaches with left-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]				0	4	
Number of approaches with right-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]				0	3	
Number of approaches with left-turn signal phasing [for 3SG, use maximum value of 3]				--	3	
Type of left-turn signal phasing for Leg #1				Permissive	Protected	
Type of left-turn signal phasing for Leg #2				--	Permissive / Protected	
Type of left-turn signal phasing for Leg #3				--	Permissive / Protected	
Type of left-turn signal phasing for Leg #4 (if applicable)				--	Permissive	
Number of approaches with right-turn-on-red prohibited [for 3SG, use maximum value of 3]				0	0	
Intersection red light cameras (present/not present)				Not Present	Not Present	
Sum of all pedestrian crossing volumes (PedVol) -- Signalized intersections only					129	
Maximum number of lanes crossed by a pedestrian (n_{lanesx})				--	7	
Number of bus stops within 300 m (1,000 ft) of the intersection				0	4	
Schools within 300 m (1,000 ft) of the intersection (present/not present)				Not Present	Not Present	
Number of alcohol sales establishments within 300 m (1,000 ft) of the intersection				0	0	

Worksheet 2B -- Crash Modification Factors for Urban and Suburban Arterial Intersections						
(1)	(2)	(3)	(4)	(5)	(6)	(7)
CMF for Left-Turn Lanes	CMF for Left-Turn Signal Phasing	CMF for Right-Turn Lanes	CMF for Right Turn on Red	CMF for Lighting	CMF for Red Light Cameras	Combined CMF
CMF 1i	*CMF 2i*	*CMF 3i*	*CMF 4i*	*CMF 5i*	*CMF 6i*	*CMF $_{COMB}$*
from Table 12-24	from Table 12-25	from Table 12-26	from Equation 12-35	from Equation 12-36	from Equation 12-37	(1)*(2)*(3)*(4)*(5)*(6)
0.66	0.92	0.88	1.00	0.91	1.00	0.49

Worksheet 2C -- Multiple-Vehicle Collisions by Severity Level for Urban and Suburban Arterial Intersections

(1)	(2)			(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**			**Overdispersion Parameter, k**	**Initial N_{bimv}**	**Proportion of Total Crashes**	**Adjusted N_{bimv}**	**Combined CMFs**	**Calibration Factor, C_i**	**Predicted N_{bimv}**
	from Table 12-10			from Table 12-10	from Equation 12-21		$(4)_{TOTAL}$*(5)	(7) from Worksheet 2B		(6)*(7)*(8)
	a	b	c							
Total	-10.99	1.07	0.23	0.39	7.839	1.000	7.839	0.49	1.00	3.841
Fatal and Injury (FI)	-13.14	1.18	0.22	0.33	2.546	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.336	2.637	0.49	1.00	1.292
Property Damage Only (PDO)	-11.02	1.02	0.24	0.44	5.024	$(5)_{TOTAL}-(5)_{FI}$ = 0.664	5.202	0.49	1.00	2.549

Worksheet 2D -- Multiple-Vehicle Collisions by Collision Type for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{bimv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{bimv\ (PDO)}$ (crashes/year)**	**Predicted N $_{bimv\ (TOTAL)}$ (crashes/year)**
	from Table 12-11	$(9)_{FI}$ from Worksheet 2C	from Table 12-11	$(9)_{PDO}$ from Worksheet 2C	$(9)_{PDO}$ from Worksheet 2C
Total	1.000	1.292	1.000	2.549	3.841
		(2)*$(3)_{FI}$		(4)*$(5)_{PDO}$	(3)+(5)
Rear-end collision	0.450	0.581	0.483	1.231	1.812
Head-on collision	0.049	0.063	0.030	0.076	0.140
Angle collision	0.347	0.448	0.244	0.622	1.070
Sideswipe	0.099	0.128	0.032	0.082	0.209
Other multiple-vehicle collision	0.055	0.071	0.211	0.538	0.609

Worksheet 2E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Arterial Intersections

(1)	(2)			(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**			**Overdispersion Parameter, k**	**Initial N_{bisv}**	**Proportion of Total Crashes**	**Adjusted N_{bimv}**	**Combined CMFs**	**Calibration Factor, C_i**	**Predicted N_{bisv}**
	from Table 12-12			from Table 12-12	from Eqn. 12-24; (FI) from Eqn. 12-24 or 12-27		$(4)_{TOTAL}$*(5)	(7) from Worksheet 2B		(6)*(7)*(8)
	a	b	c							
Total	-10.21	0.68	0.27	0.36	0.470	1.000	0.470	0.49	1.00	0.230
Fatal and Injury (FI)	-9.25	0.43	0.29	0.09	0.116	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.250	0.118	0.49	1.00	0.058
Property Damage Only (PDO)	-11.34	0.78	0.25	0.44	0.348	$(5)_{TOTAL}-(5)_{FI}$ = 0.750	0.353	0.49	1.00	0.173

Worksheet 2F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{bisv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{bisv\ (PDO)}$ (crashes/year)**	**Predicted N $_{bisv\ (TOTAL)}$ (crashes/year)**
	from Table 12-13	(9)$_{FI}$ from Worksheet 2E	from Table 12-13	(9)$_{PDO}$ from Worksheet 2E	(9)$_{PDO}$ from Worksheet 2E
Total	1.000	0.058	1.000	0.173	0.230
		(2)*(3)$_{FI}$		(4)*(5)$_{PDO}$	(3)+(5)
Collision with parked vehicle	0.001	0.000	0.001	0.000	0.000
Collision with animal	0.002	0.000	0.002	0.000	0.000
Collision with fixed object	0.744	0.043	0.870	0.150	0.193
Collision with other object	0.072	0.004	0.070	0.012	0.016
Other single-vehicle collision	0.040	0.002	0.023	0.004	0.006
Single-vehicle noncollision	0.141	0.008	0.034	0.006	0.014

Worksheet 2G -- Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Stop-Controlled Intersections

(1)	(2)	(3)	(4)	(5)	(7)*
Crash Severity Level	**Predicted N_{bimv}**	**Predicted N_{bisv}**	**Predicted N_{bi}**	**f_{pedi}**	**Predicted N_{pedi}**
	(9) from Worksheet 2C	(9) from Worksheet 2E	(2) + (3)	from Table 12-16	(4)*(5)
Total	--	--	--	--	--
Fatal and injury (FI)	--	--	--	--	--

* Column 6 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-30

Worksheet 2H -- Crash Modification Factors for Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Signalized Intersections

(1)	(2)	(3)	(4)
CMF for Bus Stops	CMF for Schools	CMF for Alcohol Sales Establishments	Combined CMF
CMF_{1p}	CMF_{2p}	CMF_{3p}	
from Table 12-28	from Table 12-29	from Table 12-30	(1)*(2)*(3)
4.15	1.00	1.00	4.15

Worksheet 2I -- Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Signalized Intersections

(1)	(2)					(3)	(4)	(5)	(6)	(7)
Crash Severity Level	**SPF Coefficients**					**Overdispersion Parameter, k**	**$N_{pedbase}$**	**Combined CMF**	**Calibration factor, C_i**	**Predicted N_{pedi}**
	from Table 12-14						from Equation 12-29	(4) from Worksheet 2H		(4)*(5)*(6)
	a	b	c	d	e					
Total	-9.53	0.40	0.26	0.45	0.04	0.24	0.048	4.15	1.00	0.197
Fatal and Injury (FI)	--	--	--	--	--	--	--	--	1.00	0.197

Worksheet 2J -- Vehicle-Bicycle Collisions for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(7)*
Crash Severity Level	**Predicted N_{bimv}**	**Predicted N_{bisv}**	**Predicted N_{bi}**	**f_{bikei}**	**Predicted N_{bikei}**
	(9) from Worksheet 2C	(9) from Worksheet 2E	(2) + (3)	from Table 12-17	(4)*(5)
Total	3.841	0.230	4.071	0.015	0.061
Fatal and injury (FI)	--	--	--	--	0.061

* Column 6 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-31

Worksheet 2K -- Crash Severity Distribution for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)
	Fatal and injury (FI)	**Property damage only (PDO)**	**Total**
Collision type	(3) from Worksheet 2D and 2F; (7) from 2G or 2I and 2J	(5) from Worksheet 2D and 2F	(6) from Worksheet 2D and 2F; (7) from 2G or 2I and 2J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 2D)	0.581	1.231	1.812
Head-on collisions (from Worksheet 2D)	0.063	0.076	0.140
Angle collisions (from Worksheet 2D)	0.448	0.622	1.070
Sideswipe (from Worksheet 2D)	0.128	0.082	0.209
Other multiple-vehicle collision (from Worksheet 2D)	0.071	0.538	0.609
Subtotal	1.292	2.549	3.841
SINGLE-VEHICLE			
Collision with parked vehicle (from Worksheet 2F)	0.000	0.000	0.000
Collision with animal (from Worksheet 2F)	0.000	0.000	0.000
Collision with fixed object (from Worksheet 2F)	0.043	0.150	0.193
Collision with other object (from Worksheet 2F)	0.004	0.012	0.016
Other single-vehicle collision (from Worksheet 2F)	0.002	0.004	0.006
Single-vehicle noncollision (from Worksheet 2F)	0.008	0.006	0.014
Collision with pedestrian (from Worksheet 2G or 2I)	0.197	0.000	0.197
Collision with bicycle (from Worksheet 2J)	0.061	0.000	0.061
Subtotal	0.316	0.173	0.489
Total	1.608	2.722	4.329

Worksheet 2L -- Summary Results for Urban and Suburban Arterial Intersections

(1)	(2)
Crash severity level	**Predicted average crash frequency, $N_{predicted\ int}$ (crashes/year)**
	(Total) from Worksheet 2K
Total	4.3
Fatal and injury (FI)	1.6
Property damage only (PDO)	2.7

Worksheet 1A -- General Information and Input Data for Urban and Suburban Roadway Segments

General Information		Location Information	
Analyst	PK	Roadway	W. Gude Drive
Agency or Company	ATCS	Roadway Section	250 ft east of Research Blvd to 250 ft west of Piccard Dr
Date Performed	06/15/20	Jurisdiction	Montgomery County
		Analysis Year	2045

Input Data		Base Conditions	Site Conditions
Roadway type (2U, 3T, 4U, 4D, ST)		--	4D
Length of segment, L (mi)		--	0.19
AADT (veh/day)	$AADT_{MAX}$ = 66,000 (veh/day)	--	26,589
Type of on-street parking (none/parallel/angle)		None	None
Proportion of curb length with on-street parking		--	
Median width (ft) - for divided only		15	10
Lighting (present / not present)		Not Present	Present
Auto speed enforcement (present / not present)		Not Present	Not Present
Major commercial driveways (number)		--	0
Minor commercial driveways (number)		--	0
Major industrial / institutional driveways (number)		--	0
Minor industrial / institutional driveways (number)		--	0
Major residential driveways (number)		--	0
Minor residential driveways (number)		--	0
Other driveways (number)		--	0
Speed Category		--	Posted Speed Greater than 30 mph
Roadside fixed object density (fixed objects / mi)		0	31.57894737
Offset to roadside fixed objects (ft) [If greater than 30 or Not Present, input 30]		30	6
Calibration Factor, Cr		1.00	1.00

Worksheet 1B -- Crash Modification Factors for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
CMF for On-Street Parking	CMF for Roadside Fixed Objects	CMF for Median Width	CMF for Lighting	CMF for Automated Speed Enforcement	Combined CMF
CMF 1r	*CMF 2r*	*CMF 3r*	*CMF 4r*	*CMF 5r*	*CMF comb*
from Equation 12-32	from Equation 12-33	from Table 12-22	from Equation 12-34	from Section 12.7.1	(1)*(2)*(3)*(4)*(5)
1.00	1.10	1.01	0.91	1.00	1.01

Worksheet 1C -- Multiple-Vehicle Nondriveway Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brmv}**	**Proportion of Total Crashes**	**Adjusted N_{brmv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brmv}**
	from Table 12-3		from Table 12-3	from Equation 12-10		$(4)_{TOTAL}$*(5)	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-12.34	1.36	1.32	0.865	1.000	0.865	1.01	1.00	0.878
Fatal and Injury (FI)	-12.76	1.28	1.31	0.252	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.275	0.238	1.01	1.00	0.241
Property Damage Only (PDO)	-12.81	1.38	1.34	0.663	$(5)_{TOTAL}-(5)_{FI}$ = 0.725	0.627	1.01	1.00	0.636

Worksheet 1D -- Multiple-Vehicle Nondriveway Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brmv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brmv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brmv\ (TOTAL)}$ (crashes/year)**
	from Table 12-4	$(9)_{FI}$ from Worksheet 1C	from Table 12-4	$(9)_{PDO}$ from Worksheet 1C	$(9)_{TOTAL}$ from Worksheet 1C
Total	1.000	0.241	1.000	0.636	0.878
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Rear-end collision	0.832	0.201	0.662	0.421	0.622
Head-on collision	0.020	0.005	0.007	0.004	0.009
Angle collision	0.040	0.010	0.036	0.023	0.033
Sideswipe, same direction	0.050	0.012	0.223	0.142	0.154
Sideswipe, opposite direction	0.010	0.002	0.001	0.001	0.003
Other multiple-vehicle collision	0.048	0.012	0.071	0.045	0.057

Worksheet 1E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brsv}**	**Proportion of Total Crashes**	**Adjusted N_{brsv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brsv}**
	from Table 12-5		from Table 12-5	from Equation 12-13		$(4)_{TOTAL}*(5)$	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-5.05	0.47	0.86	0.146	1.000	0.146	1.01	1.00	0.148
Fatal and Injury (FI)	-8.71	0.66	0.28	0.026	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.178	0.026	1.01	1.00	0.026
Property Damage Only (PDO)	-5.04	0.45	1.06	0.121	$(5)_{TOTAL}-(5)_{FI}$ = 0.822	0.120	1.01	1.00	0.122

Worksheet 1F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brsv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brsv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brsv\ (TOTAL)}$ (crashes/year)**
	from Table 12-6	$(9)_{FI}$ from Worksheet 1E	from Table 12-6	$(9)_{PDO}$ from Worksheet 1E	$(9)_{TOTAL}$ from Worksheet 1E
Total	1.000	0.026	1.000	0.122	0.148
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Collision with animal	0.001	0.000	0.063	0.008	0.008
Collision with fixed object	0.500	0.013	0.813	0.099	0.112
Collision with other object	0.028	0.001	0.016	0.002	0.003
Other single-vehicle collision	0.471	0.012	0.108	0.013	0.026

Worksheet 1G -- Multiple-Vehicle Driveway-Related Collisions by Driveway Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Driveway Type	**Number of driveways, n_j**	**Crashes per driveway per year, N_j**	**Coefficient for traffic adjustment, t**	**Initial N_{brdwy}**	**Overdispersion parameter, k**
		from Table 12-7	from Table 12-7	Equation 12-16 $n_j * N_j * (AADT/15,000)^t$	from Table 12-7
Major commercial	0	0.033	1.106	0.000	
Minor commercial	0	0.011	1.106	0.000	
Major industrial/institutional	0	0.036	1.106	0.000	
Minor industrial/institutional	0	0.005	1.106	0.000	--
Major residential	0	0.018	1.106	0.000	
Minor residential	0	0.003	1.106	0.000	
Other	0	0.005	1.106	0.000	
Total	--	--	--	0.000	1.39

Worksheet 1H -- Multiple-Vehicle Driveway-Related Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Crash Severity Level	**Initial N_{brdwy}**	**Proportion of total crashes (f_{dwy})**	**Adjusted N_{brdwy}**	**Combined CMFs**	**Calibration factor, C_r**	**Predicted N_{brdwy}**
	$(5)_{TOTAL}$ from Worksheet 1G	from Table 12-7	$(2)_{TOTAL}$ * (3)	(6) from Worksheet 1B		(4)*(5)*(6)
Total	0.000	1.000	0.000	1.01	1.00	0.000
Fatal and injury (FI)	--	0.284	0.000	1.01	1.00	0.000
Property damage only (PDO)	--	0.716	0.000	1.01	1.00	0.000

Worksheet 1I -- Vehicle-Pedestrian Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(8)*
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{pedr}**	**Predicted N_{pedr}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-8	(5)*(6)
Total	0.878	0.148	0.000	1.026	0.019	0.019
Fatal and injury (FI)	--	--	--	--	--	0.019

* Column 7 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-19

Worksheet 1J -- Vehicle-Bicycle Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(8)*
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{biker}**	**Predicted N_{biker}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-9	(5)*(6)
Total	0.878	0.148	0.000	1.026	0.005	0.005
Fatal and injury (FI)	--	--	--	--	--	0.005

* Column 7 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-20

Worksheet 1K -- Crash Severity Distribution for Urban and Suburban Roadway Segments			
(1)	(2)	(3)	(4)
Collision type	**Fatal and injury (FI)**	**Property damage only (PDO)**	**Total**
	(3) from Worksheet 1D and 1F; (7) from Worksheet 1H; and (8) from Worksheet 1I and 1J	(5) from Worksheet 1D and 1F; and (7) from Worksheet 1H	(6) from Worksheet 1D and 1F; (7) from Worksheet 1H; and (8) from Worksheet 1I and 1J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 1D)	0.201	0.421	0.622
Head-on collisions (from Worksheet 1D)	0.005	0.004	0.009
Angle collisions (from Worksheet 1D)	0.010	0.023	0.033
Sideswipe, same direction (from Worksheet 1D)	0.012	0.142	0.154
Sideswipe, opposite direction (from Worksheet 1D)	0.002	0.001	0.003
Driveway-related collisions (from Worksheet 1H)	0.000	0.000	0.000
Other multiple-vehicle collision (from Worksheet 1D)	0.012	0.045	0.057
Subtotal	0.241	0.636	0.878
SINGLE-VEHICLE			
Collision with animal (from Worksheet 1F)	0.000	0.008	0.008
Collision with fixed object (from Worksheet 1F)	0.013	0.099	0.112
Collision with other object (from Worksheet 1F)	0.001	0.002	0.003
Other single-vehicle collision (from Worksheet 1F)	0.012	0.013	0.026
Collision with pedestrian (from Worksheet 1I)	0.019	0.000	0.019
Collision with bicycle (from Worksheet 1J)	0.005	0.000	0.005
Subtotal	0.051	0.122	0.173
Total	0.292	0.758	1.051

Worksheet 1L -- Summary Results for Urban and Suburban Roadway Segments			
(1)	(2)	(3)	(4)
Crash Severity Level	**Predicted average crash frequency, $N_{predicted\ rs}$ (crashes/year)**	**Roadway segment length, L (mi)**	**Crash rate (crashes/mi/year)**
	(Total) from Worksheet 1K		(2) / (3)
Total	1.1	0.19	5.5
Fatal and injury (FI)	0.3	0.19	1.5
Property damage only (PDO)	0.8	0.19	4.0

Worksheet 2A -- General Information and Input Data for Urban and Suburban Arterial Intersections						
General Information				**Location Information**		
Analyst	PK			Roadway	W. Gude Drive	
Agency or Company	ATCS			Intersection	W. Gude Drive at Piccard Drive	
Date Performed	06/08/20			Jurisdiction	Montgomery County	
				Analysis Year	2045	
Input Data				**Base Conditions**	**Site Conditions**	
Intersection type (3ST, 3SG, 4ST, 4SG)				--	3SG	
AADT $_{major}$ (veh/day)	$AADT_{MAX}$ =	58,100	(veh/day)	--	26,297	
AADT $_{minor}$ (veh/day)	$AADT_{MAX}$ =	16,400	(veh/day)	--	6,313	
Intersection lighting (present/not present)				Not Present	Present	
Calibration factor, C_i				1.00	1.00	
Data for unsignalized intersections only:				--		
Number of major-road approaches with left-turn lanes (0,1,2)				0		
Number of major-road approaches with right-turn lanes (0,1,2)				0		
Data for signalized intersections only:				--		
Number of approaches with left-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]				0	2	
Number of approaches with right-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]				0	2	
Number of approaches with left-turn signal phasing [for 3SG, use maximum value of 3]				--	2	
Type of left-turn signal phasing for Leg #1				Permissive	Permissive / Protected	
Type of left-turn signal phasing for Leg #2				--	Not Applicable	
Type of left-turn signal phasing for Leg #3				--	Protected	
Type of left-turn signal phasing for Leg #4 (if applicable)				--	Not Applicable	
Number of approaches with right-turn-on-red prohibited [for 3SG, use maximum value of 3]				0	0	
Intersection red light cameras (present/not present)				Not Present	Not Present	
Sum of all pedestrian crossing volumes (PedVol) -- Signalized intersections only					231	
Maximum number of lanes crossed by a pedestrian (n_{lanesx})				--	5	
Number of bus stops within 300 m (1,000 ft) of the intersection				0	2	
Schools within 300 m (1,000 ft) of the intersection (present/not present)				Not Present	Not Present	
Number of alcohol sales establishments within 300 m (1,000 ft) of the intersection				0	0	

Worksheet 2B -- Crash Modification Factors for Urban and Suburban Arterial Intersections						
(1)	(2)	(3)	(4)	(5)	(6)	(7)
CMF for Left-Turn Lanes	CMF for Left-Turn Signal Phasing	CMF for Right-Turn Lanes	CMF for Right Turn on Red	CMF for Lighting	CMF for Red Light Cameras	Combined CMF
CMF 1i	*CMF 2i*	*CMF 3i*	*CMF 4i*	*CMF 5i*	*CMF 6i*	*CMF $_{COMB}$*
from Table 12-24	from Table 12-25	from Table 12-26	from Equation 12-35	from Equation 12-36	from Equation 12-37	(1)*(2)*(3)*(4)*(5)*(6)
0.86	0.98	0.92	1.00	0.91	1.00	0.71

Worksheet 2C -- Multiple-Vehicle Collisions by Severity Level for Urban and Suburban Arterial Intersections

(1)	(2)			(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**			**Overdispersion Parameter, k**	**Initial N_{bimv}**	**Proportion of Total Crashes**	**Adjusted N_{bimv}**	**Combined CMFs**	**Calibration Factor, C_i**	**Predicted N_{bimv}**
	from Table 12-10			from Table 12-10	from Equation 12-21		$(4)_{TOTAL}$*(5)	(7) from Worksheet 2B		(6)*(7)*(8)
	a	b	c							
Total	-12.13	1.11	0.26	0.33	4.228	1.000	4.228	0.71	1.00	2.991
Fatal and Injury (FI)	-11.58	1.02	0.17	0.30	1.334	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.332	1.404	0.71	1.00	0.993
Property Damage Only (PDO)	-13.24	1.14	0.30	0.36	2.684	$(5)_{TOTAL}-(5)_{FI}$ = 0.668	2.824	0.71	1.00	1.998

Worksheet 2D -- Multiple-Vehicle Collisions by Collision Type for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{bimv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{bimv\ (PDO)}$ (crashes/year)**	**Predicted N $_{bimv\ (TOTAL)}$ (crashes/year)**
	from Table 12-11	$(9)_{FI}$ from Worksheet 2C	from Table 12-11	$(9)_{PDO}$ from Worksheet 2C	$(9)_{PDO}$ from Worksheet 2C
Total	1.000	0.993	1.000	1.998	2.991
		(2)*$(3)_{FI}$		(4)*$(5)_{PDO}$	(3)+(5)
Rear-end collision	0.549	0.545	0.546	1.091	1.636
Head-on collision	0.038	0.038	0.020	0.040	0.078
Angle collision	0.280	0.278	0.204	0.408	0.686
Sideswipe	0.076	0.075	0.032	0.064	0.139
Other multiple-vehicle collision	0.057	0.057	0.198	0.396	0.452

Worksheet 2E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Arterial Intersections

(1)	(2)			(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**			**Overdispersion Parameter, k**	**Initial N_{bisv}**	**Proportion of Total Crashes**	**Adjusted N_{bimv}**	**Combined CMFs**	**Calibration Factor, C_i**	**Predicted N_{bisv}**
	from Table 12-12			from Table 12-12	from Eqn. 12-24; (FI) from Eqn. 12-24 or 12-27		$(4)_{TOTAL}$*(5)	(7) from Worksheet 2B		(6)*(7)*(8)
	a	b	c							
Total	-9.02	0.42	0.40	0.36	0.288	1.000	0.288	0.71	1.00	0.204
Fatal and Injury (FI)	-9.75	0.27	0.51	0.24	0.079	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.284	0.082	0.71	1.00	0.058
Property Damage Only (PDO)	-9.08	0.45	0.33	0.53	0.199	$(5)_{TOTAL}-(5)_{FI}$ = 0.716	0.206	0.71	1.00	0.146

Worksheet 2F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{bisv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{bisv\ (PDO)}$ (crashes/year)**	**Predicted N $_{bisv\ (TOTAL)}$ (crashes/year)**
	from Table 12-13	(9)$_{FI}$ from Worksheet 2E	from Table 12-13	(9)$_{PDO}$ from Worksheet 2E	(9)$_{PDO}$ from Worksheet 2E
Total	1.000	0.058	1.000	0.146	0.204
		(2)*(3)$_{FI}$		(4)*(5)$_{PDO}$	(3)+(5)
Collision with parked vehicle	0.001	0.000	0.001	0.000	0.000
Collision with animal	0.001	0.000	0.003	0.000	0.000
Collision with fixed object	0.653	0.038	0.895	0.131	0.168
Collision with other object	0.091	0.005	0.069	0.010	0.015
Other single-vehicle collision	0.045	0.003	0.018	0.003	0.005
Single-vehicle noncollision	0.209	0.012	0.014	0.002	0.014

Worksheet 2G -- Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Stop-Controlled Intersections

(1)	(2)	(3)	(4)	(5)	(7)*
Crash Severity Level	**Predicted N_{bimv}**	**Predicted N_{bisv}**	**Predicted N_{bi}**	**f_{pedi}**	**Predicted N_{pedi}**
	(9) from Worksheet 2C	(9) from Worksheet 2E	(2) + (3)	from Table 12-16	(4)*(5)
Total	--	--	--	--	--
Fatal and injury (FI)	--	--	--	--	--

* Column 6 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-30

Worksheet 2H -- Crash Modification Factors for Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Signalized Intersections

(1)	(2)	(3)	(4)
CMF for Bus Stops	CMF for Schools	CMF for Alcohol Sales Establishments	Combined CMF
CMF_{1p}	CMF_{2p}	CMF_{3p}	
from Table 12-28	from Table 12-29	from Table 12-30	(1)*(2)*(3)
2.78	1.00	1.00	2.78

Worksheet 2I -- Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Signalized Intersections

(1)	(2)					(3)	(4)	(5)	(6)	(7)
Crash Severity Level	**SPF Coefficients**					**Overdispersion Parameter, k**	**$N_{pedbase}$**	**Combined CMF**	**Calibration factor, C_i**	**Predicted N_{pedi}**
	from Table 12-14						from Equation 12-29	(4) from Worksheet 2H		(4)*(5)*(6)
	a	b	c	d	e					
Total	-6.60	0.05	0.24	0.41	0.09	0.52	0.024	2.78	1.00	0.066
Fatal and Injury (FI)	--	--	--	--	--	--	--	--	1.00	0.066

Worksheet 2J -- Vehicle-Bicycle Collisions for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(7)*
Crash Severity Level	**Predicted N_{bimv}**	**Predicted N_{bisv}**	**Predicted N_{bi}**	**f_{bikei}**	**Predicted N_{bikei}**
	(9) from Worksheet 2C	(9) from Worksheet 2E	(2) + (3)	from Table 12-17	(4)*(5)
Total	2.991	0.204	3.195	0.011	0.035
Fatal and injury (FI)	--	--	--	--	0.035

* Column 6 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-31

Worksheet 2K -- Crash Severity Distribution for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)
Collision type	**Fatal and injury (FI)**	**Property damage only (PDO)**	**Total**
	(3) from Worksheet 2D and 2F; (7) from 2G or 2I and 2J	(5) from Worksheet 2D and 2F	(6) from Worksheet 2D and 2F; (7) from 2G or 2I and 2J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 2D)	0.545	1.091	1.636
Head-on collisions (from Worksheet 2D)	0.038	0.040	0.078
Angle collisions (from Worksheet 2D)	0.278	0.408	0.686
Sideswipe (from Worksheet 2D)	0.075	0.064	0.139
Other multiple-vehicle collision (from Worksheet 2D)	0.057	0.396	0.452
Subtotal	0.993	1.998	2.991
SINGLE-VEHICLE			
Collision with parked vehicle (from Worksheet 2F)	0.000	0.000	0.000
Collision with animal (from Worksheet 2F)	0.000	0.000	0.000
Collision with fixed object (from Worksheet 2F)	0.038	0.131	0.168
Collision with other object (from Worksheet 2F)	0.005	0.010	0.015
Other single-vehicle collision (from Worksheet 2F)	0.003	0.003	0.005
Single-vehicle noncollision (from Worksheet 2F)	0.012	0.002	0.014
Collision with pedestrian (from Worksheet 2G or 2I)	0.066	0.000	0.066
Collision with bicycle (from Worksheet 2J)	0.035	0.000	0.035
Subtotal	0.159	0.146	0.305
Total	1.152	2.144	3.296

Worksheet 2L -- Summary Results for Urban and Suburban Arterial Intersections

(1)	(2)
Crash severity level	**Predicted average crash frequency, $N_{predicted\ int}$ (crashes/year)**
	(Total) from Worksheet 2K
Total	3.3
Fatal and injury (FI)	1.2
Property damage only (PDO)	2.1

Worksheet 2A -- General Information and Input Data for Urban and Suburban Arterial Intersections						
General Information				**Location Information**		
Analyst	PK			Roadway	Westlake Terrace	
Agency or Company	ATCS			Intersection	At Motor City Drive	
Date Performed	10/09/20			Jurisdiction	City of Rockville	
				Analysis Year	2045	
Input Data				**Base Conditions**	**Site Conditions**	
Intersection type (3ST, 3SG, 4ST, 4SG)				--	4SG	
AADT $_{major}$ (veh/day)	$AADT_{MAX}$ =	67,700	(veh/day)	--	16,801	
AADT $_{minor}$ (veh/day)	$AADT_{MAX}$ =	33,400	(veh/day)	--	4,897	
Intersection lighting (present/not present)				Not Present	Present	
Calibration factor, C_i				1.00	1.00	
Data for unsignalized intersections only:				--	--	
Number of major-road approaches with left-turn lanes (0,1,2)				0	0	
Number of major-road approaches with right-turn lanes (0,1,2)				0	0	
Data for signalized intersections only:				--	--	
Number of approaches with left-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]				0	4	
Number of approaches with right-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]				0	0	
Number of approaches with left-turn signal phasing [for 3SG, use maximum value of 3]				--	1	
Type of left-turn signal phasing for Leg #1				Permissive	Permissive	
Type of left-turn signal phasing for Leg #2				--	Permissive / Protected	
Type of left-turn signal phasing for Leg #3				--	Permissive	
Type of left-turn signal phasing for Leg #4 (if applicable)				--	Permissive	
Number of approaches with right-turn-on-red prohibited [for 3SG, use maximum value of 3]				0	0	
Intersection red light cameras (present/not present)				Not Present	Not Present	
Sum of all pedestrian crossing volumes (PedVol) -- Signalized intersections only					54	
Maximum number of lanes crossed by a pedestrian (n_{lanesx})				--	5	
Number of bus stops within 300 m (1,000 ft) of the intersection				0	2	
Schools within 300 m (1,000 ft) of the intersection (present/not present)				Not Present	Not Present	
Number of alcohol sales establishments within 300 m (1,000 ft) of the intersection				0	0	

Worksheet 2B -- Crash Modification Factors for Urban and Suburban Arterial Intersections						
(1)	(2)	(3)	(4)	(5)	(6)	(7)
CMF for Left-Turn Lanes	CMF for Left-Turn Signal Phasing	CMF for Right-Turn Lanes	CMF for Right Turn on Red	CMF for Lighting	CMF for Red Light Cameras	Combined CMF
CMF 1i	*CMF 2i*	*CMF 3i*	*CMF 4i*	*CMF 5i*	*CMF 6i*	*CMF $_{COMB}$*
from Table 12-24	from Table 12-25	from Table 12-26	from Equation 12-35	from Equation 12-36	from Equation 12-37	(1)*(2)*(3)*(4)*(5)*(6)
0.66	1.00	1.00	1.00	0.91	1.00	0.60

Worksheet 2C -- Multiple-Vehicle Collisions by Severity Level for Urban and Suburban Arterial Intersections

(1)	(2)			(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**			**Overdispersion Parameter, k**	**Initial N_{bimv}**	**Proportion of Total Crashes**	**Adjusted N_{bimv}**	**Combined CMFs**	**Calibration Factor, C_i**	**Predicted N_{bimv}**
	from Table 12-10			from Table 12-10	from Equation 12-21		$(4)_{TOTAL}$*(5)	(7) from Worksheet 2B		(6)*(7)*(8)
	a	b	c							
Total	-10.99	1.07	0.23	0.39	3.953	1.000	3.953	0.60	1.00	2.376
Fatal and Injury (FI)	-13.14	1.18	0.22	0.33	1.233	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.324	1.283	0.60	1.00	0.771
Property Damage Only (PDO)	-11.02	1.02	0.24	0.44	2.567	$(5)_{TOTAL}-(5)_{FI}$ = 0.676	2.670	0.60	1.00	1.605

Worksheet 2D -- Multiple-Vehicle Collisions by Collision Type for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{bimv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{bimv\ (PDO)}$ (crashes/year)**	**Predicted N $_{bimv\ (TOTAL)}$ (crashes/year)**
	from Table 12-11	$(9)_{FI}$ from Worksheet 2C	from Table 12-11	$(9)_{PDO}$ from Worksheet 2C	$(9)_{PDO}$ from Worksheet 2C
Total	1.000	0.771	1.000	1.605	2.376
		(2)*$(3)_{FI}$		(4)*$(5)_{PDO}$	(3)+(5)
Rear-end collision	0.450	0.347	0.483	0.775	1.122
Head-on collision	0.049	0.038	0.030	0.048	0.086
Angle collision	0.347	0.268	0.244	0.392	0.659
Sideswipe	0.099	0.076	0.032	0.051	0.128
Other multiple-vehicle collision	0.055	0.042	0.211	0.339	0.381

Worksheet 2E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Arterial Intersections

(1)	(2)			(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**			**Overdispersion Parameter, k**	**Initial N_{bisv}**	**Proportion of Total Crashes**	**Adjusted N_{bimv}**	**Combined CMFs**	**Calibration Factor, C_i**	**Predicted N_{bisv}**
	from Table 12-12			from Table 12-12	from Eqn. 12-24; (FI) from Eqn. 12-24 or 12-27		$(4)_{TOTAL}$*(5)	(7) from Worksheet 2B		(6)*(7)*(8)
	a	b	c							
Total	-10.21	0.68	0.27	0.36	0.272	1.000	0.272	0.60	1.00	0.164
Fatal and Injury (FI)	-9.25	0.43	0.29	0.09	0.074	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.274	0.075	0.60	1.00	0.045
Property Damage Only (PDO)	-11.34	0.78	0.25	0.44	0.196	$(5)_{TOTAL}-(5)_{FI}$ = 0.726	0.198	0.60	1.00	0.119

Worksheet 2F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{bisv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{bisv\ (PDO)}$ (crashes/year)**	**Predicted N $_{bisv\ (TOTAL)}$ (crashes/year)**
	from Table 12-13	$(9)_{FI}$ from Worksheet 2E	from Table 12-13	$(9)_{PDO}$ from Worksheet 2E	$(9)_{PDO}$ from Worksheet 2E
Total	1.000	0.045	1.000	0.119	0.164
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Collision with parked vehicle	0.001	0.000	0.001	0.000	0.000
Collision with animal	0.002	0.000	0.002	0.000	0.000
Collision with fixed object	0.744	0.033	0.870	0.103	0.137
Collision with other object	0.072	0.003	0.070	0.008	0.012
Other single-vehicle collision	0.040	0.002	0.023	0.003	0.005
Single-vehicle noncollision	0.141	0.006	0.034	0.004	0.010

Worksheet 2G -- Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Stop-Controlled Intersections

(1)	(2)	(3)	(4)	(5)	(7)*
Crash Severity Level	**Predicted N_{bimv}**	**Predicted N_{bisv}**	**Predicted N_{bi}**	**f_{pedi}**	**Predicted N_{pedi}**
	(9) from Worksheet 2C	(9) from Worksheet 2E	(2) + (3)	from Table 12-16	(4)*(5)
Total	--	--	--	--	--
Fatal and injury (FI)	--	--	--	--	--

* Column 6 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-30

Worksheet 2H -- Crash Modification Factors for Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Signalized Intersections

(1)	(2)	(3)	(4)
CMF for Bus Stops	CMF for Schools	CMF for Alcohol Sales Establishments	Combined CMF
CMF_{1p}	CMF_{2p}	CMF_{3p}	
from Table 12-28	from Table 12-29	from Table 12-30	(1)*(2)*(3)
2.78	1.00	1.00	2.78

Worksheet 2I -- Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Signalized Intersections

(1)	(2)					(3)	(4)	(5)	(6)	(7)
Crash Severity Level	**SPF Coefficients**					**Overdispersion Parameter, k**	**$N_{pedbase}$**	**Combined CMF**	**Calibration factor, C_i**	**Predicted N_{pedi}**
	from Table 12-14						from Equation 12-29	(4) from Worksheet 2H		(4)*(5)*(6)
	a	b	c	d	e					
Total	-9.53	0.40	0.26	0.45	0.04	0.24	0.021	2.78	1.00	0.058
Fatal and Injury (FI)	--	--	--	--	--	--	--	--	1.00	0.058

Worksheet 2J -- Vehicle-Bicycle Collisions for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(7)*
Crash Severity Level	**Predicted N_{bimv}**	**Predicted N_{bisv}**	**Predicted N_{bi}**	**f_{bikei}**	**Predicted N_{bikei}**
	(9) from Worksheet 2C	(9) from Worksheet 2E	(2) + (3)	from Table 12-17	(4)*(5)
Total	2.376	0.164	2.540	0.015	0.038
Fatal and injury (FI)	--	--	--	--	0.038

* Column 6 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-31

Worksheet 2K -- Crash Severity Distribution for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)
	Fatal and injury (FI)	**Property damage only (PDO)**	**Total**
Collision type	(3) from Worksheet 2D and 2F; (7) from 2G or 2I and 2J	(5) from Worksheet 2D and 2F	(6) from Worksheet 2D and 2F; (7) from 2G or 2I and 2J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 2D)	0.347	0.775	1.122
Head-on collisions (from Worksheet 2D)	0.038	0.048	0.086
Angle collisions (from Worksheet 2D)	0.268	0.392	0.659
Sideswipe (from Worksheet 2D)	0.076	0.051	0.128
Other multiple-vehicle collision (from Worksheet 2D)	0.042	0.339	0.381
Subtotal	0.771	1.605	2.376
SINGLE-VEHICLE			
Collision with parked vehicle (from Worksheet 2F)	0.000	0.000	0.000
Collision with animal (from Worksheet 2F)	0.000	0.000	0.000
Collision with fixed object (from Worksheet 2F)	0.033	0.103	0.137
Collision with other object (from Worksheet 2F)	0.003	0.008	0.012
Other single-vehicle collision (from Worksheet 2F)	0.002	0.003	0.005
Single-vehicle noncollision (from Worksheet 2F)	0.006	0.004	0.010
Collision with pedestrian (from Worksheet 2G or 2I)	0.058	0.000	0.058
Collision with bicycle (from Worksheet 2J)	0.038	0.000	0.038
Subtotal	0.141	0.119	0.260
Total	0.912	1.724	2.636

Worksheet 2L -- Summary Results for Urban and Suburban Arterial Intersections

(1)	(2)
Crash severity level	**Predicted average crash frequency, $N_{predicted\ int}$ (crashes/year)**
	(Total) from Worksheet 2K
Total	2.6
Fatal and injury (FI)	0.9
Property damage only (PDO)	1.7

Worksheet 1A -- General Information and Input Data for Urban and Suburban Roadway Segments

General Information		Location Information	
Analyst	PK	Roadway	Westlake Terrace
Agency or Company	ATCS	Roadway Section	Motor City Dr to I-270 Spur Ramps
Date Performed	10/09/20	Jurisdiction	City of Rockville
		Analysis Year	2045

Input Data		Base Conditions	Site Conditions
Roadway type (2U, 3T, 4U, 4D, ST)		--	4D
Length of segment, L (mi)		--	0.03
AADT (veh/day)	$AADT_{MAX}$ = 66,000 (veh/day)	--	16,876
Type of on-street parking (none/parallel/angle)		None	None
Proportion of curb length with on-street parking		--	0
Median width (ft) - for divided only		15	15
Lighting (present / not present)		Not Present	Present
Auto speed enforcement (present / not present)		Not Present	Not Present
Major commercial driveways (number)		--	0
Minor commercial driveways (number)		--	0
Major industrial / institutional driveways (number)		--	0
Minor industrial / institutional driveways (number)		--	0
Major residential driveways (number)		--	0
Minor residential driveways (number)		--	0
Other driveways (number)		--	0
Speed Category		--	Posted Speed 30 mph or Lower
Roadside fixed object density (fixed objects / mi)		0	67
Offset to roadside fixed objects (ft) [If greater than 30 or Not Present, input 30]		30	12
Calibration Factor, Cr		1.00	1.00

Worksheet 1B -- Crash Modification Factors for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
CMF for On-Street Parking	CMF for Roadside Fixed Objects	CMF for Median Width	CMF for Lighting	CMF for Automated Speed Enforcement	Combined CMF
CMF 1r	*CMF 2r*	*CMF 3r*	*CMF 4r*	*CMF 5r*	*CMF comb*
from Equation 12-32	from Equation 12-33	from Table 12-22	from Equation 12-34	from Section 12.7.1	(1)*(2)*(3)*(4)*(5)
1.00	1.15	1.00	0.91	1.00	1.05

Worksheet 1C -- Multiple-Vehicle Nondriveway Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brmv}**	**Proportion of Total Crashes**	**Adjusted N_{brmv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brmv}**
	from Table 12-3		from Table 12-3	from Equation 12-10		$(4)_{TOTAL}$*(5)	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-12.34	1.36	1.32	0.074	1.000	0.074	1.05	1.00	0.077
Fatal and Injury (FI)	-12.76	1.28	1.31	0.022	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.284	0.021	1.05	1.00	0.022
Property Damage Only (PDO)	-12.81	1.38	1.34	0.056	$(5)_{TOTAL}-(5)_{FI}$ = 0.716	0.053	1.05	1.00	0.055

Worksheet 1D -- Multiple-Vehicle Nondriveway Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brmv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brmv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brmv\ (TOTAL)}$ (crashes/year)**
	from Table 12-4	$(9)_{FI}$ from Worksheet 1C	from Table 12-4	$(9)_{PDO}$ from Worksheet 1C	$(9)_{TOTAL}$ from Worksheet 1C
Total	1.000	0.022	1.000	0.055	0.077
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Rear-end collision	0.832	0.018	0.662	0.037	0.055
Head-on collision	0.020	0.000	0.007	0.000	0.001
Angle collision	0.040	0.001	0.036	0.002	0.003
Sideswipe, same direction	0.050	0.001	0.223	0.012	0.013
Sideswipe, opposite direction	0.010	0.000	0.001	0.000	0.000
Other multiple-vehicle collision	0.048	0.001	0.071	0.004	0.005

Worksheet 1E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brsv}**	**Proportion of Total Crashes**	**Adjusted N_{brsv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brsv}**
	from Table 12-5		from Table 12-5	from Equation 12-13		$(4)_{TOTAL}*(5)$	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-5.05	0.47	0.86	0.019	1.000	0.019	1.05	1.00	0.020
Fatal and Injury (FI)	-8.71	0.66	0.28	0.003	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.164	0.003	1.05	1.00	0.003
Property Damage Only (PDO)	-5.04	0.45	1.06	0.016	$(5)_{TOTAL}-(5)_{FI}$ = 0.836	0.016	1.05	1.00	0.016

Worksheet 1F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brsv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brsv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brsv\ (TOTAL)}$ (crashes/year)**
	from Table 12-6	$(9)_{FI}$ from Worksheet 1E	from Table 12-6	$(9)_{PDO}$ from Worksheet 1E	$(9)_{TOTAL}$ from Worksheet 1E
Total	1.000	0.003	1.000	0.016	0.020
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Collision with animal	0.001	0.000	0.063	0.001	0.001
Collision with fixed object	0.500	0.002	0.813	0.013	0.015
Collision with other object	0.028	0.000	0.016	0.000	0.000
Other single-vehicle collision	0.471	0.002	0.108	0.002	0.003

Worksheet 1G -- Multiple-Vehicle Driveway-Related Collisions by Driveway Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Driveway Type	**Number of driveways, n_j**	**Crashes per driveway per year, N_j**	**Coefficient for traffic adjustment, t**	**Initial N_{brdwy}**	**Overdispersion parameter, k**
		from Table 12-7	from Table 12-7	Equation 12-16 $n_j * N_j * (AADT/15,000)^t$	from Table 12-7
Major commercial	0	0.033	1.106	0.000	
Minor commercial	0	0.011	1.106	0.000	
Major industrial/institutional	0	0.036	1.106	0.000	
Minor industrial/institutional	0	0.005	1.106	0.000	--
Major residential	0	0.018	1.106	0.000	
Minor residential	0	0.003	1.106	0.000	
Other	0	0.005	1.106	0.000	
Total	--	--	--	0.000	1.39

Worksheet 1H -- Multiple-Vehicle Driveway-Related Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Crash Severity Level	**Initial N_{brdwy}**	**Proportion of total crashes (f_{dwy})**	**Adjusted N_{brdwy}**	**Combined CMFs**	**Calibration factor, C_r**	**Predicted N_{brdwy}**
	$(5)_{TOTAL}$ from Worksheet 1G	from Table 12-7	$(2)_{TOTAL}$ * (3)	(6) from Worksheet 1B		(4)*(5)*(6)
Total	0.000	1.000	0.000	1.05	1.00	0.000
Fatal and injury (FI)	--	0.284	0.000	1.05	1.00	0.000
Property damage only (PDO)	--	0.716	0.000	1.05	1.00	0.000

Worksheet 1I -- Vehicle-Pedestrian Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(8)*
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{pedr}**	**Predicted N_{pedr}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-8	(5)*(6)
Total	0.077	0.020	0.000	0.097	0.067	0.006
Fatal and injury (FI)	--	--	--	--	--	0.006

* Column 7 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-19

Worksheet 1J -- Vehicle-Bicycle Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(8)*
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{biker}**	**Predicted N_{biker}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-9	(5)*(6)
Total	0.077	0.020	0.000	0.097	0.013	0.001
Fatal and injury (FI)	--	--	--	--	--	0.001

* Column 7 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-20

Worksheet 1K -- Crash Severity Distribution for Urban and Suburban Roadway Segments			
(1)	(2)	(3)	(4)
Collision type	**Fatal and injury (FI)**	**Property damage only (PDO)**	**Total**
	(3) from Worksheet 1D and 1F; (7) from Worksheet 1H; and (8) from Worksheet 1I and 1J	(5) from Worksheet 1D and 1F; and (7) from Worksheet 1H	(6) from Worksheet 1D and 1F; (7) from Worksheet 1H; and (8) from Worksheet 1I and 1J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 1D)	0.018	0.037	0.055
Head-on collisions (from Worksheet 1D)	0.000	0.000	0.001
Angle collisions (from Worksheet 1D)	0.001	0.002	0.003
Sideswipe, same direction (from Worksheet 1D)	0.001	0.012	0.013
Sideswipe, opposite direction (from Worksheet 1D)	0.000	0.000	0.000
Driveway-related collisions (from Worksheet 1H)	0.000	0.000	0.000
Other multiple-vehicle collision (from Worksheet 1D)	0.001	0.004	0.005
Subtotal	0.022	0.055	0.077
SINGLE-VEHICLE			
Collision with animal (from Worksheet 1F)	0.000	0.001	0.001
Collision with fixed object (from Worksheet 1F)	0.002	0.013	0.015
Collision with other object (from Worksheet 1F)	0.000	0.000	0.000
Other single-vehicle collision (from Worksheet 1F)	0.002	0.002	0.003
Collision with pedestrian (from Worksheet 1I)	0.006	0.000	0.006
Collision with bicycle (from Worksheet 1J)	0.001	0.000	0.001
Subtotal	0.011	0.016	0.027
Total	0.033	0.072	0.105

Worksheet 1L -- Summary Results for Urban and Suburban Roadway Segments			
(1)	(2)	(3)	(4)
Crash Severity Level	**Predicted average crash frequency, $N_{predicted\ rs}$ (crashes/year)**	**Roadway segment length, L (mi)**	**Crash rate (crashes/mi/year)**
	(Total) from Worksheet 1K		(2) / (3)
Total	0.1	0.03	3.5
Fatal and injury (FI)	0.0	0.03	1.1
Property damage only (PDO)	0.1	0.03	2.4

Worksheet 2A -- General Information and Input Data for Urban and Suburban Arterial Intersections						
General Information				**Location Information**		
Analyst	TL			Roadway	Westlake Terrace	
Agency or Company	ATCS			Intersection	At I-270 Ramp Terminal	
Date Performed	01/20/22			Jurisdiction	City of Rockville	
				Analysis Year	2045	
Input Data				**Base Conditions**	**Site Conditions**	
Intersection type (3ST, 3SG, 4ST, 4SG)				--	3SG	
AADT $_{major}$ (veh/day)	$AADT_{MAX}$ =	58,100	(veh/day)	--	20,540	
AADT $_{minor}$ (veh/day)	$AADT_{MAX}$ =	16,400	(veh/day)	--	8,279	
Intersection lighting (present/not present)				Not Present	Present	
Calibration factor, C_i				1.00	1.00	
Data for unsignalized intersections only:				--	--	
Number of major-road approaches with left-turn lanes (0,1,2)				0	0	
Number of major-road approaches with right-turn lanes (0,1,2)				0	0	
Data for signalized intersections only:				--	--	
Number of approaches with left-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]				0	1	
Number of approaches with right-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]				0	1	
Number of approaches with left-turn signal phasing [for 3SG, use maximum value of 3]				--	0	
Type of left-turn signal phasing for Leg #1				Permissive	Permissive	
Type of left-turn signal phasing for Leg #2				--	Not Applicable	
Type of left-turn signal phasing for Leg #3				--	Protected	
Type of left-turn signal phasing for Leg #4 (if applicable)				--	Not Applicable	
Number of approaches with right-turn-on-red prohibited [for 3SG, use maximum value of 3]				0	0	
Intersection red light cameras (present/not present)				Not Present	Not Present	
Sum of all pedestrian crossing volumes (PedVol) -- Signalized intersections only					54	
Maximum number of lanes crossed by a pedestrian (n_{lanesx})				--	5	
Number of bus stops within 300 m (1,000 ft) of the intersection				0	3	
Schools within 300 m (1,000 ft) of the intersection (present/not present)				Not Present	Not Present	
Number of alcohol sales establishments within 300 m (1,000 ft) of the intersection				0	0	

Worksheet 2B -- Crash Modification Factors for Urban and Suburban Arterial Intersections						
(1)	(2)	(3)	(4)	(5)	(6)	(7)
CMF for Left-Turn Lanes	CMF for Left-Turn Signal Phasing	CMF for Right-Turn Lanes	CMF for Right Turn on Red	CMF for Lighting	CMF for Red Light Cameras	Combined CMF
CMF 1i	*CMF 2i*	*CMF 3i*	*CMF 4i*	*CMF 5i*	*CMF 6i*	*CMF $_{COMB}$*
from Table 12-24	from Table 12-25	from Table 12-26	from Equation 12-35	from Equation 12-36	from Equation 12-37	(1)*(2)*(3)*(4)*(5)*(6)
0.93	1.00	0.96	1.00	0.91	1.00	0.81

Worksheet 2C -- Multiple-Vehicle Collisions by Severity Level for Urban and Suburban Arterial Intersections

(1)	(2)			(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**			**Overdispersion Parameter, k**	**Initial N_{bimv}**	**Proportion of Total Crashes**	**Adjusted N_{bimv}**	**Combined CMFs**	**Calibration Factor, C_i**	**Predicted N_{bimv}**
	from Table 12-10			from Table 12-10	from Equation 12-21		$(4)_{TOTAL}$*(5)	(7) from Worksheet 2B		(6)*(7)*(8)
	a	b	c							
Total	-12.13	1.11	0.26	0.33	3.449	1.000	3.449	0.81	1.00	2.804
Fatal and Injury (FI)	-11.58	1.02	0.17	0.30	1.086	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.331	1.141	0.81	1.00	0.928
Property Damage Only (PDO)	-13.24	1.14	0.30	0.36	2.196	$(5)_{TOTAL}-(5)_{FI}$ = 0.669	2.308	0.81	1.00	1.876

Worksheet 2D -- Multiple-Vehicle Collisions by Collision Type for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{bimv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{bimv\ (PDO)}$ (crashes/year)**	**Predicted N $_{bimv\ (TOTAL)}$ (crashes/year)**
	from Table 12-11	$(9)_{FI}$ from Worksheet 2C	from Table 12-11	$(9)_{PDO}$ from Worksheet 2C	$(9)_{PDO}$ from Worksheet 2C
Total	1.000	0.928	1.000	1.876	2.804
		(2)*$(3)_{FI}$		(4)*$(5)_{PDO}$	(3)+(5)
Rear-end collision	0.549	0.509	0.546	1.025	1.534
Head-on collision	0.038	0.035	0.020	0.038	0.073
Angle collision	0.280	0.260	0.204	0.383	0.643
Sideswipe	0.076	0.071	0.032	0.060	0.131
Other multiple-vehicle collision	0.057	0.053	0.198	0.372	0.424

Worksheet 2E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Arterial Intersections

(1)	(2)			(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**			**Overdispersion Parameter, k**	**Initial N_{bisv}**	**Proportion of Total Crashes**	**Adjusted N_{bimv}**	**Combined CMFs**	**Calibration Factor, C_i**	**Predicted N_{bisv}**
	from Table 12-12			from Table 12-12	from Eqn. 12-24; (FI) from Eqn. 12-24 or 12-27		$(4)_{TOTAL}$*(5)	(7) from Worksheet 2B		(6)*(7)*(8)
	a	b	c							
Total	-9.02	0.42	0.40	0.36	0.289	1.000	0.289	0.81	1.00	0.235
Fatal and Injury (FI)	-9.75	0.27	0.51	0.24	0.085	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.303	0.088	0.81	1.00	0.071
Property Damage Only (PDO)	-9.08	0.45	0.33	0.53	0.195	$(5)_{TOTAL}-(5)_{FI}$ = 0.697	0.202	0.81	1.00	0.164

Worksheet 2F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{bisv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{bisv\ (PDO)}$ (crashes/year)**	**Predicted N $_{bisv\ (TOTAL)}$ (crashes/year)**
	from Table 12-13	(9)$_{FI}$ from Worksheet 2E	from Table 12-13	(9)$_{PDO}$ from Worksheet 2E	(9)$_{PDO}$ from Worksheet 2E
Total	1.000	0.071	1.000	0.164	0.235
		(2)*(3)$_{FI}$		(4)*(5)$_{PDO}$	(3)+(5)
Collision with parked vehicle	0.001	0.000	0.001	0.000	0.000
Collision with animal	0.001	0.000	0.003	0.000	0.001
Collision with fixed object	0.653	0.047	0.895	0.147	0.193
Collision with other object	0.091	0.006	0.069	0.011	0.018
Other single-vehicle collision	0.045	0.003	0.018	0.003	0.006
Single-vehicle noncollision	0.209	0.015	0.014	0.002	0.017

Worksheet 2G -- Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Stop-Controlled Intersections

(1)	(2)	(3)	(4)	(5)	(7)*
Crash Severity Level	**Predicted N_{bimv}**	**Predicted N_{bisv}**	**Predicted N_{bi}**	**f_{pedi}**	**Predicted N_{pedi}**
	(9) from Worksheet 2C	(9) from Worksheet 2E	(2) + (3)	from Table 12-16	(4)*(5)
Total	--	--	--	--	--
Fatal and injury (FI)	--	--	--	--	--

* Column 6 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-30

Worksheet 2H -- Crash Modification Factors for Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Signalized Intersections

(1)	(2)	(3)	(4)
CMF for Bus Stops	CMF for Schools	CMF for Alcohol Sales Establishments	Combined CMF
CMF_{1p}	CMF_{2p}	CMF_{3p}	
from Table 12-28	from Table 12-29	from Table 12-30	(1)*(2)*(3)
4.15	1.00	1.00	4.15

Worksheet 2I -- Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Signalized Intersections

(1)	(2)					(3)	(4)	(5)	(6)	(7)
Crash Severity Level	**SPF Coefficients**					**Overdispersion Parameter, k**	**$N_{pedbase}$**	**Combined CMF**	**Calibration factor, C_i**	**Predicted N_{pedi}**
	from Table 12-14						from Equation 12-29	(4) from Worksheet 2H		(4)*(5)*(6)
	a	b	c	d	e					
Total	-6.60	0.05	0.24	0.41	0.09	0.52	0.015	4.15	1.00	0.061
Fatal and Injury (FI)	--	--	--	--	--	--	--	--	1.00	0.061

Worksheet 2J -- Vehicle-Bicycle Collisions for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(7)*
Crash Severity Level	**Predicted N_{bimv}**	**Predicted N_{bisv}**	**Predicted N_{bi}**	**f_{bikei}**	**Predicted N_{bikei}**
	(9) from Worksheet 2C	(9) from Worksheet 2E	(2) + (3)	from Table 12-17	(4)*(5)
Total	2.804	0.235	3.039	0.011	0.033
Fatal and injury (FI)	--	--	--	--	0.033

* Column 6 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-31

Worksheet 2K -- Crash Severity Distribution for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)
	Fatal and injury (FI)	**Property damage only (PDO)**	**Total**
Collision type	(3) from Worksheet 2D and 2F; (7) from 2G or 2I and 2J	(5) from Worksheet 2D and 2F	(6) from Worksheet 2D and 2F; (7) from 2G or 2I and 2J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 2D)	0.509	1.025	1.534
Head-on collisions (from Worksheet 2D)	0.035	0.038	0.073
Angle collisions (from Worksheet 2D)	0.260	0.383	0.643
Sideswipe (from Worksheet 2D)	0.071	0.060	0.131
Other multiple-vehicle collision (from Worksheet 2D)	0.053	0.372	0.424
Subtotal	0.928	1.876	2.804
SINGLE-VEHICLE			
Collision with parked vehicle (from Worksheet 2F)	0.000	0.000	0.000
Collision with animal (from Worksheet 2F)	0.000	0.000	0.001
Collision with fixed object (from Worksheet 2F)	0.047	0.147	0.193
Collision with other object (from Worksheet 2F)	0.006	0.011	0.018
Other single-vehicle collision (from Worksheet 2F)	0.003	0.003	0.006
Single-vehicle noncollision (from Worksheet 2F)	0.015	0.002	0.017
Collision with pedestrian (from Worksheet 2G or 2I)	0.061	0.000	0.061
Collision with bicycle (from Worksheet 2J)	0.033	0.000	0.033
Subtotal	0.166	0.164	0.330
Total	1.093	2.040	3.134

Worksheet 2L -- Summary Results for Urban and Suburban Arterial Intersections

(1)	(2)
Crash severity level	**Predicted average crash frequency, $N_{predicted\ int}$ (crashes/year)**
	(Total) from Worksheet 2K
Total	3.1
Fatal and injury (FI)	1.1
Property damage only (PDO)	2.0

Worksheet 1A -- General Information and Input Data for Urban and Suburban Roadway Segments

General Information		Location Information	
Analyst	PK	Roadway	Westlake Terrace
Agency or Company	ATCS	Roadway Section	I-270 Spur Ramps to Rockledge Dr
Date Performed	10/09/20	Jurisdiction	City of Rockville
		Analysis Year	2045

Input Data		Base Conditions	Site Conditions
Roadway type (2U, 3T, 4U, 4D, ST)		--	4D
Length of segment, L (mi)		--	0.05
AADT (veh/day)	$AADT_{MAX}$ = 66,000 (veh/day)	--	17,822
Type of on-street parking (none/parallel/angle)		None	None
Proportion of curb length with on-street parking		--	0
Median width (ft) - for divided only		15	15
Lighting (present / not present)		Not Present	Present
Auto speed enforcement (present / not present)		Not Present	Not Present
Major commercial driveways (number)		--	0
Minor commercial driveways (number)		--	0
Major industrial / institutional driveways (number)		--	0
Minor industrial / institutional driveways (number)		--	0
Major residential driveways (number)		--	0
Minor residential driveways (number)		--	0
Other driveways (number)		--	0
Speed Category		--	Posted Speed 30 mph or Lower
Roadside fixed object density (fixed objects / mi)		0	40
Offset to roadside fixed objects (ft) [If greater than 30 or Not Present, input 30]		30	12
Calibration Factor, Cr		1.00	1.00

Worksheet 1B -- Crash Modification Factors for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
CMF for On-Street Parking	CMF for Roadside Fixed Objects	CMF for Median Width	CMF for Lighting	CMF for Automated Speed Enforcement	Combined CMF
CMF 1r	*CMF 2r*	*CMF 3r*	*CMF 4r*	*CMF 5r*	*CMF comb*
from Equation 12-32	from Equation 12-33	from Table 12-22	from Equation 12-34	from Section 12.7.1	(1)*(2)*(3)*(4)*(5)
1.00	1.08	1.00	0.91	1.00	0.98

Worksheet 1C -- Multiple-Vehicle Nondriveway Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brmv}**	**Proportion of Total Crashes**	**Adjusted N_{brmv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brmv}**
	from Table 12-3		from Table 12-3	from Equation 12-10		$(4)_{TOTAL}$*(5)	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-12.34	1.36	1.32	0.132	1.000	0.132	0.98	1.00	0.130
Fatal and Injury (FI)	-12.76	1.28	1.31	0.040	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.283	0.037	0.98	1.00	0.037
Property Damage Only (PDO)	-12.81	1.38	1.34	0.100	$(5)_{TOTAL}-(5)_{FI}$ = 0.717	0.095	0.98	1.00	0.093

Worksheet 1D -- Multiple-Vehicle Nondriveway Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brmv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brmv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brmv\ (TOTAL)}$ (crashes/year)**
	from Table 12-4	$(9)_{FI}$ from Worksheet 1C	from Table 12-4	$(9)_{PDO}$ from Worksheet 1C	$(9)_{TOTAL}$ from Worksheet 1C
Total	1.000	0.037	1.000	0.093	0.130
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Rear-end collision	0.832	0.031	0.662	0.062	0.092
Head-on collision	0.020	0.001	0.007	0.001	0.001
Angle collision	0.040	0.001	0.036	0.003	0.005
Sideswipe, same direction	0.050	0.002	0.223	0.021	0.023
Sideswipe, opposite direction	0.010	0.000	0.001	0.000	0.000
Other multiple-vehicle collision	0.048	0.002	0.071	0.007	0.008

Worksheet 1E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brsv}**	**Proportion of Total Crashes**	**Adjusted N_{brsv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brsv}**
	from Table 12-5		from Table 12-5	from Equation 12-13		$(4)_{TOTAL}*(5)$	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-5.05	0.47	0.86	0.032	1.000	0.032	0.98	1.00	0.031
Fatal and Injury (FI)	-8.71	0.66	0.28	0.005	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.166	0.005	0.98	1.00	0.005
Property Damage Only (PDO)	-5.04	0.45	1.06	0.026	$(5)_{TOTAL}-(5)_{FI}$ = 0.834	0.027	0.98	1.00	0.026

Worksheet 1F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brsv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brsv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brsv\ (TOTAL)}$ (crashes/year)**
	from Table 12-6	$(9)_{FI}$ from Worksheet 1E	from Table 12-6	$(9)_{PDO}$ from Worksheet 1E	$(9)_{TOTAL}$ from Worksheet 1E
Total	1.000	0.005	1.000	0.026	0.031
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Collision with animal	0.001	0.000	0.063	0.002	0.002
Collision with fixed object	0.500	0.003	0.813	0.021	0.024
Collision with other object	0.028	0.000	0.016	0.000	0.001
Other single-vehicle collision	0.471	0.002	0.108	0.003	0.005

Worksheet 1G -- Multiple-Vehicle Driveway-Related Collisions by Driveway Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Driveway Type	**Number of driveways, n_j**	**Crashes per driveway per year, N_j**	**Coefficient for traffic adjustment, t**	**Initial N_{brdwy}**	**Overdispersion parameter, k**
		from Table 12-7	from Table 12-7	Equation 12-16 $n_j * N_j * (AADT/15,000)^t$	from Table 12-7
Major commercial	0	0.033	1.106	0.000	
Minor commercial	0	0.011	1.106	0.000	
Major industrial/institutional	0	0.036	1.106	0.000	
Minor industrial/institutional	0	0.005	1.106	0.000	--
Major residential	0	0.018	1.106	0.000	
Minor residential	0	0.003	1.106	0.000	
Other	0	0.005	1.106	0.000	
Total	--	--	--	0.000	1.39

Worksheet 1H -- Multiple-Vehicle Driveway-Related Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Crash Severity Level	**Initial N_{brdwy}**	**Proportion of total crashes (f_{dwy})**	**Adjusted N_{brdwy}**	**Combined CMFs**	**Calibration factor, C_r**	**Predicted N_{brdwy}**
	$(5)_{TOTAL}$ from Worksheet 1G	from Table 12-7	$(2)_{TOTAL}$ * (3)	(6) from Worksheet 1B		(4)*(5)*(6)
Total	0.000	1.000	0.000	0.98	1.00	0.000
Fatal and injury (FI)	--	0.284	0.000	0.98	1.00	0.000
Property damage only (PDO)	--	0.716	0.000	0.98	1.00	0.000

Worksheet 1I -- Vehicle-Pedestrian Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(8)*
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{pedr}**	**Predicted N_{pedr}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-8	(5)*(6)
Total	0.130	0.031	0.000	0.161	0.067	0.011
Fatal and injury (FI)	--	--	--	--	--	0.011

* Column 7 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-19

Worksheet 1J -- Vehicle-Bicycle Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(8)*
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{biker}**	**Predicted N_{biker}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-9	(5)*(6)
Total	0.130	0.031	0.000	0.161	0.013	0.002
Fatal and injury (FI)	--	--	--	--	--	0.002

* Column 7 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-20

Worksheet 1K -- Crash Severity Distribution for Urban and Suburban Roadway Segments			
(1)	(2)	(3)	(4)
Collision type	**Fatal and injury (FI)**	**Property damage only (PDO)**	**Total**
	(3) from Worksheet 1D and 1F; (7) from Worksheet 1H; and (8) from Worksheet 1I and 1J	(5) from Worksheet 1D and 1F; and (7) from Worksheet 1H	(6) from Worksheet 1D and 1F; (7) from Worksheet 1H; and (8) from Worksheet 1I and 1J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 1D)	0.031	0.062	0.092
Head-on collisions (from Worksheet 1D)	0.001	0.001	0.001
Angle collisions (from Worksheet 1D)	0.001	0.003	0.005
Sideswipe, same direction (from Worksheet 1D)	0.002	0.021	0.023
Sideswipe, opposite direction (from Worksheet 1D)	0.000	0.000	0.000
Driveway-related collisions (from Worksheet 1H)	0.000	0.000	0.000
Other multiple-vehicle collision (from Worksheet 1D)	0.002	0.007	0.008
Subtotal	0.037	0.093	0.130
SINGLE-VEHICLE			
Collision with animal (from Worksheet 1F)	0.000	0.002	0.002
Collision with fixed object (from Worksheet 1F)	0.003	0.021	0.024
Collision with other object (from Worksheet 1F)	0.000	0.000	0.001
Other single-vehicle collision (from Worksheet 1F)	0.002	0.003	0.005
Collision with pedestrian (from Worksheet 1I)	0.011	0.000	0.011
Collision with bicycle (from Worksheet 1J)	0.002	0.000	0.002
Subtotal	0.018	0.026	0.044
Total	0.055	0.119	0.174

Worksheet 1L -- Summary Results for Urban and Suburban Roadway Segments			
(1)	(2)	(3)	(4)
Crash Severity Level	**Predicted average crash frequency, $N_{predicted\ rs}$ (crashes/year)**	**Roadway segment length, L (mi)**	**Crash rate (crashes/mi/year)**
	(Total) from Worksheet 1K		(2) / (3)
Total	0.2	0.05	3.5
Fatal and injury (FI)	0.1	0.05	1.1
Property damage only (PDO)	0.1	0.05	2.4

Worksheet 2A -- General Information and Input Data for Urban and Suburban Arterial Intersections						
General Information				**Location Information**		
Analyst	PK			Roadway	Westlake Terrace	
Agency or Company	ATCS			Intersection	At Rockledge Drive	
Date Performed	10/09/20			Jurisdiction	City of Rockville	
				Analysis Year	2045	
Input Data				**Base Conditions**	**Site Conditions**	
Intersection type (3ST, 3SG, 4ST, 4SG)				--	4SG	
AADT $_{major}$ (veh/day)	$AADT_{MAX}$ =	67,700	(veh/day)	--	17,719	
AADT $_{minor}$ (veh/day)	$AADT_{MAX}$ =	33,400	(veh/day)	--	13,056	
Intersection lighting (present/not present)				Not Present	Not Present	
Calibration factor, C_i				1.00	1.00	
Data for unsignalized intersections only:				--	--	
Number of major-road approaches with left-turn lanes (0,1,2)				0	0	
Number of major-road approaches with right-turn lanes (0,1,2)				0	0	
Data for signalized intersections only:				--	--	
Number of approaches with left-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]				0	3	
Number of approaches with right-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]				0	2	
Number of approaches with left-turn signal phasing [for 3SG, use maximum value of 3]				--	4	
Type of left-turn signal phasing for Leg #1				Permissive	Permissive / Protected	
Type of left-turn signal phasing for Leg #2				--	Permissive / Protected	
Type of left-turn signal phasing for Leg #3				--	Protected	
Type of left-turn signal phasing for Leg #4 (if applicable)				--	Protected	
Number of approaches with right-turn-on-red prohibited [for 3SG, use maximum value of 3]				0	0	
Intersection red light cameras (present/not present)				Not Present	Not Present	
Sum of all pedestrian crossing volumes (PedVol) -- Signalized intersections only					54	
Maximum number of lanes crossed by a pedestrian (n_{lanesx})				--	5	
Number of bus stops within 300 m (1,000 ft) of the intersection				0	6	
Schools within 300 m (1,000 ft) of the intersection (present/not present)				Not Present	Not Present	
Number of alcohol sales establishments within 300 m (1,000 ft) of the intersection				0	0	

Worksheet 2B -- Crash Modification Factors for Urban and Suburban Arterial Intersections						
(1)	(2)	(3)	(4)	(5)	(6)	(7)
CMF for Left-Turn Lanes	CMF for Left-Turn Signal Phasing	CMF for Right-Turn Lanes	CMF for Right Turn on Red	CMF for Lighting	CMF for Red Light Cameras	Combined CMF
CMF 1i	*CMF 2i*	*CMF 3i*	*CMF 4i*	*CMF 5i*	*CMF 6i*	*CMF $_{COMB}$*
from Table 12-24	from Table 12-25	from Table 12-26	from Equation 12-35	from Equation 12-36	from Equation 12-37	(1)*(2)*(3)*(4)*(5)*(6)
0.73	0.87	0.92	1.00	1.00	1.00	0.58

Worksheet 2C -- Multiple-Vehicle Collisions by Severity Level for Urban and Suburban Arterial Intersections

(1)	(2)			(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**			**Overdispersion Parameter, k**	**Initial N_{bimv}**	**Proportion of Total Crashes**	**Adjusted N_{bimv}**	**Combined CMFs**	**Calibration Factor, C_i**	**Predicted N_{bimv}**
	from Table 12-10			from Table 12-10	from Equation 12-21		$(4)_{TOTAL}$*(5)	(7) from Worksheet 2B		(6)*(7)*(8)
	a	b	c							
Total	-10.99	1.07	0.23	0.39	5.243	1.000	5.243	0.58	1.00	3.055
Fatal and Injury (FI)	-13.14	1.18	0.22	0.33	1.629	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.322	1.688	0.58	1.00	0.984
Property Damage Only (PDO)	-11.02	1.02	0.24	0.44	3.430	$(5)_{TOTAL}-(5)_{FI}$ = 0.678	3.554	0.58	1.00	2.071

Worksheet 2D -- Multiple-Vehicle Collisions by Collision Type for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{bimv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{bimv\ (PDO)}$ (crashes/year)**	**Predicted N $_{bimv\ (TOTAL)}$ (crashes/year)**
	from Table 12-11	$(9)_{FI}$ from Worksheet 2C	from Table 12-11	$(9)_{PDO}$ from Worksheet 2C	$(9)_{PDO}$ from Worksheet 2C
Total	1.000	0.984	1.000	2.071	3.055
		(2)*$(3)_{FI}$		(4)*$(5)_{PDO}$	(3)+(5)
Rear-end collision	0.450	0.443	0.483	1.000	1.443
Head-on collision	0.049	0.048	0.030	0.062	0.110
Angle collision	0.347	0.341	0.244	0.505	0.847
Sideswipe	0.099	0.097	0.032	0.066	0.164
Other multiple-vehicle collision	0.055	0.054	0.211	0.437	0.491

Worksheet 2E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Arterial Intersections

(1)	(2)			(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**			**Overdispersion Parameter, k**	**Initial N_{bisv}**	**Proportion of Total Crashes**	**Adjusted N_{bimv}**	**Combined CMFs**	**Calibration Factor, C_i**	**Predicted N_{bisv}**
	from Table 12-12			from Table 12-12	from Eqn. 12-24; (FI) from Eqn. 12-24 or 12-27		$(4)_{TOTAL}$*(5)	(7) from Worksheet 2B		(6)*(7)*(8)
	a	b	c							
Total	-10.21	0.68	0.27	0.36	0.368	1.000	0.368	0.58	1.00	0.215
Fatal and Injury (FI)	-9.25	0.43	0.29	0.09	0.101	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.278	0.102	0.58	1.00	0.060
Property Damage Only (PDO)	-11.34	0.78	0.25	0.44	0.262	$(5)_{TOTAL}-(5)_{FI}$ = 0.722	0.266	0.58	1.00	0.155

Worksheet 2F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{bisv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{bisv\ (PDO)}$ (crashes/year)**	**Predicted N $_{bisv\ (TOTAL)}$ (crashes/year)**
	from Table 12-13	(9)$_{FI}$ from Worksheet 2E	from Table 12-13	(9)$_{PDO}$ from Worksheet 2E	(9)$_{PDO}$ from Worksheet 2E
Total	1.000	0.060	1.000	0.155	0.215
		(2)*(3)$_{FI}$		(4)*(5)$_{PDO}$	(3)+(5)
Collision with parked vehicle	0.001	0.000	0.001	0.000	0.000
Collision with animal	0.002	0.000	0.002	0.000	0.000
Collision with fixed object	0.744	0.044	0.870	0.135	0.179
Collision with other object	0.072	0.004	0.070	0.011	0.015
Other single-vehicle collision	0.040	0.002	0.023	0.004	0.006
Single-vehicle noncollision	0.141	0.008	0.034	0.005	0.014

Worksheet 2G -- Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Stop-Controlled Intersections

(1)	(2)	(3)	(4)	(5)	(7)*
Crash Severity Level	**Predicted N_{bimv}**	**Predicted N_{bisv}**	**Predicted N_{bi}**	**f_{pedi}**	**Predicted N_{pedi}**
	(9) from Worksheet 2C	(9) from Worksheet 2E	(2) + (3)	from Table 12-16	(4)*(5)
Total	--	--	--	--	--
Fatal and injury (FI)	--	--	--	--	--

* Column 6 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-30

Worksheet 2H -- Crash Modification Factors for Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Signalized Intersections

(1)	(2)	(3)	(4)
CMF for Bus Stops	CMF for Schools	CMF for Alcohol Sales Establishments	Combined CMF
CMF_{1p}	CMF_{2p}	CMF_{3p}	
from Table 12-28	from Table 12-29	from Table 12-30	(1)*(2)*(3)
4.15	1.00	1.00	4.15

Worksheet 2I -- Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Signalized Intersections

(1)	(2)					(3)	(4)	(5)	(6)	(7)
Crash Severity Level	**SPF Coefficients**					**Overdispersion Parameter, k**	**$N_{pedbase}$**	**Combined CMF**	**Calibration factor, C_i**	**Predicted N_{pedi}**
	from Table 12-14						from Equation 12-29	(4) from Worksheet 2H		(4)*(5)*(6)
	a	b	c	d	e					
Total	-9.53	0.40	0.26	0.45	0.04	0.24	0.031	4.15	1.00	0.128
Fatal and Injury (FI)	--	--	--	--	--	--	--	--	1.00	0.128

Worksheet 2J -- Vehicle-Bicycle Collisions for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(7)*
Crash Severity Level	**Predicted N_{bimv}**	**Predicted N_{bisv}**	**Predicted N_{bi}**	**f_{bikei}**	**Predicted N_{bikei}**
	(9) from Worksheet 2C	(9) from Worksheet 2E	(2) + (3)	from Table 12-17	(4)*(5)
Total	3.055	0.215	3.269	0.015	0.049
Fatal and injury (FI)	--	--	--	--	0.049

* Column 6 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-31

Worksheet 2K -- Crash Severity Distribution for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)
	Fatal and injury (FI)	**Property damage only (PDO)**	**Total**
Collision type	(3) from Worksheet 2D and 2F; (7) from 2G or 2I and 2J	(5) from Worksheet 2D and 2F	(6) from Worksheet 2D and 2F; (7) from 2G or 2I and 2J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 2D)	0.443	1.000	1.443
Head-on collisions (from Worksheet 2D)	0.048	0.062	0.110
Angle collisions (from Worksheet 2D)	0.341	0.505	0.847
Sideswipe (from Worksheet 2D)	0.097	0.066	0.164
Other multiple-vehicle collision (from Worksheet 2D)	0.054	0.437	0.491
Subtotal	0.984	2.071	3.055
SINGLE-VEHICLE			
Collision with parked vehicle (from Worksheet 2F)	0.000	0.000	0.000
Collision with animal (from Worksheet 2F)	0.000	0.000	0.000
Collision with fixed object (from Worksheet 2F)	0.044	0.135	0.179
Collision with other object (from Worksheet 2F)	0.004	0.011	0.015
Other single-vehicle collision (from Worksheet 2F)	0.002	0.004	0.006
Single-vehicle noncollision (from Worksheet 2F)	0.008	0.005	0.014
Collision with pedestrian (from Worksheet 2G or 2I)	0.128	0.000	0.128
Collision with bicycle (from Worksheet 2J)	0.049	0.000	0.049
Subtotal	0.236	0.155	0.391
Total	1.220	2.226	3.446

Worksheet 2L -- Summary Results for Urban and Suburban Arterial Intersections

(1)	(2)
Crash severity level	**Predicted average crash frequency, $N_{predicted\ int}$ (crashes/year)**
	(Total) from Worksheet 2K
Total	3.4
Fatal and injury (FI)	1.2
Property damage only (PDO)	2.2

Worksheet 2A -- General Information and Input Data for Urban and Suburban Arterial Intersections						
General Information				**Location Information**		
Analyst	PK			Roadway	Wootton Parkway	
Agency or Company	ATCS			Intersection	At Seven Locks Road	
Date Performed	10/09/20			Jurisdiction	Montgomery County	
				Analysis Year	2045	
Input Data				**Base Conditions**	**Site Conditions**	
Intersection type (3ST, 3SG, 4ST, 4SG)				--	4SG	
AADT $_{major}$ (veh/day)	$AADT_{MAX}$ =	67,700	(veh/day)	--	21,064	
AADT $_{minor}$ (veh/day)	$AADT_{MAX}$ =	33,400	(veh/day)	--	19,607	
Intersection lighting (present/not present)				Not Present	Present	
Calibration factor, C_i				1.00	1.00	
Data for unsignalized intersections only:				--	--	
Number of major-road approaches with left-turn lanes (0,1,2)				0	0	
Number of major-road approaches with right-turn lanes (0,1,2)				0	0	
Data for signalized intersections only:				--	--	
Number of approaches with left-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]				0	3	
Number of approaches with right-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]				0	3	
Number of approaches with left-turn signal phasing [for 3SG, use maximum value of 3]				--	3	
Type of left-turn signal phasing for Leg #1				Permissive	Permissive	
Type of left-turn signal phasing for Leg #2				--	Permissive / Protected	
Type of left-turn signal phasing for Leg #3				--	Protected	
Type of left-turn signal phasing for Leg #4 (if applicable)				--	Protected	
Number of approaches with right-turn-on-red prohibited [for 3SG, use maximum value of 3]				0	0	
Intersection red light cameras (present/not present)				Not Present	Not Present	
Sum of all pedestrian crossing volumes (PedVol) -- Signalized intersections only					122	
Maximum number of lanes crossed by a pedestrian (n_{lanesx})				--	6	
Number of bus stops within 300 m (1,000 ft) of the intersection				0	2	
Schools within 300 m (1,000 ft) of the intersection (present/not present)				Not Present	Not Present	
Number of alcohol sales establishments within 300 m (1,000 ft) of the intersection				0	0	

Worksheet 2B -- Crash Modification Factors for Urban and Suburban Arterial Intersections						
(1)	(2)	(3)	(4)	(5)	(6)	(7)
CMF for Left-Turn Lanes	CMF for Left-Turn Signal Phasing	CMF for Right-Turn Lanes	CMF for Right Turn on Red	CMF for Lighting	CMF for Red Light Cameras	Combined CMF
CMF 1i	*CMF 2i*	*CMF 3i*	*CMF 4i*	*CMF 5i*	*CMF 6i*	*CMF $_{COMB}$*
from Table 12-24	from Table 12-25	from Table 12-26	from Equation 12-35	from Equation 12-36	from Equation 12-37	(1)*(2)*(3)*(4)*(5)*(6)
0.73	0.87	0.88	1.00	0.91	1.00	0.51

Worksheet 2C -- Multiple-Vehicle Collisions by Severity Level for Urban and Suburban Arterial Intersections

(1)	(2)			(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**			**Overdispersion Parameter, k**	**Initial N_{bimv}**	**Proportion of Total Crashes**	**Adjusted N_{bimv}**	**Combined CMFs**	**Calibration Factor, C_i**	**Predicted N_{bimv}**
	from Table 12-10			from Table 12-10	from Equation 12-21		$(4)_{TOTAL}$*(5)	(7) from Worksheet 2B		(6)*(7)*(8)
	a	b	c							
Total	-10.99	1.07	0.23	0.39	6.927	1.000	6.927	0.51	1.00	3.564
Fatal and Injury (FI)	-13.14	1.18	0.22	0.33	2.185	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ 0.326	2.261	0.51	1.00	1.163
Property Damage Only (PDO)	-11.02	1.02	0.24	0.44	4.511	$(5)_{TOTAL}-(5)_{FI}$ 0.674	4.667	0.51	1.00	2.401

Worksheet 2D -- Multiple-Vehicle Collisions by Collision Type for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{bimv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{bimv\ (PDO)}$ (crashes/year)**	**Predicted N $_{bimv\ (TOTAL)}$ (crashes/year)**
	from Table 12-11	$(9)_{FI}$ from Worksheet 2C	from Table 12-11	$(9)_{PDO}$ from Worksheet 2C	$(9)_{PDO}$ from Worksheet 2C
Total	1.000	1.163	1.000	2.401	3.564
		(2)*$(3)_{FI}$		(4)*$(5)_{PDO}$	(3)+(5)
Rear-end collision	0.450	0.523	0.483	1.160	1.683
Head-on collision	0.049	0.057	0.030	0.072	0.129
Angle collision	0.347	0.404	0.244	0.586	0.989
Sideswipe	0.099	0.115	0.032	0.077	0.192
Other multiple-vehicle collision	0.055	0.064	0.211	0.507	0.571

Worksheet 2E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Arterial Intersections

(1)	(2)			(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**			**Overdispersion Parameter, k**	**Initial N_{bisv}**	**Proportion of Total Crashes**	**Adjusted N_{bimv}**	**Combined CMFs**	**Calibration Factor, C_i**	**Predicted N_{bisv}**
	from Table 12-12			from Table 12-12	from Eqn. 12-24; (FI) from Eqn. 12-24 or 12-27		$(4)_{TOTAL}$*(5)	(7) from Worksheet 2B		(6)*(7)*(8)
	a	b	c							
Total	-10.21	0.68	0.27	0.36	0.462	1.000	0.462	0.51	1.00	0.238
Fatal and Injury (FI)	-9.25	0.43	0.29	0.09	0.122	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ 0.269	0.124	0.51	1.00	0.064
Property Damage Only (PDO)	-11.34	0.78	0.25	0.44	0.332	$(5)_{TOTAL}-(5)_{FI}$ 0.731	0.338	0.51	1.00	0.174

Worksheet 2F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{bisv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{bisv\ (PDO)}$ (crashes/year)**	**Predicted N $_{bisv\ (TOTAL)}$ (crashes/year)**
	from Table 12-13	(9)$_{FI}$ from Worksheet 2E	from Table 12-13	(9)$_{PDO}$ from Worksheet 2E	(9)$_{PDO}$ from Worksheet 2E
Total	1.000	0.064	1.000	0.174	0.238
		(2)*(3)$_{FI}$		(4)*(5)$_{PDO}$	(3)+(5)
Collision with parked vehicle	0.001	0.000	0.001	0.000	0.000
Collision with animal	0.002	0.000	0.002	0.000	0.000
Collision with fixed object	0.744	0.048	0.870	0.151	0.199
Collision with other object	0.072	0.005	0.070	0.012	0.017
Other single-vehicle collision	0.040	0.003	0.023	0.004	0.007
Single-vehicle noncollision	0.141	0.009	0.034	0.006	0.015

Worksheet 2G -- Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Stop-Controlled Intersections

(1)	(2)	(3)	(4)	(5)	(7)*
Crash Severity Level	**Predicted N_{bimv}**	**Predicted N_{bisv}**	**Predicted N_{bi}**	**f_{pedi}**	**Predicted N_{pedi}**
	(9) from Worksheet 2C	(9) from Worksheet 2E	(2) + (3)	from Table 12-16	(4)*(5)
Total	--	--	--	--	--
Fatal and injury (FI)	--	--	--	--	--

* Column 6 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-30

Worksheet 2H -- Crash Modification Factors for Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Signalized Intersections

(1)	(2)	(3)	(4)
CMF for Bus Stops	CMF for Schools	CMF for Alcohol Sales Establishments	Combined CMF
CMF_{1p}	CMF_{2p}	CMF_{3p}	
from Table 12-28	from Table 12-29	from Table 12-30	(1)*(2)*(3)
2.78	1.00	1.00	2.78

Worksheet 2I -- Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Signalized Intersections

(1)	(2)					(3)	(4)	(5)	(6)	(7)
Crash Severity Level	**SPF Coefficients**					**Overdispersion Parameter, k**	**$N_{pedbase}$**	**Combined CMF**	**Calibration factor, C_i**	**Predicted N_{pedi}**
	from Table 12-14						from Equation 12-29	(4) from Worksheet 2H		(4)*(5)*(6)
	a	b	c	d	e					
Total	-9.53	0.40	0.26	0.45	0.04	0.24	0.055	2.78	1.00	0.153
Fatal and Injury (FI)	--	--	--	--	--	--	--	--	1.00	0.153

Worksheet 2J -- Vehicle-Bicycle Collisions for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(7)*
Crash Severity Level	**Predicted N_{bimv}**	**Predicted N_{bisv}**	**Predicted N_{bi}**	**f_{bikei}**	**Predicted N_{bikei}**
	(9) from Worksheet 2C	(9) from Worksheet 2E	(2) + (3)	from Table 12-17	(4)*(5)
Total	3.564	0.238	3.802	0.015	0.057
Fatal and injury (FI)	--	--	--	--	0.057

* Column 6 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-31

Worksheet 2K -- Crash Severity Distribution for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)
	Fatal and injury (FI)	**Property damage only (PDO)**	**Total**
Collision type	(3) from Worksheet 2D and 2F; (7) from 2G or 2I and 2J	(5) from Worksheet 2D and 2F	(6) from Worksheet 2D and 2F; (7) from 2G or 2I and 2J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 2D)	0.523	1.160	1.683
Head-on collisions (from Worksheet 2D)	0.057	0.072	0.129
Angle collisions (from Worksheet 2D)	0.404	0.586	0.989
Sideswipe (from Worksheet 2D)	0.115	0.077	0.192
Other multiple-vehicle collision (from Worksheet 2D)	0.064	0.507	0.571
Subtotal	1.163	2.401	3.564
SINGLE-VEHICLE			
Collision with parked vehicle (from Worksheet 2F)	0.000	0.000	0.000
Collision with animal (from Worksheet 2F)	0.000	0.000	0.000
Collision with fixed object (from Worksheet 2F)	0.048	0.151	0.199
Collision with other object (from Worksheet 2F)	0.005	0.012	0.017
Other single-vehicle collision (from Worksheet 2F)	0.003	0.004	0.007
Single-vehicle noncollision (from Worksheet 2F)	0.009	0.006	0.015
Collision with pedestrian (from Worksheet 2G or 2I)	0.153	0.000	0.153
Collision with bicycle (from Worksheet 2J)	0.057	0.000	0.057
Subtotal	0.274	0.174	0.448
Total	1.437	2.575	4.012

Worksheet 2L -- Summary Results for Urban and Suburban Arterial Intersections

(1)	(2)
Crash severity level	**Predicted average crash frequency, $N_{predicted\ int}$ (crashes/year)**
	(Total) from Worksheet 2K
Total	4.0
Fatal and injury (FI)	1.4
Property damage only (PDO)	2.6

Worksheet 1A -- General Information and Input Data for Urban and Suburban Roadway Segments

General Information		Location Information	
Analyst	PK	Roadway	Wootton Parkway
Agency or Company	ATCS	Roadway Section	Seven Locks Rd to Tower Oaks Blvd
Date Performed	10/09/20	Jurisdiction	Montgomery County
		Analysis Year	2045

Input Data		Base Conditions	Site Conditions
Roadway type (2U, 3T, 4U, 4D, ST)		--	4D
Length of segment, L (mi)		--	0.32
AADT (veh/day)	$AADT_{MAX}$ = 66,000 (veh/day)	--	20,340
Type of on-street parking (none/parallel/angle)		None	None
Proportion of curb length with on-street parking		--	0
Median width (ft) - for divided only		15	15
Lighting (present / not present)		Not Present	Present
Auto speed enforcement (present / not present)		Not Present	Not Present
Major commercial driveways (number)		--	1
Minor commercial driveways (number)		--	0
Major industrial / institutional driveways (number)		--	0
Minor industrial / institutional driveways (number)		--	0
Major residential driveways (number)		--	0
Minor residential driveways (number)		--	0
Other driveways (number)		--	0
Speed Category		--	Posted Speed Greater than 30 mph
Roadside fixed object density (fixed objects / mi)		0	44
Offset to roadside fixed objects (ft) [If greater than 30 or Not Present, input 30]		30	15
Calibration Factor, Cr		1.00	1.00

Worksheet 1B -- Crash Modification Factors for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
CMF for On-Street Parking	CMF for Roadside Fixed Objects	CMF for Median Width	CMF for Lighting	CMF for Automated Speed Enforcement	Combined CMF
CMF 1r	*CMF 2r*	*CMF 3r*	*CMF 4r*	*CMF 5r*	*CMF comb*
from Equation 12-32	from Equation 12-33	from Table 12-22	from Equation 12-34	from Section 12.7.1	(1)*(2)*(3)*(4)*(5)
1.00	1.07	1.00	0.91	1.00	0.98

Worksheet 1C -- Multiple-Vehicle Nondriveway Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brmv}**	**Proportion of Total Crashes**	**Adjusted N_{brmv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brmv}**
	from Table 12-3		from Table 12-3	from Equation 12-10		$(4)_{TOTAL}$*(5)	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-12.34	1.36	1.32	1.012	1.000	1.012	0.98	1.00	0.990
Fatal and Injury (FI)	-12.76	1.28	1.31	0.301	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.280	0.284	0.98	1.00	0.278
Property Damage Only (PDO)	-12.81	1.38	1.34	0.772	$(5)_{TOTAL}-(5)_{FI}$ = 0.720	0.728	0.98	1.00	0.713

Worksheet 1D -- Multiple-Vehicle Nondriveway Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brmv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brmv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brmv\ (TOTAL)}$ (crashes/year)**
	from Table 12-4	$(9)_{FI}$ from Worksheet 1C	from Table 12-4	$(9)_{PDO}$ from Worksheet 1C	$(9)_{TOTAL}$ from Worksheet 1C
Total	1.000	0.278	1.000	0.713	0.990
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Rear-end collision	0.832	0.231	0.662	0.472	0.703
Head-on collision	0.020	0.006	0.007	0.005	0.011
Angle collision	0.040	0.011	0.036	0.026	0.037
Sideswipe, same direction	0.050	0.014	0.223	0.159	0.173
Sideswipe, opposite direction	0.010	0.003	0.001	0.001	0.003
Other multiple-vehicle collision	0.048	0.013	0.071	0.051	0.064

Worksheet 1E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brsv}**	**Proportion of Total Crashes**	**Adjusted N_{brsv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brsv}**
	from Table 12-5		from Table 12-5	from Equation 12-13		$(4)_{TOTAL}*(5)$	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-5.05	0.47	0.86	0.217	1.000	0.217	0.98	1.00	0.213
Fatal and Injury (FI)	-8.71	0.66	0.28	0.037	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.170	0.037	0.98	1.00	0.036
Property Damage Only (PDO)	-5.04	0.45	1.06	0.180	$(5)_{TOTAL}-(5)_{FI}$ = 0.830	0.180	0.98	1.00	0.176

Worksheet 1F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brsv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brsv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brsv\ (TOTAL)}$ (crashes/year)**
	from Table 12-6	$(9)_{FI}$ from Worksheet 1E	from Table 12-6	$(9)_{PDO}$ from Worksheet 1E	$(9)_{TOTAL}$ from Worksheet 1E
Total	1.000	0.036	1.000	0.176	0.213
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Collision with animal	0.001	0.000	0.063	0.011	0.011
Collision with fixed object	0.500	0.018	0.813	0.143	0.161
Collision with other object	0.028	0.001	0.016	0.003	0.004
Other single-vehicle collision	0.471	0.017	0.108	0.019	0.036

Worksheet 1G -- Multiple-Vehicle Driveway-Related Collisions by Driveway Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Driveway Type	**Number of driveways, n_j**	**Crashes per driveway per year, N_j**	**Coefficient for traffic adjustment, t**	**Initial N_{brdwy}**	**Overdispersion parameter, k**
		from Table 12-7	from Table 12-7	Equation 12-16 $n_j * N_j * (AADT/15,000)^t$	from Table 12-7
Major commercial	1	0.033	1.106	0.046	--
Minor commercial	0	0.011	1.106	0.000	
Major industrial/institutional	0	0.036	1.106	0.000	
Minor industrial/institutional	0	0.005	1.106	0.000	
Major residential	0	0.018	1.106	0.000	
Minor residential	0	0.003	1.106	0.000	
Other	0	0.005	1.106	0.000	
Total	--	--	--	0.046	1.39

Worksheet 1H -- Multiple-Vehicle Driveway-Related Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Crash Severity Level	**Initial N_{brdwy}**	**Proportion of total crashes (f_{dwy})**	**Adjusted N_{brdwy}**	**Combined CMFs**	**Calibration factor, C_r**	**Predicted N_{brdwy}**
	$(5)_{TOTAL}$ from Worksheet 1G	from Table 12-7	$(2)_{TOTAL}$ * (3)	(6) from Worksheet 1B		(4)*(5)*(6)
Total	0.046	1.000	0.046	0.98	1.00	0.045
Fatal and injury (FI)	--	0.284	0.013	0.98	1.00	0.013
Property damage only (PDO)	--	0.716	0.033	0.98	1.00	0.032

Worksheet 1I -- Vehicle-Pedestrian Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(8)*
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{pedr}**	**Predicted N_{pedr}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-8	(5)*(6)
Total	0.990	0.213	0.045	1.248	0.019	0.024
Fatal and injury (FI)	--	--	--	--	--	0.024

* Column 7 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-19

Worksheet 1J -- Vehicle-Bicycle Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(8)*
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{biker}**	**Predicted N_{biker}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-9	(5)*(6)
Total	0.990	0.213	0.045	1.248	0.005	0.006
Fatal and injury (FI)	--	--	--	--	--	0.006

* Column 7 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-20

Worksheet 1K -- Crash Severity Distribution for Urban and Suburban Roadway Segments			
(1)	(2)	(3)	(4)
Collision type	**Fatal and injury (FI)**	**Property damage only (PDO)**	**Total**
	(3) from Worksheet 1D and 1F; (7) from Worksheet 1H; and (8) from Worksheet 1I and 1J	(5) from Worksheet 1D and 1F; and (7) from Worksheet 1H	(6) from Worksheet 1D and 1F; (7) from Worksheet 1H; and (8) from Worksheet 1I and 1J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 1D)	0.231	0.472	0.703
Head-on collisions (from Worksheet 1D)	0.006	0.005	0.011
Angle collisions (from Worksheet 1D)	0.011	0.026	0.037
Sideswipe, same direction (from Worksheet 1D)	0.014	0.159	0.173
Sideswipe, opposite direction (from Worksheet 1D)	0.003	0.001	0.003
Driveway-related collisions (from Worksheet 1H)	0.013	0.032	0.045
Other multiple-vehicle collision (from Worksheet 1D)	0.013	0.051	0.064
Subtotal	0.291	0.745	1.036
SINGLE-VEHICLE			
Collision with animal (from Worksheet 1F)	0.000	0.011	0.011
Collision with fixed object (from Worksheet 1F)	0.018	0.143	0.161
Collision with other object (from Worksheet 1F)	0.001	0.003	0.004
Other single-vehicle collision (from Worksheet 1F)	0.017	0.019	0.036
Collision with pedestrian (from Worksheet 1I)	0.024	0.000	0.024
Collision with bicycle (from Worksheet 1J)	0.006	0.000	0.006
Subtotal	0.066	0.176	0.242
Total	0.357	0.921	1.278

Worksheet 1L -- Summary Results for Urban and Suburban Roadway Segments			
(1)	(2)	(3)	(4)
Crash Severity Level	**Predicted average crash frequency, $N_{predicted\ rs}$ (crashes/year)**	**Roadway segment length, L (mi)**	**Crash rate (crashes/mi/year)**
	(Total) from Worksheet 1K		(2) / (3)
Total	1.3	0.32	4.0
Fatal and injury (FI)	0.4	0.32	1.1
Property damage only (PDO)	0.9	0.32	2.9

Worksheet 2A -- General Information and Input Data for Urban and Suburban Arterial Intersections						
General Information				**Location Information**		
Analyst	PK			Roadway	Wootton Parkway	
Agency or Company	ATCS			Intersection	At Tower Oaks Boulevard	
Date Performed	10/09/20			Jurisdiction	Montgomery County	
				Analysis Year	2045	
Input Data				**Base Conditions**	**Site Conditions**	
Intersection type (3ST, 3SG, 4ST, 4SG)				--	4SG	
AADT $_{major}$ (veh/day)	$AADT_{MAX}$ =	67,700	(veh/day)	--	20,273	
AADT $_{minor}$ (veh/day)	$AADT_{MAX}$ =	33,400	(veh/day)	--	6,777	
Intersection lighting (present/not present)				Not Present	Present	
Calibration factor, C_i				1.00	1.00	
Data for unsignalized intersections only:				--	--	
Number of major-road approaches with left-turn lanes (0,1,2)				0	0	
Number of major-road approaches with right-turn lanes (0,1,2)				0	0	
Data for signalized intersections only:				--	--	
Number of approaches with left-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]				0	4	
Number of approaches with right-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]				0	4	
Number of approaches with left-turn signal phasing [for 3SG, use maximum value of 3]				--	4	
Type of left-turn signal phasing for Leg #1				Permissive	Protected	
Type of left-turn signal phasing for Leg #2				--	Permissive / Protected	
Type of left-turn signal phasing for Leg #3				--	Permissive / Protected	
Type of left-turn signal phasing for Leg #4 (if applicable)				--	Permissive / Protected	
Number of approaches with right-turn-on-red prohibited [for 3SG, use maximum value of 3]				0	0	
Intersection red light cameras (present/not present)				Not Present	Not Present	
Sum of all pedestrian crossing volumes (PedVol) -- Signalized intersections only					122	
Maximum number of lanes crossed by a pedestrian (n_{lanesx})				--	7	
Number of bus stops within 300 m (1,000 ft) of the intersection				0	2	
Schools within 300 m (1,000 ft) of the intersection (present/not present)				Not Present	Not Present	
Number of alcohol sales establishments within 300 m (1,000 ft) of the intersection				0	0	

Worksheet 2B -- Crash Modification Factors for Urban and Suburban Arterial Intersections						
(1)	(2)	(3)	(4)	(5)	(6)	(7)
CMF for Left-Turn Lanes	CMF for Left-Turn Signal Phasing	CMF for Right-Turn Lanes	CMF for Right Turn on Red	CMF for Lighting	CMF for Red Light Cameras	Combined CMF
CMF 1i	*CMF 2i*	*CMF 3i*	*CMF 4i*	*CMF 5i*	*CMF 6i*	*CMF $_{COMB}$*
from Table 12-24	from Table 12-25	from Table 12-26	from Equation 12-35	from Equation 12-36	from Equation 12-37	(1)*(2)*(3)*(4)*(5)*(6)
0.66	0.91	0.85	1.00	0.91	1.00	0.47

Worksheet 2C -- Multiple-Vehicle Collisions by Severity Level for Urban and Suburban Arterial Intersections

(1)	(2)			(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**			**Overdispersion Parameter, k**	**Initial N_{bimv}**	**Proportion of Total Crashes**	**Adjusted N_{bimv}**	**Combined CMFs**	**Calibration Factor, C_i**	**Predicted N_{bimv}**
	from Table 12-10			from Table 12-10	from Equation 12-21		$(4)_{TOTAL}$*(5)	(7) from Worksheet 2B		(6)*(7)*(8)
	a	b	c							
Total	-10.99	1.07	0.23	0.39	5.208	1.000	5.208	0.47	1.00	2.425
Fatal and Injury (FI)	-13.14	1.18	0.22	0.33	1.653	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ 0.330	1.717	0.47	1.00	0.799
Property Damage Only (PDO)	-11.02	1.02	0.24	0.44	3.362	$(5)_{TOTAL}-(5)_{FI}$ 0.670	3.491	0.47	1.00	1.625

Worksheet 2D -- Multiple-Vehicle Collisions by Collision Type for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{bimv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{bimv\ (PDO)}$ (crashes/year)**	**Predicted N $_{bimv\ (TOTAL)}$ (crashes/year)**
	from Table 12-11	$(9)_{FI}$ from Worksheet 2C	from Table 12-11	$(9)_{PDO}$ from Worksheet 2C	$(9)_{PDO}$ from Worksheet 2C
Total	1.000	0.799	1.000	1.625	2.425
		(2)*$(3)_{FI}$		(4)*$(5)_{PDO}$	(3)+(5)
Rear-end collision	0.450	0.360	0.483	0.785	1.145
Head-on collision	0.049	0.039	0.030	0.049	0.088
Angle collision	0.347	0.277	0.244	0.397	0.674
Sideswipe	0.099	0.079	0.032	0.052	0.131
Other multiple-vehicle collision	0.055	0.044	0.211	0.343	0.387

Worksheet 2E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Arterial Intersections

(1)	(2)			(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**			**Overdispersion Parameter, k**	**Initial N_{bisv}**	**Proportion of Total Crashes**	**Adjusted N_{bimv}**	**Combined CMFs**	**Calibration Factor, C_i**	**Predicted N_{bisv}**
	from Table 12-12			from Table 12-12	from Eqn. 12-24; (FI) from Eqn. 12-24 or 12-27		$(4)_{TOTAL}$*(5)	(7) from Worksheet 2B		(6)*(7)*(8)
	a	b	c							
Total	-10.21	0.68	0.27	0.36	0.338	1.000	0.338	0.47	1.00	0.157
Fatal and Injury (FI)	-9.25	0.43	0.29	0.09	0.088	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ 0.263	0.089	0.47	1.00	0.041
Property Damage Only (PDO)	-11.34	0.78	0.25	0.44	0.247	$(5)_{TOTAL}-(5)_{FI}$ 0.737	0.249	0.47	1.00	0.116

Worksheet 2F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{bisv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{bisv\ (PDO)}$ (crashes/year)**	**Predicted N $_{bisv\ (TOTAL)}$ (crashes/year)**
	from Table 12-13	(9)$_{FI}$ from Worksheet 2E	from Table 12-13	(9)$_{PDO}$ from Worksheet 2E	(9)$_{PDO}$ from Worksheet 2E
Total	1.000	0.041	1.000	0.116	0.157
		(2)*(3)$_{FI}$		(4)*(5)$_{PDO}$	(3)+(5)
Collision with parked vehicle	0.001	0.000	0.001	0.000	0.000
Collision with animal	0.002	0.000	0.002	0.000	0.000
Collision with fixed object	0.744	0.031	0.870	0.101	0.132
Collision with other object	0.072	0.003	0.070	0.008	0.011
Other single-vehicle collision	0.040	0.002	0.023	0.003	0.004
Single-vehicle noncollision	0.141	0.006	0.034	0.004	0.010

Worksheet 2G -- Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Stop-Controlled Intersections

(1)	(2)	(3)	(4)	(5)	(7)*
Crash Severity Level	**Predicted N_{bimv}**	**Predicted N_{bisv}**	**Predicted N_{bi}**	**f_{pedi}**	**Predicted N_{pedi}**
	(9) from Worksheet 2C	(9) from Worksheet 2E	(2) + (3)	from Table 12-16	(4)*(5)
Total	--	--	--	--	--
Fatal and injury (FI)	--	--	--	--	--

* Column 6 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-30

Worksheet 2H -- Crash Modification Factors for Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Signalized Intersections

(1)	(2)	(3)	(4)
CMF for Bus Stops	CMF for Schools	CMF for Alcohol Sales Establishments	Combined CMF
CMF_{1p}	CMF_{2p}	CMF_{3p}	
from Table 12-28	from Table 12-29	from Table 12-30	(1)*(2)*(3)
2.78	1.00	1.00	2.78

Worksheet 2I -- Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Signalized Intersections

(1)	(2)					(3)	(4)	(5)	(6)	(7)
Crash Severity Level	**SPF Coefficients**					**Overdispersion Parameter, k**	**$N_{pedbase}$**	**Combined CMF**	**Calibration factor, C_i**	**Predicted N_{pedi}**
	from Table 12-14						from Equation 12-29	(4) from Worksheet 2H		(4)*(5)*(6)
	a	b	c	d	e					
Total	-9.53	0.40	0.26	0.45	0.04	0.24	0.037	2.78	1.00	0.103
Fatal and Injury (FI)	--	--	--	--	--	--	--	--	1.00	0.103

Worksheet 2J -- Vehicle-Bicycle Collisions for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(7)*
Crash Severity Level	**Predicted N_{bimv}**	**Predicted N_{bisv}**	**Predicted N_{bi}**	**f_{bikei}**	**Predicted N_{bikei}**
	(9) from Worksheet 2C	(9) from Worksheet 2E	(2) + (3)	from Table 12-17	(4)*(5)
Total	2.425	0.157	2.582	0.015	0.039
Fatal and injury (FI)	--	--	--	--	0.039

* Column 6 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-31

Worksheet 2K -- Crash Severity Distribution for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)
	Fatal and injury (FI)	**Property damage only (PDO)**	**Total**
Collision type	(3) from Worksheet 2D and 2F; (7) from 2G or 2I and 2J	(5) from Worksheet 2D and 2F	(6) from Worksheet 2D and 2F; (7) from 2G or 2I and 2J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 2D)	0.360	0.785	1.145
Head-on collisions (from Worksheet 2D)	0.039	0.049	0.088
Angle collisions (from Worksheet 2D)	0.277	0.397	0.674
Sideswipe (from Worksheet 2D)	0.079	0.052	0.131
Other multiple-vehicle collision (from Worksheet 2D)	0.044	0.343	0.387
Subtotal	0.799	1.625	2.425
SINGLE-VEHICLE			
Collision with parked vehicle (from Worksheet 2F)	0.000	0.000	0.000
Collision with animal (from Worksheet 2F)	0.000	0.000	0.000
Collision with fixed object (from Worksheet 2F)	0.031	0.101	0.132
Collision with other object (from Worksheet 2F)	0.003	0.008	0.011
Other single-vehicle collision (from Worksheet 2F)	0.002	0.003	0.004
Single-vehicle noncollision (from Worksheet 2F)	0.006	0.004	0.010
Collision with pedestrian (from Worksheet 2G or 2I)	0.103	0.000	0.103
Collision with bicycle (from Worksheet 2J)	0.039	0.000	0.039
Subtotal	0.184	0.116	0.300
Total	0.983	1.741	2.724

Worksheet 2L -- Summary Results for Urban and Suburban Arterial Intersections

(1)	(2)
Crash severity level	**Predicted average crash frequency, $N_{predicted\ int}$ (crashes/year)**
	(Total) from Worksheet 2K
Total	2.7
Fatal and injury (FI)	1.0
Property damage only (PDO)	1.7

Crossroad Predictive Crash Analysis

Predicted Crash Frequency for the Urban and Suburban Arterials using Chapter 12 of the HSM

for the

Preferred Alternative

Worksheet 2A -- General Information and Input Data for Urban and Suburban Arterial Intersections						
General Information				**Location Information**		
Analyst	TL			Roadway	Rockledge Drive	
Agency or Company	ATCS			Intersection	Rockledge Dr at Rock Forest Dr	
Date Performed	12/07/21			Jurisdiction	Montgomery County	
				Analysis Year	2045	
Input Data				**Base Conditions**	**Site Conditions**	
Intersection type (3ST, 3SG, 4ST, 4SG)				--	4SG	
AADT $_{major}$ (veh/day)	$AADT_{MAX}$ =	67,700	(veh/day)	--	25,785	
AADT $_{minor}$ (veh/day)	$AADT_{MAX}$ =	33,400	(veh/day)	--	9,569	
Intersection lighting (present/not present)				Not Present	Present	
Calibration factor, C_i				1.00	1.00	
Data for unsignalized intersections only:				--	--	
Number of major-road approaches with left-turn lanes (0,1,2)				0	2	
Number of major-road approaches with right-turn lanes (0,1,2)				0	1	
Data for signalized intersections only:				--	--	
Number of approaches with left-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]				0	4	
Number of approaches with right-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]				0	3	
Number of approaches with left-turn signal phasing [for 3SG, use maximum value of 3]				--	4	
Type of left-turn signal phasing for Leg #1				Permissive	Permissive / Protected	
Type of left-turn signal phasing for Leg #2				--	Protected	
Type of left-turn signal phasing for Leg #3				--	Permissive / Protected	
Type of left-turn signal phasing for Leg #4 (if applicable)				--	Protected	
Number of approaches with right-turn-on-red prohibited [for 3SG, use maximum value of 3]				0	0	
Intersection red light cameras (present/not present)				Not Present	Not Present	
Sum of all pedestrian crossing volumes (PedVol) -- Signalized intersections only					424	
Maximum number of lanes crossed by a pedestrian (n_{lanesx})				--	6	
Number of bus stops within 300 m (1,000 ft) of the intersection				0	3	
Schools within 300 m (1,000 ft) of the intersection (present/not present)				Not Present	Not Present	
Number of alcohol sales establishments within 300 m (1,000 ft) of the intersection				0	0	

Worksheet 2B -- Crash Modification Factors for Urban and Suburban Arterial Intersections						
(1)	(2)	(3)	(4)	(5)	(6)	(7)
CMF for Left-Turn Lanes	CMF for Left-Turn Signal Phasing	CMF for Right-Turn Lanes	CMF for Right Turn on Red	CMF for Lighting	CMF for Red Light Cameras	Combined CMF
CMF 1i	*CMF 2i*	*CMF 3i*	*CMF 4i*	*CMF 5i*	*CMF 6i*	*CMF $_{COMB}$*
from Table 12-24	from Table 12-25	from Table 12-26	from Equation 12-35	from Equation 12-36	from Equation 12-37	(1)*(2)*(3)*(4)*(5)*(6)
0.66	0.87	0.88	1.00	0.91	1.00	0.46

Worksheet 2C -- Multiple-Vehicle Collisions by Severity Level for Urban and Suburban Arterial Intersections

(1)	(2)			(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**			**Overdispersion Parameter, k**	**Initial N_{bimv}**	**Proportion of Total Crashes**	**Adjusted N_{bimv}**	**Combined CMFs**	**Calibration Factor, C_i**	**Predicted N_{bimv}**
	from Table 12-10			from Table 12-10	from Equation 12-21		$(4)_{TOTAL}$*(5)	(7) from Worksheet 2B		(6)*(7)*(8)
	a	b	c							
Total	-10.99	1.07	0.23	0.39	7.292	1.000	7.292	0.46	1.00	3.358
Fatal and Injury (FI)	-13.14	1.18	0.22	0.33	2.369	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.337	2.455	0.46	1.00	1.131
Property Damage Only (PDO)	-11.02	1.02	0.24	0.44	4.667	$(5)_{TOTAL}-(5)_{FI}$ = 0.663	4.837	0.46	1.00	2.228

Worksheet 2D -- Multiple-Vehicle Collisions by Collision Type for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{bimv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{bimv\ (PDO)}$ (crashes/year)**	**Predicted N $_{bimv\ (TOTAL)}$ (crashes/year)**
	from Table 12-11	$(9)_{FI}$ from Worksheet 2C	from Table 12-11	$(9)_{PDO}$ from Worksheet 2C	$(9)_{PDO}$ from Worksheet 2C
Total	1.000	1.131	1.000	2.228	3.358
		(2)*$(3)_{FI}$		(4)*$(5)_{PDO}$	(3)+(5)
Rear-end collision	0.450	0.509	0.483	1.076	1.585
Head-on collision	0.049	0.055	0.030	0.067	0.122
Angle collision	0.347	0.392	0.244	0.544	0.936
Sideswipe	0.099	0.112	0.032	0.071	0.183
Other multiple-vehicle collision	0.055	0.062	0.211	0.470	0.532

Worksheet 2E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Arterial Intersections

(1)	(2)			(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**			**Overdispersion Parameter, k**	**Initial N_{bisv}**	**Proportion of Total Crashes**	**Adjusted N_{bimv}**	**Combined CMFs**	**Calibration Factor, C_i**	**Predicted N_{bisv}**
	from Table 12-12			from Table 12-12	from Eqn. 12-24; (FI) from Eqn. 12-24 or 12-27		$(4)_{TOTAL}$*(5)	(7) from Worksheet 2B		(6)*(7)*(8)
	a	b	c							
Total	-10.21	0.68	0.27	0.36	0.437	1.000	0.437	0.46	1.00	0.201
Fatal and Injury (FI)	-9.25	0.43	0.29	0.09	0.108	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.250	0.109	0.46	1.00	0.050
Property Damage Only (PDO)	-11.34	0.78	0.25	0.44	0.324	$(5)_{TOTAL}-(5)_{FI}$ = 0.750	0.328	0.46	1.00	0.151

Worksheet 2F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{bisv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{bisv\ (PDO)}$ (crashes/year)**	**Predicted N $_{bisv\ (TOTAL)}$ (crashes/year)**
	from Table 12-13	(9)$_{FI}$ from Worksheet 2E	from Table 12-13	(9)$_{PDO}$ from Worksheet 2E	(9)$_{PDO}$ from Worksheet 2E
Total	1.000	0.050	1.000	0.151	0.201
		(2)*(3)$_{FI}$		(4)*(5)$_{PDO}$	(3)+(5)
Collision with parked vehicle	0.001	0.000	0.001	0.000	0.000
Collision with animal	0.002	0.000	0.002	0.000	0.000
Collision with fixed object	0.744	0.037	0.870	0.131	0.169
Collision with other object	0.072	0.004	0.070	0.011	0.014
Other single-vehicle collision	0.040	0.002	0.023	0.003	0.005
Single-vehicle noncollision	0.141	0.007	0.034	0.005	0.012

Worksheet 2G -- Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Stop-Controlled Intersections

(1)	(2)	(3)	(4)	(5)	(7)*
Crash Severity Level	**Predicted N_{bimv}**	**Predicted N_{bisv}**	**Predicted N_{bi}**	**f_{pedi}**	**Predicted N_{pedi}**
	(9) from Worksheet 2C	(9) from Worksheet 2E	(2) + (3)	from Table 12-16	(4)*(5)
Total	--	--	--	--	--
Fatal and injury (FI)	--	--	--	--	--

* Column 6 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-30

Worksheet 2H -- Crash Modification Factors for Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Signalized Intersections

(1)	(2)	(3)	(4)
CMF for Bus Stops	CMF for Schools	CMF for Alcohol Sales Establishments	Combined CMF
CMF_{1p}	CMF_{2p}	CMF_{3p}	
from Table 12-28	from Table 12-29	from Table 12-30	(1)*(2)*(3)
4.15	1.00	1.00	4.15

Worksheet 2I -- Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Signalized Intersections

(1)	(2)					(3)	(4)	(5)	(6)	(7)
Crash Severity Level	**SPF Coefficients**					**Overdispersion Parameter, k**	**$N_{pedbase}$**	**Combined CMF**	**Calibration factor, C_i**	**Predicted N_{pedi}**
	from Table 12-14						from Equation 12-29	(4) from Worksheet 2H		(4)*(5)*(6)
	a	b	c	d	e					
Total	-9.53	0.40	0.26	0.45	0.04	0.24	0.072	4.15	1.00	0.297
Fatal and Injury (FI)	--	--	--	--	--	--	--	--	1.00	0.297

Worksheet 2J -- Vehicle-Bicycle Collisions for Urban and Suburban Arterial Intersections					
(1)	(2)	(3)	(4)	(5)	(7)*
Crash Severity Level	**Predicted N_{bimv}**	**Predicted N_{bisv}**	**Predicted N_{bi}**	**f_{bikei}**	**Predicted N_{bikei}**
	(9) from Worksheet 2C	(9) from Worksheet 2E	(2) + (3)	from Table 12-17	(4)*(5)
Total	3.358	0.201	3.560	0.015	0.053
Fatal and injury (FI)	--	--	--	--	0.053

* Column 6 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-31

Worksheet 2K -- Crash Severity Distribution for Urban and Suburban Arterial Intersections			
(1)	(2)	(3)	(4)
Collision type	**Fatal and injury (FI)**	**Property damage only (PDO)**	**Total**
	(3) from Worksheet 2D and 2F; (7) from 2G or 2I and 2J	(5) from Worksheet 2D and 2F	(6) from Worksheet 2D and 2F; (7) from 2G or 2I and 2J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 2D)	0.509	1.076	1.585
Head-on collisions (from Worksheet 2D)	0.055	0.067	0.122
Angle collisions (from Worksheet 2D)	0.392	0.544	0.936
Sideswipe (from Worksheet 2D)	0.112	0.071	0.183
Other multiple-vehicle collision (from Worksheet 2D)	0.062	0.470	0.532
Subtotal	1.131	2.228	3.358
SINGLE-VEHICLE			
Collision with parked vehicle (from Worksheet 2F)	0.000	0.000	0.000
Collision with animal (from Worksheet 2F)	0.000	0.000	0.000
Collision with fixed object (from Worksheet 2F)	0.037	0.131	0.169
Collision with other object (from Worksheet 2F)	0.004	0.011	0.014
Other single-vehicle collision (from Worksheet 2F)	0.002	0.003	0.005
Single-vehicle noncollision (from Worksheet 2F)	0.007	0.005	0.012
Collision with pedestrian (from Worksheet 2G or 2I)	0.297	0.000	0.297
Collision with bicycle (from Worksheet 2J)	0.053	0.000	0.053
Subtotal	0.401	0.151	0.552
Total	1.532	2.379	3.910

Worksheet 2L -- Summary Results for Urban and Suburban Arterial Intersections	
(1)	(2)
Crash severity level	**Predicted average crash frequency, $N_{predicted\ int}$ (crashes/year)**
	(Total) from Worksheet 2K
Total	3.9
Fatal and injury (FI)	1.5
Property damage only (PDO)	2.4

Worksheet 2A -- General Information and Input Data for Urban and Suburban Arterial Intersections

General Information		Location Information	
Analyst	TL	Roadway	Rockledge Drive
Agency or Company	ATCS	Intersection	ckledge Dr at I-270 SB Off-Ramp/I-270 SB Ramp Connect
Date Performed	12/07/21	Jurisdiction	Montgomery County
		Analysis Year	2045

Input Data		Base Conditions	Site Conditions
Intersection type (3ST, 3SG, 4ST, 4SG)		--	3SG
AADT $_{major}$ (veh/day)	$AADT_{MAX}$ = 58,100 (veh/day)	--	23,365
AADT $_{minor}$ (veh/day)	$AADT_{MAX}$ = 16,400 (veh/day)	--	14,652
Intersection lighting (present/not present)		Not Present	Present
Calibration factor, C_i		1.00	1.00
Data for unsignalized intersections only:		--	--
Number of major-road approaches with left-turn lanes (0,1,2)		0	0
Number of major-road approaches with right-turn lanes (0,1,2)		0	1
Data for signalized intersections only:		--	--
Number of approaches with left-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]		0	0
Number of approaches with right-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]		0	2
Number of approaches with left-turn signal phasing [for 3SG, use maximum value of 3]		--	0
Type of left-turn signal phasing for Leg #1		Permissive	Not Applicable
Type of left-turn signal phasing for Leg #2		--	Not Applicable
Type of left-turn signal phasing for Leg #3		--	Permissive
Type of left-turn signal phasing for Leg #4 (if applicable)		--	Not Applicable
Number of approaches with right-turn-on-red prohibited [for 3SG, use maximum value of 3]		0	1
Intersection red light cameras (present/not present)		Not Present	Not Present
Sum of all pedestrian crossing volumes (PedVol) -- Signalized intersections only			3
Maximum number of lanes crossed by a pedestrian (n_{lanesx})		--	7
Number of bus stops within 300 m (1,000 ft) of the intersection		0	2
Schools within 300 m (1,000 ft) of the intersection (present/not present)		Not Present	Not Present
Number of alcohol sales establishments within 300 m (1,000 ft) of the intersection		0	0

Worksheet 2B -- Crash Modification Factors for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(6)	(7)
CMF for Left-Turn Lanes	CMF for Left-Turn Signal Phasing	CMF for Right-Turn Lanes	CMF for Right Turn on Red	CMF for Lighting	CMF for Red Light Cameras	Combined CMF
CMF 1i	*CMF 2i*	*CMF 3i*	*CMF 4i*	*CMF 5i*	*CMF 6i*	*CMF $_{COMB}$*
from Table 12-24	from Table 12-25	from Table 12-26	from Equation 12-35	from Equation 12-36	from Equation 12-37	(1)*(2)*(3)*(4)*(5)*(6)
1.00	1.00	0.92	0.98	0.91	1.00	0.82

Worksheet 2C -- Multiple-Vehicle Collisions by Severity Level for Urban and Suburban Arterial Intersections

(1)	(2)			(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**			**Overdispersion Parameter, k**	**Initial N_{bimv}**	**Proportion of Total Crashes**	**Adjusted N_{bimv}**	**Combined CMFs**	**Calibration Factor, C_i**	**Predicted N_{bimv}**
	from Table 12-10			from Table 12-10	from Equation 12-21		$(4)_{TOTAL}$*(5)	(7) from Worksheet 2B		(6)*(7)*(8)
	a	b	c							
Total	-12.13	1.11	0.26	0.33	4.616	1.000	4.616	0.82	1.00	3.797
Fatal and Injury (FI)	-11.58	1.02	0.17	0.30	1.365	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ 0.311	1.437	0.82	1.00	1.182
Property Damage Only (PDO)	-13.24	1.14	0.30	0.36	3.019	$(5)_{TOTAL}-(5)_{FI}$ 0.689	3.179	0.82	1.00	2.615

Worksheet 2D -- Multiple-Vehicle Collisions by Collision Type for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{bimv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{bimv\ (PDO)}$ (crashes/year)**	**Predicted N $_{bimv\ (TOTAL)}$ (crashes/year)**
	from Table 12-11	$(9)_{FI}$ from Worksheet 2C	from Table 12-11	$(9)_{PDO}$ from Worksheet 2C	$(9)_{PDO}$ from Worksheet 2C
Total	1.000	1.182	1.000	2.615	3.797
		(2)*$(3)_{FI}$		(4)*$(5)_{PDO}$	(3)+(5)
Rear-end collision	0.549	0.649	0.546	1.428	2.076
Head-on collision	0.038	0.045	0.020	0.052	0.097
Angle collision	0.280	0.331	0.204	0.533	0.864
Sideswipe	0.076	0.090	0.032	0.084	0.173
Other multiple-vehicle collision	0.057	0.067	0.198	0.518	0.585

Worksheet 2E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Arterial Intersections

(1)	(2)			(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**			**Overdispersion Parameter, k**	**Initial N_{bisv}**	**Proportion of Total Crashes**	**Adjusted N_{bimv}**	**Combined CMFs**	**Calibration Factor, C_i**	**Predicted N_{bisv}**
	from Table 12-12			from Table 12-12	from Eqn. 12-24; (FI) from Eqn. 12-24 or 12-27		$(4)_{TOTAL}$*(5)	(7) from Worksheet 2B		(6)*(7)*(8)
	a	b	c							
Total	-9.02	0.42	0.40	0.36	0.384	1.000	0.384	0.82	1.00	0.315
Fatal and Injury (FI)	-9.75	0.27	0.51	0.24	0.117	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ 0.320	0.123	0.82	1.00	0.101
Property Damage Only (PDO)	-9.08	0.45	0.33	0.53	0.250	$(5)_{TOTAL}-(5)_{FI}$ 0.680	0.261	0.82	1.00	0.215

Worksheet 2F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{bisv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{bisv\ (PDO)}$ (crashes/year)**	**Predicted N $_{bisv\ (TOTAL)}$ (crashes/year)**
	from Table 12-13	(9)$_{FI}$ from Worksheet 2E	from Table 12-13	(9)$_{PDO}$ from Worksheet 2E	(9)$_{PDO}$ from Worksheet 2E
Total	1.000	0.101	1.000	0.215	0.315
		(2)*(3)$_{FI}$		(4)*(5)$_{PDO}$	(3)+(5)
Collision with parked vehicle	0.001	0.000	0.001	0.000	0.000
Collision with animal	0.001	0.000	0.003	0.001	0.001
Collision with fixed object	0.653	0.066	0.895	0.192	0.258
Collision with other object	0.091	0.009	0.069	0.015	0.024
Other single-vehicle collision	0.045	0.005	0.018	0.004	0.008
Single-vehicle noncollision	0.209	0.021	0.014	0.003	0.024

Worksheet 2G -- Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Stop-Controlled Intersections

(1)	(2)	(3)	(4)	(5)	(7)*
Crash Severity Level	**Predicted N_{bimv}**	**Predicted N_{bisv}**	**Predicted N_{bi}**	**f_{pedi}**	**Predicted N_{pedi}**
	(9) from Worksheet 2C	(9) from Worksheet 2E	(2) + (3)	from Table 12-16	(4)*(5)
Total	--	--	--	--	--
Fatal and injury (FI)	--	--	--	--	--

* Column 6 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-30

Worksheet 2H -- Crash Modification Factors for Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Signalized Intersections

(1)	(2)	(3)	(4)
CMF for Bus Stops	CMF for Schools	CMF for Alcohol Sales Establishments	Combined CMF
CMF_{1p}	CMF_{2p}	CMF_{3p}	
from Table 12-28	from Table 12-29	from Table 12-30	(1)*(2)*(3)
2.78	1.00	1.00	2.78

Worksheet 2I -- Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Signalized Intersections

(1)	(2)					(3)	(4)	(5)	(6)	(7)
Crash Severity Level	**SPF Coefficients**					**Overdispersion Parameter, k**	**$N_{pedbase}$**	**Combined CMF**	**Calibration factor, C_i**	**Predicted N_{pedi}**
	from Table 12-14						from Equation 12-29	(4) from Worksheet 2H		(4)*(5)*(6)
	a	b	c	d	e					
Total	-6.60	0.05	0.24	0.41	0.09	0.52	0.006	2.78	1.00	0.017
Fatal and Injury (FI)	--	--	--	--	--	--	--	--	1.00	0.017

Worksheet 2J -- Vehicle-Bicycle Collisions for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(7)*
Crash Severity Level	**Predicted N_{bimv}**	**Predicted N_{bisv}**	**Predicted N_{bi}**	**f_{bikei}**	**Predicted N_{bikei}**
	(9) from Worksheet 2C	(9) from Worksheet 2E	(2) + (3)	from Table 12-17	(4)*(5)
Total	3.797	0.315	4.112	0.011	0.045
Fatal and injury (FI)	--	--	--	--	0.045

* Column 6 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-31

Worksheet 2K -- Crash Severity Distribution for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)
	Fatal and injury (FI)	**Property damage only (PDO)**	**Total**
Collision type	(3) from Worksheet 2D and 2F; (7) from 2G or 2I and 2J	(5) from Worksheet 2D and 2F	(6) from Worksheet 2D and 2F; (7) from 2G or 2I and 2J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 2D)	0.649	1.428	2.076
Head-on collisions (from Worksheet 2D)	0.045	0.052	0.097
Angle collisions (from Worksheet 2D)	0.331	0.533	0.864
Sideswipe (from Worksheet 2D)	0.090	0.084	0.173
Other multiple-vehicle collision (from Worksheet 2D)	0.067	0.518	0.585
Subtotal	1.182	2.615	3.797
SINGLE-VEHICLE			
Collision with parked vehicle (from Worksheet 2F)	0.000	0.000	0.000
Collision with animal (from Worksheet 2F)	0.000	0.001	0.001
Collision with fixed object (from Worksheet 2F)	0.066	0.192	0.258
Collision with other object (from Worksheet 2F)	0.009	0.015	0.024
Other single-vehicle collision (from Worksheet 2F)	0.005	0.004	0.008
Single-vehicle noncollision (from Worksheet 2F)	0.021	0.003	0.024
Collision with pedestrian (from Worksheet 2G or 2I)	0.017	0.000	0.017
Collision with bicycle (from Worksheet 2J)	0.045	0.000	0.045
Subtotal	0.163	0.215	0.378
Total	1.345	2.829	4.174

Worksheet 2L -- Summary Results for Urban and Suburban Arterial Intersections

(1)	(2)
Crash severity level	**Predicted average crash frequency, $N_{predicted\ int}$ (crashes/year)**
	(Total) from Worksheet 2K
Total	4.2
Fatal and injury (FI)	1.3
Property damage only (PDO)	2.8

Worksheet 2A -- General Information and Input Data for Urban and Suburban Arterial Intersections						
General Information				**Location Information**		
Analyst	TL			Roadway	Rockledge Drive	
Agency or Company	ATCS			Intersection	ckledge Dr at I-270 SB On-Ramp/I-270 NB Ramp Connec	
Date Performed	12/07/21			Jurisdiction	Montgomery County	
				Analysis Year	2045	
Input Data				**Base Conditions**	**Site Conditions**	
Intersection type (3ST, 3SG, 4ST, 4SG)				--	3SG	
AADT $_{major}$ (veh/day)	$AADT_{MAX}$ =	58,100	(veh/day)	--	30,517	
AADT $_{minor}$ (veh/day)	$AADT_{MAX}$ =	16,400	(veh/day)	--	**16,677**	
Intersection lighting (present/not present)				Not Present	Present	
Calibration factor, C_i				1.00	1.00	
Data for unsignalized intersections only:				--	--	
Number of major-road approaches with left-turn lanes (0,1,2)				0	1	
Number of major-road approaches with right-turn lanes (0,1,2)				0	0	
Data for signalized intersections only:				--	--	
Number of approaches with left-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]				0	2	
Number of approaches with right-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]				0	0	
Number of approaches with left-turn signal phasing [for 3SG, use maximum value of 3]				--	2	
Type of left-turn signal phasing for Leg #1				Permissive	Protected	
Type of left-turn signal phasing for Leg #2				--	Protected	
Type of left-turn signal phasing for Leg #3				--	Not Applicable	
Type of left-turn signal phasing for Leg #4 (if applicable)				--	Not Applicable	
Number of approaches with right-turn-on-red prohibited [for 3SG, use maximum value of 3]				0	0	
Intersection red light cameras (present/not present)				Not Present	Not Present	
Sum of all pedestrian crossing volumes (PedVol) -- Signalized intersections only					6	
Maximum number of lanes crossed by a pedestrian (n_{lanesx})				--	5	
Number of bus stops within 300 m (1,000 ft) of the intersection				0	0	
Schools within 300 m (1,000 ft) of the intersection (present/not present)				Not Present	Not Present	
Number of alcohol sales establishments within 300 m (1,000 ft) of the intersection				0	0	

Worksheet 2B -- Crash Modification Factors for Urban and Suburban Arterial Intersections						
(1)	(2)	(3)	(4)	(5)	(6)	(7)
CMF for Left-Turn Lanes	CMF for Left-Turn Signal Phasing	CMF for Right-Turn Lanes	CMF for Right Turn on Red	CMF for Lighting	CMF for Red Light Cameras	Combined CMF
CMF 1i	*CMF 2i*	*CMF 3i*	*CMF 4i*	*CMF 5i*	*CMF 6i*	*CMF $_{COMB}$*
from Table 12-24	from Table 12-25	from Table 12-26	from Equation 12-35	from Equation 12-36	from Equation 12-37	(1)*(2)*(3)*(4)*(5)*(6)
0.86	0.88	1.00	1.00	0.91	1.00	0.69

Worksheet 2C -- Multiple-Vehicle Collisions by Severity Level for Urban and Suburban Arterial Intersections

(1)	(2)			(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**			**Overdispersion Parameter, k**	**Initial N_{bimv}**	**Proportion of Total Crashes**	**Adjusted N_{bimv}**	**Combined CMFs**	**Calibration Factor, C_i**	**Predicted N_{bimv}**
	from Table 12-10			from Table 12-10	from Equation 12-21		$(4)_{TOTAL}$*(5)	(7) from Worksheet 2B		(6)*(7)*(8)
	a	b	c							
Total	-12.13	1.11	0.26	0.33	6.421	1.000	6.421	0.69	1.00	4.444
Fatal and Injury (FI)	-11.58	1.02	0.17	0.30	1.832	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ 0.301	1.932	0.69	1.00	1.337
Property Damage Only (PDO)	-13.24	1.14	0.30	0.36	4.256	$(5)_{TOTAL}-(5)_{FI}$ 0.699	4.489	0.69	1.00	3.106

Worksheet 2D -- Multiple-Vehicle Collisions by Collision Type for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{bimv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{bimv\ (PDO)}$ (crashes/year)**	**Predicted N $_{bimv\ (TOTAL)}$ (crashes/year)**
	from Table 12-11	$(9)_{FI}$ from Worksheet 2C	from Table 12-11	$(9)_{PDO}$ from Worksheet 2C	$(9)_{PDO}$ from Worksheet 2C
Total	1.000	1.337	1.000	3.106	4.444
		(2)*$(3)_{FI}$		(4)*$(5)_{PDO}$	(3)+(5)
Rear-end collision	0.549	0.734	0.546	1.696	2.430
Head-on collision	0.038	0.051	0.020	0.062	0.113
Angle collision	0.280	0.374	0.204	0.634	1.008
Sideswipe	0.076	0.102	0.032	0.099	0.201
Other multiple-vehicle collision	0.057	0.076	0.198	0.615	0.691

Worksheet 2E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Arterial Intersections

(1)	(2)			(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**			**Overdispersion Parameter, k**	**Initial N_{bisv}**	**Proportion of Total Crashes**	**Adjusted N_{bimv}**	**Combined CMFs**	**Calibration Factor, C_i**	**Predicted N_{bisv}**
	from Table 12-12			from Table 12-12	from Eqn. 12-24; (FI) from Eqn. 12-24 or 12-27		$(4)_{TOTAL}$*(5)	(7) from Worksheet 2B		(6)*(7)*(8)
	a	b	c							
Total	-9.02	0.42	0.40	0.36	0.452	1.000	0.452	0.69	1.00	0.313
Fatal and Injury (FI)	-9.75	0.27	0.51	0.24	0.135	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ 0.315	0.142	0.69	1.00	0.098
Property Damage Only (PDO)	-9.08	0.45	0.33	0.53	0.294	$(5)_{TOTAL}-(5)_{FI}$ 0.685	0.310	0.69	1.00	0.214

Worksheet 2F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{bisv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{bisv\ (PDO)}$ (crashes/year)**	**Predicted N $_{bisv\ (TOTAL)}$ (crashes/year)**
	from Table 12-13	(9)$_{FI}$ from Worksheet 2E	from Table 12-13	(9)$_{PDO}$ from Worksheet 2E	(9)$_{PDO}$ from Worksheet 2E
Total	1.000	0.098	1.000	0.214	0.313
		(2)*(3)$_{FI}$		(4)*(5)$_{PDO}$	(3)+(5)
Collision with parked vehicle	0.001	0.000	0.001	0.000	0.000
Collision with animal	0.001	0.000	0.003	0.001	0.001
Collision with fixed object	0.653	0.064	0.895	0.192	0.256
Collision with other object	0.091	0.009	0.069	0.015	0.024
Other single-vehicle collision	0.045	0.004	0.018	0.004	0.008
Single-vehicle noncollision	0.209	0.021	0.014	0.003	0.024

Worksheet 2G -- Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Stop-Controlled Intersections

(1)	(2)	(3)	(4)	(5)	(7)*
Crash Severity Level	**Predicted N_{bimv}**	**Predicted N_{bisv}**	**Predicted N_{bi}**	**f_{pedi}**	**Predicted N_{pedi}**
	(9) from Worksheet 2C	(9) from Worksheet 2E	(2) + (3)	from Table 12-16	(4)*(5)
Total	--	--	--	--	--
Fatal and injury (FI)	--	--	--	--	--

* Column 6 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-30

Worksheet 2H -- Crash Modification Factors for Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Signalized Intersections

(1)	(2)	(3)	(4)
CMF for Bus Stops	CMF for Schools	CMF for Alcohol Sales Establishments	Combined CMF
CMF_{1p}	CMF_{2p}	CMF_{3p}	
from Table 12-28	from Table 12-29	from Table 12-30	(1)*(2)*(3)
1.00	1.00	1.00	1.00

Worksheet 2I -- Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Signalized Intersections

(1)	(2)					(3)	(4)	(5)	(6)	(7)
Crash Severity Level	**SPF Coefficients**					**Overdispersion Parameter, k**	**$N_{pedbase}$**	**Combined CMF**	**Calibration factor, C_i**	**Predicted N_{pedi}**
	from Table 12-14						from Equation 12-29	(4) from Worksheet 2H		(4)*(5)*(6)
	a	b	c	d	e					
Total	-6.60	0.05	0.24	0.41	0.09	0.52	0.007	1.00	1.00	0.007
Fatal and Injury (FI)	--	--	--	--	--	--	--	--	1.00	0.007

Worksheet 2J -- Vehicle-Bicycle Collisions for Urban and Suburban Arterial Intersections					
(1)	(2)	(3)	(4)	(5)	(7)*
Crash Severity Level	**Predicted N_{bimv}**	**Predicted N_{bisv}**	**Predicted N_{bi}**	**f_{bikei}**	**Predicted N_{bikei}**
	(9) from Worksheet 2C	(9) from Worksheet 2E	(2) + (3)	from Table 12-17	(4)*(5)
Total	4.444	0.313	4.756	0.011	0.052
Fatal and injury (FI)	--	--	--	--	0.052

* Column 6 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-31

Worksheet 2K -- Crash Severity Distribution for Urban and Suburban Arterial Intersections			
(1)	(2)	(3)	(4)
Collision type	**Fatal and injury (FI)**	**Property damage only (PDO)**	**Total**
	(3) from Worksheet 2D and 2F; (7) from 2G or 2I and 2J	(5) from Worksheet 2D and 2F	(6) from Worksheet 2D and 2F; (7) from 2G or 2I and 2J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 2D)	0.734	1.696	2.430
Head-on collisions (from Worksheet 2D)	0.051	0.062	0.113
Angle collisions (from Worksheet 2D)	0.374	0.634	1.008
Sideswipe (from Worksheet 2D)	0.102	0.099	0.201
Other multiple-vehicle collision (from Worksheet 2D)	0.076	0.615	0.691
Subtotal	1.337	3.106	4.444
SINGLE-VEHICLE			
Collision with parked vehicle (from Worksheet 2F)	0.000	0.000	0.000
Collision with animal (from Worksheet 2F)	0.000	0.001	0.001
Collision with fixed object (from Worksheet 2F)	0.064	0.192	0.256
Collision with other object (from Worksheet 2F)	0.009	0.015	0.024
Other single-vehicle collision (from Worksheet 2F)	0.004	0.004	0.008
Single-vehicle noncollision (from Worksheet 2F)	0.021	0.003	0.024
Collision with pedestrian (from Worksheet 2G or 2I)	0.007	0.000	0.007
Collision with bicycle (from Worksheet 2J)	0.052	0.000	0.052
Subtotal	0.157	0.214	0.372
Total	1.494	3.321	4.815

Worksheet 2L -- Summary Results for Urban and Suburban Arterial Intersections	
(1)	(2)
Crash severity level	**Predicted average crash frequency, $N_{predicted\ int}$ (crashes/year)**
	(Total) from Worksheet 2K
Total	4.8
Fatal and injury (FI)	1.5
Property damage only (PDO)	3.3

Worksheet 2A -- General Information and Input Data for Urban and Suburban Arterial Intersections						
General Information				**Location Information**		
Analyst	TL			Roadway	MD 28	
Agency or Company	ATCS			Intersection	MD 28 at Hurley Ave.	
Date Performed	12/07/21			Jurisdiction	Montgomery County	
				Analysis Year	2045	
Input Data				**Base Conditions**	**Site Conditions**	
Intersection type (3ST, 3SG, 4ST, 4SG)				--	4SG	
AADT $_{major}$ (veh/day)	$AADT_{MAX}$ =	67,700	(veh/day)	--	57,739	
AADT $_{minor}$ (veh/day)	$AADT_{MAX}$ =	33,400	(veh/day)	--	7,147	
Intersection lighting (present/not present)				Not Present	Present	
Calibration factor, C_i				1.00	1.00	
Data for unsignalized intersections only:				--	--	
Number of major-road approaches with left-turn lanes (0,1,2)				0	0	
Number of major-road approaches with right-turn lanes (0,1,2)				0	0	
Data for signalized intersections only:				--	--	
Number of approaches with left-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]				0	2	
Number of approaches with right-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]				0	2	
Number of approaches with left-turn signal phasing [for 3SG, use maximum value of 3]				--	1	
Type of left-turn signal phasing for Leg #1				Permissive	Permissive	
Type of left-turn signal phasing for Leg #2				--	Protected	
Type of left-turn signal phasing for Leg #3				--	Permissive	
Type of left-turn signal phasing for Leg #4 (if applicable)				--	Permissive	
Number of approaches with right-turn-on-red prohibited [for 3SG, use maximum value of 3]				0	0	
Intersection red light cameras (present/not present)				Not Present	Not Present	
Sum of all pedestrian crossing volumes (PedVol) -- Signalized intersections only					108	
Maximum number of lanes crossed by a pedestrian (n_{lanesx})				--	7	
Number of bus stops within 300 m (1,000 ft) of the intersection				0	4	
Schools within 300 m (1,000 ft) of the intersection (present/not present)				Not Present	Not Present	
Number of alcohol sales establishments within 300 m (1,000 ft) of the intersection				0	1	

Worksheet 2B -- Crash Modification Factors for Urban and Suburban Arterial Intersections						
(1)	(2)	(3)	(4)	(5)	(6)	(7)
CMF for Left-Turn Lanes	CMF for Left-Turn Signal Phasing	CMF for Right-Turn Lanes	CMF for Right Turn on Red	CMF for Lighting	CMF for Red Light Cameras	Combined CMF
CMF 1i	*CMF 2i*	*CMF 3i*	*CMF 4i*	*CMF 5i*	*CMF 6i*	*CMF $_{COMB}$*
from Table 12-24	from Table 12-25	from Table 12-26	from Equation 12-35	from Equation 12-36	from Equation 12-37	(1)*(2)*(3)*(4)*(5)*(6)
0.81	1.00	0.92	1.00	0.91	1.00	0.68

Worksheet 2C -- Multiple-Vehicle Collisions by Severity Level for Urban and Suburban Arterial Intersections

(1)	(2)			(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**			**Overdispersion Parameter, k**	**Initial N_{bimv}**	**Proportion of Total Crashes**	**Adjusted N_{bimv}**	**Combined CMFs**	**Calibration Factor, C_i**	**Predicted N_{bimv}**
	from Table 12-10			from Table 12-10	from Equation 12-21		$(4)_{TOTAL}$*(5)	(7) from Worksheet 2B		(6)*(7)*(8)
	a	b	c							
Total	-10.99	1.07	0.23	0.39	16.156	1.000	16.156	0.68	1.00	10.978
Fatal and Injury (FI)	-13.14	1.18	0.22	0.33	5.752	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.367	5.936	0.68	1.00	4.033
Property Damage Only (PDO)	-11.02	1.02	0.24	0.44	9.903	$(5)_{TOTAL}-(5)_{FI}$ = 0.633	10.220	0.68	1.00	6.944

Worksheet 2D -- Multiple-Vehicle Collisions by Collision Type for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{bimv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{bimv\ (PDO)}$ (crashes/year)**	**Predicted N $_{bimv\ (TOTAL)}$ (crashes/year)**
	from Table 12-11	$(9)_{FI}$ from Worksheet 2C	from Table 12-11	$(9)_{PDO}$ from Worksheet 2C	$(9)_{PDO}$ from Worksheet 2C
Total	1.000	4.033	1.000	6.944	10.978
		(2)*$(3)_{FI}$		(4)*$(5)_{PDO}$	(3)+(5)
Rear-end collision	0.450	1.815	0.483	3.354	5.169
Head-on collision	0.049	0.198	0.030	0.208	0.406
Angle collision	0.347	1.400	0.244	1.694	3.094
Sideswipe	0.099	0.399	0.032	0.222	0.622
Other multiple-vehicle collision	0.055	0.222	0.211	1.465	1.687

Worksheet 2E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Arterial Intersections

(1)	(2)			(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**			**Overdispersion Parameter, k**	**Initial N_{bisv}**	**Proportion of Total Crashes**	**Adjusted N_{bimv}**	**Combined CMFs**	**Calibration Factor, C_i**	**Predicted N_{bisv}**
	from Table 12-12			from Table 12-12	from Eqn. 12-24; (FI) from Eqn. 12-24 or 12-27		$(4)_{TOTAL}$*(5)	(7) from Worksheet 2B		(6)*(7)*(8)
	a	b	c							
Total	-10.21	0.68	0.27	0.36	0.699	1.000	0.699	0.68	1.00	0.475
Fatal and Injury (FI)	-9.25	0.43	0.29	0.09	0.141	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.199	0.139	0.68	1.00	0.094
Property Damage Only (PDO)	-11.34	0.78	0.25	0.44	0.566	$(5)_{TOTAL}-(5)_{FI}$ = 0.801	0.560	0.68	1.00	0.380

Worksheet 2F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{bisv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{bisv\ (PDO)}$ (crashes/year)**	**Predicted N $_{bisv\ (TOTAL)}$ (crashes/year)**
	from Table 12-13	(9)$_{FI}$ from Worksheet 2E	from Table 12-13	(9)$_{PDO}$ from Worksheet 2E	(9)$_{PDO}$ from Worksheet 2E
Total	1.000	0.094	1.000	0.380	0.475
		(2)*(3)$_{FI}$		(4)*(5)$_{PDO}$	(3)+(5)
Collision with parked vehicle	0.001	0.000	0.001	0.000	0.000
Collision with animal	0.002	0.000	0.002	0.001	0.001
Collision with fixed object	0.744	0.070	0.870	0.331	0.401
Collision with other object	0.072	0.007	0.070	0.027	0.033
Other single-vehicle collision	0.040	0.004	0.023	0.009	0.013
Single-vehicle noncollision	0.141	0.013	0.034	0.013	0.026

Worksheet 2G -- Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Stop-Controlled Intersections

(1)	(2)	(3)	(4)	(5)	(7)*
Crash Severity Level	**Predicted N_{bimv}**	**Predicted N_{bisv}**	**Predicted N_{bi}**	**f_{pedi}**	**Predicted N_{pedi}**
	(9) from Worksheet 2C	(9) from Worksheet 2E	(2) + (3)	from Table 12-16	(4)*(5)
Total	--	--	--	--	--
Fatal and injury (FI)	--	--	--	--	--

* Column 6 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-30

Worksheet 2H -- Crash Modification Factors for Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Signalized Intersections

(1)	(2)	(3)	(4)
CMF for Bus Stops	CMF for Schools	CMF for Alcohol Sales Establishments	Combined CMF
CMF_{1p}	CMF_{2p}	CMF_{3p}	
from Table 12-28	from Table 12-29	from Table 12-30	(1)*(2)*(3)
4.15	1.00	1.12	4.65

Worksheet 2I -- Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Signalized Intersections

(1)	(2)					(3)	(4)	(5)	(6)	(7)
Crash Severity Level	**SPF Coefficients**					**Overdispersion Parameter, k**	**$N_{pedbase}$**	**Combined CMF**	**Calibration factor, C_i**	**Predicted N_{pedi}**
	from Table 12-14						from Equation 12-29	(4) from Worksheet 2H		(4)*(5)*(6)
	a	b	c	d	e					
Total	-9.53	0.40	0.26	0.45	0.04	0.24	0.039	4.65	1.00	0.179
Fatal and Injury (FI)	--	--	--	--	--	--	--	--	1.00	0.179

Worksheet 2J -- Vehicle-Bicycle Collisions for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(7)*
Crash Severity Level	**Predicted N_{bimv}**	**Predicted N_{bisv}**	**Predicted N_{bi}**	**f_{bikei}**	**Predicted N_{bikei}**
	(9) from Worksheet 2C	(9) from Worksheet 2E	(2) + (3)	from Table 12-17	(4)*(5)
Total	10.978	0.475	11.452	0.015	0.172
Fatal and injury (FI)	--	--	--	--	0.172

* Column 6 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-31

Worksheet 2K -- Crash Severity Distribution for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)
	Fatal and injury (FI)	**Property damage only (PDO)**	**Total**
Collision type	(3) from Worksheet 2D and 2F; (7) from 2G or 2I and 2J	(5) from Worksheet 2D and 2F	(6) from Worksheet 2D and 2F; (7) from 2G or 2I and 2J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 2D)	1.815	3.354	5.169
Head-on collisions (from Worksheet 2D)	0.198	0.208	0.406
Angle collisions (from Worksheet 2D)	1.400	1.694	3.094
Sideswipe (from Worksheet 2D)	0.399	0.222	0.622
Other multiple-vehicle collision (from Worksheet 2D)	0.222	1.465	1.687
Subtotal	4.033	6.944	10.978
SINGLE-VEHICLE			
Collision with parked vehicle (from Worksheet 2F)	0.000	0.000	0.000
Collision with animal (from Worksheet 2F)	0.000	0.001	0.001
Collision with fixed object (from Worksheet 2F)	0.070	0.331	0.401
Collision with other object (from Worksheet 2F)	0.007	0.027	0.033
Other single-vehicle collision (from Worksheet 2F)	0.004	0.009	0.013
Single-vehicle noncollision (from Worksheet 2F)	0.013	0.013	0.026
Collision with pedestrian (from Worksheet 2G or 2I)	0.179	0.000	0.179
Collision with bicycle (from Worksheet 2J)	0.172	0.000	0.172
Subtotal	0.446	0.380	0.826
Total	4.479	7.324	11.804

Worksheet 2L -- Summary Results for Urban and Suburban Arterial Intersections

(1)	(2)
Crash severity level	**Predicted average crash frequency, $N_{predicted\ int}$ (crashes/year)**
	(Total) from Worksheet 2K
Total	11.8
Fatal and injury (FI)	4.5
Property damage only (PDO)	7.3

Worksheet 1A -- General Information and Input Data for Urban and Suburban Roadway Segments

General Information		Location Information	
Analyst	TL	Roadway	MD 28
Agency or Company	ATCS	Roadway Section	250 ft east of Hurley Ave. to 250 ft west of I-270 Ramp
Date Performed	12/07/21	Jurisdiction	Montgomery County
		Analysis Year	2045

Input Data		Base Conditions	Site Conditions
Roadway type (2U, 3T, 4U, 4D, ST)		--	4D
Length of segment, L (mi)		--	0.05
AADT (veh/day)	$AADT_{MAX}$ = 66,000 (veh/day)	--	55,425
Type of on-street parking (none/parallel/angle)		None	None
Proportion of curb length with on-street parking		--	0
Median width (ft) - for divided only		15	10
Lighting (present / not present)		Not Present	Present
Auto speed enforcement (present / not present)		Not Present	Not Present
Major commercial driveways (number)		--	0
Minor commercial driveways (number)		--	1
Major industrial / institutional driveways (number)		--	0
Minor industrial / institutional driveways (number)		--	0
Major residential driveways (number)		--	0
Minor residential driveways (number)		--	0
Other driveways (number)		--	0
Speed Category		--	Posted Speed Greater than 30 mph
Roadside fixed object density (fixed objects / mi)		0	360
Offset to roadside fixed objects (ft) [If greater than 30 or Not Present, input 30]		30	18
Calibration Factor, Cr		1.00	1.00

Worksheet 1B -- Crash Modification Factors for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
CMF for On-Street Parking	CMF for Roadside Fixed Objects	CMF for Median Width	CMF for Lighting	CMF for Automated Speed Enforcement	Combined CMF
CMF 1r	*CMF 2r*	*CMF 3r*	*CMF 4r*	*CMF 5r*	*CMF comb*
from Equation 12-32	from Equation 12-33	from Table 12-22	from Equation 12-34	from Section 12.7.1	(1)*(2)*(3)*(4)*(5)
1.00	1.75	1.01	0.91	1.00	1.61

Worksheet 1C -- Multiple-Vehicle Nondriveway Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brmv}**	**Proportion of Total Crashes**	**Adjusted N_{brmv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brmv}**
	from Table 12-3		from Table 12-3	from Equation 12-10		$(4)_{TOTAL}$*(5)	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-12.34	1.36	1.32	0.618	1.000	0.618	1.61	1.00	0.997
Fatal and Injury (FI)	-12.76	1.28	1.31	0.170	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.261	0.161	1.61	1.00	0.260
Property Damage Only (PDO)	-12.81	1.38	1.34	0.481	$(5)_{TOTAL}-(5)_{FI}$ = 0.739	0.457	1.61	1.00	0.737

Worksheet 1D -- Multiple-Vehicle Nondriveway Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brmv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brmv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brmv\ (TOTAL)}$ (crashes/year)**
	from Table 12-4	$(9)_{FI}$ from Worksheet 1C	from Table 12-4	$(9)_{PDO}$ from Worksheet 1C	$(9)_{TOTAL}$ from Worksheet 1C
Total	1.000	0.260	1.000	0.737	0.997
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Rear-end collision	0.832	0.216	0.662	0.488	0.704
Head-on collision	0.020	0.005	0.007	0.005	0.010
Angle collision	0.040	0.010	0.036	0.027	0.037
Sideswipe, same direction	0.050	0.013	0.223	0.164	0.177
Sideswipe, opposite direction	0.010	0.003	0.001	0.001	0.003
Other multiple-vehicle collision	0.048	0.012	0.071	0.052	0.065

Worksheet 1E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brsv}**	**Proportion of Total Crashes**	**Adjusted N_{brsv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brsv}**
	from Table 12-5		from Table 12-5	from Equation 12-13		$(4)_{TOTAL}*(5)$	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-5.05	0.47	0.86	0.054	1.000	0.054	1.61	1.00	0.088
Fatal and Injury (FI)	-8.71	0.66	0.28	0.011	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.202	0.011	1.61	1.00	0.018
Property Damage Only (PDO)	-5.04	0.45	1.06	0.044	$(5)_{TOTAL}-(5)_{FI}$ = 0.798	0.043	1.61	1.00	0.070

Worksheet 1F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brsv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brsv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brsv\ (TOTAL)}$ (crashes/year)**
	from Table 12-6	$(9)_{FI}$ from Worksheet 1E	from Table 12-6	$(9)_{PDO}$ from Worksheet 1E	$(9)_{TOTAL}$ from Worksheet 1E
Total	1.000	0.018	1.000	0.070	0.088
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Collision with animal	0.001	0.000	0.063	0.004	0.004
Collision with fixed object	0.500	0.009	0.813	0.057	0.066
Collision with other object	0.028	0.000	0.016	0.001	0.002
Other single-vehicle collision	0.471	0.008	0.108	0.008	0.016

Worksheet 1G -- Multiple-Vehicle Driveway-Related Collisions by Driveway Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Driveway Type	**Number of driveways, n_j**	**Crashes per driveway per year, N_j**	**Coefficient for traffic adjustment, t**	**Initial N_{brdwy}**	**Overdispersion parameter, k**
		from Table 12-7	from Table 12-7	Equation 12-16 $n_j * N_j * (AADT/15,000)^t$	from Table 12-7
Major commercial	0	0.033	1.106	0.000	--
Minor commercial	1	0.011	1.106	0.047	
Major industrial/institutional	0	0.036	1.106	0.000	
Minor industrial/institutional	0	0.005	1.106	0.000	
Major residential	0	0.018	1.106	0.000	
Minor residential	0	0.003	1.106	0.000	
Other	0	0.005	1.106	0.000	
Total	--	--	--	0.047	1.39

Worksheet 1H -- Multiple-Vehicle Driveway-Related Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Crash Severity Level	**Initial N_{brdwy}**	**Proportion of total crashes (f_{dwy})**	**Adjusted N_{brdwy}**	**Combined CMFs**	**Calibration factor, C_r**	**Predicted N_{brdwy}**
	$(5)_{TOTAL}$ from Worksheet 1G	from Table 12-7	$(2)_{TOTAL}$ * (3)	(6) from Worksheet 1B		(4)*(5)*(6)
Total	0.047	1.000	0.047	1.61	1.00	0.075
Fatal and injury (FI)	--	0.284	0.013	1.61	1.00	0.021
Property damage only (PDO)	--	0.716	0.033	1.61	1.00	0.054

Worksheet 1I -- Vehicle-Pedestrian Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(8)*
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{pedr}**	**Predicted N_{pedr}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-8	(5)*(6)
Total	0.997	0.088	0.075	1.160	0.019	0.022
Fatal and injury (FI)	--	--	--	--	--	0.022

* Column 7 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-19

Worksheet 1J -- Vehicle-Bicycle Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(8)*
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{biker}**	**Predicted N_{biker}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-9	(5)*(6)
Total	0.997	0.088	0.075	1.160	0.005	0.006
Fatal and injury (FI)	--	--	--	--	--	0.006

* Column 7 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-20

Worksheet 1K -- Crash Severity Distribution for Urban and Suburban Roadway Segments			
(1)	(2)	(3)	(4)
Collision type	**Fatal and injury (FI)**	**Property damage only (PDO)**	**Total**
	(3) from Worksheet 1D and 1F; (7) from Worksheet 1H; and (8) from Worksheet 1I and 1J	(5) from Worksheet 1D and 1F; and (7) from Worksheet 1H	(6) from Worksheet 1D and 1F; (7) from Worksheet 1H; and (8) from Worksheet 1I and 1J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 1D)	0.216	0.488	0.704
Head-on collisions (from Worksheet 1D)	0.005	0.005	0.010
Angle collisions (from Worksheet 1D)	0.010	0.027	0.037
Sideswipe, same direction (from Worksheet 1D)	0.013	0.164	0.177
Sideswipe, opposite direction (from Worksheet 1D)	0.003	0.001	0.003
Driveway-related collisions (from Worksheet 1H)	0.021	0.054	0.075
Other multiple-vehicle collision (from Worksheet 1D)	0.012	0.052	0.065
Subtotal	0.281	0.791	1.073
SINGLE-VEHICLE			
Collision with animal (from Worksheet 1F)	0.000	0.004	0.004
Collision with fixed object (from Worksheet 1F)	0.009	0.057	0.066
Collision with other object (from Worksheet 1F)	0.000	0.001	0.002
Other single-vehicle collision (from Worksheet 1F)	0.008	0.008	0.016
Collision with pedestrian (from Worksheet 1I)	0.022	0.000	0.022
Collision with bicycle (from Worksheet 1J)	0.006	0.000	0.006
Subtotal	0.046	0.070	0.116
Total	0.327	0.861	1.188

Worksheet 1L -- Summary Results for Urban and Suburban Roadway Segments			
(1)	(2)	(3)	(4)
Crash Severity Level	**Predicted average crash frequency, $N_{predicted\ rs}$ (crashes/year)**	**Roadway segment length, L (mi)**	**Crash rate (crashes/mi/year)**
	(Total) from Worksheet 1K		(2) / (3)
Total	1.2	0.05	23.8
Fatal and injury (FI)	0.3	0.05	6.5
Property damage only (PDO)	0.9	0.05	17.2

Worksheet 2A -- General Information and Input Data for Urban and Suburban Arterial Intersections						
General Information				**Location Information**		
Analyst	TL			Roadway	MD 28	
Agency or Company	ATCS			Intersection	MD 28 at SB I-270 Ramp	
Date Performed	12/07/21			Jurisdiction	Montgomery County	
				Analysis Year	2045	
Input Data				**Base Conditions**	**Site Conditions**	
Intersection type (3ST, 3SG, 4ST, 4SG)				--	3SG	
AADT $_{major}$ (veh/day)	$AADT_{MAX}$ =	58,100	(veh/day)	--	56,161	
AADT $_{minor}$ (veh/day)	$AADT_{MAX}$ =	16,400	(veh/day)	--	8,127	
Intersection lighting (present/not present)				Not Present	Present	
Calibration factor, C_i				1.00	1.00	
Data for unsignalized intersections only:				--	--	
Number of major-road approaches with left-turn lanes (0,1,2)				0	0	
Number of major-road approaches with right-turn lanes (0,1,2)				0	0	
Data for signalized intersections only:				--	--	
Number of approaches with left-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]				0	1	
Number of approaches with right-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]				0	2	
Number of approaches with left-turn signal phasing [for 3SG, use maximum value of 3]				--	1	
Type of left-turn signal phasing for Leg #1				Permissive	Not Applicable	
Type of left-turn signal phasing for Leg #2				--	Not Applicable	
Type of left-turn signal phasing for Leg #3				--	Protected	
Type of left-turn signal phasing for Leg #4 (if applicable)				--	Not Applicable	
Number of approaches with right-turn-on-red prohibited [for 3SG, use maximum value of 3]				0	0	
Intersection red light cameras (present/not present)				Not Present	Not Present	
Sum of all pedestrian crossing volumes (PedVol) -- Signalized intersections only					82	
Maximum number of lanes crossed by a pedestrian (n_{lanesx})				--	6	
Number of bus stops within 300 m (1,000 ft) of the intersection				0	0	
Schools within 300 m (1,000 ft) of the intersection (present/not present)				Not Present	Not Present	
Number of alcohol sales establishments within 300 m (1,000 ft) of the intersection				0	0	

Worksheet 2B -- Crash Modification Factors for Urban and Suburban Arterial Intersections						
(1)	(2)	(3)	(4)	(5)	(6)	(7)
CMF for Left-Turn Lanes	CMF for Left-Turn Signal Phasing	CMF for Right-Turn Lanes	CMF for Right Turn on Red	CMF for Lighting	CMF for Red Light Cameras	Combined CMF
CMF 1i	*CMF 2i*	*CMF 3i*	*CMF 4i*	*CMF 5i*	*CMF 6i*	*CMF $_{COMB}$*
from Table 12-24	from Table 12-25	from Table 12-26	from Equation 12-35	from Equation 12-36	from Equation 12-37	(1)*(2)*(3)*(4)*(5)*(6)
0.93	0.99	0.92	1.00	0.91	1.00	0.77

Worksheet 2C -- Multiple-Vehicle Collisions by Severity Level for Urban and Suburban Arterial Intersections

(1)	(2)			(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**			**Overdispersion Parameter, k**	**Initial N_{bimv}**	**Proportion of Total Crashes**	**Adjusted N_{bimv}**	**Combined CMFs**	**Calibration Factor, C_i**	**Predicted N_{bimv}**
	from Table 12-10			from Table 12-10	from Equation 12-21		$(4)_{TOTAL}$*(5)	(7) from Worksheet 2B		(6)*(7)*(8)
	a	b	c							
Total	-12.13	1.11	0.26	0.33	10.482	1.000	10.482	0.77	1.00	8.100
Fatal and Injury (FI)	-11.58	1.02	0.17	0.30	3.020	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.305	3.199	0.77	1.00	2.472
Property Damage Only (PDO)	-13.24	1.14	0.30	0.36	6.875	$(5)_{TOTAL}-(5)_{FI}$ = 0.695	7.283	0.77	1.00	5.628

Worksheet 2D -- Multiple-Vehicle Collisions by Collision Type for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{bimv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{bimv\ (PDO)}$ (crashes/year)**	**Predicted N $_{bimv\ (TOTAL)}$ (crashes/year)**
	from Table 12-11	$(9)_{FI}$ from Worksheet 2C	from Table 12-11	$(9)_{PDO}$ from Worksheet 2C	$(9)_{PDO}$ from Worksheet 2C
Total	1.000	2.472	1.000	5.628	8.100
		(2)*$(3)_{FI}$		(4)*$(5)_{PDO}$	(3)+(5)
Rear-end collision	0.549	1.357	0.546	3.073	4.430
Head-on collision	0.038	0.094	0.020	0.113	0.207
Angle collision	0.280	0.692	0.204	1.148	1.840
Sideswipe	0.076	0.188	0.032	0.180	0.368
Other multiple-vehicle collision	0.057	0.141	0.198	1.114	1.255

Worksheet 2E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Arterial Intersections

(1)	(2)			(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**			**Overdispersion Parameter, k**	**Initial N_{bisv}**	**Proportion of Total Crashes**	**Adjusted N_{bimv}**	**Combined CMFs**	**Calibration Factor, C_i**	**Predicted N_{bisv}**
	from Table 12-12			from Table 12-12	from Eqn. 12-24; (FI) from Eqn. 12-24 or 12-27		$(4)_{TOTAL}$*(5)	(7) from Worksheet 2B		(6)*(7)*(8)
	a	b	c							
Total	-9.02	0.42	0.40	0.36	0.438	1.000	0.438	0.77	1.00	0.338
Fatal and Injury (FI)	-9.75	0.27	0.51	0.24	0.110	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.265	0.116	0.77	1.00	0.090
Property Damage Only (PDO)	-9.08	0.45	0.33	0.53	0.305	$(5)_{TOTAL}-(5)_{FI}$ = 0.735	0.322	0.77	1.00	0.249

Worksheet 2F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{bisv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{bisv\ (PDO)}$ (crashes/year)**	**Predicted N $_{bisv\ (TOTAL)}$ (crashes/year)**
	from Table 12-13	(9)$_{FI}$ from Worksheet 2E	from Table 12-13	(9)$_{PDO}$ from Worksheet 2E	(9)$_{PDO}$ from Worksheet 2E
Total	1.000	0.090	1.000	0.249	0.338
		(2)*(3)$_{FI}$		(4)*(5)$_{PDO}$	(3)+(5)
Collision with parked vehicle	0.001	0.000	0.001	0.000	0.000
Collision with animal	0.001	0.000	0.003	0.001	0.001
Collision with fixed object	0.653	0.059	0.895	0.222	0.281
Collision with other object	0.091	0.008	0.069	0.017	0.025
Other single-vehicle collision	0.045	0.004	0.018	0.004	0.009
Single-vehicle noncollision	0.209	0.019	0.014	0.003	0.022

Worksheet 2G -- Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Stop-Controlled Intersections

(1)	(2)	(3)	(4)	(5)	(7)*
Crash Severity Level	**Predicted N_{bimv}**	**Predicted N_{bisv}**	**Predicted N_{bi}**	**f_{pedi}**	**Predicted N_{pedi}**
	(9) from Worksheet 2C	(9) from Worksheet 2E	(2) + (3)	from Table 12-16	(4)*(5)
Total	--	--	--	--	--
Fatal and injury (FI)	--	--	--	--	--

* Column 6 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-30

Worksheet 2H -- Crash Modification Factors for Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Signalized Intersections

(1)	(2)	(3)	(4)
CMF for Bus Stops	CMF for Schools	CMF for Alcohol Sales Establishments	Combined CMF
CMF_{1p}	CMF_{2p}	CMF_{3p}	
from Table 12-28	from Table 12-29	from Table 12-30	(1)*(2)*(3)
1.00	1.00	1.00	1.00

Worksheet 2I -- Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Signalized Intersections

(1)	(2)					(3)	(4)	(5)	(6)	(7)
Crash Severity Level	**SPF Coefficients**					**Overdispersion Parameter, k**	**$N_{pedbase}$**	**Combined CMF**	**Calibration factor, C_i**	**Predicted N_{pedi}**
	from Table 12-14						from Equation 12-29	(4) from Worksheet 2H		(4)*(5)*(6)
	a	b	c	d	e					
Total	-6.60	0.05	0.24	0.41	0.09	0.52	0.016	1.00	1.00	0.016
Fatal and Injury (FI)	--	--	--	--	--	--	--	--	1.00	0.016

Worksheet 2J -- Vehicle-Bicycle Collisions for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(7)*
Crash Severity Level	**Predicted N_{bimv}**	**Predicted N_{bisv}**	**Predicted N_{bi}**	**f_{bikei}**	**Predicted N_{bikei}**
	(9) from Worksheet 2C	(9) from Worksheet 2E	(2) + (3)	from Table 12-17	(4)*(5)
Total	8.100	0.338	8.439	0.011	0.093
Fatal and injury (FI)	--	--	--	--	0.093

* Column 6 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-31

Worksheet 2K -- Crash Severity Distribution for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)
	Fatal and injury (FI)	**Property damage only (PDO)**	**Total**
Collision type	(3) from Worksheet 2D and 2F; (7) from 2G or 2I and 2J	(5) from Worksheet 2D and 2F	(6) from Worksheet 2D and 2F; (7) from 2G or 2I and 2J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 2D)	1.357	3.073	4.430
Head-on collisions (from Worksheet 2D)	0.094	0.113	0.207
Angle collisions (from Worksheet 2D)	0.692	1.148	1.840
Sideswipe (from Worksheet 2D)	0.188	0.180	0.368
Other multiple-vehicle collision (from Worksheet 2D)	0.141	1.114	1.255
Subtotal	2.472	5.628	8.100
SINGLE-VEHICLE			
Collision with parked vehicle (from Worksheet 2F)	0.000	0.000	0.000
Collision with animal (from Worksheet 2F)	0.000	0.001	0.001
Collision with fixed object (from Worksheet 2F)	0.059	0.222	0.281
Collision with other object (from Worksheet 2F)	0.008	0.017	0.025
Other single-vehicle collision (from Worksheet 2F)	0.004	0.004	0.009
Single-vehicle noncollision (from Worksheet 2F)	0.019	0.003	0.022
Collision with pedestrian (from Worksheet 2G or 2I)	0.016	0.000	0.016
Collision with bicycle (from Worksheet 2J)	0.093	0.000	0.093
Subtotal	0.198	0.249	0.447
Total	2.670	5.877	8.547

Worksheet 2L -- Summary Results for Urban and Suburban Arterial Intersections

(1)	(2)
Crash severity level	**Predicted average crash frequency, $N_{predicted\ int}$ (crashes/year)**
	(Total) from Worksheet 2K
Total	8.5
Fatal and injury (FI)	2.7
Property damage only (PDO)	5.9

Worksheet 1A -- General Information and Input Data for Urban and Suburban Roadway Segments

General Information		Location Information	
Analyst	TL	Roadway	MD 28
Agency or Company	ATCS	Roadway Section	250 ft east of SB I-270 Ramp to 250 ft west of Nelson St.
Date Performed	12/07/21	Jurisdiction	Montgomery County
		Analysis Year	2045

Input Data		Base Conditions	Site Conditions
Roadway type (2U, 3T, 4U, 4D, ST)		--	4D
Length of segment, L (mi)		--	0.25
AADT (veh/day)	$AADT_{MAX}$ = 66,000 (veh/day)	--	32,251
Type of on-street parking (none/parallel/angle)		None	None
Proportion of curb length with on-street parking		--	0
Median width (ft) - for divided only		15	15
Lighting (present / not present)		Not Present	Present
Auto speed enforcement (present / not present)		Not Present	Not Present
Major commercial driveways (number)		--	0
Minor commercial driveways (number)		--	0
Major industrial / institutional driveways (number)		--	0
Minor industrial / institutional driveways (number)		--	0
Major residential driveways (number)		--	0
Minor residential driveways (number)		--	0
Other driveways (number)		--	0
Speed Category		--	Posted Speed Greater than 30 mph
Roadside fixed object density (fixed objects / mi)		0	112
Offset to roadside fixed objects (ft) [If greater than 30 or Not Present, input 30]		30	11
Calibration Factor, Cr		1.00	1.00

Worksheet 1B -- Crash Modification Factors for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
CMF for On-Street Parking	CMF for Roadside Fixed Objects	CMF for Median Width	CMF for Lighting	CMF for Automated Speed Enforcement	Combined CMF
CMF 1r	*CMF 2r*	*CMF 3r*	*CMF 4r*	*CMF 5r*	*CMF comb*
from Equation 12-32	from Equation 12-33	from Table 12-22	from Equation 12-34	from Section 12.7.1	(1)*(2)*(3)*(4)*(5)
1.00	1.29	1.00	0.91	1.00	1.18

Worksheet 1C -- Multiple-Vehicle Nondriveway Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brmv}**	**Proportion of Total Crashes**	**Adjusted N_{brmv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brmv}**
	from Table 12-3		from Table 12-3	from Equation 12-10		$(4)_{TOTAL}$*(5)	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-12.34	1.36	1.32	1.480	1.000	1.480	1.18	1.00	1.750
Fatal and Injury (FI)	-12.76	1.28	1.31	0.424	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.271	0.402	1.18	1.00	0.475
Property Damage Only (PDO)	-12.81	1.38	1.34	1.139	$(5)_{TOTAL}-(5)_{FI}$ = 0.729	1.079	1.18	1.00	1.276

Worksheet 1D -- Multiple-Vehicle Nondriveway Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brmv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brmv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brmv\ (TOTAL)}$ (crashes/year)**
	from Table 12-4	$(9)_{FI}$ from Worksheet 1C	from Table 12-4	$(9)_{PDO}$ from Worksheet 1C	$(9)_{TOTAL}$ from Worksheet 1C
Total	1.000	0.475	1.000	1.276	1.750
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Rear-end collision	0.832	0.395	0.662	0.844	1.239
Head-on collision	0.020	0.009	0.007	0.009	0.018
Angle collision	0.040	0.019	0.036	0.046	0.065
Sideswipe, same direction	0.050	0.024	0.223	0.284	0.308
Sideswipe, opposite direction	0.010	0.005	0.001	0.001	0.006
Other multiple-vehicle collision	0.048	0.023	0.071	0.091	0.113

Worksheet 1E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brsv}**	**Proportion of Total Crashes**	**Adjusted N_{brsv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brsv}**
	from Table 12-5		from Table 12-5	from Equation 12-13		$(4)_{TOTAL}*(5)$	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-5.05	0.47	0.86	0.211	1.000	0.211	1.18	1.00	0.249
Fatal and Injury (FI)	-8.71	0.66	0.28	0.039	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.184	0.039	1.18	1.00	0.046
Property Damage Only (PDO)	-5.04	0.45	1.06	0.173	$(5)_{TOTAL}-(5)_{FI}$ = 0.816	0.172	1.18	1.00	0.203

Worksheet 1F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brsv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brsv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brsv\ (TOTAL)}$ (crashes/year)**
	from Table 12-6	$(9)_{FI}$ from Worksheet 1E	from Table 12-6	$(9)_{PDO}$ from Worksheet 1E	$(9)_{TOTAL}$ from Worksheet 1E
Total	1.000	0.046	1.000	0.203	0.249
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Collision with animal	0.001	0.000	0.063	0.013	0.013
Collision with fixed object	0.500	0.023	0.813	0.165	0.188
Collision with other object	0.028	0.001	0.016	0.003	0.005
Other single-vehicle collision	0.471	0.022	0.108	0.022	0.044

Worksheet 1G -- Multiple-Vehicle Driveway-Related Collisions by Driveway Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Driveway Type	**Number of driveways, n_j**	**Crashes per driveway per year, N_j**	**Coefficient for traffic adjustment, t**	**Initial N_{brdwy}**	**Overdispersion parameter, k**
		from Table 12-7	from Table 12-7	Equation 12-16 $n_j * N_j * (AADT/15,000)^t$	from Table 12-7
Major commercial	0	0.033	1.106	0.000	
Minor commercial	0	0.011	1.106	0.000	
Major industrial/institutional	0	0.036	1.106	0.000	
Minor industrial/institutional	0	0.005	1.106	0.000	--
Major residential	0	0.018	1.106	0.000	
Minor residential	0	0.003	1.106	0.000	
Other	0	0.005	1.106	0.000	
Total	--	--	--	0.000	1.39

Worksheet 1H -- Multiple-Vehicle Driveway-Related Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Crash Severity Level	**Initial N_{brdwy}**	**Proportion of total crashes (f_{dwy})**	**Adjusted N_{brdwy}**	**Combined CMFs**	**Calibration factor, C_r**	**Predicted N_{brdwy}**
	$(5)_{TOTAL}$ from Worksheet 1G	from Table 12-7	$(2)_{TOTAL}$ * (3)	(6) from Worksheet 1B		(4)*(5)*(6)
Total	0.000	1.000	0.000	1.18	1.00	0.000
Fatal and injury (FI)	--	0.284	0.000	1.18	1.00	0.000
Property damage only (PDO)	--	0.716	0.000	1.18	1.00	0.000

Worksheet 1I -- Vehicle-Pedestrian Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(8)*
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{pedr}**	**Predicted N_{pedr}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-8	(5)*(6)
Total	1.750	0.249	0.000	2.000	0.019	0.038
Fatal and injury (FI)	--	--	--	--	--	0.038

* Column 7 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-19

Worksheet 1J -- Vehicle-Bicycle Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(8)*
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{biker}**	**Predicted N_{biker}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-9	(5)*(6)
Total	1.750	0.249	0.000	2.000	0.005	0.010
Fatal and injury (FI)	--	--	--	--	--	0.010

* Column 7 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-20

Worksheet 1K -- Crash Severity Distribution for Urban and Suburban Roadway Segments			
(1)	(2)	(3)	(4)
Collision type	**Fatal and injury (FI)**	**Property damage only (PDO)**	**Total**
	(3) from Worksheet 1D and 1F; (7) from Worksheet 1H; and (8) from Worksheet 1I and 1J	(5) from Worksheet 1D and 1F; and (7) from Worksheet 1H	(6) from Worksheet 1D and 1F; (7) from Worksheet 1H; and (8) from Worksheet 1I and 1J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 1D)	0.395	0.844	1.239
Head-on collisions (from Worksheet 1D)	0.009	0.009	0.018
Angle collisions (from Worksheet 1D)	0.019	0.046	0.065
Sideswipe, same direction (from Worksheet 1D)	0.024	0.284	0.308
Sideswipe, opposite direction (from Worksheet 1D)	0.005	0.001	0.006
Driveway-related collisions (from Worksheet 1H)	0.000	0.000	0.000
Other multiple-vehicle collision (from Worksheet 1D)	0.023	0.091	0.113
Subtotal	0.475	1.276	1.750
SINGLE-VEHICLE			
Collision with animal (from Worksheet 1F)	0.000	0.013	0.013
Collision with fixed object (from Worksheet 1F)	0.023	0.165	0.188
Collision with other object (from Worksheet 1F)	0.001	0.003	0.005
Other single-vehicle collision (from Worksheet 1F)	0.022	0.022	0.044
Collision with pedestrian (from Worksheet 1I)	0.038	0.000	0.038
Collision with bicycle (from Worksheet 1J)	0.010	0.000	0.010
Subtotal	0.094	0.203	0.297
Total	0.569	1.479	2.048

Worksheet 1L -- Summary Results for Urban and Suburban Roadway Segments			
(1)	(2)	(3)	(4)
Crash Severity Level	**Predicted average crash frequency, $N_{predicted\ rs}$ (crashes/year)**	**Roadway segment length, L (mi)**	**Crash rate (crashes/mi/year)**
	(Total) from Worksheet 1K		(2) / (3)
Total	2.0	0.25	8.2
Fatal and injury (FI)	0.6	0.25	2.3
Property damage only (PDO)	1.5	0.25	5.9

Worksheet 2A -- General Information and Input Data for Urban and Suburban Arterial Intersections						
General Information				**Location Information**		
Analyst	TL			Roadway	MD 28	
Agency or Company	ATCS			Intersection	MD 28 at I-270 Ramp and Nelson St.	
Date Performed	12/07/21			Jurisdiction	Montgomery County	
				Analysis Year	2045	
Input Data				**Base Conditions**	**Site Conditions**	
Intersection type (3ST, 3SG, 4ST, 4SG)				--	4SG	
AADT $_{major}$ (veh/day)	$AADT_{MAX}$ =	67,700	(veh/day)	--	26,963	
AADT $_{minor}$ (veh/day)	$AADT_{MAX}$ =	33,400	(veh/day)	--	8,529	
Intersection lighting (present/not present)				Not Present	Present	
Calibration factor, C_i				1.00	1.00	
Data for unsignalized intersections only:				--	--	
Number of major-road approaches with left-turn lanes (0,1,2)				0	0	
Number of major-road approaches with right-turn lanes (0,1,2)				0	0	
Data for signalized intersections only:				--	--	
Number of approaches with left-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]				0	2	
Number of approaches with right-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]				0	2	
Number of approaches with left-turn signal phasing [for 3SG, use maximum value of 3]				--	2	
Type of left-turn signal phasing for Leg #1				Permissive	Permissive / Protected	
Type of left-turn signal phasing for Leg #2				--	Not Applicable	
Type of left-turn signal phasing for Leg #3				--	Not Applicable	
Type of left-turn signal phasing for Leg #4 (if applicable)				--	Protected	
Number of approaches with right-turn-on-red prohibited [for 3SG, use maximum value of 3]				0	0	
Intersection red light cameras (present/not present)				Not Present	Not Present	
Sum of all pedestrian crossing volumes (PedVol) -- Signalized intersections only					82	
Maximum number of lanes crossed by a pedestrian (n_{lanesx})				--	6	
Number of bus stops within 300 m (1,000 ft) of the intersection				0	2	
Schools within 300 m (1,000 ft) of the intersection (present/not present)				Not Present	Not Present	
Number of alcohol sales establishments within 300 m (1,000 ft) of the intersection				0	0	

Worksheet 2B -- Crash Modification Factors for Urban and Suburban Arterial Intersections						
(1)	(2)	(3)	(4)	(5)	(6)	(7)
CMF for Left-Turn Lanes	CMF for Left-Turn Signal Phasing	CMF for Right-Turn Lanes	CMF for Right Turn on Red	CMF for Lighting	CMF for Red Light Cameras	Combined CMF
CMF 1i	*CMF 2i*	*CMF 3i*	*CMF 4i*	*CMF 5i*	*CMF 6i*	*CMF $_{COMB}$*
from Table 12-24	from Table 12-25	from Table 12-26	from Equation 12-35	from Equation 12-36	from Equation 12-37	(1)*(2)*(3)*(4)*(5)*(6)
0.81	0.92	0.92	1.00	0.91	1.00	0.63

Worksheet 2C -- Multiple-Vehicle Collisions by Severity Level for Urban and Suburban Arterial Intersections

(1)	(2)			(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**			**Overdispersion Parameter, k**	**Initial N_{bimv}**	**Proportion of Total Crashes**	**Adjusted N_{bimv}**	**Combined CMFs**	**Calibration Factor, C_i**	**Predicted N_{bimv}**
	from Table 12-10			from Table 12-10	from Equation 12-21		$(4)_{TOTAL}$*(5)	(7) from Worksheet 2B		(6)*(7)*(8)
	a	b	c							
Total	-10.99	1.07	0.23	0.39	7.450	1.000	7.450	0.63	1.00	4.666
Fatal and Injury (FI)	-13.14	1.18	0.22	0.33	2.435	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ 0.339	2.524	0.63	1.00	1.581
Property Damage Only (PDO)	-11.02	1.02	0.24	0.44	4.752	$(5)_{TOTAL}-(5)_{FI}$ 0.661	4.926	0.63	1.00	3.085

Worksheet 2D -- Multiple-Vehicle Collisions by Collision Type for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{bimv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{bimv\ (PDO)}$ (crashes/year)**	**Predicted N $_{bimv\ (TOTAL)}$ (crashes/year)**
	from Table 12-11	$(9)_{FI}$ from Worksheet 2C	from Table 12-11	$(9)_{PDO}$ from Worksheet 2C	$(9)_{PDO}$ from Worksheet 2C
Total	1.000	1.581	1.000	3.085	4.666
		(2)*$(3)_{FI}$		(4)*$(5)_{PDO}$	(3)+(5)
Rear-end collision	0.450	0.711	0.483	1.490	2.201
Head-on collision	0.049	0.077	0.030	0.093	0.170
Angle collision	0.347	0.549	0.244	0.753	1.301
Sideswipe	0.099	0.156	0.032	0.099	0.255
Other multiple-vehicle collision	0.055	0.087	0.211	0.651	0.738

Worksheet 2E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Arterial Intersections

(1)	(2)			(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**			**Overdispersion Parameter, k**	**Initial N_{bisv}**	**Proportion of Total Crashes**	**Adjusted N_{bimv}**	**Combined CMFs**	**Calibration Factor, C_i**	**Predicted N_{bisv}**
	from Table 12-12			from Table 12-12	from Eqn. 12-24; (FI) from Eqn. 12-24 or 12-27		$(4)_{TOTAL}$*(5)	(7) from Worksheet 2B		(6)*(7)*(8)
	a	b	c							
Total	-10.21	0.68	0.27	0.36	0.437	1.000	0.437	0.63	1.00	0.273
Fatal and Injury (FI)	-9.25	0.43	0.29	0.09	0.107	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ 0.246	0.108	0.63	1.00	0.067
Property Damage Only (PDO)	-11.34	0.78	0.25	0.44	0.326	$(5)_{TOTAL}-(5)_{FI}$ 0.754	0.329	0.63	1.00	0.206

Worksheet 2F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{bisv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{bisv\ (PDO)}$ (crashes/year)**	**Predicted N $_{bisv\ (TOTAL)}$ (crashes/year)**
	from Table 12-13	(9)$_{FI}$ from Worksheet 2E	from Table 12-13	(9)$_{PDO}$ from Worksheet 2E	(9)$_{PDO}$ from Worksheet 2E
Total	1.000	0.067	1.000	0.206	0.273
		(2)*(3)$_{FI}$		(4)*(5)$_{PDO}$	(3)+(5)
Collision with parked vehicle	0.001	0.000	0.001	0.000	0.000
Collision with animal	0.002	0.000	0.002	0.000	0.001
Collision with fixed object	0.744	0.050	0.870	0.179	0.229
Collision with other object	0.072	0.005	0.070	0.014	0.019
Other single-vehicle collision	0.040	0.003	0.023	0.005	0.007
Single-vehicle noncollision	0.141	0.009	0.034	0.007	0.017

Worksheet 2G -- Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Stop-Controlled Intersections

(1)	(2)	(3)	(4)	(5)	(7)*
Crash Severity Level	**Predicted N_{bimv}**	**Predicted N_{bisv}**	**Predicted N_{bi}**	**f_{pedi}**	**Predicted N_{pedi}**
	(9) from Worksheet 2C	(9) from Worksheet 2E	(2) + (3)	from Table 12-16	(4)*(5)
Total	--	--	--	--	--
Fatal and injury (FI)	--	--	--	--	--

* Column 6 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-30

Worksheet 2H -- Crash Modification Factors for Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Signalized Intersections

(1)	(2)	(3)	(4)
CMF for Bus Stops	CMF for Schools	CMF for Alcohol Sales Establishments	Combined CMF
CMF_{1p}	CMF_{2p}	CMF_{3p}	
from Table 12-28	from Table 12-29	from Table 12-30	(1)*(2)*(3)
2.78	1.00	1.00	2.78

Worksheet 2I -- Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Signalized Intersections

(1)	(2)					(3)	(4)	(5)	(6)	(7)
Crash Severity Level	**SPF Coefficients**					**Overdispersion Parameter, k**	**$N_{pedbase}$**	**Combined CMF**	**Calibration factor, C_i**	**Predicted N_{pedi}**
	from Table 12-14						from Equation 12-29	(4) from Worksheet 2H		(4)*(5)*(6)
	a	b	c	d	e					
Total	-9.53	0.40	0.26	0.45	0.04	0.24	0.033	2.78	1.00	0.091
Fatal and Injury (FI)	--	--	--	--	--	--	--	--	1.00	0.091

Worksheet 2J -- Vehicle-Bicycle Collisions for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(7)*
Crash Severity Level	**Predicted N_{bimv}**	**Predicted N_{bisv}**	**Predicted N_{bi}**	**f_{bikei}**	**Predicted N_{bikei}**
	(9) from Worksheet 2C	(9) from Worksheet 2E	(2) + (3)	from Table 12-17	(4)*(5)
Total	4.666	0.273	4.939	0.015	0.074
Fatal and injury (FI)	--	--	--	--	0.074

* Column 6 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-31

Worksheet 2K -- Crash Severity Distribution for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)
	Fatal and injury (FI)	**Property damage only (PDO)**	**Total**
Collision type	(3) from Worksheet 2D and 2F; (7) from 2G or 2I and 2J	(5) from Worksheet 2D and 2F	(6) from Worksheet 2D and 2F; (7) from 2G or 2I and 2J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 2D)	0.711	1.490	2.201
Head-on collisions (from Worksheet 2D)	0.077	0.093	0.170
Angle collisions (from Worksheet 2D)	0.549	0.753	1.301
Sideswipe (from Worksheet 2D)	0.156	0.099	0.255
Other multiple-vehicle collision (from Worksheet 2D)	0.087	0.651	0.738
Subtotal	1.581	3.085	4.666
SINGLE-VEHICLE			
Collision with parked vehicle (from Worksheet 2F)	0.000	0.000	0.000
Collision with animal (from Worksheet 2F)	0.000	0.000	0.001
Collision with fixed object (from Worksheet 2F)	0.050	0.179	0.229
Collision with other object (from Worksheet 2F)	0.005	0.014	0.019
Other single-vehicle collision (from Worksheet 2F)	0.003	0.005	0.007
Single-vehicle noncollision (from Worksheet 2F)	0.009	0.007	0.017
Collision with pedestrian (from Worksheet 2G or 2I)	0.091	0.000	0.091
Collision with bicycle (from Worksheet 2J)	0.074	0.000	0.074
Subtotal	0.233	0.206	0.439
Total	1.814	3.291	5.105

Worksheet 2L -- Summary Results for Urban and Suburban Arterial Intersections

(1)	(2)
Crash severity level	**Predicted average crash frequency, $N_{predicted\ int}$ (crashes/year)**
	(Total) from Worksheet 2K
Total	5.1
Fatal and injury (FI)	1.8
Property damage only (PDO)	3.3

Worksheet 1A -- General Information and Input Data for Urban and Suburban Roadway Segments

General Information		Location Information	
Analyst	TL	Roadway	MD 28
Agency or Company	ATCS	Roadway Section	250 ft east of Nelson St. to 250 ft west of Laird St.
Date Performed	12/07/21	Jurisdiction	Montgomery County
		Analysis Year	2045

Input Data		Base Conditions	Site Conditions
Roadway type (2U, 3T, 4U, 4D, ST)		--	3T
Length of segment, L (mi)		--	0.35
AADT (veh/day)	$AADT_{MAX}$ = 32,900 (veh/day)	--	26,103
Type of on-street parking (none/parallel/angle)		None	None
Proportion of curb length with on-street parking		--	0
Median width (ft) - for divided only		15	Not Present
Lighting (present / not present)		Not Present	Present
Auto speed enforcement (present / not present)		Not Present	Present
Major commercial driveways (number)		--	0
Minor commercial driveways (number)		--	0
Major industrial / institutional driveways (number)		--	0
Minor industrial / institutional driveways (number)		--	0
Major residential driveways (number)		--	4
Minor residential driveways (number)		--	35
Other driveways (number)		--	0
Speed Category		--	Posted Speed Greater than 30 mph
Roadside fixed object density (fixed objects / mi)		0	163
Offset to roadside fixed objects (ft) [If greater than 30 or Not Present, input 30]		30	17
Calibration Factor, Cr		1.00	1.00

Worksheet 1B -- Crash Modification Factors for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
CMF for On-Street Parking	CMF for Roadside Fixed Objects	CMF for Median Width	CMF for Lighting	CMF for Automated Speed Enforcement	Combined CMF
CMF 1r	*CMF 2r*	*CMF 3r*	*CMF 4r*	*CMF 5r*	*CMF comb*
from Equation 12-32	from Equation 12-33	from Table 12-22	from Equation 12-34	from Section 12.7.1	(1)*(2)*(3)*(4)*(5)
1.00	1.31	1.00	0.93	0.95	1.16

Worksheet 1C -- Multiple-Vehicle Nondriveway Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brmv}**	**Proportion of Total Crashes**	**Adjusted N_{brmv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brmv}**
	from Table 12-3		from Table 12-3	from Equation 12-10		$(4)_{TOTAL}$*(5)	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-12.40	1.41	0.66	2.434	1.000	2.434	1.16	1.00	2.835
Fatal and Injury (FI)	-16.45	1.69	0.59	0.731	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.302	0.735	1.16	1.00	0.856
Property Damage Only (PDO)	-11.95	1.33	0.59	1.692	$(5)_{TOTAL}-(5)_{FI}$ = 0.698	1.700	1.16	1.00	1.980

Worksheet 1D -- Multiple-Vehicle Nondriveway Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brmv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brmv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brmv\ (TOTAL)}$ (crashes/year)**
	from Table 12-4	$(9)_{FI}$ from Worksheet 1C	from Table 12-4	$(9)_{PDO}$ from Worksheet 1C	$(9)_{TOTAL}$ from Worksheet 1C
Total	1.000	0.856	1.000	1.980	2.835
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Rear-end collision	0.845	0.723	0.842	1.667	2.390
Head-on collision	0.034	0.029	0.020	0.040	0.069
Angle collision	0.069	0.059	0.020	0.040	0.099
Sideswipe, same direction	0.001	0.001	0.078	0.154	0.155
Sideswipe, opposite direction	0.017	0.015	0.020	0.040	0.054
Other multiple-vehicle collision	0.034	0.029	0.020	0.040	0.069

Worksheet 1E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brsv}**	**Proportion of Total Crashes**	**Adjusted N_{brsv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brsv}**
	from Table 12-5		from Table 12-5	from Equation 12-13		$(4)_{TOTAL}*(5)$	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-5.74	0.54	1.37	0.273	1.000	0.273	1.16	1.00	0.318
Fatal and Injury (FI)	-6.37	0.47	1.06	0.071	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.270	0.074	1.16	1.00	0.086
Property Damage Only (PDO)	-6.29	0.56	1.93	0.193	$(5)_{TOTAL}-(5)_{FI}$ = 0.730	0.199	1.16	1.00	0.232

Worksheet 1F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brsv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brsv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brsv\ (TOTAL)}$ (crashes/year)**
	from Table 12-6	$(9)_{FI}$ from Worksheet 1E	from Table 12-6	$(9)_{PDO}$ from Worksheet 1E	$(9)_{TOTAL}$ from Worksheet 1E
Total	1.000	0.086	1.000	0.232	0.318
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Collision with animal	0.001	0.000	0.001	0.000	0.000
Collision with fixed object	0.688	0.059	0.963	0.224	0.283
Collision with other object	0.001	0.000	0.001	0.000	0.000
Other single-vehicle collision	0.310	0.027	0.035	0.008	0.035

Worksheet 1G -- Multiple-Vehicle Driveway-Related Collisions by Driveway Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Driveway Type	**Number of driveways, n_j**	**Crashes per driveway per year, N_j**	**Coefficient for traffic adjustment, t**	**Initial N_{brdwy}**	**Overdispersion parameter, k**
		from Table 12-7	from Table 12-7	Equation 12-16 $n_j * N_j * (AADT/15,000)^t$	from Table 12-7
Major commercial	0	0.102	1.000	0.000	
Minor commercial	0	0.032	1.000	0.000	
Major industrial/institutional	0	0.110	1.000	0.000	
Minor industrial/institutional	0	0.015	1.000	0.000	--
Major residential	4	0.053	1.000	0.369	
Minor residential	35	0.010	1.000	0.609	
Other	0	0.016	1.000	0.000	
Total	--	--	--	0.978	1.10

Worksheet 1H -- Multiple-Vehicle Driveway-Related Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Crash Severity Level	**Initial N_{brdwy}**	**Proportion of total crashes (f_{dwy})**	**Adjusted N_{brdwy}**	**Combined CMFs**	**Calibration factor, C_r**	**Predicted N_{brdwy}**
	$(5)_{TOTAL}$ from Worksheet 1G	from Table 12-7	$(2)_{TOTAL}$ * (3)	(6) from Worksheet 1B		(4)*(5)*(6)
Total	0.978	1.000	0.978	1.16	1.00	1.139
Fatal and injury (FI)	--	0.243	0.238	1.16	1.00	0.277
Property damage only (PDO)	--	0.757	0.740	1.16	1.00	0.862

Worksheet 1I -- Vehicle-Pedestrian Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(8)*
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{pedr}**	**Predicted N_{pedr}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-8	(5)*(6)
Total	2.835	0.318	1.139	4.292	0.013	0.056
Fatal and injury (FI)	--	--	--	--	--	0.056

* Column 7 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-19

Worksheet 1J -- Vehicle-Bicycle Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(8)*
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{biker}**	**Predicted N_{biker}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-9	(5)*(6)
Total	2.835	0.318	1.139	4.292	0.007	0.030
Fatal and injury (FI)	--	--	--	--	--	0.030

* Column 7 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-20

Worksheet 1K -- Crash Severity Distribution for Urban and Suburban Roadway Segments			
(1)	(2)	(3)	(4)
Collision type	**Fatal and injury (FI)**	**Property damage only (PDO)**	**Total**
	(3) from Worksheet 1D and 1F; (7) from Worksheet 1H; and (8) from Worksheet 1I and 1J	(5) from Worksheet 1D and 1F; and (7) from Worksheet 1H	(6) from Worksheet 1D and 1F; (7) from Worksheet 1H; and (8) from Worksheet 1I and 1J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 1D)	0.723	1.667	2.390
Head-on collisions (from Worksheet 1D)	0.029	0.040	0.069
Angle collisions (from Worksheet 1D)	0.059	0.040	0.099
Sideswipe, same direction (from Worksheet 1D)	0.001	0.154	0.155
Sideswipe, opposite direction (from Worksheet 1D)	0.015	0.040	0.054
Driveway-related collisions (from Worksheet 1H)	0.277	0.862	1.139
Other multiple-vehicle collision (from Worksheet 1D)	0.029	0.040	0.069
Subtotal	1.132	2.842	3.974
SINGLE-VEHICLE			
Collision with animal (from Worksheet 1F)	0.000	0.000	0.000
Collision with fixed object (from Worksheet 1F)	0.059	0.224	0.283
Collision with other object (from Worksheet 1F)	0.000	0.000	0.000
Other single-vehicle collision (from Worksheet 1F)	0.027	0.008	0.035
Collision with pedestrian (from Worksheet 1I)	0.056	0.000	0.056
Collision with bicycle (from Worksheet 1J)	0.030	0.000	0.030
Subtotal	0.172	0.232	0.404
Total	1.304	3.074	4.378

Worksheet 1L -- Summary Results for Urban and Suburban Roadway Segments			
(1)	(2)	(3)	(4)
Crash Severity Level	**Predicted average crash frequency, $N_{predicted\ rs}$ (crashes/year)**	**Roadway segment length, L (mi)**	**Crash rate (crashes/mi/year)**
	(Total) from Worksheet 1K		(2) / (3)
Total	4.4	0.35	12.5
Fatal and injury (FI)	1.3	0.35	3.7
Property damage only (PDO)	3.1	0.35	8.8

Worksheet 2A -- General Information and Input Data for Urban and Suburban Arterial Intersections						
General Information				**Location Information**		
Analyst	TL			Roadway	MD 28	
Agency or Company	ATCS			Intersection	MD 28 at Laird St.	
Date Performed	12/07/21			Jurisdiction	Montgomery County	
				Analysis Year	2045	
Input Data				**Base Conditions**	**Site Conditions**	
Intersection type (3ST, 3SG, 4ST, 4SG)				--	4SG	
AADT $_{major}$ (veh/day)	$AADT_{MAX}$ =	67,700	(veh/day)	--	27,239	
AADT $_{minor}$ (veh/day)	$AADT_{MAX}$ =	33,400	(veh/day)	--	1,249	
Intersection lighting (present/not present)				Not Present	Present	
Calibration factor, C_i				1.00	1.00	
Data for unsignalized intersections only:				--	--	
Number of major-road approaches with left-turn lanes (0,1,2)				0	0	
Number of major-road approaches with right-turn lanes (0,1,2)				0	0	
Data for signalized intersections only:				--	--	
Number of approaches with left-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]				0	2	
Number of approaches with right-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]				0	1	
Number of approaches with left-turn signal phasing [for 3SG, use maximum value of 3]				--	0	
Type of left-turn signal phasing for Leg #1				Permissive	Permissive	
Type of left-turn signal phasing for Leg #2				--	Permissive	
Type of left-turn signal phasing for Leg #3				--	Permissive	
Type of left-turn signal phasing for Leg #4 (if applicable)				--	Permissive	
Number of approaches with right-turn-on-red prohibited [for 3SG, use maximum value of 3]				0	0	
Intersection red light cameras (present/not present)				Not Present	Not Present	
Sum of all pedestrian crossing volumes (PedVol) -- Signalized intersections only					240	
Maximum number of lanes crossed by a pedestrian (n_{lanesx})				--	3	
Number of bus stops within 300 m (1,000 ft) of the intersection				0	4	
Schools within 300 m (1,000 ft) of the intersection (present/not present)				Not Present	Present	
Number of alcohol sales establishments within 300 m (1,000 ft) of the intersection				0	0	

Worksheet 2B -- Crash Modification Factors for Urban and Suburban Arterial Intersections						
(1)	(2)	(3)	(4)	(5)	(6)	(7)
CMF for Left-Turn Lanes	CMF for Left-Turn Signal Phasing	CMF for Right-Turn Lanes	CMF for Right Turn on Red	CMF for Lighting	CMF for Red Light Cameras	Combined CMF
CMF 1i	*CMF 2i*	*CMF 3i*	*CMF 4i*	*CMF 5i*	*CMF 6i*	*CMF $_{COMB}$*
from Table 12-24	from Table 12-25	from Table 12-26	from Equation 12-35	from Equation 12-36	from Equation 12-37	(1)*(2)*(3)*(4)*(5)*(6)
0.81	1.00	0.96	1.00	0.91	1.00	0.71

Worksheet 2C -- Multiple-Vehicle Collisions by Severity Level for Urban and Suburban Arterial Intersections

(1)	(2)			(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**			**Overdispersion Parameter, k**	**Initial N_{bimv}**	**Proportion of Total Crashes**	**Adjusted N_{bimv}**	**Combined CMFs**	**Calibration Factor, C_i**	**Predicted N_{bimv}**
	from Table 12-10			from Table 12-10	from Equation 12-21		$(4)_{TOTAL}$*(5)	(7) from Worksheet 2B		(6)*(7)*(8)
	a	b	c							
Total	-10.99	1.07	0.23	0.39	4.841	1.000	4.841	0.71	1.00	3.428
Fatal and Injury (FI)	-13.14	1.18	0.22	0.33	1.615	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ 0.348	1.684	0.71	1.00	1.193
Property Damage Only (PDO)	-11.02	1.02	0.24	0.44	3.028	$(5)_{TOTAL}-(5)_{FI}$ 0.652	3.157	0.71	1.00	2.236

Worksheet 2D -- Multiple-Vehicle Collisions by Collision Type for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{bimv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{bimv\ (PDO)}$ (crashes/year)**	**Predicted N $_{bimv\ (TOTAL)}$ (crashes/year)**
	from Table 12-11	$(9)_{FI}$ from Worksheet 2C	from Table 12-11	$(9)_{PDO}$ from Worksheet 2C	$(9)_{PDO}$ from Worksheet 2C
Total	1.000	1.193	1.000	2.236	3.428
		(2)*$(3)_{FI}$		(4)*$(5)_{PDO}$	(3)+(5)
Rear-end collision	0.450	0.537	0.483	1.080	1.617
Head-on collision	0.049	0.058	0.030	0.067	0.126
Angle collision	0.347	0.414	0.244	0.546	0.959
Sideswipe	0.099	0.118	0.032	0.072	0.190
Other multiple-vehicle collision	0.055	0.066	0.211	0.472	0.537

Worksheet 2E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Arterial Intersections

(1)	(2)			(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**			**Overdispersion Parameter, k**	**Initial N_{bisv}**	**Proportion of Total Crashes**	**Adjusted N_{bimv}**	**Combined CMFs**	**Calibration Factor, C_i**	**Predicted N_{bisv}**
	from Table 12-12			from Table 12-12	from Eqn. 12-24; (FI) from Eqn. 12-24 or 12-27		$(4)_{TOTAL}$*(5)	(7) from Worksheet 2B		(6)*(7)*(8)
	a	b	c							
Total	-10.21	0.68	0.27	0.36	0.262	1.000	0.262	0.71	1.00	0.185
Fatal and Injury (FI)	-9.25	0.43	0.29	0.09	0.061	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ 0.232	0.061	0.71	1.00	0.043
Property Damage Only (PDO)	-11.34	0.78	0.25	0.44	0.204	$(5)_{TOTAL}-(5)_{FI}$ 0.768	0.201	0.71	1.00	0.142

Worksheet 2F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{bisv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{bisv\ (PDO)}$ (crashes/year)**	**Predicted N $_{bisv\ (TOTAL)}$ (crashes/year)**
	from Table 12-13	(9)$_{FI}$ from Worksheet 2E	from Table 12-13	(9)$_{PDO}$ from Worksheet 2E	(9)$_{PDO}$ from Worksheet 2E
Total	1.000	0.043	1.000	0.142	0.185
		(2)*(3)$_{FI}$		(4)*(5)$_{PDO}$	(3)+(5)
Collision with parked vehicle	0.001	0.000	0.001	0.000	0.000
Collision with animal	0.002	0.000	0.002	0.000	0.000
Collision with fixed object	0.744	0.032	0.870	0.124	0.156
Collision with other object	0.072	0.003	0.070	0.010	0.013
Other single-vehicle collision	0.040	0.002	0.023	0.003	0.005
Single-vehicle noncollision	0.141	0.006	0.034	0.005	0.011

Worksheet 2G -- Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Stop-Controlled Intersections

(1)	(2)	(3)	(4)	(5)	(7)*
Crash Severity Level	**Predicted N_{bimv}**	**Predicted N_{bisv}**	**Predicted N_{bi}**	**f_{pedi}**	**Predicted N_{pedi}**
	(9) from Worksheet 2C	(9) from Worksheet 2E	(2) + (3)	from Table 12-16	(4)*(5)
Total	--	--	--	--	--
Fatal and injury (FI)	--	--	--	--	--

* Column 6 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-30

Worksheet 2H -- Crash Modification Factors for Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Signalized Intersections

(1)	(2)	(3)	(4)
CMF for Bus Stops	CMF for Schools	CMF for Alcohol Sales Establishments	Combined CMF
CMF_{1p}	CMF_{2p}	CMF_{3p}	
from Table 12-28	from Table 12-29	from Table 12-30	(1)*(2)*(3)
4.15	1.35	1.00	5.60

Worksheet 2I -- Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Signalized Intersections

(1)	(2)					(3)	(4)	(5)	(6)	(7)
Crash Severity Level	**SPF Coefficients**					**Overdispersion Parameter, k**	**$N_{pedbase}$**	**Combined CMF**	**Calibration factor, C_i**	**Predicted N_{pedi}**
	from Table 12-14						from Equation 12-29	(4) from Worksheet 2H		(4)*(5)*(6)
	a	b	c	d	e					
Total	-9.53	0.40	0.26	0.45	0.04	0.24	0.026	5.60	1.00	0.147
Fatal and Injury (FI)	--	--	--	--	--	--	--	--	1.00	0.147

Worksheet 2J -- Vehicle-Bicycle Collisions for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(7)*
Crash Severity Level	**Predicted N_{bimv}**	**Predicted N_{bisv}**	**Predicted N_{bi}**	**f_{bikei}**	**Predicted N_{bikei}**
	(9) from Worksheet 2C	(9) from Worksheet 2E	(2) + (3)	from Table 12-17	(4)*(5)
Total	3.428	0.185	3.614	0.015	0.054
Fatal and injury (FI)	--	--	--	--	0.054

* Column 6 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-31

Worksheet 2K -- Crash Severity Distribution for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)
	Fatal and injury (FI)	**Property damage only (PDO)**	**Total**
Collision type	(3) from Worksheet 2D and 2F; (7) from 2G or 2I and 2J	(5) from Worksheet 2D and 2F	(6) from Worksheet 2D and 2F; (7) from 2G or 2I and 2J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 2D)	0.537	1.080	1.617
Head-on collisions (from Worksheet 2D)	0.058	0.067	0.126
Angle collisions (from Worksheet 2D)	0.414	0.546	0.959
Sideswipe (from Worksheet 2D)	0.118	0.072	0.190
Other multiple-vehicle collision (from Worksheet 2D)	0.066	0.472	0.537
Subtotal	1.193	2.236	3.428
SINGLE-VEHICLE			
Collision with parked vehicle (from Worksheet 2F)	0.000	0.000	0.000
Collision with animal (from Worksheet 2F)	0.000	0.000	0.000
Collision with fixed object (from Worksheet 2F)	0.032	0.124	0.156
Collision with other object (from Worksheet 2F)	0.003	0.010	0.013
Other single-vehicle collision (from Worksheet 2F)	0.002	0.003	0.005
Single-vehicle noncollision (from Worksheet 2F)	0.006	0.005	0.011
Collision with pedestrian (from Worksheet 2G or 2I)	0.147	0.000	0.147
Collision with bicycle (from Worksheet 2J)	0.054	0.000	0.054
Subtotal	0.244	0.142	0.386
Total	1.436	2.378	3.815

Worksheet 2L -- Summary Results for Urban and Suburban Arterial Intersections

(1)	(2)
Crash severity level	**Predicted average crash frequency, $N_{predicted\ int}$ (crashes/year)**
	(Total) from Worksheet 2K
Total	3.8
Fatal and injury (FI)	1.4
Property damage only (PDO)	2.4

Worksheet 1A -- General Information and Input Data for Urban and Suburban Roadway Segments

General Information		Location Information	
Analyst	TL	Roadway	MD 117 W Diamond Ave
Agency or Company	ATCS	Roadway Section	I-270 SB On-Ramp to I-270 NB Off-Ramp
Date Performed	12/07/21	Jurisdiction	Montgomery County
		Analysis Year	2045

Input Data		Base Conditions	Site Conditions
Roadway type (2U, 3T, 4U, 4D, ST)		--	4U
Length of segment, L (mi)		--	0.09
AADT (veh/day)	$AADT_{MAX}$ = 40,100 (veh/day)	--	39,304
Type of on-street parking (none/parallel/angle)		None	None
Proportion of curb length with on-street parking		--	0
Median width (ft) - for divided only		15	Not Present
Lighting (present / not present)		Not Present	Not Present
Auto speed enforcement (present / not present)		Not Present	Not Present
Major commercial driveways (number)		--	0
Minor commercial driveways (number)		--	0
Major industrial / institutional driveways (number)		--	0
Minor industrial / institutional driveways (number)		--	0
Major residential driveways (number)		--	0
Minor residential driveways (number)		--	0
Other driveways (number)		--	0
Speed Category		--	Posted Speed Greater than 30 mph
Roadside fixed object density (fixed objects / mi)		0	67
Offset to roadside fixed objects (ft) [If greater than 30 or Not Present, input 30]		30	10
Calibration Factor, Cr		1.00	1.00

Worksheet 1B -- Crash Modification Factors for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
CMF for On-Street Parking	CMF for Roadside Fixed Objects	CMF for Median Width	CMF for Lighting	CMF for Automated Speed Enforcement	Combined CMF
CMF 1r	*CMF 2r*	*CMF 3r*	*CMF 4r*	*CMF 5r*	*CMF comb*
from Equation 12-32	from Equation 12-33	from Table 12-22	from Equation 12-34	from Section 12.7.1	(1)*(2)*(3)*(4)*(5)
1.00	1.18	1.00	1.00	1.00	1.18

Worksheet 1C -- Multiple-Vehicle Nondriveway Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brmv}**	**Proportion of Total Crashes**	**Adjusted N_{brmv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brmv}**
	from Table 12-3		from Table 12-3	from Equation 12-10		$(4)_{TOTAL}$*(5)	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-11.63	1.33	1.01	1.033	1.000	1.033	1.18	1.00	1.215
Fatal and Injury (FI)	-12.08	1.25	0.99	0.282	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.284	0.293	1.18	1.00	0.345
Property Damage Only (PDO)	-12.53	1.38	1.08	0.713	$(5)_{TOTAL}-(5)_{FI}$ = 0.716	0.740	1.18	1.00	0.870

Worksheet 1D -- Multiple-Vehicle Nondriveway Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brmv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brmv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brmv\ (TOTAL)}$ (crashes/year)**
	from Table 12-4	$(9)_{FI}$ from Worksheet 1C	from Table 12-4	$(9)_{PDO}$ from Worksheet 1C	$(9)_{TOTAL}$ from Worksheet 1C
Total	1.000	0.345	1.000	0.870	1.215
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Rear-end collision	0.511	0.176	0.506	0.440	0.617
Head-on collision	0.077	0.027	0.004	0.003	0.030
Angle collision	0.181	0.062	0.130	0.113	0.176
Sideswipe, same direction	0.093	0.032	0.249	0.217	0.249
Sideswipe, opposite direction	0.082	0.028	0.031	0.027	0.055
Other multiple-vehicle collision	0.056	0.019	0.080	0.070	0.089

Worksheet 1E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brsv}**	**Proportion of Total Crashes**	**Adjusted N_{brsv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brsv}**
	from Table 12-5		from Table 12-5	from Equation 12-13		$(4)_{TOTAL}*(5)$	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-7.99	0.81	0.91	0.161	1.000	0.161	1.18	1.00	0.189
Fatal and Injury (FI)	-7.37	0.61	0.54	0.036	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$	0.034	1.18	1.00	0.040
					0.214				
Property Damage Only (PDO)	-8.50	0.84	0.97	0.132	$(5)_{TOTAL}-(5)_{FI}$	0.126	1.18	1.00	0.149
					0.786				

Worksheet 1F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brsv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brsv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brsv\ (TOTAL)}$ (crashes/year)**
	from Table 12-6	$(9)_{FI}$ from Worksheet 1E	from Table 12-6	$(9)_{PDO}$ from Worksheet 1E	$(9)_{TOTAL}$ from Worksheet 1E
Total	1.000	0.040	1.000	0.149	0.189
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Collision with animal	0.001	0.000	0.001	0.000	0.000
Collision with fixed object	0.612	0.025	0.809	0.120	0.145
Collision with other object	0.020	0.001	0.029	0.004	0.005
Other single-vehicle collision	0.367	0.015	0.161	0.024	0.039

Worksheet 1G -- Multiple-Vehicle Driveway-Related Collisions by Driveway Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Driveway Type	**Number of driveways, n_j**	**Crashes per driveway per year, N_j**	**Coefficient for traffic adjustment, t**	**Initial N_{brdwy}**	**Overdispersion parameter, k**
		from Table 12-7	from Table 12-7	Equation 12-16 $n_j * N_j * (AADT/15,000)^t$	from Table 12-7
Major commercial	0	0.182	1.172	0.000	
Minor commercial	0	0.058	1.172	0.000	
Major industrial/institutional	0	0.198	1.172	0.000	
Minor industrial/institutional	0	0.026	1.172	0.000	--
Major residential	0	0.096	1.172	0.000	
Minor residential	0	0.018	1.172	0.000	
Other	0	0.029	1.172	0.000	
Total	--	--	--	0.000	0.81

Worksheet 1H -- Multiple-Vehicle Driveway-Related Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Crash Severity Level	**Initial N_{brdwy}**	**Proportion of total crashes (f_{dwy})**	**Adjusted N_{brdwy}**	**Combined CMFs**	**Calibration factor, C_r**	**Predicted N_{brdwy}**
	$(5)_{TOTAL}$ from Worksheet 1G	from Table 12-7	$(2)_{TOTAL}$ * (3)	(6) from Worksheet 1B		(4)*(5)*(6)
Total	0.000	1.000	0.000	1.18	1.00	0.000
Fatal and injury (FI)	--	0.342	0.000	1.18	1.00	0.000
Property damage only (PDO)	--	0.658	0.000	1.18	1.00	0.000

Worksheet 1I -- Vehicle-Pedestrian Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(8)*
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{pedr}**	**Predicted N_{pedr}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-8	(5)*(6)
Total	1.215	0.189	0.000	1.405	0.009	0.013
Fatal and injury (FI)	--	--	--	--	--	0.013

* Column 7 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-19

Worksheet 1J -- Vehicle-Bicycle Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(8)*
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{biker}**	**Predicted N_{biker}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-9	(5)*(6)
Total	1.215	0.189	0.000	1.405	0.002	0.003
Fatal and injury (FI)	--	--	--	--	--	0.003

* Column 7 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-20

Worksheet 1K -- Crash Severity Distribution for Urban and Suburban Roadway Segments			
(1)	(2)	(3)	(4)
Collision type	**Fatal and injury (FI)**	**Property damage only (PDO)**	**Total**
	(3) from Worksheet 1D and 1F; (7) from Worksheet 1H; and (8) from Worksheet 1I and 1J	(5) from Worksheet 1D and 1F; and (7) from Worksheet 1H	(6) from Worksheet 1D and 1F; (7) from Worksheet 1H; and (8) from Worksheet 1I and 1J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 1D)	0.176	0.440	0.617
Head-on collisions (from Worksheet 1D)	0.027	0.003	0.030
Angle collisions (from Worksheet 1D)	0.062	0.113	0.176
Sideswipe, same direction (from Worksheet 1D)	0.032	0.217	0.249
Sideswipe, opposite direction (from Worksheet 1D)	0.028	0.027	0.055
Driveway-related collisions (from Worksheet 1H)	0.000	0.000	0.000
Other multiple-vehicle collision (from Worksheet 1D)	0.019	0.070	0.089
Subtotal	0.345	0.870	1.215
SINGLE-VEHICLE			
Collision with animal (from Worksheet 1F)	0.000	0.000	0.000
Collision with fixed object (from Worksheet 1F)	0.025	0.120	0.145
Collision with other object (from Worksheet 1F)	0.001	0.004	0.005
Other single-vehicle collision (from Worksheet 1F)	0.015	0.024	0.039
Collision with pedestrian (from Worksheet 1I)	0.013	0.000	0.013
Collision with bicycle (from Worksheet 1J)	0.003	0.000	0.003
Subtotal	0.056	0.149	0.204
Total	0.401	1.019	1.420

Worksheet 1L -- Summary Results for Urban and Suburban Roadway Segments			
(1)	(2)	(3)	(4)
Crash Severity Level	**Predicted average crash frequency, $N_{predicted\ rs}$ (crashes/year)**	**Roadway segment length, L (mi)**	**Crash rate (crashes/mi/year)**
	(Total) from Worksheet 1K		(2) / (3)
Total	1.4	0.09	15.8
Fatal and injury (FI)	0.4	0.09	4.5
Property damage only (PDO)	1.0	0.09	11.3

Worksheet 2A -- General Information and Input Data for Urban and Suburban Arterial Intersections						
General Information				**Location Information**		
Analyst	TL			Roadway	MD 189 (Falls Road)	
Agency or Company	ATCS			Intersection	MD 189 at Wootton Pkwy	
Date Performed	12/07/21			Jurisdiction	Montgomery County	
				Analysis Year	2045	
Input Data				**Base Conditions**	**Site Conditions**	
Intersection type (3ST, 3SG, 4ST, 4SG)				--	4SG	
AADT $_{major}$ (veh/day)	$AADT_{MAX}$ =	67,700	(veh/day)	--	24,079	
AADT $_{minor}$ (veh/day)	$AADT_{MAX}$ =	33,400	(veh/day)	--	18,293	
Intersection lighting (present/not present)				Not Present	Present	
Calibration factor, C_i				1.00	1.00	
Data for unsignalized intersections only:				--	--	
Number of major-road approaches with left-turn lanes (0,1,2)				0	0	
Number of major-road approaches with right-turn lanes (0,1,2)				0	0	
Data for signalized intersections only:				--	--	
Number of approaches with left-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]				0	4	
Number of approaches with right-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]				0	3	
Number of approaches with left-turn signal phasing [for 3SG, use maximum value of 3]				--	4	
Type of left-turn signal phasing for Leg #1				Permissive	Protected	
Type of left-turn signal phasing for Leg #2				--	Protected	
Type of left-turn signal phasing for Leg #3				--	Permissive / Protected	
Type of left-turn signal phasing for Leg #4 (if applicable)				--	Permissive / Protected	
Number of approaches with right-turn-on-red prohibited [for 3SG, use maximum value of 3]				0	0	
Intersection red light cameras (present/not present)				Not Present	Not Present	
Sum of all pedestrian crossing volumes (PedVol) -- Signalized intersections only					120	
Maximum number of lanes crossed by a pedestrian (n_{lanesx})				--	7	
Number of bus stops within 300 m (1,000 ft) of the intersection				0	10	
Schools within 300 m (1,000 ft) of the intersection (present/not present)				Not Present	Not Present	
Number of alcohol sales establishments within 300 m (1,000 ft) of the intersection				0	0	

Worksheet 2B -- Crash Modification Factors for Urban and Suburban Arterial Intersections						
(1)	(2)	(3)	(4)	(5)	(6)	(7)
CMF for Left-Turn Lanes	CMF for Left-Turn Signal Phasing	CMF for Right-Turn Lanes	CMF for Right Turn on Red	CMF for Lighting	CMF for Red Light Cameras	Combined CMF
CMF 1i	*CMF 2i*	*CMF 3i*	*CMF 4i*	*CMF 5i*	*CMF 6i*	*CMF* $_{COMB}$
from Table 12-24	from Table 12-25	from Table 12-26	from Equation 12-35	from Equation 12-36	from Equation 12-37	(1)*(2)*(3)*(4)*(5)*(6)
0.66	0.87	0.88	1.00	0.91	1.00	0.46

Worksheet 2C -- Multiple-Vehicle Collisions by Severity Level for Urban and Suburban Arterial Intersections

(1)	(2)			(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**			**Overdispersion Parameter, k**	**Initial N_{bimv}**	**Proportion of Total Crashes**	**Adjusted N_{bimv}**	**Combined CMFs**	**Calibration Factor, C_i**	**Predicted N_{bimv}**
	from Table 12-10			from Table 12-10	from Equation 12-21		$(4)_{TOTAL}$*(5)	(7) from Worksheet 2B		(6)*(7)*(8)
	a	b	c							
Total	-10.99	1.07	0.23	0.39	7.867	1.000	7.867	0.46	1.00	3.623
Fatal and Injury (FI)	-13.14	1.18	0.22	0.33	2.520	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ 0.331	2.607	0.46	1.00	1.200
Property Damage Only (PDO)	-11.02	1.02	0.24	0.44	5.085	$(5)_{TOTAL}-(5)_{FI}$ 0.669	5.260	0.46	1.00	2.422

Worksheet 2D -- Multiple-Vehicle Collisions by Collision Type for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{bimv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{bimv\ (PDO)}$ (crashes/year)**	**Predicted N $_{bimv\ (TOTAL)}$ (crashes/year)**
	from Table 12-11	$(9)_{FI}$ from Worksheet 2C	from Table 12-11	$(9)_{PDO}$ from Worksheet 2C	$(9)_{PDO}$ from Worksheet 2C
Total	1.000	1.200	1.000	2.422	3.623
		(2)*$(3)_{FI}$		(4)*$(5)_{PDO}$	(3)+(5)
Rear-end collision	0.450	0.540	0.483	1.170	1.710
Head-on collision	0.049	0.059	0.030	0.073	0.131
Angle collision	0.347	0.417	0.244	0.591	1.008
Sideswipe	0.099	0.119	0.032	0.078	0.196
Other multiple-vehicle collision	0.055	0.066	0.211	0.511	0.577

Worksheet 2E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Arterial Intersections

(1)	(2)			(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**			**Overdispersion Parameter, k**	**Initial N_{bisv}**	**Proportion of Total Crashes**	**Adjusted N_{bimv}**	**Combined CMFs**	**Calibration Factor, C_i**	**Predicted N_{bisv}**
	from Table 12-12			from Table 12-12	from Eqn. 12-24; (FI) from Eqn. 12-24 or 12-27		$(4)_{TOTAL}$*(5)	(7) from Worksheet 2B		(6)*(7)*(8)
	a	b	c							
Total	-10.21	0.68	0.27	0.36	0.497	1.000	0.497	0.46	1.00	0.229
Fatal and Injury (FI)	-9.25	0.43	0.29	0.09	0.127	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ 0.259	0.129	0.46	1.00	0.059
Property Damage Only (PDO)	-11.34	0.78	0.25	0.44	0.362	$(5)_{TOTAL}-(5)_{FI}$ 0.741	0.368	0.46	1.00	0.169

Worksheet 2F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{bisv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{bisv\ (PDO)}$ (crashes/year)**	**Predicted N $_{bisv\ (TOTAL)}$ (crashes/year)**
	from Table 12-13	(9)$_{FI}$ from Worksheet 2E	from Table 12-13	(9)$_{PDO}$ from Worksheet 2E	(9)$_{PDO}$ from Worksheet 2E
Total	1.000	0.059	1.000	0.169	0.229
		(2)*(3)$_{FI}$		(4)*(5)$_{PDO}$	(3)+(5)
Collision with parked vehicle	0.001	0.000	0.001	0.000	0.000
Collision with animal	0.002	0.000	0.002	0.000	0.000
Collision with fixed object	0.744	0.044	0.870	0.147	0.192
Collision with other object	0.072	0.004	0.070	0.012	0.016
Other single-vehicle collision	0.040	0.002	0.023	0.004	0.006
Single-vehicle noncollision	0.141	0.008	0.034	0.006	0.014

Worksheet 2G -- Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Stop-Controlled Intersections

(1)	(2)	(3)	(4)	(5)	(7)*
Crash Severity Level	**Predicted N_{bimv}**	**Predicted N_{bisv}**	**Predicted N_{bi}**	**f_{pedi}**	**Predicted N_{pedi}**
	(9) from Worksheet 2C	(9) from Worksheet 2E	(2) + (3)	from Table 12-16	(4)*(5)
Total	--	--	--	--	--
Fatal and injury (FI)	--	--	--	--	--

* Column 6 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-30

Worksheet 2H -- Crash Modification Factors for Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Signalized Intersections

(1)	(2)	(3)	(4)
CMF for Bus Stops	CMF for Schools	CMF for Alcohol Sales Establishments	Combined CMF
CMF_{1p}	CMF_{2p}	CMF_{3p}	
from Table 12-28	from Table 12-29	from Table 12-30	(1)*(2)*(3)
4.15	1.00	1.00	4.15

Worksheet 2I -- Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Signalized Intersections

(1)	(2)					(3)	(4)	(5)	(6)	(7)
Crash Severity Level	**SPF Coefficients**					**Overdispersion Parameter, k**	**$N_{pedbase}$**	**Combined CMF**	**Calibration factor, C_i**	**Predicted N_{pedi}**
	from Table 12-14						from Equation 12-29	(4) from Worksheet 2H		(4)*(5)*(6)
	a	b	c	d	e					
Total	-9.53	0.40	0.26	0.45	0.04	0.24	0.055	4.15	1.00	0.227
Fatal and Injury (FI)	--	--	--	--	--	--	--	--	1.00	0.227

Worksheet 2J -- Vehicle-Bicycle Collisions for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(7)*
Crash Severity Level	**Predicted N_{bimv}**	**Predicted N_{bisv}**	**Predicted N_{bi}**	**f_{bikei}**	**Predicted N_{bikei}**
	(9) from Worksheet 2C	(9) from Worksheet 2E	(2) + (3)	from Table 12-17	(4)*(5)
Total	3.623	0.229	3.852	0.015	0.058
Fatal and injury (FI)	--	--	--	--	0.058

* Column 6 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-31

Worksheet 2K -- Crash Severity Distribution for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)
	Fatal and injury (FI)	**Property damage only (PDO)**	**Total**
Collision type	(3) from Worksheet 2D and 2F; (7) from 2G or 2I and 2J	(5) from Worksheet 2D and 2F	(6) from Worksheet 2D and 2F; (7) from 2G or 2I and 2J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 2D)	0.540	1.170	1.710
Head-on collisions (from Worksheet 2D)	0.059	0.073	0.131
Angle collisions (from Worksheet 2D)	0.417	0.591	1.008
Sideswipe (from Worksheet 2D)	0.119	0.078	0.196
Other multiple-vehicle collision (from Worksheet 2D)	0.066	0.511	0.577
Subtotal	1.200	2.422	3.623
SINGLE-VEHICLE			
Collision with parked vehicle (from Worksheet 2F)	0.000	0.000	0.000
Collision with animal (from Worksheet 2F)	0.000	0.000	0.000
Collision with fixed object (from Worksheet 2F)	0.044	0.147	0.192
Collision with other object (from Worksheet 2F)	0.004	0.012	0.016
Other single-vehicle collision (from Worksheet 2F)	0.002	0.004	0.006
Single-vehicle noncollision (from Worksheet 2F)	0.008	0.006	0.014
Collision with pedestrian (from Worksheet 2G or 2I)	0.227	0.000	0.227
Collision with bicycle (from Worksheet 2J)	0.058	0.000	0.058
Subtotal	0.344	0.169	0.514
Total	1.545	2.592	4.136

Worksheet 2L -- Summary Results for Urban and Suburban Arterial Intersections

(1)	(2)
Crash severity level	**Predicted average crash frequency, $N_{predicted\ int}$ (crashes/year)**
	(Total) from Worksheet 2K
Total	4.1
Fatal and injury (FI)	1.5
Property damage only (PDO)	2.6

Worksheet 1A -- General Information and Input Data for Urban and Suburban Roadway Segments

General Information		Location Information	
Analyst	TL	Roadway	MD 189 (Falls Road)
Agency or Company	ATCS	Roadway Section	250 ft east of Wootton Pkwy to I-270 SPUI
Date Performed	12/07/21	Jurisdiction	Montgomery County
		Analysis Year	2045

Input Data		Base Conditions	Site Conditions
Roadway type (2U, 3T, 4U, 4D, ST)		--	4D
Length of segment, L (mi)		--	0.24
AADT (veh/day)	$AADT_{MAX}$ = 66,000 (veh/day)	--	30,191
Type of on-street parking (none/parallel/angle)		None	None
Proportion of curb length with on-street parking		--	0
Median width (ft) - for divided only		15	30
Lighting (present / not present)		Not Present	Present
Auto speed enforcement (present / not present)		Not Present	Not Present
Major commercial driveways (number)		--	0
Minor commercial driveways (number)		--	0
Major industrial / institutional driveways (number)		--	0
Minor industrial / institutional driveways (number)		--	0
Major residential driveways (number)		--	1
Minor residential driveways (number)		--	0
Other driveways (number)		--	1
Speed Category		--	Posted Speed Greater than 30 mph
Roadside fixed object density (fixed objects / mi)		0	250
Offset to roadside fixed objects (ft) [If greater than 30 or Not Present, input 30]		30	18
Calibration Factor, Cr		1.00	1.00

Worksheet 1B -- Crash Modification Factors for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
CMF for On-Street Parking	CMF for Roadside Fixed Objects	CMF for Median Width	CMF for Lighting	CMF for Automated Speed Enforcement	Combined CMF
CMF 1r	*CMF 2r*	*CMF 3r*	*CMF 4r*	*CMF 5r*	*CMF comb*
from Equation 12-32	from Equation 12-33	from Table 12-22	from Equation 12-34	from Section 12.7.1	(1)*(2)*(3)*(4)*(5)
1.00	1.51	0.98	0.91	1.00	1.35

Worksheet 1C -- Multiple-Vehicle Nondriveway Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brmv}**	**Proportion of Total Crashes**	**Adjusted N_{brmv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brmv}**
	from Table 12-3		from Table 12-3	from Equation 12-10		$(4)_{TOTAL}$*(5)	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-12.34	1.36	1.32	1.299	1.000	1.299	1.35	1.00	1.755
Fatal and Injury (FI)	-12.76	1.28	1.31	0.374	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.273	0.354	1.35	1.00	0.478
Property Damage Only (PDO)	-12.81	1.38	1.34	0.998	$(5)_{TOTAL}-(5)_{FI}$ = 0.727	0.945	1.35	1.00	1.276

Worksheet 1D -- Multiple-Vehicle Nondriveway Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brmv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brmv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brmv\ (TOTAL)}$ (crashes/year)**
	from Table 12-4	$(9)_{FI}$ from Worksheet 1C	from Table 12-4	$(9)_{PDO}$ from Worksheet 1C	$(9)_{TOTAL}$ from Worksheet 1C
Total	1.000	0.478	1.000	1.276	1.755
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Rear-end collision	0.832	0.398	0.662	0.845	1.243
Head-on collision	0.020	0.010	0.007	0.009	0.019
Angle collision	0.040	0.019	0.036	0.046	0.065
Sideswipe, same direction	0.050	0.024	0.223	0.285	0.309
Sideswipe, opposite direction	0.010	0.005	0.001	0.001	0.006
Other multiple-vehicle collision	0.048	0.023	0.071	0.091	0.114

Worksheet 1E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brsv}**	**Proportion of Total Crashes**	**Adjusted N_{brsv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brsv}**
	from Table 12-5		from Table 12-5	from Equation 12-13		$(4)_{TOTAL}*(5)$	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-5.05	0.47	0.86	0.196	1.000	0.196	1.35	1.00	0.265
Fatal and Injury (FI)	-8.71	0.66	0.28	0.036	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.182	0.036	1.35	1.00	0.048
Property Damage Only (PDO)	-5.04	0.45	1.06	0.161	$(5)_{TOTAL}-(5)_{FI}$ = 0.818	0.160	1.35	1.00	0.217

Worksheet 1F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brsv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brsv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brsv\ (TOTAL)}$ (crashes/year)**
	from Table 12-6	$(9)_{FI}$ from Worksheet 1E	from Table 12-6	$(9)_{PDO}$ from Worksheet 1E	$(9)_{TOTAL}$ from Worksheet 1E
Total	1.000	0.048	1.000	0.217	0.265
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Collision with animal	0.001	0.000	0.063	0.014	0.014
Collision with fixed object	0.500	0.024	0.813	0.176	0.200
Collision with other object	0.028	0.001	0.016	0.003	0.005
Other single-vehicle collision	0.471	0.023	0.108	0.023	0.046

Worksheet 1G -- Multiple-Vehicle Driveway-Related Collisions by Driveway Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Driveway Type	**Number of driveways, n_j**	**Crashes per driveway per year, N_j**	**Coefficient for traffic adjustment, t**	**Initial N_{brdwy}**	**Overdispersion parameter, k**
		from Table 12-7	from Table 12-7	Equation 12-16 $n_j * N_j * (AADT/15,000)^t$	from Table 12-7
Major commercial	0	0.033	1.106	0.000	--
Minor commercial	0	0.011	1.106	0.000	
Major industrial/institutional	0	0.036	1.106	0.000	
Minor industrial/institutional	0	0.005	1.106	0.000	
Major residential	1	0.018	1.106	0.039	
Minor residential	0	0.003	1.106	0.000	
Other	1	0.005	1.106	0.011	
Total	--	--	--	0.050	1.39

Worksheet 1H -- Multiple-Vehicle Driveway-Related Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Crash Severity Level	**Initial N_{brdwy}**	**Proportion of total crashes (f_{dwy})**	**Adjusted N_{brdwy}**	**Combined CMFs**	**Calibration factor, C_r**	**Predicted N_{brdwy}**
	$(5)_{TOTAL}$ from Worksheet 1G	from Table 12-7	$(2)_{TOTAL}$ * (3)	(6) from Worksheet 1B		(4)*(5)*(6)
Total	0.050	1.000	0.050	1.35	1.00	0.067
Fatal and injury (FI)	--	0.284	0.014	1.35	1.00	0.019
Property damage only (PDO)	--	0.716	0.036	1.35	1.00	0.048

Worksheet 1I -- Vehicle-Pedestrian Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(8)*
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{pedr}**	**Predicted N_{pedr}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-8	(5)*(6)
Total	1.755	0.265	0.067	2.087	0.019	0.040
Fatal and injury (FI)	--	--	--	--	--	0.040

* Column 7 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-19

Worksheet 1J -- Vehicle-Bicycle Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(8)*
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{biker}**	**Predicted N_{biker}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-9	(5)*(6)
Total	1.755	0.265	0.067	2.087	0.005	0.010
Fatal and injury (FI)	--	--	--	--	--	0.010

* Column 7 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-20

Worksheet 1K -- Crash Severity Distribution for Urban and Suburban Roadway Segments			
(1)	(2)	(3)	(4)
Collision type	**Fatal and injury (FI)**	**Property damage only (PDO)**	**Total**
	(3) from Worksheet 1D and 1F; (7) from Worksheet 1H; and (8) from Worksheet 1I and 1J	(5) from Worksheet 1D and 1F; and (7) from Worksheet 1H	(6) from Worksheet 1D and 1F; (7) from Worksheet 1H; and (8) from Worksheet 1I and 1J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 1D)	0.398	0.845	1.243
Head-on collisions (from Worksheet 1D)	0.010	0.009	0.019
Angle collisions (from Worksheet 1D)	0.019	0.046	0.065
Sideswipe, same direction (from Worksheet 1D)	0.024	0.285	0.309
Sideswipe, opposite direction (from Worksheet 1D)	0.005	0.001	0.006
Driveway-related collisions (from Worksheet 1H)	0.019	0.048	0.067
Other multiple-vehicle collision (from Worksheet 1D)	0.023	0.091	0.114
Subtotal	0.497	1.325	1.822
SINGLE-VEHICLE			
Collision with animal (from Worksheet 1F)	0.000	0.014	0.014
Collision with fixed object (from Worksheet 1F)	0.024	0.176	0.200
Collision with other object (from Worksheet 1F)	0.001	0.003	0.005
Other single-vehicle collision (from Worksheet 1F)	0.023	0.023	0.046
Collision with pedestrian (from Worksheet 1I)	0.040	0.000	0.040
Collision with bicycle (from Worksheet 1J)	0.010	0.000	0.010
Subtotal	0.098	0.217	0.315
Total	0.596	1.541	2.137

Worksheet 1L -- Summary Results for Urban and Suburban Roadway Segments			
(1)	(2)	(3)	(4)
Crash Severity Level	**Predicted average crash frequency, $N_{predicted\ rs}$ (crashes/year)**	**Roadway segment length, L (mi)**	**Crash rate (crashes/mi/year)**
	(Total) from Worksheet 1K		(2) / (3)
Total	2.1	0.24	8.9
Fatal and injury (FI)	0.6	0.24	2.5
Property damage only (PDO)	1.5	0.24	6.4

Worksheet 1A -- General Information and Input Data for Urban and Suburban Roadway Segments

General Information		Location Information	
Analyst	TL	Roadway	MD 189 (Falls Road)
Agency or Company	ATCS	Roadway Section	I-279 SPUI to 250 ft west of Great Falls Rd.
Date Performed	12/07/21	Jurisdiction	Montgomery County
		Analysis Year	2045

Input Data		Base Conditions	Site Conditions
Roadway type (2U, 3T, 4U, 4D, ST)		--	4D
Length of segment, L (mi)		--	0.02
AADT (veh/day)	$AADT_{MAX}$ = 66,000 (veh/day)	--	21,597
Type of on-street parking (none/parallel/angle)		None	None
Proportion of curb length with on-street parking		--	0
Median width (ft) - for divided only		15	15
Lighting (present / not present)		Not Present	Present
Auto speed enforcement (present / not present)		Not Present	Not Present
Major commercial driveways (number)		--	0
Minor commercial driveways (number)		--	0
Major industrial / institutional driveways (number)		--	0
Minor industrial / institutional driveways (number)		--	0
Major residential driveways (number)		--	0
Minor residential driveways (number)		--	0
Other driveways (number)		--	0
Speed Category		--	Posted Speed 30 mph or Lower
Roadside fixed object density (fixed objects / mi)		0	100
Offset to roadside fixed objects (ft) [If greater than 30 or Not Present, input 30]		30	11
Calibration Factor, Cr		1.00	1.00

Worksheet 1B -- Crash Modification Factors for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
CMF for On-Street Parking	CMF for Roadside Fixed Objects	CMF for Median Width	CMF for Lighting	CMF for Automated Speed Enforcement	Combined CMF
CMF 1r	*CMF 2r*	*CMF 3r*	*CMF 4r*	*CMF 5r*	*CMF comb*
from Equation 12-32	from Equation 12-33	from Table 12-22	from Equation 12-34	from Section 12.7.1	(1)*(2)*(3)*(4)*(5)
1.00	1.26	1.00	0.91	1.00	1.15

Worksheet 1C -- Multiple-Vehicle Nondriveway Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brmv}**	**Proportion of Total Crashes**	**Adjusted N_{brmv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brmv}**
	from Table 12-3		from Table 12-3	from Equation 12-10		$(4)_{TOTAL}$*(5)	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-12.34	1.36	1.32	0.069	1.000	0.069	1.15	1.00	0.079
Fatal and Injury (FI)	-12.76	1.28	1.31	0.020	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.279	0.019	1.15	1.00	0.022
Property Damage Only (PDO)	-12.81	1.38	1.34	0.052	$(5)_{TOTAL}-(5)_{FI}$ = 0.721	0.049	1.15	1.00	0.057

Worksheet 1D -- Multiple-Vehicle Nondriveway Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brmv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brmv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brmv\ (TOTAL)}$ (crashes/year)**
	from Table 12-4	$(9)_{FI}$ from Worksheet 1C	from Table 12-4	$(9)_{PDO}$ from Worksheet 1C	$(9)_{TOTAL}$ from Worksheet 1C
Total	1.000	0.022	1.000	0.057	0.079
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Rear-end collision	0.832	0.018	0.662	0.038	0.056
Head-on collision	0.020	0.000	0.007	0.000	0.001
Angle collision	0.040	0.001	0.036	0.002	0.003
Sideswipe, same direction	0.050	0.001	0.223	0.013	0.014
Sideswipe, opposite direction	0.010	0.000	0.001	0.000	0.000
Other multiple-vehicle collision	0.048	0.001	0.071	0.004	0.005

Worksheet 1E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brsv}**	**Proportion of Total Crashes**	**Adjusted N_{brsv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brsv}**
	from Table 12-5		from Table 12-5	from Equation 12-13		$(4)_{TOTAL}*(5)$	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-5.05	0.47	0.86	0.014	1.000	0.014	1.15	1.00	0.016
Fatal and Injury (FI)	-8.71	0.66	0.28	0.002	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.172	0.002	1.15	1.00	0.003
Property Damage Only (PDO)	-5.04	0.45	1.06	0.012	$(5)_{TOTAL}-(5)_{FI}$ = 0.828	0.012	1.15	1.00	0.013

Worksheet 1F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brsv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brsv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brsv\ (TOTAL)}$ (crashes/year)**
	from Table 12-6	$(9)_{FI}$ from Worksheet 1E	from Table 12-6	$(9)_{PDO}$ from Worksheet 1E	$(9)_{TOTAL}$ from Worksheet 1E
Total	1.000	0.003	1.000	0.013	0.016
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Collision with animal	0.001	0.000	0.063	0.001	0.001
Collision with fixed object	0.500	0.001	0.813	0.011	0.012
Collision with other object	0.028	0.000	0.016	0.000	0.000
Other single-vehicle collision	0.471	0.001	0.108	0.001	0.003

Worksheet 1G -- Multiple-Vehicle Driveway-Related Collisions by Driveway Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Driveway Type	**Number of driveways, n_j**	**Crashes per driveway per year, N_j**	**Coefficient for traffic adjustment, t**	**Initial N_{brdwy}**	**Overdispersion parameter, k**
		from Table 12-7	from Table 12-7	Equation 12-16 $n_j * N_j * (AADT/15,000)^t$	from Table 12-7
Major commercial	0	0.033	1.106	0.000	
Minor commercial	0	0.011	1.106	0.000	
Major industrial/institutional	0	0.036	1.106	0.000	
Minor industrial/institutional	0	0.005	1.106	0.000	--
Major residential	0	0.018	1.106	0.000	
Minor residential	0	0.003	1.106	0.000	
Other	0	0.005	1.106	0.000	
Total	--	--	--	0.000	1.39

Worksheet 1H -- Multiple-Vehicle Driveway-Related Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Crash Severity Level	**Initial N_{brdwy}**	**Proportion of total crashes (f_{dwy})**	**Adjusted N_{brdwy}**	**Combined CMFs**	**Calibration factor, C_r**	**Predicted N_{brdwy}**
	$(5)_{TOTAL}$ from Worksheet 1G	from Table 12-7	$(2)_{TOTAL}$ * (3)	(6) from Worksheet 1B		(4)*(5)*(6)
Total	0.000	1.000	0.000	1.15	1.00	0.000
Fatal and injury (FI)	--	0.284	0.000	1.15	1.00	0.000
Property damage only (PDO)	--	0.716	0.000	1.15	1.00	0.000

Worksheet 1I -- Vehicle-Pedestrian Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(8)*
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{pedr}**	**Predicted N_{pedr}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-8	(5)*(6)
Total	0.079	0.016	0.000	0.095	0.067	0.006
Fatal and injury (FI)	--	--	--	--	--	0.006

* Column 7 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-19

Worksheet 1J -- Vehicle-Bicycle Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(8)*
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{biker}**	**Predicted N_{biker}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-9	(5)*(6)
Total	0.079	0.016	0.000	0.095	0.013	0.001
Fatal and injury (FI)	--	--	--	--	--	0.001

* Column 7 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-20

Worksheet 1K -- Crash Severity Distribution for Urban and Suburban Roadway Segments			
(1)	(2)	(3)	(4)
Collision type	**Fatal and injury (FI)**	**Property damage only (PDO)**	**Total**
	(3) from Worksheet 1D and 1F; (7) from Worksheet 1H; and (8) from Worksheet 1I and 1J	(5) from Worksheet 1D and 1F; and (7) from Worksheet 1H	(6) from Worksheet 1D and 1F; (7) from Worksheet 1H; and (8) from Worksheet 1I and 1J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 1D)	0.018	0.038	0.056
Head-on collisions (from Worksheet 1D)	0.000	0.000	0.001
Angle collisions (from Worksheet 1D)	0.001	0.002	0.003
Sideswipe, same direction (from Worksheet 1D)	0.001	0.013	0.014
Sideswipe, opposite direction (from Worksheet 1D)	0.000	0.000	0.000
Driveway-related collisions (from Worksheet 1H)	0.000	0.000	0.000
Other multiple-vehicle collision (from Worksheet 1D)	0.001	0.004	0.005
Subtotal	0.022	0.057	0.079
SINGLE-VEHICLE			
Collision with animal (from Worksheet 1F)	0.000	0.001	0.001
Collision with fixed object (from Worksheet 1F)	0.001	0.011	0.012
Collision with other object (from Worksheet 1F)	0.000	0.000	0.000
Other single-vehicle collision (from Worksheet 1F)	0.001	0.001	0.003
Collision with pedestrian (from Worksheet 1I)	0.006	0.000	0.006
Collision with bicycle (from Worksheet 1J)	0.001	0.000	0.001
Subtotal	0.010	0.013	0.024
Total	0.032	0.070	0.103

Worksheet 1L -- Summary Results for Urban and Suburban Roadway Segments			
(1)	(2)	(3)	(4)
Crash Severity Level	**Predicted average crash frequency, $N_{predicted\ rs}$ (crashes/year)**	**Roadway segment length, L (mi)**	**Crash rate (crashes/mi/year)**
	(Total) from Worksheet 1K		(2) / (3)
Total	0.1	0.02	5.1
Fatal and injury (FI)	0.0	0.02	1.6
Property damage only (PDO)	0.1	0.02	3.5

Worksheet 2A -- General Information and Input Data for Urban and Suburban Arterial Intersections						
General Information				**Location Information**		
Analyst	TL			Roadway	MD 189 (Falls Road)	
Agency or Company	ATCS			Intersection	MD 189 at Great Falls Road	
Date Performed	12/07/21			Jurisdiction	Montgomery County	
				Analysis Year	2045	
Input Data				**Base Conditions**	**Site Conditions**	
Intersection type (3ST, 3SG, 4ST, 4SG)				--	4SG	
AADT $_{major}$ (veh/day)	$AADT_{MAX}$ =	67,700	(veh/day)	--	19,762	
AADT $_{minor}$ (veh/day)	$AADT_{MAX}$ =	33,400	(veh/day)	--	5,926	
Intersection lighting (present/not present)				Not Present	Present	
Calibration factor, C_i				1.00	1.00	
Data for unsignalized intersections only:				--	--	
Number of major-road approaches with left-turn lanes (0,1,2)				0	0	
Number of major-road approaches with right-turn lanes (0,1,2)				0	0	
Data for signalized intersections only:				--	--	
Number of approaches with left-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]				0	3	
Number of approaches with right-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]				0	1	
Number of approaches with left-turn signal phasing [for 3SG, use maximum value of 3]				--	1	
Type of left-turn signal phasing for Leg #1				Permissive	Permissive / Protected	
Type of left-turn signal phasing for Leg #2				--	Permissive	
Type of left-turn signal phasing for Leg #3				--	Permissive	
Type of left-turn signal phasing for Leg #4 (if applicable)				--	Permissive	
Number of approaches with right-turn-on-red prohibited [for 3SG, use maximum value of 3]				0	0	
Intersection red light cameras (present/not present)				Not Present	Not Present	
Sum of all pedestrian crossing volumes (PedVol) -- Signalized intersections only					491	
Maximum number of lanes crossed by a pedestrian (n_{lanesx})				--	6	
Number of bus stops within 300 m (1,000 ft) of the intersection				0	4	
Schools within 300 m (1,000 ft) of the intersection (present/not present)				Not Present	Not Present	
Number of alcohol sales establishments within 300 m (1,000 ft) of the intersection				0	0	

Worksheet 2B -- Crash Modification Factors for Urban and Suburban Arterial Intersections						
(1)	(2)	(3)	(4)	(5)	(6)	(7)
CMF for Left-Turn Lanes	CMF for Left-Turn Signal Phasing	CMF for Right-Turn Lanes	CMF for Right Turn on Red	CMF for Lighting	CMF for Red Light Cameras	Combined CMF
CMF 1i	*CMF 2i*	*CMF 3i*	*CMF 4i*	*CMF 5i*	*CMF 6i*	*CMF $_{COMB}$*
from Table 12-24	from Table 12-25	from Table 12-26	from Equation 12-35	from Equation 12-36	from Equation 12-37	(1)*(2)*(3)*(4)*(5)*(6)
0.73	0.99	0.96	1.00	0.91	1.00	0.63

Worksheet 2C -- Multiple-Vehicle Collisions by Severity Level for Urban and Suburban Arterial Intersections

(1)	(2)			(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**			**Overdispersion Parameter, k**	**Initial N_{bimv}**	**Proportion of Total Crashes**	**Adjusted N_{bimv}**	**Combined CMFs**	**Calibration Factor, C_i**	**Predicted N_{bimv}**
	from Table 12-10			from Table 12-10	from Equation 12-21		$(4)_{TOTAL}$*(5)	(7) from Worksheet 2B		(6)*(7)*(8)
	a	b	c							
Total	-10.99	1.07	0.23	0.39	4.913	1.000	4.913	0.63	1.00	3.104
Fatal and Injury (FI)	-13.14	1.18	0.22	0.33	1.558	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.329	1.618	0.63	1.00	1.022
Property Damage Only (PDO)	-11.02	1.02	0.24	0.44	3.172	$(5)_{TOTAL}-(5)_{FI}$ = 0.671	3.295	0.63	1.00	2.082

Worksheet 2D -- Multiple-Vehicle Collisions by Collision Type for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{bimv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{bimv\ (PDO)}$ (crashes/year)**	**Predicted N $_{bimv\ (TOTAL)}$ (crashes/year)**
	from Table 12-11	$(9)_{FI}$ from Worksheet 2C	from Table 12-11	$(9)_{PDO}$ from Worksheet 2C	$(9)_{PDO}$ from Worksheet 2C
Total	1.000	1.022	1.000	2.082	3.104
		(2)*$(3)_{FI}$		(4)*$(5)_{PDO}$	(3)+(5)
Rear-end collision	0.450	0.460	0.483	1.006	1.466
Head-on collision	0.049	0.050	0.030	0.062	0.113
Angle collision	0.347	0.355	0.244	0.508	0.863
Sideswipe	0.099	0.101	0.032	0.067	0.168
Other multiple-vehicle collision	0.055	0.056	0.211	0.439	0.496

Worksheet 2E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Arterial Intersections

(1)	(2)			(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**			**Overdispersion Parameter, k**	**Initial N_{bisv}**	**Proportion of Total Crashes**	**Adjusted N_{bimv}**	**Combined CMFs**	**Calibration Factor, C_i**	**Predicted N_{bisv}**
	from Table 12-12			from Table 12-12	from Eqn. 12-24; (FI) from Eqn. 12-24 or 12-27		$(4)_{TOTAL}$*(5)	(7) from Worksheet 2B		(6)*(7)*(8)
	a	b	c							
Total	-10.21	0.68	0.27	0.36	0.320	1.000	0.320	0.63	1.00	0.202
Fatal and Injury (FI)	-9.25	0.43	0.29	0.09	0.084	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.264	0.085	0.63	1.00	0.053
Property Damage Only (PDO)	-11.34	0.78	0.25	0.44	0.234	$(5)_{TOTAL}-(5)_{FI}$ = 0.736	0.236	0.63	1.00	0.149

Worksheet 2F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{bisv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{bisv\ (PDO)}$ (crashes/year)**	**Predicted N $_{bisv\ (TOTAL)}$ (crashes/year)**
	from Table 12-13	(9)$_{FI}$ from Worksheet 2E	from Table 12-13	(9)$_{PDO}$ from Worksheet 2E	(9)$_{PDO}$ from Worksheet 2E
Total	1.000	0.053	1.000	0.149	0.202
		(2)*(3)$_{FI}$		(4)*(5)$_{PDO}$	(3)+(5)
Collision with parked vehicle	0.001	0.000	0.001	0.000	0.000
Collision with animal	0.002	0.000	0.002	0.000	0.000
Collision with fixed object	0.744	0.040	0.870	0.130	0.169
Collision with other object	0.072	0.004	0.070	0.010	0.014
Other single-vehicle collision	0.040	0.002	0.023	0.003	0.006
Single-vehicle noncollision	0.141	0.008	0.034	0.005	0.013

Worksheet 2G -- Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Stop-Controlled Intersections

(1)	(2)	(3)	(4)	(5)	(7)*
Crash Severity Level	**Predicted N_{bimv}**	**Predicted N_{bisv}**	**Predicted N_{bi}**	**f_{pedi}**	**Predicted N_{pedi}**
	(9) from Worksheet 2C	(9) from Worksheet 2E	(2) + (3)	from Table 12-16	(4)*(5)
Total	--	--	--	--	--
Fatal and injury (FI)	--	--	--	--	--

* Column 6 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-30

Worksheet 2H -- Crash Modification Factors for Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Signalized Intersections

(1)	(2)	(3)	(4)
CMF for Bus Stops	CMF for Schools	CMF for Alcohol Sales Establishments	Combined CMF
CMF_{1p}	CMF_{2p}	CMF_{3p}	
from Table 12-28	from Table 12-29	from Table 12-30	(1)*(2)*(3)
4.15	1.00	1.00	4.15

Worksheet 2I -- Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Signalized Intersections

(1)	(2)					(3)	(4)	(5)	(6)	(7)
Crash Severity Level	**SPF Coefficients**					**Overdispersion Parameter, k**	**$N_{pedbase}$**	**Combined CMF**	**Calibration factor, C_i**	**Predicted N_{pedi}**
	from Table 12-14						from Equation 12-29	(4) from Worksheet 2H		(4)*(5)*(6)
	a	b	c	d	e					
Total	-9.53	0.40	0.26	0.45	0.04	0.24	0.064	4.15	1.00	0.264
Fatal and Injury (FI)	--	--	--	--	--	--	--	--	1.00	0.264

Worksheet 2J -- Vehicle-Bicycle Collisions for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(7)*
Crash Severity Level	**Predicted N_{bimv}**	**Predicted N_{bisv}**	**Predicted N_{bi}**	**f_{bikei}**	**Predicted N_{bikei}**
	(9) from Worksheet 2C	(9) from Worksheet 2E	(2) + (3)	from Table 12-17	(4)*(5)
Total	3.104	0.202	3.307	0.015	0.050
Fatal and injury (FI)	--	--	--	--	0.050

* Column 6 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-31

Worksheet 2K -- Crash Severity Distribution for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)
	Fatal and injury (FI)	**Property damage only (PDO)**	**Total**
Collision type	(3) from Worksheet 2D and 2F; (7) from 2G or 2I and 2J	(5) from Worksheet 2D and 2F	(6) from Worksheet 2D and 2F; (7) from 2G or 2I and 2J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 2D)	0.460	1.006	1.466
Head-on collisions (from Worksheet 2D)	0.050	0.062	0.113
Angle collisions (from Worksheet 2D)	0.355	0.508	0.863
Sideswipe (from Worksheet 2D)	0.101	0.067	0.168
Other multiple-vehicle collision (from Worksheet 2D)	0.056	0.439	0.496
Subtotal	1.022	2.082	3.104
SINGLE-VEHICLE			
Collision with parked vehicle (from Worksheet 2F)	0.000	0.000	0.000
Collision with animal (from Worksheet 2F)	0.000	0.000	0.000
Collision with fixed object (from Worksheet 2F)	0.040	0.130	0.169
Collision with other object (from Worksheet 2F)	0.004	0.010	0.014
Other single-vehicle collision (from Worksheet 2F)	0.002	0.003	0.006
Single-vehicle noncollision (from Worksheet 2F)	0.008	0.005	0.013
Collision with pedestrian (from Worksheet 2G or 2I)	0.264	0.000	0.264
Collision with bicycle (from Worksheet 2J)	0.050	0.000	0.050
Subtotal	0.368	0.149	0.516
Total	1.390	2.231	3.621

Worksheet 2L -- Summary Results for Urban and Suburban Arterial Intersections

(1)	(2)
Crash severity level	**Predicted average crash frequency, $N_{predicted\ int}$ (crashes/year)**
	(Total) from Worksheet 2K
Total	3.6
Fatal and injury (FI)	1.4
Property damage only (PDO)	2.2

Worksheet 2A -- General Information and Input Data for Urban and Suburban Arterial Intersections						
General Information				**Location Information**		
Analyst	TL			Roadway	MD 190 River Road	
Agency or Company	ATCS			Intersection	At Seven Locks Road	
Date Performed	12/07/21			Jurisdiction	Montgomery County	
				Analysis Year	2045	
Input Data				**Base Conditions**	**Site Conditions**	
Intersection type (3ST, 3SG, 4ST, 4SG)				--	4SG	
AADT $_{major}$ (veh/day)	$AADT_{MAX}$ =	67,700	(veh/day)	--	23,812	
AADT $_{minor}$ (veh/day)	$AADT_{MAX}$ =	33,400	(veh/day)	--	12,567	
Intersection lighting (present/not present)				Not Present	Present	
Calibration factor, C_i				1.00	1.00	
Data for unsignalized intersections only:				--	--	
Number of major-road approaches with left-turn lanes (0,1,2)				0	0	
Number of major-road approaches with right-turn lanes (0,1,2)				0	0	
Data for signalized intersections only:				--	--	
Number of approaches with left-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]				0	4	
Number of approaches with right-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]				0	2	
Number of approaches with left-turn signal phasing [for 3SG, use maximum value of 3]				--	3	
Type of left-turn signal phasing for Leg #1				Permissive	Permissive	
Type of left-turn signal phasing for Leg #2				--	Permissive / Protected	
Type of left-turn signal phasing for Leg #3				--	Protected	
Type of left-turn signal phasing for Leg #4 (if applicable)				--	Protected	
Number of approaches with right-turn-on-red prohibited [for 3SG, use maximum value of 3]				0	0	
Intersection red light cameras (present/not present)				Not Present	Not Present	
Sum of all pedestrian crossing volumes (PedVol) -- Signalized intersections only					44	
Maximum number of lanes crossed by a pedestrian (n_{lanesx})				--	6	
Number of bus stops within 300 m (1,000 ft) of the intersection				0	4	
Schools within 300 m (1,000 ft) of the intersection (present/not present)				Not Present	Not Present	
Number of alcohol sales establishments within 300 m (1,000 ft) of the intersection				0	0	

Worksheet 2B -- Crash Modification Factors for Urban and Suburban Arterial Intersections						
(1)	(2)	(3)	(4)	(5)	(6)	(7)
CMF for Left-Turn Lanes	CMF for Left-Turn Signal Phasing	CMF for Right-Turn Lanes	CMF for Right Turn on Red	CMF for Lighting	CMF for Red Light Cameras	Combined CMF
CMF 1i	*CMF 2i*	*CMF 3i*	*CMF 4i*	*CMF 5i*	*CMF 6i*	*CMF $_{COMB}$*
from Table 12-24	from Table 12-25	from Table 12-26	from Equation 12-35	from Equation 12-36	from Equation 12-37	(1)*(2)*(3)*(4)*(5)*(6)
0.66	0.87	0.92	1.00	0.91	1.00	0.48

Worksheet 2C -- Multiple-Vehicle Collisions by Severity Level for Urban and Suburban Arterial Intersections

(1)	(2)			(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**			**Overdispersion Parameter, k**	**Initial N_{bimv}**	**Proportion of Total Crashes**	**Adjusted N_{bimv}**	**Combined CMFs**	**Calibration Factor, C_i**	**Predicted N_{bimv}**
	from Table 12-10			from Table 12-10	from Equation 12-21		$(4)_{TOTAL}$*(5)	(7) from Worksheet 2B		(6)*(7)*(8)
	a	b	c							
Total	-10.99	1.07	0.23	0.39	7.130	1.000	7.130	0.48	1.00	3.455
Fatal and Injury (FI)	-13.14	1.18	0.22	0.33	2.290	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ 0.333	2.372	0.48	1.00	1.149
Property Damage Only (PDO)	-11.02	1.02	0.24	0.44	4.594	$(5)_{TOTAL}-(5)_{FI}$ 0.667	4.758	0.48	1.00	2.306

Worksheet 2D -- Multiple-Vehicle Collisions by Collision Type for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{bimv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{bimv\ (PDO)}$ (crashes/year)**	**Predicted N $_{bimv\ (TOTAL)}$ (crashes/year)**
	from Table 12-11	$(9)_{FI}$ from Worksheet 2C	from Table 12-11	$(9)_{PDO}$ from Worksheet 2C	$(9)_{PDO}$ from Worksheet 2C
Total	1.000	1.149	1.000	2.306	3.455
		(2)*$(3)_{FI}$		(4)*$(5)_{PDO}$	(3)+(5)
Rear-end collision	0.450	0.517	0.483	1.114	1.631
Head-on collision	0.049	0.056	0.030	0.069	0.125
Angle collision	0.347	0.399	0.244	0.563	0.961
Sideswipe	0.099	0.114	0.032	0.074	0.188
Other multiple-vehicle collision	0.055	0.063	0.211	0.487	0.550

Worksheet 2E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Arterial Intersections

(1)	(2)			(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**			**Overdispersion Parameter, k**	**Initial N_{bisv}**	**Proportion of Total Crashes**	**Adjusted N_{bimv}**	**Combined CMFs**	**Calibration Factor, C_i**	**Predicted N_{bisv}**
	from Table 12-12			from Table 12-12	from Eqn. 12-24; (FI) from Eqn. 12-24 or 12-27		$(4)_{TOTAL}$*(5)	(7) from Worksheet 2B		(6)*(7)*(8)
	a	b	c							
Total	-10.21	0.68	0.27	0.36	0.446	1.000	0.446	0.48	1.00	0.216
Fatal and Injury (FI)	-9.25	0.43	0.29	0.09	0.113	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ 0.257	0.115	0.48	1.00	0.056
Property Damage Only (PDO)	-11.34	0.78	0.25	0.44	0.326	$(5)_{TOTAL}-(5)_{FI}$ 0.743	0.331	0.48	1.00	0.160

Worksheet 2F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{bisv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{bisv\ (PDO)}$ (crashes/year)**	**Predicted N $_{bisv\ (TOTAL)}$ (crashes/year)**
	from Table 12-13	(9)$_{FI}$ from Worksheet 2E	from Table 12-13	(9)$_{PDO}$ from Worksheet 2E	(9)$_{PDO}$ from Worksheet 2E
Total	1.000	0.056	1.000	0.160	0.216
		(2)*(3)$_{FI}$		(4)*(5)$_{PDO}$	(3)+(5)
Collision with parked vehicle	0.001	0.000	0.001	0.000	0.000
Collision with animal	0.002	0.000	0.002	0.000	0.000
Collision with fixed object	0.744	0.041	0.870	0.139	0.181
Collision with other object	0.072	0.004	0.070	0.011	0.015
Other single-vehicle collision	0.040	0.002	0.023	0.004	0.006
Single-vehicle noncollision	0.141	0.008	0.034	0.005	0.013

Worksheet 2G -- Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Stop-Controlled Intersections

(1)	(2)	(3)	(4)	(5)	(7)*
Crash Severity Level	**Predicted N_{bimv}**	**Predicted N_{bisv}**	**Predicted N_{bi}**	**f_{pedi}**	**Predicted N_{pedi}**
	(9) from Worksheet 2C	(9) from Worksheet 2E	(2) + (3)	from Table 12-16	(4)*(5)
Total	--	--	--	--	--
Fatal and injury (FI)	--	--	--	--	--

* Column 6 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-30

Worksheet 2H -- Crash Modification Factors for Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Signalized Intersections

(1)	(2)	(3)	(4)
CMF for Bus Stops	CMF for Schools	CMF for Alcohol Sales Establishments	Combined CMF
CMF_{1p}	CMF_{2p}	CMF_{3p}	
from Table 12-28	from Table 12-29	from Table 12-30	(1)*(2)*(3)
4.15	1.00	1.00	4.15

Worksheet 2I -- Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Signalized Intersections

(1)	(2)					(3)	(4)	(5)	(6)	(7)
Crash Severity Level	**SPF Coefficients**					**Overdispersion Parameter, k**	**$N_{pedbase}$**	**Combined CMF**	**Calibration factor, C_i**	**Predicted N_{pedi}**
	from Table 12-14						from Equation 12-29	(4) from Worksheet 2H		(4)*(5)*(6)
	a	b	c	d	e					
Total	-9.53	0.40	0.26	0.45	0.04	0.24	0.029	4.15	1.00	0.119
Fatal and Injury (FI)	--	--	--	--	--	--	--	--	1.00	0.119

Worksheet 2J -- Vehicle-Bicycle Collisions for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(7)*
Crash Severity Level	**Predicted N_{bimv}**	**Predicted N_{bisv}**	**Predicted N_{bi}**	**f_{bikei}**	**Predicted N_{bikei}**
	(9) from Worksheet 2C	(9) from Worksheet 2E	(2) + (3)	from Table 12-17	(4)*(5)
Total	3.455	0.216	3.671	0.015	0.055
Fatal and injury (FI)	--	--	--	--	0.055

* Column 6 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-31

Worksheet 2K -- Crash Severity Distribution for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)
	Fatal and injury (FI)	**Property damage only (PDO)**	**Total**
Collision type	(3) from Worksheet 2D and 2F; (7) from 2G or 2I and 2J	(5) from Worksheet 2D and 2F	(6) from Worksheet 2D and 2F; (7) from 2G or 2I and 2J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 2D)	0.517	1.114	1.631
Head-on collisions (from Worksheet 2D)	0.056	0.069	0.125
Angle collisions (from Worksheet 2D)	0.399	0.563	0.961
Sideswipe (from Worksheet 2D)	0.114	0.074	0.188
Other multiple-vehicle collision (from Worksheet 2D)	0.063	0.487	0.550
Subtotal	1.149	2.306	3.455
SINGLE-VEHICLE			
Collision with parked vehicle (from Worksheet 2F)	0.000	0.000	0.000
Collision with animal (from Worksheet 2F)	0.000	0.000	0.000
Collision with fixed object (from Worksheet 2F)	0.041	0.139	0.181
Collision with other object (from Worksheet 2F)	0.004	0.011	0.015
Other single-vehicle collision (from Worksheet 2F)	0.002	0.004	0.006
Single-vehicle noncollision (from Worksheet 2F)	0.008	0.005	0.013
Collision with pedestrian (from Worksheet 2G or 2I)	0.119	0.000	0.119
Collision with bicycle (from Worksheet 2J)	0.055	0.000	0.055
Subtotal	0.230	0.160	0.390
Total	1.379	2.466	3.845

Worksheet 2L -- Summary Results for Urban and Suburban Arterial Intersections

(1)	(2)
Crash severity level	**Predicted average crash frequency, $N_{predicted\ int}$ (crashes/year)**
	(Total) from Worksheet 2K
Total	3.8
Fatal and injury (FI)	1.4
Property damage only (PDO)	2.5

Worksheet 1A -- General Information and Input Data for Urban and Suburban Roadway Segments

General Information		Location Information	
Analyst	TL	Roadway	MD 190 River Road
Agency or Company	ATCS	Roadway Section	Seven Locks Road to I-495 SB Terminal
Date Performed	12/07/21	Jurisdiction	Montgomery County
		Analysis Year	2045

Input Data		Base Conditions	Site Conditions
Roadway type (2U, 3T, 4U, 4D, ST)		--	4D
Length of segment, L (mi)		--	0.09
AADT (veh/day)	$AADT_{MAX}$ = 66,000 (veh/day)	--	24,393
Type of on-street parking (none/parallel/angle)		None	None
Proportion of curb length with on-street parking		--	0
Median width (ft) - for divided only		15	15
Lighting (present / not present)		Not Present	Present
Auto speed enforcement (present / not present)		Not Present	Not Present
Major commercial driveways (number)		--	0
Minor commercial driveways (number)		--	0
Major industrial / institutional driveways (number)		--	0
Minor industrial / institutional driveways (number)		--	0
Major residential driveways (number)		--	0
Minor residential driveways (number)		--	1
Other driveways (number)		--	0
Speed Category		--	Posted Speed Greater than 30 mph
Roadside fixed object density (fixed objects / mi)		0	44
Offset to roadside fixed objects (ft) [If greater than 30 or Not Present, input 30]		30	8
Calibration Factor, Cr		1.00	1.00

Worksheet 1B -- Crash Modification Factors for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
CMF for On-Street Parking	CMF for Roadside Fixed Objects	CMF for Median Width	CMF for Lighting	CMF for Automated Speed Enforcement	Combined CMF
CMF 1r	*CMF 2r*	*CMF 3r*	*CMF 4r*	*CMF 5r*	*CMF comb*
from Equation 12-32	from Equation 12-33	from Table 12-22	from Equation 12-34	from Section 12.7.1	(1)*(2)*(3)*(4)*(5)
1.00	1.12	1.00	0.91	1.00	1.03

Worksheet 1C -- Multiple-Vehicle Nondriveway Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brmv}**	**Proportion of Total Crashes**	**Adjusted N_{brmv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brmv}**
	from Table 12-3		from Table 12-3	from Equation 12-10		$(4)_{TOTAL}$*(5)	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-12.34	1.36	1.32	0.365	1.000	0.365	1.03	1.00	0.374
Fatal and Injury (FI)	-12.76	1.28	1.31	0.107	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.277	0.101	1.03	1.00	0.104
Property Damage Only (PDO)	-12.81	1.38	1.34	0.279	$(5)_{TOTAL}-(5)_{FI}$ = 0.723	0.264	1.03	1.00	0.271

Worksheet 1D -- Multiple-Vehicle Nondriveway Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brmv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brmv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brmv\ (TOTAL)}$ (crashes/year)**
	from Table 12-4	$(9)_{FI}$ from Worksheet 1C	from Table 12-4	$(9)_{PDO}$ from Worksheet 1C	$(9)_{TOTAL}$ from Worksheet 1C
Total	1.000	0.104	1.000	0.271	0.374
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Rear-end collision	0.832	0.086	0.662	0.179	0.265
Head-on collision	0.020	0.002	0.007	0.002	0.004
Angle collision	0.040	0.004	0.036	0.010	0.014
Sideswipe, same direction	0.050	0.005	0.223	0.060	0.066
Sideswipe, opposite direction	0.010	0.001	0.001	0.000	0.001
Other multiple-vehicle collision	0.048	0.005	0.071	0.019	0.024

Worksheet 1E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brsv}**	**Proportion of Total Crashes**	**Adjusted N_{brsv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brsv}**
	from Table 12-5		from Table 12-5	from Equation 12-13		$(4)_{TOTAL}*(5)$	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-5.05	0.47	0.86	0.067	1.000	0.067	1.03	1.00	0.068
Fatal and Injury (FI)	-8.71	0.66	0.28	0.012	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.175	0.012	1.03	1.00	0.012
Property Damage Only (PDO)	-5.04	0.45	1.06	0.055	$(5)_{TOTAL}-(5)_{FI}$ = 0.825	0.055	1.03	1.00	0.056

Worksheet 1F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brsv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brsv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brsv\ (TOTAL)}$ (crashes/year)**
	from Table 12-6	$(9)_{FI}$ from Worksheet 1E	from Table 12-6	$(9)_{PDO}$ from Worksheet 1E	$(9)_{TOTAL}$ from Worksheet 1E
Total	1.000	0.012	1.000	0.056	0.068
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Collision with animal	0.001	0.000	0.063	0.004	0.004
Collision with fixed object	0.500	0.006	0.813	0.046	0.052
Collision with other object	0.028	0.000	0.016	0.001	0.001
Other single-vehicle collision	0.471	0.006	0.108	0.006	0.012

Worksheet 1G -- Multiple-Vehicle Driveway-Related Collisions by Driveway Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Driveway Type	**Number of driveways, n_j**	**Crashes per driveway per year, N_j**	**Coefficient for traffic adjustment, t**	**Initial N_{brdwy}**	**Overdispersion parameter, k**
		from Table 12-7	from Table 12-7	Equation 12-16 $n_j * N_j * (AADT/15,000)^t$	from Table 12-7
Major commercial	0	0.033	1.106	0.000	
Minor commercial	0	0.011	1.106	0.000	
Major industrial/institutional	0	0.036	1.106	0.000	
Minor industrial/institutional	0	0.005	1.106	0.000	--
Major residential	0	0.018	1.106	0.000	
Minor residential	1	0.003	1.106	0.005	
Other	0	0.005	1.106	0.000	
Total	--	--	--	0.005	1.39

Worksheet 1H -- Multiple-Vehicle Driveway-Related Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Crash Severity Level	**Initial N_{brdwy}**	**Proportion of total crashes (f_{dwy})**	**Adjusted N_{brdwy}**	**Combined CMFs**	**Calibration factor, C_r**	**Predicted N_{brdwy}**
	$(5)_{TOTAL}$ from Worksheet 1G	from Table 12-7	$(2)_{TOTAL}$ * (3)	(6) from Worksheet 1B		(4)*(5)*(6)
Total	0.005	1.000	0.005	1.03	1.00	0.005
Fatal and injury (FI)	--	0.284	0.001	1.03	1.00	0.001
Property damage only (PDO)	--	0.716	0.004	1.03	1.00	0.004

Worksheet 1I -- Vehicle-Pedestrian Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(8)*
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{pedr}**	**Predicted N_{pedr}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-8	(5)*(6)
Total	0.374	0.068	0.005	0.448	0.019	0.009
Fatal and injury (FI)	--	--	--	--	--	0.009

* Column 7 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-19

Worksheet 1J -- Vehicle-Bicycle Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(8)*
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{biker}**	**Predicted N_{biker}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-9	(5)*(6)
Total	0.374	0.068	0.005	0.448	0.005	0.002
Fatal and injury (FI)	--	--	--	--	--	0.002

* Column 7 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-20

Worksheet 1K -- Crash Severity Distribution for Urban and Suburban Roadway Segments			
(1)	(2)	(3)	(4)
Collision type	**Fatal and injury (FI)**	**Property damage only (PDO)**	**Total**
	(3) from Worksheet 1D and 1F; (7) from Worksheet 1H; and (8) from Worksheet 1I and 1J	(5) from Worksheet 1D and 1F; and (7) from Worksheet 1H	(6) from Worksheet 1D and 1F; (7) from Worksheet 1H; and (8) from Worksheet 1I and 1J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 1D)	0.086	0.179	0.265
Head-on collisions (from Worksheet 1D)	0.002	0.002	0.004
Angle collisions (from Worksheet 1D)	0.004	0.010	0.014
Sideswipe, same direction (from Worksheet 1D)	0.005	0.060	0.066
Sideswipe, opposite direction (from Worksheet 1D)	0.001	0.000	0.001
Driveway-related collisions (from Worksheet 1H)	0.001	0.004	0.005
Other multiple-vehicle collision (from Worksheet 1D)	0.005	0.019	0.024
Subtotal	0.105	0.274	0.379
SINGLE-VEHICLE			
Collision with animal (from Worksheet 1F)	0.000	0.004	0.004
Collision with fixed object (from Worksheet 1F)	0.006	0.046	0.052
Collision with other object (from Worksheet 1F)	0.000	0.001	0.001
Other single-vehicle collision (from Worksheet 1F)	0.006	0.006	0.012
Collision with pedestrian (from Worksheet 1I)	0.009	0.000	0.009
Collision with bicycle (from Worksheet 1J)	0.002	0.000	0.002
Subtotal	0.023	0.056	0.079
Total	0.128	0.331	0.458

Worksheet 1L -- Summary Results for Urban and Suburban Roadway Segments			
(1)	(2)	(3)	(4)
Crash Severity Level	**Predicted average crash frequency, $N_{predicted\ rs}$ (crashes/year)**	**Roadway segment length, L (mi)**	**Crash rate (crashes/mi/year)**
	(Total) from Worksheet 1K		(2) / (3)
Total	0.5	0.09	5.1
Fatal and injury (FI)	0.1	0.09	1.4
Property damage only (PDO)	0.3	0.09	3.7

Worksheet 1A -- General Information and Input Data for Urban and Suburban Roadway Segments

General Information		Location Information	
Analyst	TL	Roadway	MD 190 River Road
Agency or Company	ATCS	Roadway Section	I-495 NB Terminal to Burdette Rd
Date Performed	12/07/21	Jurisdiction	Montgomery County
		Analysis Year	2045

Input Data		Base Conditions	Site Conditions
Roadway type (2U, 3T, 4U, 4D, ST)		--	4D
Length of segment, L (mi)		--	0.08
AADT (veh/day)	$AADT_{MAX}$ = 66,000 (veh/day)	--	55,443
Type of on-street parking (none/parallel/angle)		None	None
Proportion of curb length with on-street parking		--	0
Median width (ft) - for divided only		15	20
Lighting (present / not present)		Not Present	Present
Auto speed enforcement (present / not present)		Not Present	Not Present
Major commercial driveways (number)		--	0
Minor commercial driveways (number)		--	0
Major industrial / institutional driveways (number)		--	0
Minor industrial / institutional driveways (number)		--	0
Major residential driveways (number)		--	0
Minor residential driveways (number)		--	0
Other driveways (number)		--	0
Speed Category		--	Posted Speed Greater than 30 mph
Roadside fixed object density (fixed objects / mi)		0	25
Offset to roadside fixed objects (ft) [If greater than 30 or Not Present, input 30]		30	5
Calibration Factor, Cr		1.00	1.00

Worksheet 1B -- Crash Modification Factors for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
CMF for On-Street Parking	CMF for Roadside Fixed Objects	CMF for Median Width	CMF for Lighting	CMF for Automated Speed Enforcement	Combined CMF
CMF 1r	*CMF 2r*	*CMF 3r*	*CMF 4r*	*CMF 5r*	*CMF comb*
from Equation 12-32	from Equation 12-33	from Table 12-22	from Equation 12-34	from Section 12.7.1	(1)*(2)*(3)*(4)*(5)
1.00	1.08	0.99	0.91	1.00	0.98

Worksheet 1C -- Multiple-Vehicle Nondriveway Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brmv}**	**Proportion of Total Crashes**	**Adjusted N_{brmv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brmv}**
	from Table 12-3		from Table 12-3	from Equation 12-10		$(4)_{TOTAL}$*(5)	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-12.34	1.36	1.32	0.990	1.000	0.990	0.98	1.00	0.970
Fatal and Injury (FI)	-12.76	1.28	1.31	0.271	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.261	0.258	0.98	1.00	0.253
Property Damage Only (PDO)	-12.81	1.38	1.34	0.770	$(5)_{TOTAL}-(5)_{FI}$ = 0.739	0.732	0.98	1.00	0.717

Worksheet 1D -- Multiple-Vehicle Nondriveway Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brmv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brmv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brmv\ (TOTAL)}$ (crashes/year)**
	from Table 12-4	$(9)_{FI}$ from Worksheet 1C	from Table 12-4	$(9)_{PDO}$ from Worksheet 1C	$(9)_{TOTAL}$ from Worksheet 1C
Total	1.000	0.253	1.000	0.717	0.970
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Rear-end collision	0.832	0.210	0.662	0.475	0.685
Head-on collision	0.020	0.005	0.007	0.005	0.010
Angle collision	0.040	0.010	0.036	0.026	0.036
Sideswipe, same direction	0.050	0.013	0.223	0.160	0.173
Sideswipe, opposite direction	0.010	0.003	0.001	0.001	0.003
Other multiple-vehicle collision	0.048	0.012	0.071	0.051	0.063

Worksheet 1E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brsv}**	**Proportion of Total Crashes**	**Adjusted N_{brsv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brsv}**
	from Table 12-5		from Table 12-5	from Equation 12-13		$(4)_{TOTAL}*(5)$	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-5.05	0.47	0.86	0.087	1.000	0.087	0.98	1.00	0.085
Fatal and Injury (FI)	-8.71	0.66	0.28	0.018	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.202	0.018	0.98	1.00	0.017
Property Damage Only (PDO)	-5.04	0.45	1.06	0.071	$(5)_{TOTAL}-(5)_{FI}$ = 0.798	0.069	0.98	1.00	0.068

Worksheet 1F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brsv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brsv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brsv\ (TOTAL)}$ (crashes/year)**
	from Table 12-6	$(9)_{FI}$ from Worksheet 1E	from Table 12-6	$(9)_{PDO}$ from Worksheet 1E	$(9)_{TOTAL}$ from Worksheet 1E
Total	1.000	0.017	1.000	0.068	0.085
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Collision with animal	0.001	0.000	0.063	0.004	0.004
Collision with fixed object	0.500	0.009	0.813	0.055	0.064
Collision with other object	0.028	0.000	0.016	0.001	0.002
Other single-vehicle collision	0.471	0.008	0.108	0.007	0.015

Worksheet 1G -- Multiple-Vehicle Driveway-Related Collisions by Driveway Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Driveway Type	**Number of driveways, n_j**	**Crashes per driveway per year, N_j**	**Coefficient for traffic adjustment, t**	**Initial N_{brdwy}**	**Overdispersion parameter, k**
		from Table 12-7	from Table 12-7	Equation 12-16 $n_j * N_j * (AADT/15,000)^t$	from Table 12-7
Major commercial	0	0.033	1.106	0.000	
Minor commercial	0	0.011	1.106	0.000	
Major industrial/institutional	0	0.036	1.106	0.000	
Minor industrial/institutional	0	0.005	1.106	0.000	--
Major residential	0	0.018	1.106	0.000	
Minor residential	0	0.003	1.106	0.000	
Other	0	0.005	1.106	0.000	
Total	--	--	--	0.000	1.39

Worksheet 1H -- Multiple-Vehicle Driveway-Related Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Crash Severity Level	**Initial N_{brdwy}**	**Proportion of total crashes (f_{dwy})**	**Adjusted N_{brdwy}**	**Combined CMFs**	**Calibration factor, C_r**	**Predicted N_{brdwy}**
	$(5)_{TOTAL}$ from Worksheet 1G	from Table 12-7	$(2)_{TOTAL}$ * (3)	(6) from Worksheet 1B		(4)*(5)*(6)
Total	0.000	1.000	0.000	0.98	1.00	0.000
Fatal and injury (FI)	--	0.284	0.000	0.98	1.00	0.000
Property damage only (PDO)	--	0.716	0.000	0.98	1.00	0.000

Worksheet 1I -- Vehicle-Pedestrian Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(8)*
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{pedr}**	**Predicted N_{pedr}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-8	(5)*(6)
Total	0.970	0.085	0.000	1.056	0.019	0.020
Fatal and injury (FI)	--	--	--	--	--	0.020

* Column 7 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-19

Worksheet 1J -- Vehicle-Bicycle Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(8)*
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{biker}**	**Predicted N_{biker}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-9	(5)*(6)
Total	0.970	0.085	0.000	1.056	0.005	0.005
Fatal and injury (FI)	--	--	--	--	--	0.005

* Column 7 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-20

Worksheet 1K -- Crash Severity Distribution for Urban and Suburban Roadway Segments			
(1)	(2)	(3)	(4)
Collision type	**Fatal and injury (FI)**	**Property damage only (PDO)**	**Total**
	(3) from Worksheet 1D and 1F; (7) from Worksheet 1H; and (8) from Worksheet 1I and 1J	(5) from Worksheet 1D and 1F; and (7) from Worksheet 1H	(6) from Worksheet 1D and 1F; (7) from Worksheet 1H; and (8) from Worksheet 1I and 1J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 1D)	0.210	0.475	0.685
Head-on collisions (from Worksheet 1D)	0.005	0.005	0.010
Angle collisions (from Worksheet 1D)	0.010	0.026	0.036
Sideswipe, same direction (from Worksheet 1D)	0.013	0.160	0.173
Sideswipe, opposite direction (from Worksheet 1D)	0.003	0.001	0.003
Driveway-related collisions (from Worksheet 1H)	0.000	0.000	0.000
Other multiple-vehicle collision (from Worksheet 1D)	0.012	0.051	0.063
Subtotal	0.253	0.717	0.970
SINGLE-VEHICLE			
Collision with animal (from Worksheet 1F)	0.000	0.004	0.004
Collision with fixed object (from Worksheet 1F)	0.009	0.055	0.064
Collision with other object (from Worksheet 1F)	0.000	0.001	0.002
Other single-vehicle collision (from Worksheet 1F)	0.008	0.007	0.015
Collision with pedestrian (from Worksheet 1I)	0.020	0.000	0.020
Collision with bicycle (from Worksheet 1J)	0.005	0.000	0.005
Subtotal	0.043	0.068	0.111
Total	0.295	0.785	1.081

Worksheet 1L -- Summary Results for Urban and Suburban Roadway Segments			
(1)	(2)	(3)	(4)
Crash Severity Level	**Predicted average crash frequency, $N_{predicted\ rs}$ (crashes/year)**	**Roadway segment length, L (mi)**	**Crash rate (crashes/mi/year)**
	(Total) from Worksheet 1K		(2) / (3)
Total	1.1	0.08	13.5
Fatal and injury (FI)	0.3	0.08	3.7
Property damage only (PDO)	0.8	0.08	9.8

Worksheet 2A -- General Information and Input Data for Urban and Suburban Arterial Intersections						
General Information				**Location Information**		
Analyst	TL			Roadway	MD 190 River Road	
Agency or Company	ATCS			Intersection	At Burdette Road	
Date Performed	12/07/21			Jurisdiction	Montgomery County	
				Analysis Year	2045	
Input Data				**Base Conditions**	**Site Conditions**	
Intersection type (3ST, 3SG, 4ST, 4SG)				--	4SG	
AADT $_{major}$ (veh/day)	$AADT_{MAX}$ =	67,700	(veh/day)	--	55,069	
AADT $_{minor}$ (veh/day)	$AADT_{MAX}$ =	33,400	(veh/day)	--	4,379	
Intersection lighting (present/not present)				Not Present	Present	
Calibration factor, C_i				1.00	1.00	
Data for unsignalized intersections only:				--	--	
Number of major-road approaches with left-turn lanes (0,1,2)				0	0	
Number of major-road approaches with right-turn lanes (0,1,2)				0	0	
Data for signalized intersections only:				--	--	
Number of approaches with left-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]				0	2	
Number of approaches with right-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]				0	2	
Number of approaches with left-turn signal phasing [for 3SG, use maximum value of 3]				--	2	
Type of left-turn signal phasing for Leg #1				Permissive	Permissive / Protected	
Type of left-turn signal phasing for Leg #2				--	Permissive / Protected	
Type of left-turn signal phasing for Leg #3				--	Permissive	
Type of left-turn signal phasing for Leg #4 (if applicable)				--	Permissive	
Number of approaches with right-turn-on-red prohibited [for 3SG, use maximum value of 3]				0	0	
Intersection red light cameras (present/not present)				Not Present	Not Present	
Sum of all pedestrian crossing volumes (PedVol) -- Signalized intersections only					140	
Maximum number of lanes crossed by a pedestrian (n_{lanesx})				--	7	
Number of bus stops within 300 m (1,000 ft) of the intersection				0	3	
Schools within 300 m (1,000 ft) of the intersection (present/not present)				Not Present	Not Present	
Number of alcohol sales establishments within 300 m (1,000 ft) of the intersection				0	0	

Worksheet 2B -- Crash Modification Factors for Urban and Suburban Arterial Intersections						
(1)	(2)	(3)	(4)	(5)	(6)	(7)
CMF for Left-Turn Lanes	CMF for Left-Turn Signal Phasing	CMF for Right-Turn Lanes	CMF for Right Turn on Red	CMF for Lighting	CMF for Red Light Cameras	Combined CMF
CMF 1i	*CMF 2i*	*CMF 3i*	*CMF 4i*	*CMF 5i*	*CMF 6i*	*CMF $_{COMB}$*
from Table 12-24	from Table 12-25	from Table 12-26	from Equation 12-35	from Equation 12-36	from Equation 12-37	(1)*(2)*(3)*(4)*(5)*(6)
0.81	0.98	0.92	1.00	0.91	1.00	0.67

Worksheet 2C -- Multiple-Vehicle Collisions by Severity Level for Urban and Suburban Arterial Intersections

(1)	(2)			(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**			**Overdispersion Parameter, k**	**Initial N_{bimv}**	**Proportion of Total Crashes**	**Adjusted N_{bimv}**	**Combined CMFs**	**Calibration Factor, C_i**	**Predicted N_{bimv}**
	from Table 12-10			from Table 12-10	from Equation 12-21		$(4)_{TOTAL}$*(5)	(7) from Worksheet 2B		(6)*(7)*(8)
	a	b	c							
Total	-10.99	1.07	0.23	0.39	13.721	1.000	13.721	0.67	1.00	9.142
Fatal and Injury (FI)	-13.14	1.18	0.22	0.33	4.884	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ 0.368	5.049	0.67	1.00	3.364
Property Damage Only (PDO)	-11.02	1.02	0.24	0.44	8.389	$(5)_{TOTAL}-(5)_{FI}$ 0.632	8.673	0.67	1.00	5.779

Worksheet 2D -- Multiple-Vehicle Collisions by Collision Type for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{bimv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{bimv\ (PDO)}$ (crashes/year)**	**Predicted N $_{bimv\ (TOTAL)}$ (crashes/year)**
	from Table 12-11	$(9)_{FI}$ from Worksheet 2C	from Table 12-11	$(9)_{PDO}$ from Worksheet 2C	$(9)_{PDO}$ from Worksheet 2C
Total	1.000	3.364	1.000	5.779	9.142
		(2)*$(3)_{FI}$		(4)*$(5)_{PDO}$	(3)+(5)
Rear-end collision	0.450	1.514	0.483	2.791	4.305
Head-on collision	0.049	0.165	0.030	0.173	0.338
Angle collision	0.347	1.167	0.244	1.410	2.577
Sideswipe	0.099	0.333	0.032	0.185	0.518
Other multiple-vehicle collision	0.055	0.185	0.211	1.219	1.404

Worksheet 2E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Arterial Intersections

(1)	(2)			(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**			**Overdispersion Parameter, k**	**Initial N_{bisv}**	**Proportion of Total Crashes**	**Adjusted N_{bimv}**	**Combined CMFs**	**Calibration Factor, C_i**	**Predicted N_{bisv}**
	from Table 12-12			from Table 12-12	from Eqn. 12-24; (FI) from Eqn. 12-24 or 12-27		$(4)_{TOTAL}$*(5)	(7) from Worksheet 2B		(6)*(7)*(8)
	a	b	c							
Total	-10.21	0.68	0.27	0.36	0.593	1.000	0.593	0.67	1.00	0.395
Fatal and Injury (FI)	-9.25	0.43	0.29	0.09	0.119	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ 0.199	0.118	0.67	1.00	0.078
Property Damage Only (PDO)	-11.34	0.78	0.25	0.44	0.482	$(5)_{TOTAL}-(5)_{FI}$ 0.801	0.475	0.67	1.00	0.317

Worksheet 2F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{bisv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{bisv\ (PDO)}$ (crashes/year)**	**Predicted N $_{bisv\ (TOTAL)}$ (crashes/year)**
	from Table 12-13	(9)$_{FI}$ from Worksheet 2E	from Table 12-13	(9)$_{PDO}$ from Worksheet 2E	(9)$_{PDO}$ from Worksheet 2E
Total	1.000	0.078	1.000	0.317	0.395
		(2)*(3)$_{FI}$		(4)*(5)$_{PDO}$	(3)+(5)
Collision with parked vehicle	0.001	0.000	0.001	0.000	0.000
Collision with animal	0.002	0.000	0.002	0.001	0.001
Collision with fixed object	0.744	0.058	0.870	0.275	0.334
Collision with other object	0.072	0.006	0.070	0.022	0.028
Other single-vehicle collision	0.040	0.003	0.023	0.007	0.010
Single-vehicle noncollision	0.141	0.011	0.034	0.011	0.022

Worksheet 2G -- Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Stop-Controlled Intersections

(1)	(2)	(3)	(4)	(5)	(7)*
Crash Severity Level	**Predicted N_{bimv}**	**Predicted N_{bisv}**	**Predicted N_{bi}**	**f_{pedi}**	**Predicted N_{pedi}**
	(9) from Worksheet 2C	(9) from Worksheet 2E	(2) + (3)	from Table 12-16	(4)*(5)
Total	--	--	--	--	--
Fatal and injury (FI)	--	--	--	--	--

* Column 6 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-30

Worksheet 2H -- Crash Modification Factors for Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Signalized Intersections

(1)	(2)	(3)	(4)
CMF for Bus Stops	CMF for Schools	CMF for Alcohol Sales Establishments	Combined CMF
CMF_{1p}	CMF_{2p}	CMF_{3p}	
from Table 12-28	from Table 12-29	from Table 12-30	(1)*(2)*(3)
4.15	1.00	1.00	4.15

Worksheet 2I -- Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Signalized Intersections

(1)	(2)					(3)	(4)	(5)	(6)	(7)
Crash Severity Level	**SPF Coefficients**					**Overdispersion Parameter, k**	**$N_{pedbase}$**	**Combined CMF**	**Calibration factor, C_i**	**Predicted N_{pedi}**
	from Table 12-14						from Equation 12-29	(4) from Worksheet 2H		(4)*(5)*(6)
	a	b	c	d	e					
Total	-9.53	0.40	0.26	0.45	0.04	0.24	0.037	4.15	1.00	0.155
Fatal and Injury (FI)	--	--	--	--	--	--	--	--	1.00	0.155

Worksheet 2J -- Vehicle-Bicycle Collisions for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(7)*
Crash Severity Level	**Predicted N_{bimv}**	**Predicted N_{bisv}**	**Predicted N_{bi}**	**f_{bikei}**	**Predicted N_{bikei}**
	(9) from Worksheet 2C	(9) from Worksheet 2E	(2) + (3)	from Table 12-17	(4)*(5)
Total	9.142	0.395	9.537	0.015	0.143
Fatal and injury (FI)	--	--	--	--	0.143

* Column 6 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-31

Worksheet 2K -- Crash Severity Distribution for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)
	Fatal and injury (FI)	**Property damage only (PDO)**	**Total**
Collision type	(3) from Worksheet 2D and 2F; (7) from 2G or 2I and 2J	(5) from Worksheet 2D and 2F	(6) from Worksheet 2D and 2F; (7) from 2G or 2I and 2J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 2D)	1.514	2.791	4.305
Head-on collisions (from Worksheet 2D)	0.165	0.173	0.338
Angle collisions (from Worksheet 2D)	1.167	1.410	2.577
Sideswipe (from Worksheet 2D)	0.333	0.185	0.518
Other multiple-vehicle collision (from Worksheet 2D)	0.185	1.219	1.404
Subtotal	3.364	5.779	9.142
SINGLE-VEHICLE			
Collision with parked vehicle (from Worksheet 2F)	0.000	0.000	0.000
Collision with animal (from Worksheet 2F)	0.000	0.001	0.001
Collision with fixed object (from Worksheet 2F)	0.058	0.275	0.334
Collision with other object (from Worksheet 2F)	0.006	0.022	0.028
Other single-vehicle collision (from Worksheet 2F)	0.003	0.007	0.010
Single-vehicle noncollision (from Worksheet 2F)	0.011	0.011	0.022
Collision with pedestrian (from Worksheet 2G or 2I)	0.155	0.000	0.155
Collision with bicycle (from Worksheet 2J)	0.143	0.000	0.143
Subtotal	0.376	0.317	0.693
Total	3.740	6.095	9.835

Worksheet 2L -- Summary Results for Urban and Suburban Arterial Intersections

(1)	(2)
Crash severity level	**Predicted average crash frequency, $N_{predicted\ int}$ (crashes/year)**
	(Total) from Worksheet 2K
Total	9.8
Fatal and injury (FI)	3.7
Property damage only (PDO)	6.1

Worksheet 2A -- General Information and Input Data for Urban and Suburban Arterial Intersections						
General Information				**Location Information**		
Analyst	TL			Roadway	MD 190 River Road	
Agency or Company	ATCS			Intersection	At I-495 ML Ramps	
Date Performed	12/08/21			Jurisdiction	Montgomery County	
				Analysis Year	2045	
Input Data				**Base Conditions**	**Site Conditions**	
Intersection type (3ST, 3SG, 4ST, 4SG)				--	4SG	
AADT $_{major}$ (veh/day)	$AADT_{MAX}$ =	67,700	(veh/day)	--	45,190	
AADT $_{minor}$ (veh/day)	$AADT_{MAX}$ =	33,400	(veh/day)	--	9,011	
Intersection lighting (present/not present)				Not Present	Present	
Calibration factor, C_i				1.00	1.00	
Data for unsignalized intersections only:				--	--	
Number of major-road approaches with left-turn lanes (0,1,2)				0	0	
Number of major-road approaches with right-turn lanes (0,1,2)				0	0	
Data for signalized intersections only:				--	--	
Number of approaches with left-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]				0	4	
Number of approaches with right-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]				0	4	
Number of approaches with left-turn signal phasing [for 3SG, use maximum value of 3]				--	4	
Type of left-turn signal phasing for Leg #1				Permissive	Protected	
Type of left-turn signal phasing for Leg #2				--	Protected	
Type of left-turn signal phasing for Leg #3				--	Protected	
Type of left-turn signal phasing for Leg #4 (if applicable)				--	Protected	
Number of approaches with right-turn-on-red prohibited [for 3SG, use maximum value of 3]				0	0	
Intersection red light cameras (present/not present)				Not Present	Not Present	
Sum of all pedestrian crossing volumes (PedVol) -- Signalized intersections only					140	
Maximum number of lanes crossed by a pedestrian (n_{lanesx})				--	9	
Number of bus stops within 300 m (1,000 ft) of the intersection				0	0	
Schools within 300 m (1,000 ft) of the intersection (present/not present)				Not Present	Not Present	
Number of alcohol sales establishments within 300 m (1,000 ft) of the intersection				0	0	

Worksheet 2B -- Crash Modification Factors for Urban and Suburban Arterial Intersections						
(1)	(2)	(3)	(4)	(5)	(6)	(7)
CMF for Left-Turn Lanes	CMF for Left-Turn Signal Phasing	CMF for Right-Turn Lanes	CMF for Right Turn on Red	CMF for Lighting	CMF for Red Light Cameras	Combined CMF
CMF 1i	*CMF 2i*	*CMF 3i*	*CMF 4i*	*CMF 5i*	*CMF 6i*	*CMF $_{COMB}$*
from Table 12-24	from Table 12-25	from Table 12-26	from Equation 12-35	from Equation 12-36	from Equation 12-37	(1)*(2)*(3)*(4)*(5)*(6)
0.66	0.78	0.85	1.00	0.91	1.00	0.40

Worksheet 2C -- Multiple-Vehicle Collisions by Severity Level for Urban and Suburban Arterial Intersections

(1)	(2)			(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**			**Overdispersion Parameter, k**	**Initial N_{bimv}**	**Proportion of Total Crashes**	**Adjusted N_{bimv}**	**Combined CMFs**	**Calibration Factor, C_i**	**Predicted N_{bimv}**
	from Table 12-10			from Table 12-10	from Equation 12-21		$(4)_{TOTAL}$*(5)	(7) from Worksheet 2B		(6)*(7)*(8)
	a	b	c							
Total	-10.99	1.07	0.23	0.39	13.110	1.000	13.110	0.40	1.00	5.225
Fatal and Injury (FI)	-13.14	1.18	0.22	0.33	4.533	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ 0.357	4.684	0.40	1.00	1.867
Property Damage Only (PDO)	-11.02	1.02	0.24	0.44	8.154	$(5)_{TOTAL}-(5)_{FI}$ 0.643	8.426	0.40	1.00	3.358

Worksheet 2D -- Multiple-Vehicle Collisions by Collision Type for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{bimv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{bimv\ (PDO)}$ (crashes/year)**	**Predicted N $_{bimv\ (TOTAL)}$ (crashes/year)**
	from Table 12-11	$(9)_{FI}$ from Worksheet 2C	from Table 12-11	$(9)_{PDO}$ from Worksheet 2C	$(9)_{PDO}$ from Worksheet 2C
Total	1.000	1.867	1.000	3.358	5.225
		(2)*$(3)_{FI}$		(4)*$(5)_{PDO}$	(3)+(5)
Rear-end collision	0.450	0.840	0.483	1.622	2.462
Head-on collision	0.049	0.091	0.030	0.101	0.192
Angle collision	0.347	0.648	0.244	0.819	1.467
Sideswipe	0.099	0.185	0.032	0.107	0.292
Other multiple-vehicle collision	0.055	0.103	0.211	0.709	0.811

Worksheet 2E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Arterial Intersections

(1)	(2)			(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**			**Overdispersion Parameter, k**	**Initial N_{bisv}**	**Proportion of Total Crashes**	**Adjusted N_{bimv}**	**Combined CMFs**	**Calibration Factor, C_i**	**Predicted N_{bisv}**
	from Table 12-12			from Table 12-12	from Eqn. 12-24; (FI) from Eqn. 12-24 or 12-27		$(4)_{TOTAL}$*(5)	(7) from Worksheet 2B		(6)*(7)*(8)
	a	b	c							
Total	-10.21	0.68	0.27	0.36	0.630	1.000	0.630	0.40	1.00	0.251
Fatal and Injury (FI)	-9.25	0.43	0.29	0.09	0.135	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ 0.215	0.135	0.40	1.00	0.054
Property Damage Only (PDO)	-11.34	0.78	0.25	0.44	0.495	$(5)_{TOTAL}-(5)_{FI}$ 0.785	0.494	0.40	1.00	0.197

Worksheet 2F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{bisv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{bisv\ (PDO)}$ (crashes/year)**	**Predicted N $_{bisv\ (TOTAL)}$ (crashes/year)**
	from Table 12-13	(9)$_{FI}$ from Worksheet 2E	from Table 12-13	(9)$_{PDO}$ from Worksheet 2E	(9)$_{PDO}$ from Worksheet 2E
Total	1.000	0.054	1.000	0.197	0.251
		(2)*(3)$_{FI}$		(4)*(5)$_{PDO}$	(3)+(5)
Collision with parked vehicle	0.001	0.000	0.001	0.000	0.000
Collision with animal	0.002	0.000	0.002	0.000	0.001
Collision with fixed object	0.744	0.040	0.870	0.171	0.212
Collision with other object	0.072	0.004	0.070	0.014	0.018
Other single-vehicle collision	0.040	0.002	0.023	0.005	0.007
Single-vehicle noncollision	0.141	0.008	0.034	0.007	0.014

Worksheet 2G -- Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Stop-Controlled Intersections

(1)	(2)	(3)	(4)	(5)	(7)*
Crash Severity Level	**Predicted N_{bimv}**	**Predicted N_{bisv}**	**Predicted N_{bi}**	**f_{pedi}**	**Predicted N_{pedi}**
	(9) from Worksheet 2C	(9) from Worksheet 2E	(2) + (3)	from Table 12-16	(4)*(5)
Total	--	--	--	--	--
Fatal and injury (FI)	--	--	--	--	--

* Column 6 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-30

Worksheet 2H -- Crash Modification Factors for Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Signalized Intersections

(1)	(2)	(3)	(4)
CMF for Bus Stops	CMF for Schools	CMF for Alcohol Sales Establishments	Combined CMF
CMF_{1p}	CMF_{2p}	CMF_{3p}	
from Table 12-28	from Table 12-29	from Table 12-30	(1)*(2)*(3)
1.00	1.00	1.00	1.00

Worksheet 2I -- Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Signalized Intersections

(1)	(2)					(3)	(4)	(5)	(6)	(7)
Crash Severity Level	**SPF Coefficients**					**Overdispersion Parameter, k**	**$N_{pedbase}$**	**Combined CMF**	**Calibration factor, C_i**	**Predicted N_{pedi}**
	from Table 12-14						from Equation 12-29	(4) from Worksheet 2H		(4)*(5)*(6)
	a	b	c	d	e					
Total	-9.53	0.40	0.26	0.45	0.04	0.24	0.050	1.00	1.00	0.050
Fatal and Injury (FI)	--	--	--	--	--	--	--	--	1.00	0.050

Worksheet 2J -- Vehicle-Bicycle Collisions for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(7)*
Crash Severity Level	**Predicted N_{bimv}**	**Predicted N_{bisv}**	**Predicted N_{bi}**	**f_{bikei}**	**Predicted N_{bikei}**
	(9) from Worksheet 2C	(9) from Worksheet 2E	(2) + (3)	from Table 12-17	(4)*(5)
Total	5.225	0.251	5.476	0.015	0.082
Fatal and injury (FI)	--	--	--	--	0.082

* Column 6 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-31

Worksheet 2K -- Crash Severity Distribution for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)
	Fatal and injury (FI)	**Property damage only (PDO)**	**Total**
Collision type	(3) from Worksheet 2D and 2F; (7) from 2G or 2I and 2J	(5) from Worksheet 2D and 2F	(6) from Worksheet 2D and 2F; (7) from 2G or 2I and 2J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 2D)	0.840	1.622	2.462
Head-on collisions (from Worksheet 2D)	0.091	0.101	0.192
Angle collisions (from Worksheet 2D)	0.648	0.819	1.467
Sideswipe (from Worksheet 2D)	0.185	0.107	0.292
Other multiple-vehicle collision (from Worksheet 2D)	0.103	0.709	0.811
Subtotal	1.867	3.358	5.225
SINGLE-VEHICLE			
Collision with parked vehicle (from Worksheet 2F)	0.000	0.000	0.000
Collision with animal (from Worksheet 2F)	0.000	0.000	0.001
Collision with fixed object (from Worksheet 2F)	0.040	0.171	0.212
Collision with other object (from Worksheet 2F)	0.004	0.014	0.018
Other single-vehicle collision (from Worksheet 2F)	0.002	0.005	0.007
Single-vehicle noncollision (from Worksheet 2F)	0.008	0.007	0.014
Collision with pedestrian (from Worksheet 2G or 2I)	0.050	0.000	0.050
Collision with bicycle (from Worksheet 2J)	0.082	0.000	0.082
Subtotal	0.186	0.197	0.383
Total	2.052	3.555	5.608

Worksheet 2L -- Summary Results for Urban and Suburban Arterial Intersections

(1)	(2)
Crash severity level	**Predicted average crash frequency, $N_{predicted\ int}$ (crashes/year)**
	(Total) from Worksheet 2K
Total	5.6
Fatal and injury (FI)	2.1
Property damage only (PDO)	3.6

Worksheet 2A -- General Information and Input Data for Urban and Suburban Arterial Intersections						
General Information				**Location Information**		
Analyst	TL			Roadway	Montrose Rd	
Agency or Company	ATCS			Intersection	At Seven Locks Rd	
Date Performed	12/07/21			Jurisdiction	Montgomery County	
				Analysis Year	2045	
Input Data				**Base Conditions**	**Site Conditions**	
Intersection type (3ST, 3SG, 4ST, 4SG)				--	4SG	
AADT $_{major}$ (veh/day)	$AADT_{MAX}$ =	67,700	(veh/day)	--	22,376	
AADT $_{minor}$ (veh/day)	$AADT_{MAX}$ =	33,400	(veh/day)	--	11,167	
Intersection lighting (present/not present)				Not Present	Present	
Calibration factor, C_i				1.00	1.00	
Data for unsignalized intersections only:				--	--	
Number of major-road approaches with left-turn lanes (0,1,2)				0	0	
Number of major-road approaches with right-turn lanes (0,1,2)				0	0	
Data for signalized intersections only:				--	--	
Number of approaches with left-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]				0	4	
Number of approaches with right-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]				0	2	
Number of approaches with left-turn signal phasing [for 3SG, use maximum value of 3]				--	3	
Type of left-turn signal phasing for Leg #1				Permissive	Protected	
Type of left-turn signal phasing for Leg #2				--	Protected	
Type of left-turn signal phasing for Leg #3				--	Protected	
Type of left-turn signal phasing for Leg #4 (if applicable)				--	Permissive	
Number of approaches with right-turn-on-red prohibited [for 3SG, use maximum value of 3]				0	0	
Intersection red light cameras (present/not present)				Not Present	Not Present	
Sum of all pedestrian crossing volumes (PedVol) -- Signalized intersections only					164	
Maximum number of lanes crossed by a pedestrian (n_{lanesx})				--	7	
Number of bus stops within 300 m (1,000 ft) of the intersection				0	4	
Schools within 300 m (1,000 ft) of the intersection (present/not present)				Not Present	Not Present	
Number of alcohol sales establishments within 300 m (1,000 ft) of the intersection				0	0	

Worksheet 2B -- Crash Modification Factors for Urban and Suburban Arterial Intersections						
(1)	(2)	(3)	(4)	(5)	(6)	(7)
CMF for Left-Turn Lanes	CMF for Left-Turn Signal Phasing	CMF for Right-Turn Lanes	CMF for Right Turn on Red	CMF for Lighting	CMF for Red Light Cameras	Combined CMF
CMF 1i	*CMF 2i*	*CMF 3i*	*CMF 4i*	*CMF 5i*	*CMF 6i*	*CMF $_{COMB}$*
from Table 12-24	from Table 12-25	from Table 12-26	from Equation 12-35	from Equation 12-36	from Equation 12-37	(1)*(2)*(3)*(4)*(5)*(6)
0.66	0.83	0.92	1.00	0.91	1.00	0.46

Worksheet 2C -- Multiple-Vehicle Collisions by Severity Level for Urban and Suburban Arterial Intersections

(1)	(2)			(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**			**Overdispersion Parameter, k**	**Initial N_{bimv}**	**Proportion of Total Crashes**	**Adjusted N_{bimv}**	**Combined CMFs**	**Calibration Factor, C_i**	**Predicted N_{bimv}**
	from Table 12-10			from Table 12-10	from Equation 12-21		$(4)_{TOTAL}$*(5)	(7) from Worksheet 2B		(6)*(7)*(8)
	a	b	c							
Total	-10.99	1.07	0.23	0.39	6.492	1.000	6.492	0.46	1.00	2.987
Fatal and Injury (FI)	-13.14	1.18	0.22	0.33	2.073	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ 0.331	2.149	0.46	1.00	0.989
Property Damage Only (PDO)	-11.02	1.02	0.24	0.44	4.191	$(5)_{TOTAL}-(5)_{FI}$ 0.669	4.344	0.46	1.00	1.998

Worksheet 2D -- Multiple-Vehicle Collisions by Collision Type for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{bimv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{bimv\ (PDO)}$ (crashes/year)**	**Predicted N $_{bimv\ (TOTAL)}$ (crashes/year)**
	from Table 12-11	$(9)_{FI}$ from Worksheet 2C	from Table 12-11	$(9)_{PDO}$ from Worksheet 2C	$(9)_{PDO}$ from Worksheet 2C
Total	1.000	0.989	1.000	1.998	2.987
		(2)*$(3)_{FI}$		(4)*$(5)_{PDO}$	(3)+(5)
Rear-end collision	0.450	0.445	0.483	0.965	1.410
Head-on collision	0.049	0.048	0.030	0.060	0.108
Angle collision	0.347	0.343	0.244	0.488	0.831
Sideswipe	0.099	0.098	0.032	0.064	0.162
Other multiple-vehicle collision	0.055	0.054	0.211	0.422	0.476

Worksheet 2E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Arterial Intersections

(1)	(2)			(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**			**Overdispersion Parameter, k**	**Initial N_{bisv}**	**Proportion of Total Crashes**	**Adjusted N_{bimv}**	**Combined CMFs**	**Calibration Factor, C_i**	**Predicted N_{bisv}**
	from Table 12-12			from Table 12-12	from Eqn. 12-24; (FI) from Eqn. 12-24 or 12-27		$(4)_{TOTAL}$*(5)	(7) from Worksheet 2B		(6)*(7)*(8)
	a	b	c							
Total	-10.21	0.68	0.27	0.36	0.414	1.000	0.414	0.46	1.00	0.190
Fatal and Injury (FI)	-9.25	0.43	0.29	0.09	0.106	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ 0.261	0.108	0.46	1.00	0.050
Property Damage Only (PDO)	-11.34	0.78	0.25	0.44	0.302	$(5)_{TOTAL}-(5)_{FI}$ 0.739	0.306	0.46	1.00	0.141

Worksheet 2F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{bisv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{bisv\ (PDO)}$ (crashes/year)**	**Predicted N $_{bisv\ (TOTAL)}$ (crashes/year)**
	from Table 12-13	$(9)_{FI}$ from Worksheet 2E	from Table 12-13	$(9)_{PDO}$ from Worksheet 2E	$(9)_{PDO}$ from Worksheet 2E
Total	1.000	0.050	1.000	0.141	0.190
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Collision with parked vehicle	0.001	0.000	0.001	0.000	0.000
Collision with animal	0.002	0.000	0.002	0.000	0.000
Collision with fixed object	0.744	0.037	0.870	0.122	0.159
Collision with other object	0.072	0.004	0.070	0.010	0.013
Other single-vehicle collision	0.040	0.002	0.023	0.003	0.005
Single-vehicle noncollision	0.141	0.007	0.034	0.005	0.012

Worksheet 2G -- Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Stop-Controlled Intersections

(1)	(2)	(3)	(4)	(5)	(7)*
Crash Severity Level	**Predicted N_{bimv}**	**Predicted N_{bisv}**	**Predicted N_{bi}**	**f_{pedi}**	**Predicted N_{pedi}**
	(9) from Worksheet 2C	(9) from Worksheet 2E	(2) + (3)	from Table 12-16	(4)*(5)
Total	--	--	--	--	--
Fatal and injury (FI)	--	--	--	--	--

* Column 6 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-30

Worksheet 2H -- Crash Modification Factors for Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Signalized Intersections

(1)	(2)	(3)	(4)
CMF for Bus Stops	CMF for Schools	CMF for Alcohol Sales Establishments	Combined CMF
CMF_{1p}	CMF_{2p}	CMF_{3p}	
from Table 12-28	from Table 12-29	from Table 12-30	(1)*(2)*(3)
4.15	1.00	1.00	4.15

Worksheet 2I -- Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Signalized Intersections

(1)	(2)					(3)	(4)	(5)	(6)	(7)
Crash Severity Level	**SPF Coefficients**					**Overdispersion Parameter, k**	**$N_{pedbase}$**	**Combined CMF**	**Calibration factor, C_i**	**Predicted N_{pedi}**
	from Table 12-14						from Equation 12-29	(4) from Worksheet 2H		(4)*(5)*(6)
	a	b	c	d	e					
Total	-9.53	0.40	0.26	0.45	0.04	0.24	0.051	4.15	1.00	0.213
Fatal and Injury (FI)	--	--	--	--	--	--	--	--	1.00	0.213

Worksheet 2J -- Vehicle-Bicycle Collisions for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(7)*
Crash Severity Level	**Predicted N_{bimv}**	**Predicted N_{bisv}**	**Predicted N_{bi}**	**f_{bikei}**	**Predicted N_{bikei}**
	(9) from Worksheet 2C	(9) from Worksheet 2E	(2) + (3)	from Table 12-17	(4)*(5)
Total	2.987	0.190	3.177	0.015	0.048
Fatal and injury (FI)	--	--	--	--	0.048

* Column 6 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-31

Worksheet 2K -- Crash Severity Distribution for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)
	Fatal and injury (FI)	**Property damage only (PDO)**	**Total**
Collision type	(3) from Worksheet 2D and 2F; (7) from 2G or 2I and 2J	(5) from Worksheet 2D and 2F	(6) from Worksheet 2D and 2F; (7) from 2G or 2I and 2J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 2D)	0.445	0.965	1.410
Head-on collisions (from Worksheet 2D)	0.048	0.060	0.108
Angle collisions (from Worksheet 2D)	0.343	0.488	0.831
Sideswipe (from Worksheet 2D)	0.098	0.064	0.162
Other multiple-vehicle collision (from Worksheet 2D)	0.054	0.422	0.476
Subtotal	0.989	1.998	2.987
SINGLE-VEHICLE			
Collision with parked vehicle (from Worksheet 2F)	0.000	0.000	0.000
Collision with animal (from Worksheet 2F)	0.000	0.000	0.000
Collision with fixed object (from Worksheet 2F)	0.037	0.122	0.159
Collision with other object (from Worksheet 2F)	0.004	0.010	0.013
Other single-vehicle collision (from Worksheet 2F)	0.002	0.003	0.005
Single-vehicle noncollision (from Worksheet 2F)	0.007	0.005	0.012
Collision with pedestrian (from Worksheet 2G or 2I)	0.213	0.000	0.213
Collision with bicycle (from Worksheet 2J)	0.048	0.000	0.048
Subtotal	0.311	0.141	0.451
Total	1.299	2.139	3.438

Worksheet 2L -- Summary Results for Urban and Suburban Arterial Intersections

(1)	(2)
Crash severity level	**Predicted average crash frequency, $N_{predicted\ int}$ (crashes/year)**
	(Total) from Worksheet 2K
Total	3.4
Fatal and injury (FI)	1.3
Property damage only (PDO)	2.1

Worksheet 1A -- General Information and Input Data for Urban and Suburban Roadway Segments

General Information		Location Information	
Analyst	TL	Roadway	Montrose Rd
Agency or Company	ATCS	Roadway Section	Seven Locks Rd to Potomac Ave
Date Performed	12/07/21	Jurisdiction	Montgomery County
		Analysis Year	2045

Input Data		Base Conditions	Site Conditions
Roadway type (2U, 3T, 4U, 4D, ST)		--	4D
Length of segment, L (mi)		--	0.02
AADT (veh/day)	$AADT_{MAX}$ = 66,000 (veh/day)	--	10,743
Type of on-street parking (none/parallel/angle)		None	None
Proportion of curb length with on-street parking		--	0
Median width (ft) - for divided only		15	10
Lighting (present / not present)		Not Present	Not Present
Auto speed enforcement (present / not present)		Not Present	Not Present
Major commercial driveways (number)		--	0
Minor commercial driveways (number)		--	0
Major industrial / institutional driveways (number)		--	0
Minor industrial / institutional driveways (number)		--	1
Major residential driveways (number)		--	0
Minor residential driveways (number)		--	0
Other driveways (number)		--	0
Speed Category		--	Posted Speed Greater than 30 mph
Roadside fixed object density (fixed objects / mi)		0	42
Offset to roadside fixed objects (ft) [If greater than 30 or Not Present, input 30]		30	15
Calibration Factor, Cr		1.00	1.00

Worksheet 1B -- Crash Modification Factors for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
CMF for On-Street Parking	CMF for Roadside Fixed Objects	CMF for Median Width	CMF for Lighting	CMF for Automated Speed Enforcement	Combined CMF
CMF 1r	*CMF 2r*	*CMF 3r*	*CMF 4r*	*CMF 5r*	*CMF comb*
from Equation 12-32	from Equation 12-33	from Table 12-22	from Equation 12-34	from Section 12.7.1	(1)*(2)*(3)*(4)*(5)
1.00	1.07	1.01	1.00	1.00	1.08

Worksheet 1C -- Multiple-Vehicle Nondriveway Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brmv}**	**Proportion of Total Crashes**	**Adjusted N_{brmv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brmv}**
	from Table 12-3		from Table 12-3	from Equation 12-10		$(4)_{TOTAL}$*(5)	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-12.34	1.36	1.32	0.027	1.000	0.027	1.08	1.00	0.029
Fatal and Injury (FI)	-12.76	1.28	1.31	0.008	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.294	0.008	1.08	1.00	0.008
Property Damage Only (PDO)	-12.81	1.38	1.34	0.020	$(5)_{TOTAL}-(5)_{FI}$ = 0.706	0.019	1.08	1.00	0.020

Worksheet 1D -- Multiple-Vehicle Nondriveway Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brmv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brmv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brmv\ (TOTAL)}$ (crashes/year)**
	from Table 12-4	$(9)_{FI}$ from Worksheet 1C	from Table 12-4	$(9)_{PDO}$ from Worksheet 1C	$(9)_{TOTAL}$ from Worksheet 1C
Total	1.000	0.008	1.000	0.020	0.029
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Rear-end collision	0.832	0.007	0.662	0.013	0.020
Head-on collision	0.020	0.000	0.007	0.000	0.000
Angle collision	0.040	0.000	0.036	0.001	0.001
Sideswipe, same direction	0.050	0.000	0.223	0.005	0.005
Sideswipe, opposite direction	0.010	0.000	0.001	0.000	0.000
Other multiple-vehicle collision	0.048	0.000	0.071	0.001	0.002

Worksheet 1E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brsv}**	**Proportion of Total Crashes**	**Adjusted N_{brsv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brsv}**
	from Table 12-5		from Table 12-5	from Equation 12-13		$(4)_{TOTAL}*(5)$	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-5.05	0.47	0.86	0.010	1.000	0.010	1.08	1.00	0.011
Fatal and Injury (FI)	-8.71	0.66	0.28	0.002	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.152	0.002	1.08	1.00	0.002
Property Damage Only (PDO)	-5.04	0.45	1.06	0.008	$(5)_{TOTAL}-(5)_{FI}$ = 0.848	0.009	1.08	1.00	0.009

Worksheet 1F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brsv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brsv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brsv\ (TOTAL)}$ (crashes/year)**
	from Table 12-6	$(9)_{FI}$ from Worksheet 1E	from Table 12-6	$(9)_{PDO}$ from Worksheet 1E	$(9)_{TOTAL}$ from Worksheet 1E
Total	1.000	0.002	1.000	0.009	0.011
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Collision with animal	0.001	0.000	0.063	0.001	0.001
Collision with fixed object	0.500	0.001	0.813	0.007	0.008
Collision with other object	0.028	0.000	0.016	0.000	0.000
Other single-vehicle collision	0.471	0.001	0.108	0.001	0.002

Worksheet 1G -- Multiple-Vehicle Driveway-Related Collisions by Driveway Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Driveway Type	**Number of driveways, n_j**	**Crashes per driveway per year, N_j**	**Coefficient for traffic adjustment, t**	**Initial N_{brdwy}**	**Overdispersion parameter, k**
		from Table 12-7	from Table 12-7	Equation 12-16 $n_j * N_j * (AADT/15,000)^t$	from Table 12-7
Major commercial	0	0.033	1.106	0.000	
Minor commercial	0	0.011	1.106	0.000	
Major industrial/institutional	0	0.036	1.106	0.000	
Minor industrial/institutional	1	0.005	1.106	0.003	--
Major residential	0	0.018	1.106	0.000	
Minor residential	0	0.003	1.106	0.000	
Other	0	0.005	1.106	0.000	
Total	--	--	--	0.003	1.39

Worksheet 1H -- Multiple-Vehicle Driveway-Related Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Crash Severity Level	**Initial N_{brdwy}**	**Proportion of total crashes (f_{dwy})**	**Adjusted N_{brdwy}**	**Combined CMFs**	**Calibration factor, C_r**	**Predicted N_{brdwy}**
	$(5)_{TOTAL}$ from Worksheet 1G	from Table 12-7	$(2)_{TOTAL}$ * (3)	(6) from Worksheet 1B		(4)*(5)*(6)
Total	0.003	1.000	0.003	1.08	1.00	0.004
Fatal and injury (FI)	--	0.284	0.001	1.08	1.00	0.001
Property damage only (PDO)	--	0.716	0.002	1.08	1.00	0.003

Worksheet 1I -- Vehicle-Pedestrian Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(8)*
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{pedr}**	**Predicted N_{pedr}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-8	(5)*(6)
Total	0.029	0.011	0.004	0.043	0.019	0.001
Fatal and injury (FI)	--	--	--	--	--	0.001

* Column 7 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-19

Worksheet 1J -- Vehicle-Bicycle Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(8)*
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{biker}**	**Predicted N_{biker}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-9	(5)*(6)
Total	0.029	0.011	0.004	0.043	0.005	0.000
Fatal and injury (FI)	--	--	--	--	--	0.000

* Column 7 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-20

Worksheet 1K -- Crash Severity Distribution for Urban and Suburban Roadway Segments			
(1)	(2)	(3)	(4)
Collision type	**Fatal and injury (FI)**	**Property damage only (PDO)**	**Total**
	(3) from Worksheet 1D and 1F; (7) from Worksheet 1H; and (8) from Worksheet 1I and 1J	(5) from Worksheet 1D and 1F; and (7) from Worksheet 1H	(6) from Worksheet 1D and 1F; (7) from Worksheet 1H; and (8) from Worksheet 1I and 1J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 1D)	0.007	0.013	0.020
Head-on collisions (from Worksheet 1D)	0.000	0.000	0.000
Angle collisions (from Worksheet 1D)	0.000	0.001	0.001
Sideswipe, same direction (from Worksheet 1D)	0.000	0.005	0.005
Sideswipe, opposite direction (from Worksheet 1D)	0.000	0.000	0.000
Driveway-related collisions (from Worksheet 1H)	0.001	0.003	0.004
Other multiple-vehicle collision (from Worksheet 1D)	0.000	0.001	0.002
Subtotal	0.009	0.023	0.032
SINGLE-VEHICLE			
Collision with animal (from Worksheet 1F)	0.000	0.001	0.001
Collision with fixed object (from Worksheet 1F)	0.001	0.007	0.008
Collision with other object (from Worksheet 1F)	0.000	0.000	0.000
Other single-vehicle collision (from Worksheet 1F)	0.001	0.001	0.002
Collision with pedestrian (from Worksheet 1I)	0.001	0.000	0.001
Collision with bicycle (from Worksheet 1J)	0.000	0.000	0.000
Subtotal	0.003	0.009	0.012
Total	0.012	0.032	0.044

Worksheet 1L -- Summary Results for Urban and Suburban Roadway Segments			
(1)	(2)	(3)	(4)
Crash Severity Level	**Predicted average crash frequency, $N_{predicted\ rs}$ (crashes/year)**	**Roadway segment length, L (mi)**	**Crash rate (crashes/mi/year)**
	(Total) from Worksheet 1K		(2) / (3)
Total	0.0	0.02	2.2
Fatal and injury (FI)	0.0	0.02	0.6
Property damage only (PDO)	0.0	0.02	1.6

Worksheet 2A -- General Information and Input Data for Urban and Suburban Arterial Intersections						
General Information				**Location Information**		
Analyst	TL			Roadway	Montrose Rd	
Agency or Company	ATCS			Intersection	At Potomac Ave	
Date Performed	12/07/21			Jurisdiction	Montgomery County	
				Analysis Year	2045	
Input Data				**Base Conditions**	**Site Conditions**	
Intersection type (3ST, 3SG, 4ST, 4SG)				--	4ST	
AADT $_{major}$ (veh/day)	$AADT_{MAX}$ =	46,800	(veh/day)	--	10,965	
AADT $_{minor}$ (veh/day)	$AADT_{MAX}$ =	5,900	(veh/day)	--	3,526	
Intersection lighting (present/not present)				Not Present	Present	
Calibration factor, C_i				1.00	1.00	
Data for unsignalized intersections only:				--	--	
Number of major-road approaches with left-turn lanes (0,1,2)				0	0	
Number of major-road approaches with right-turn lanes (0,1,2)				0	0	
Data for signalized intersections only:				--	--	
Number of approaches with left-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]				0		
Number of approaches with right-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]				0		
Number of approaches with left-turn signal phasing [for 3SG, use maximum value of 3]				--		
Type of left-turn signal phasing for Leg #1				Permissive		
Type of left-turn signal phasing for Leg #2				--		
Type of left-turn signal phasing for Leg #3				--		
Type of left-turn signal phasing for Leg #4 (if applicable)				--		
Number of approaches with right-turn-on-red prohibited [for 3SG, use maximum value of 3]				0		
Intersection red light cameras (present/not present)				Not Present		
Sum of all pedestrian crossing volumes (PedVol) -- Signalized intersections only						
Maximum number of lanes crossed by a pedestrian (n_{lanesx})				--		
Number of bus stops within 300 m (1,000 ft) of the intersection				0		
Schools within 300 m (1,000 ft) of the intersection (present/not present)				Not Present		
Number of alcohol sales establishments within 300 m (1,000 ft) of the intersection				0		

Worksheet 2B -- Crash Modification Factors for Urban and Suburban Arterial Intersections						
(1)	(2)	(3)	(4)	(5)	(6)	(7)
CMF for Left-Turn Lanes	CMF for Left-Turn Signal Phasing	CMF for Right-Turn Lanes	CMF for Right Turn on Red	CMF for Lighting	CMF for Red Light Cameras	Combined CMF
CMF 1i	*CMF 2i*	*CMF 3i*	*CMF 4i*	*CMF 5i*	*CMF 6i*	*CMF $_{COMB}$*
from Table 12-24	from Table 12-25	from Table 12-26	from Equation 12-35	from Equation 12-36	from Equation 12-37	(1)*(2)*(3)*(4)*(5)*(6)
1.00	1.00	1.00	1.00	0.91	0.97	0.89

Worksheet 2C -- Multiple-Vehicle Collisions by Severity Level for Urban and Suburban Arterial Intersections

(1)	(2)			(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**			**Overdispersion Parameter, k**	**Initial N_{bimv}**	**Proportion of Total Crashes**	**Adjusted N_{bimv}**	**Combined CMFs**	**Calibration Factor, C_i**	**Predicted N_{bimv}**
	from Table 12-10			from Table 12-10	from Equation 12-21		$(4)_{TOTAL}$*(5)	(7) from Worksheet 2B		(6)*(7)*(8)
	a	b	c							
Total	-8.90	0.82	0.25	0.40	2.160	1.000	2.160	0.89	1.00	1.915
Fatal and Injury (FI)	-11.13	0.93	0.28	0.48	0.826	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ 0.379	0.819	0.89	1.00	0.726
Property Damage Only (PDO)	-8.74	0.77	0.23	0.40	1.352	$(5)_{TOTAL}-(5)_{FI}$ 0.621	1.341	0.89	1.00	1.189

Worksheet 2D -- Multiple-Vehicle Collisions by Collision Type for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{bimv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{bimv\ (PDO)}$ (crashes/year)**	**Predicted N $_{bimv\ (TOTAL)}$ (crashes/year)**
	from Table 12-11	$(9)_{FI}$ from Worksheet 2C	from Table 12-11	$(9)_{PDO}$ from Worksheet 2C	$(9)_{PDO}$ from Worksheet 2C
Total	1.000	0.726	1.000	1.189	1.915
		(2)*$(3)_{FI}$		(4)*$(5)_{PDO}$	(3)+(5)
Rear-end collision	0.338	0.245	0.374	0.445	0.690
Head-on collision	0.041	0.030	0.030	0.036	0.065
Angle collision	0.440	0.319	0.335	0.398	0.718
Sideswipe	0.121	0.088	0.044	0.052	0.140
Other multiple-vehicle collision	0.060	0.044	0.217	0.258	0.302

Worksheet 2E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Arterial Intersections

(1)	(2)			(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**			**Overdispersion Parameter, k**	**Initial N_{bisv}**	**Proportion of Total Crashes**	**Adjusted N_{bimv}**	**Combined CMFs**	**Calibration Factor, C_i**	**Predicted N_{bisv}**
	from Table 12-12			from Table 12-12	from Eqn. 12-24; (FI) from Eqn. 12-24 or 12-27		$(4)_{TOTAL}$*(5)	(7) from Worksheet 2B		(6)*(7)*(8)
	a	b	c							
Total	-5.33	0.33	0.12	0.65	0.278	1.000	0.278	0.89	1.00	0.247
Fatal and Injury (FI)	--	--	--	--	0.078	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ 0.288	0.080	0.89	1.00	0.071
Property Damage Only (PDO)	-7.04	0.36	0.25	0.54	0.192	$(5)_{TOTAL}-(5)_{FI}$ 0.712	0.198	0.89	1.00	0.175

Worksheet 2F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{bisv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{bisv\ (PDO)}$ (crashes/year)**	**Predicted N $_{bisv\ (TOTAL)}$ (crashes/year)**
	from Table 12-13	(9)$_{FI}$ from Worksheet 2E	from Table 12-13	(9)$_{PDO}$ from Worksheet 2E	(9)$_{PDO}$ from Worksheet 2E
Total	1.000	0.071	1.000	0.175	0.247
		(2)*(3)$_{FI}$		(4)*(5)$_{PDO}$	(3)+(5)
Collision with parked vehicle	0.001	0.000	0.001	0.000	0.000
Collision with animal	0.001	0.000	0.026	0.005	0.005
Collision with fixed object	0.679	0.048	0.847	0.149	0.197
Collision with other object	0.089	0.006	0.070	0.012	0.019
Other single-vehicle collision	0.051	0.004	0.007	0.001	0.005
Single-vehicle noncollision	0.179	0.013	0.049	0.009	0.021

Worksheet 2G -- Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Stop-Controlled Intersections

(1)	(2)	(3)	(4)	(5)	(7)*
Crash Severity Level	**Predicted N_{bimv}**	**Predicted N_{bisv}**	**Predicted N_{bi}**	**f_{pedi}**	**Predicted N_{pedi}**
	(9) from Worksheet 2C	(9) from Worksheet 2E	(2) + (3)	from Table 12-16	(4)*(5)
Total	1.915	0.247	2.161	0.022	0.048
Fatal and injury (FI)	--	--	--	--	0.048

* Column 6 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-30

Worksheet 2H -- Crash Modification Factors for Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Signalized Intersections

(1)	(2)	(3)	(4)
CMF for Bus Stops	CMF for Schools	CMF for Alcohol Sales Establishments	Combined CMF
CMF_{1p}	CMF_{2p}	CMF_{3p}	
from Table 12-28	from Table 12-29	from Table 12-30	(1)*(2)*(3)
--	--	--	--

Worksheet 2I -- Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Signalized Intersections

(1)	(2)					(3)	(4)	(5)	(6)	(7)
Crash Severity Level	**SPF Coefficients**					**Overdispersion Parameter, k**	**$N_{pedbase}$**	**Combined CMF**	**Calibration factor, C_i**	**Predicted N_{pedi}**
	from Table 12-14						from Equation 12-29	(4) from Worksheet 2H		(4)*(5)*(6)
	a	b	c	d	e					
Total	--	--	--	--	--	--	--	--	1.00	--
Fatal and Injury (FI)	--	--	--	--	--	--	--	--	1.00	--

Worksheet 2J -- Vehicle-Bicycle Collisions for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(7)*
Crash Severity Level	**Predicted N_{bimv}**	**Predicted N_{bisv}**	**Predicted N_{bi}**	**f_{bikei}**	**Predicted N_{bikei}**
	(9) from Worksheet 2C	(9) from Worksheet 2E	(2) + (3)	from Table 12-17	(4)*(5)
Total	1.915	0.247	2.161	0.018	0.039
Fatal and injury (FI)	--	--	--	--	0.039

* Column 6 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-31

Worksheet 2K -- Crash Severity Distribution for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)
	Fatal and injury (FI)	**Property damage only (PDO)**	**Total**
Collision type	(3) from Worksheet 2D and 2F; (7) from 2G or 2I and 2J	(5) from Worksheet 2D and 2F	(6) from Worksheet 2D and 2F; (7) from 2G or 2I and 2J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 2D)	0.245	0.445	0.690
Head-on collisions (from Worksheet 2D)	0.030	0.036	0.065
Angle collisions (from Worksheet 2D)	0.319	0.398	0.718
Sideswipe (from Worksheet 2D)	0.088	0.052	0.140
Other multiple-vehicle collision (from Worksheet 2D)	0.044	0.258	0.302
Subtotal	0.726	1.189	1.915
SINGLE-VEHICLE			
Collision with parked vehicle (from Worksheet 2F)	0.000	0.000	0.000
Collision with animal (from Worksheet 2F)	0.000	0.005	0.005
Collision with fixed object (from Worksheet 2F)	0.048	0.149	0.197
Collision with other object (from Worksheet 2F)	0.006	0.012	0.019
Other single-vehicle collision (from Worksheet 2F)	0.004	0.001	0.005
Single-vehicle noncollision (from Worksheet 2F)	0.013	0.009	0.021
Collision with pedestrian (from Worksheet 2G or 2I)	0.048	0.000	0.048
Collision with bicycle (from Worksheet 2J)	0.039	0.000	0.039
Subtotal	0.158	0.175	0.333
Total	0.884	1.364	2.248

Worksheet 2L -- Summary Results for Urban and Suburban Arterial Intersections

(1)	(2)
Crash severity level	**Predicted average crash frequency, $N_{predicted\ int}$ (crashes/year)**
	(Total) from Worksheet 2K
Total	2.2
Fatal and injury (FI)	0.9
Property damage only (PDO)	1.4

Worksheet 1A -- General Information and Input Data for Urban and Suburban Roadway Segments

General Information		Location Information	
Analyst	TL	Roadway	Montrose Rd
Agency or Company	ATCS	Roadway Section	Potomac Ave to Tower Oaks Blvd
Date Performed	12/07/21	Jurisdiction	Montgomery County
		Analysis Year	2045

Input Data		Base Conditions	Site Conditions
Roadway type (2U, 3T, 4U, 4D, ST)		--	4D
Length of segment, L (mi)		--	0.45
AADT (veh/day)	$AADT_{MAX}$ = 66,000 (veh/day)	--	42,985
Type of on-street parking (none/parallel/angle)		None	None
Proportion of curb length with on-street parking		--	0
Median width (ft) - for divided only		15	10
Lighting (present / not present)		Not Present	Present
Auto speed enforcement (present / not present)		Not Present	Not Present
Major commercial driveways (number)		--	0
Minor commercial driveways (number)		--	0
Major industrial / institutional driveways (number)		--	0
Minor industrial / institutional driveways (number)		--	0
Major residential driveways (number)		--	0
Minor residential driveways (number)		--	0
Other driveways (number)		--	0
Speed Category		--	Posted Speed Greater than 30 mph
Roadside fixed object density (fixed objects / mi)		0	61
Offset to roadside fixed objects (ft) [If greater than 30 or Not Present, input 30]		30	9
Calibration Factor, Cr		1.00	1.00

Worksheet 1B -- Crash Modification Factors for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
CMF for On-Street Parking	CMF for Roadside Fixed Objects	CMF for Median Width	CMF for Lighting	CMF for Automated Speed Enforcement	Combined CMF
CMF 1r	*CMF 2r*	*CMF 3r*	*CMF 4r*	*CMF 5r*	*CMF comb*
from Equation 12-32	from Equation 12-33	from Table 12-22	from Equation 12-34	from Section 12.7.1	(1)*(2)*(3)*(4)*(5)
1.00	1.17	1.01	0.91	1.00	1.08

Worksheet 1C -- Multiple-Vehicle Nondriveway Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brmv}**	**Proportion of Total Crashes**	**Adjusted N_{brmv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brmv}**
	from Table 12-3		from Table 12-3	from Equation 12-10		$(4)_{TOTAL}$*(5)	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-12.34	1.36	1.32	3.938	1.000	3.938	1.08	1.00	4.243
Fatal and Injury (FI)	-12.76	1.28	1.31	1.102	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.266	1.046	1.08	1.00	1.127
Property Damage Only (PDO)	-12.81	1.38	1.34	3.047	$(5)_{TOTAL}-(5)_{FI}$ = 0.734	2.892	1.08	1.00	3.116

Worksheet 1D -- Multiple-Vehicle Nondriveway Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brmv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brmv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brmv\ (TOTAL)}$ (crashes/year)**
	from Table 12-4	$(9)_{FI}$ from Worksheet 1C	from Table 12-4	$(9)_{PDO}$ from Worksheet 1C	$(9)_{TOTAL}$ from Worksheet 1C
Total	1.000	1.127	1.000	3.116	4.243
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Rear-end collision	0.832	0.938	0.662	2.063	3.001
Head-on collision	0.020	0.023	0.007	0.022	0.044
Angle collision	0.040	0.045	0.036	0.112	0.157
Sideswipe, same direction	0.050	0.056	0.223	0.695	0.751
Sideswipe, opposite direction	0.010	0.011	0.001	0.003	0.014
Other multiple-vehicle collision	0.048	0.054	0.071	0.221	0.275

Worksheet 1E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brsv}**	**Proportion of Total Crashes**	**Adjusted N_{brsv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brsv}**
	from Table 12-5		from Table 12-5	from Equation 12-13		$(4)_{TOTAL}*(5)$	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-5.05	0.47	0.86	0.434	1.000	0.434	1.08	1.00	0.468
Fatal and Injury (FI)	-8.71	0.66	0.28	0.085	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.193	0.084	1.08	1.00	0.090
Property Damage Only (PDO)	-5.04	0.45	1.06	0.354	$(5)_{TOTAL}-(5)_{FI}$ = 0.807	0.350	1.08	1.00	0.377

Worksheet 1F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brsv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brsv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brsv\ (TOTAL)}$ (crashes/year)**
	from Table 12-6	$(9)_{FI}$ from Worksheet 1E	from Table 12-6	$(9)_{PDO}$ from Worksheet 1E	$(9)_{TOTAL}$ from Worksheet 1E
Total	1.000	0.090	1.000	0.377	0.468
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Collision with animal	0.001	0.000	0.063	0.024	0.024
Collision with fixed object	0.500	0.045	0.813	0.307	0.352
Collision with other object	0.028	0.003	0.016	0.006	0.009
Other single-vehicle collision	0.471	0.043	0.108	0.041	0.083

Worksheet 1G -- Multiple-Vehicle Driveway-Related Collisions by Driveway Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Driveway Type	**Number of driveways, n_j**	**Crashes per driveway per year, N_j**	**Coefficient for traffic adjustment, t**	**Initial N_{brdwy}**	**Overdispersion parameter, k**
		from Table 12-7	from Table 12-7	Equation 12-16 $n_j * N_j * (AADT/15,000)^t$	from Table 12-7
Major commercial	0	0.033	1.106	0.000	
Minor commercial	0	0.011	1.106	0.000	
Major industrial/institutional	0	0.036	1.106	0.000	
Minor industrial/institutional	0	0.005	1.106	0.000	--
Major residential	0	0.018	1.106	0.000	
Minor residential	0	0.003	1.106	0.000	
Other	0	0.005	1.106	0.000	
Total	--	--	--	0.000	1.39

Worksheet 1H -- Multiple-Vehicle Driveway-Related Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Crash Severity Level	**Initial N_{brdwy}**	**Proportion of total crashes (f_{dwy})**	**Adjusted N_{brdwy}**	**Combined CMFs**	**Calibration factor, C_r**	**Predicted N_{brdwy}**
	$(5)_{TOTAL}$ from Worksheet 1G	from Table 12-7	$(2)_{TOTAL}$ * (3)	(6) from Worksheet 1B		(4)*(5)*(6)
Total	0.000	1.000	0.000	1.08	1.00	0.000
Fatal and injury (FI)	--	0.284	0.000	1.08	1.00	0.000
Property damage only (PDO)	--	0.716	0.000	1.08	1.00	0.000

Worksheet 1I -- Vehicle-Pedestrian Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(8)*
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{pedr}**	**Predicted N_{pedr}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-8	(5)*(6)
Total	4.243	0.468	0.000	4.711	0.019	0.090
Fatal and injury (FI)	--	--	--	--	--	0.090

* Column 7 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-19

Worksheet 1J -- Vehicle-Bicycle Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(8)*
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{biker}**	**Predicted N_{biker}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-9	(5)*(6)
Total	4.243	0.468	0.000	4.711	0.005	0.024
Fatal and injury (FI)	--	--	--	--	--	0.024

* Column 7 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-20

Worksheet 1K -- Crash Severity Distribution for Urban and Suburban Roadway Segments			
(1)	(2)	(3)	(4)
Collision type	**Fatal and injury (FI)**	**Property damage only (PDO)**	**Total**
	(3) from Worksheet 1D and 1F; (7) from Worksheet 1H; and (8) from Worksheet 1I and 1J	(5) from Worksheet 1D and 1F; and (7) from Worksheet 1H	(6) from Worksheet 1D and 1F; (7) from Worksheet 1H; and (8) from Worksheet 1I and 1J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 1D)	0.938	2.063	3.001
Head-on collisions (from Worksheet 1D)	0.023	0.022	0.044
Angle collisions (from Worksheet 1D)	0.045	0.112	0.157
Sideswipe, same direction (from Worksheet 1D)	0.056	0.695	0.751
Sideswipe, opposite direction (from Worksheet 1D)	0.011	0.003	0.014
Driveway-related collisions (from Worksheet 1H)	0.000	0.000	0.000
Other multiple-vehicle collision (from Worksheet 1D)	0.054	0.221	0.275
Subtotal	1.127	3.116	4.243
SINGLE-VEHICLE			
Collision with animal (from Worksheet 1F)	0.000	0.024	0.024
Collision with fixed object (from Worksheet 1F)	0.045	0.307	0.352
Collision with other object (from Worksheet 1F)	0.003	0.006	0.009
Other single-vehicle collision (from Worksheet 1F)	0.043	0.041	0.083
Collision with pedestrian (from Worksheet 1I)	0.090	0.000	0.090
Collision with bicycle (from Worksheet 1J)	0.024	0.000	0.024
Subtotal	0.203	0.377	0.581
Total	1.331	3.493	4.824

Worksheet 1L -- Summary Results for Urban and Suburban Roadway Segments			
(1)	(2)	(3)	(4)
Crash Severity Level	**Predicted average crash frequency, $N_{predicted\ rs}$ (crashes/year)**	**Roadway segment length, L (mi)**	**Crash rate (crashes/mi/year)**
	(Total) from Worksheet 1K		(2) / (3)
Total	4.8	0.45	10.7
Fatal and injury (FI)	1.3	0.45	3.0
Property damage only (PDO)	3.5	0.45	7.8

Worksheet 2A -- General Information and Input Data for Urban and Suburban Arterial Intersections						
General Information				**Location Information**		
Analyst	TL			Roadway	Montrose Rd	
Agency or Company	ATCS			Intersection	At Tower Oaks Blvd	
Date Performed	12/07/21			Jurisdiction	Montgomery County	
				Analysis Year	2045	
Input Data				**Base Conditions**	**Site Conditions**	
Intersection type (3ST, 3SG, 4ST, 4SG)				--	3SG	
AADT $_{major}$ (veh/day)	$AADT_{MAX}$ =	58,100	(veh/day)	--	**69,942**	
AADT $_{minor}$ (veh/day)	$AADT_{MAX}$ =	16,400	(veh/day)	--	11,638	
Intersection lighting (present/not present)				Not Present	Present	
Calibration factor, C_i				1.00	1.00	
Data for unsignalized intersections only:				--	--	
Number of major-road approaches with left-turn lanes (0,1,2)				0	0	
Number of major-road approaches with right-turn lanes (0,1,2)				0	0	
Data for signalized intersections only:				--	--	
Number of approaches with left-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]				0	2	
Number of approaches with right-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]				0	2	
Number of approaches with left-turn signal phasing [for 3SG, use maximum value of 3]				--	2	
Type of left-turn signal phasing for Leg #1				Permissive	Permissive / Protected	
Type of left-turn signal phasing for Leg #2				--	Protected	
Type of left-turn signal phasing for Leg #3				--	Not Applicable	
Type of left-turn signal phasing for Leg #4 (if applicable)				--	Not Applicable	
Number of approaches with right-turn-on-red prohibited [for 3SG, use maximum value of 3]				0	1	
Intersection red light cameras (present/not present)				Not Present	Not Present	
Sum of all pedestrian crossing volumes (PedVol) -- Signalized intersections only					6	
Maximum number of lanes crossed by a pedestrian (n_{lanesx})				--	6	
Number of bus stops within 300 m (1,000 ft) of the intersection				0	4	
Schools within 300 m (1,000 ft) of the intersection (present/not present)				Not Present	Not Present	
Number of alcohol sales establishments within 300 m (1,000 ft) of the intersection				0	0	

Worksheet 2B -- Crash Modification Factors for Urban and Suburban Arterial Intersections						
(1)	(2)	(3)	(4)	(5)	(6)	(7)
CMF for Left-Turn Lanes	CMF for Left-Turn Signal Phasing	CMF for Right-Turn Lanes	CMF for Right Turn on Red	CMF for Lighting	CMF for Red Light Cameras	Combined CMF
CMF 1i	*CMF 2i*	*CMF 3i*	*CMF 4i*	*CMF 5i*	*CMF 6i*	*CMF $_{COMB}$*
from Table 12-24	from Table 12-25	from Table 12-26	from Equation 12-35	from Equation 12-36	from Equation 12-37	(1)*(2)*(3)*(4)*(5)*(6)
0.86	0.93	0.92	0.98	0.91	1.00	0.66

Worksheet 2C -- Multiple-Vehicle Collisions by Severity Level for Urban and Suburban Arterial Intersections

(1)	(2)			(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**			**Overdispersion Parameter, k**	**Initial N_{bimv}**	**Proportion of Total Crashes**	**Adjusted N_{bimv}**	**Combined CMFs**	**Calibration Factor, C_i**	**Predicted N_{bimv}**
	from Table 12-10			from Table 12-10	from Equation 12-21		$(4)_{TOTAL}$*(5)	(7) from Worksheet 2B		(6)*(7)*(8)
	a	b	c							
Total	-12.13	1.11	0.26	0.33	14.682	1.000	14.682	0.66	1.00	9.665
Fatal and Injury (FI)	-11.58	1.02	0.17	0.30	4.015	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.290	4.257	0.66	1.00	2.802
Property Damage Only (PDO)	-13.24	1.14	0.30	0.36	9.833	$(5)_{TOTAL}-(5)_{FI}$ = 0.710	10.425	0.66	1.00	6.863

Worksheet 2D -- Multiple-Vehicle Collisions by Collision Type for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{bimv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{bimv\ (PDO)}$ (crashes/year)**	**Predicted N $_{bimv\ (TOTAL)}$ (crashes/year)**
	from Table 12-11	$(9)_{FI}$ from Worksheet 2C	from Table 12-11	$(9)_{PDO}$ from Worksheet 2C	$(9)_{PDO}$ from Worksheet 2C
Total	1.000	2.802	1.000	6.863	9.665
		(2)*$(3)_{FI}$		(4)*$(5)_{PDO}$	(3)+(5)
Rear-end collision	0.549	1.538	0.546	3.747	5.285
Head-on collision	0.038	0.106	0.020	0.137	0.244
Angle collision	0.280	0.785	0.204	1.400	2.185
Sideswipe	0.076	0.213	0.032	0.220	0.433
Other multiple-vehicle collision	0.057	0.160	0.198	1.359	1.519

Worksheet 2E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Arterial Intersections

(1)	(2)			(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**			**Overdispersion Parameter, k**	**Initial N_{bisv}**	**Proportion of Total Crashes**	**Adjusted N_{bimv}**	**Combined CMFs**	**Calibration Factor, C_i**	**Predicted N_{bisv}**
	from Table 12-12			from Table 12-12	from Eqn. 12-24; (FI) from Eqn. 12-24 or 12-27		$(4)_{TOTAL}$*(5)	(7) from Worksheet 2B		(6)*(7)*(8)
	a	b	c							
Total	-9.02	0.42	0.40	0.36	0.554	1.000	0.554	0.66	1.00	0.365
Fatal and Injury (FI)	-9.75	0.27	0.51	0.24	0.140	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.270	0.150	0.66	1.00	0.099
Property Damage Only (PDO)	-9.08	0.45	0.33	0.53	0.379	$(5)_{TOTAL}-(5)_{FI}$ = 0.730	0.404	0.66	1.00	0.266

Worksheet 2F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{bisv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{bisv\ (PDO)}$ (crashes/year)**	**Predicted N $_{bisv\ (TOTAL)}$ (crashes/year)**
	from Table 12-13	(9)$_{FI}$ from Worksheet 2E	from Table 12-13	(9)$_{PDO}$ from Worksheet 2E	(9)$_{PDO}$ from Worksheet 2E
Total	1.000	0.099	1.000	0.266	0.365
		(2)*(3)$_{FI}$		(4)*(5)$_{PDO}$	(3)+(5)
Collision with parked vehicle	0.001	0.000	0.001	0.000	0.000
Collision with animal	0.001	0.000	0.003	0.001	0.001
Collision with fixed object	0.653	0.064	0.895	0.238	0.303
Collision with other object	0.091	0.009	0.069	0.018	0.027
Other single-vehicle collision	0.045	0.004	0.018	0.005	0.009
Single-vehicle noncollision	0.209	0.021	0.014	0.004	0.024

Worksheet 2G -- Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Stop-Controlled Intersections

(1)	(2)	(3)	(4)	(5)	(7)*
Crash Severity Level	**Predicted N_{bimv}**	**Predicted N_{bisv}**	**Predicted N_{bi}**	**f_{pedi}**	**Predicted N_{pedi}**
	(9) from Worksheet 2C	(9) from Worksheet 2E	(2) + (3)	from Table 12-16	(4)*(5)
Total	--	--	--	--	--
Fatal and injury (FI)	--	--	--	--	--

* Column 6 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-30

Worksheet 2H -- Crash Modification Factors for Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Signalized Intersections

(1)	(2)	(3)	(4)
CMF for Bus Stops	CMF for Schools	CMF for Alcohol Sales Establishments	Combined CMF
CMF_{1p}	CMF_{2p}	CMF_{3p}	
from Table 12-28	from Table 12-29	from Table 12-30	(1)*(2)*(3)
4.15	1.00	1.00	4.15

Worksheet 2I -- Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Signalized Intersections

(1)	(2)					(3)	(4)	(5)	(6)	(7)
Crash Severity Level	**SPF Coefficients**					**Overdispersion Parameter, k**	**$N_{pedbase}$**	**Combined CMF**	**Calibration factor, C_i**	**Predicted N_{pedi}**
	from Table 12-14						from Equation 12-29	(4) from Worksheet 2H		(4)*(5)*(6)
	a	b	c	d	e					
Total	-6.60	0.05	0.24	0.41	0.09	0.52	0.006	4.15	1.00	0.023
Fatal and Injury (FI)	--	--	--	--	--	--	--	--	1.00	0.023

Worksheet 2J -- Vehicle-Bicycle Collisions for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(7)*
Crash Severity Level	**Predicted N_{bimv}**	**Predicted N_{bisv}**	**Predicted N_{bi}**	**f_{bikei}**	**Predicted N_{bikei}**
	(9) from Worksheet 2C	(9) from Worksheet 2E	(2) + (3)	from Table 12-17	(4)*(5)
Total	9.665	0.365	10.030	0.011	0.110
Fatal and injury (FI)	--	--	--	--	0.110

* Column 6 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-31

Worksheet 2K -- Crash Severity Distribution for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)
	Fatal and injury (FI)	**Property damage only (PDO)**	**Total**
Collision type	(3) from Worksheet 2D and 2F; (7) from 2G or 2I and 2J	(5) from Worksheet 2D and 2F	(6) from Worksheet 2D and 2F; (7) from 2G or 2I and 2J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 2D)	1.538	3.747	5.285
Head-on collisions (from Worksheet 2D)	0.106	0.137	0.244
Angle collisions (from Worksheet 2D)	0.785	1.400	2.185
Sideswipe (from Worksheet 2D)	0.213	0.220	0.433
Other multiple-vehicle collision (from Worksheet 2D)	0.160	1.359	1.519
Subtotal	2.802	6.863	9.665
SINGLE-VEHICLE			
Collision with parked vehicle (from Worksheet 2F)	0.000	0.000	0.000
Collision with animal (from Worksheet 2F)	0.000	0.001	0.001
Collision with fixed object (from Worksheet 2F)	0.064	0.238	0.303
Collision with other object (from Worksheet 2F)	0.009	0.018	0.027
Other single-vehicle collision (from Worksheet 2F)	0.004	0.005	0.009
Single-vehicle noncollision (from Worksheet 2F)	0.021	0.004	0.024
Collision with pedestrian (from Worksheet 2G or 2I)	0.023	0.000	0.023
Collision with bicycle (from Worksheet 2J)	0.110	0.000	0.110
Subtotal	0.232	0.266	0.498
Total	3.034	7.129	10.163

Worksheet 2L -- Summary Results for Urban and Suburban Arterial Intersections

(1)	(2)
Crash severity level	**Predicted average crash frequency, $N_{predicted\ int}$ (crashes/year)**
	(Total) from Worksheet 2K
Total	10.2
Fatal and injury (FI)	3.0
Property damage only (PDO)	7.1

Worksheet 1A -- General Information and Input Data for Urban and Suburban Roadway Segments

General Information		Location Information	
Analyst	TL	Roadway	Tower Oaks Blvd
Agency or Company	ATCS	Roadway Section	Montrose Rd to I-270 NB Ramps
Date Performed	12/07/21	Jurisdiction	Montgomery County
		Analysis Year	2045

Input Data		Base Conditions	Site Conditions
Roadway type (2U, 3T, 4U, 4D, ST)		--	4U
Length of segment, L (mi)		--	0.17
AADT (veh/day)	$AADT_{MAX}$ = 40,100 (veh/day)	--	11,852
Type of on-street parking (none/parallel/angle)		None	None
Proportion of curb length with on-street parking		--	0
Median width (ft) - for divided only		15	Not Present
Lighting (present / not present)		Not Present	Present
Auto speed enforcement (present / not present)		Not Present	Not Present
Major commercial driveways (number)		--	0
Minor commercial driveways (number)		--	1
Major industrial / institutional driveways (number)		--	0
Minor industrial / institutional driveways (number)		--	0
Major residential driveways (number)		--	0
Minor residential driveways (number)		--	0
Other driveways (number)		--	0
Speed Category		--	Posted Speed Greater than 30 mph
Roadside fixed object density (fixed objects / mi)		0	195
Offset to roadside fixed objects (ft) [If greater than 30 or Not Present, input 30]		30	14
Calibration Factor, Cr		1.00	1.00

Worksheet 1B -- Crash Modification Factors for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
CMF for On-Street Parking	CMF for Roadside Fixed Objects	CMF for Median Width	CMF for Lighting	CMF for Automated Speed Enforcement	Combined CMF
CMF 1r	*CMF 2r*	*CMF 3r*	*CMF 4r*	*CMF 5r*	*CMF comb*
from Equation 12-32	from Equation 12-33	from Table 12-22	from Equation 12-34	from Section 12.7.1	(1)*(2)*(3)*(4)*(5)
1.00	1.47	1.00	0.92	1.00	1.35

Worksheet 1C -- Multiple-Vehicle Nondriveway Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brmv}**	**Proportion of Total Crashes**	**Adjusted N_{brmv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brmv}**
	from Table 12-3		from Table 12-3	from Equation 12-10		$(4)_{TOTAL}$*(5)	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-11.63	1.33	1.01	0.396	1.000	0.396	1.35	1.00	0.535
Fatal and Injury (FI)	-12.08	1.25	0.99	0.119	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.317	0.125	1.35	1.00	0.169
Property Damage Only (PDO)	-12.53	1.38	1.08	0.257	$(5)_{TOTAL}-(5)_{FI}$ = 0.683	0.271	1.35	1.00	0.365

Worksheet 1D -- Multiple-Vehicle Nondriveway Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brmv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brmv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brmv\ (TOTAL)}$ (crashes/year)**
	from Table 12-4	$(9)_{FI}$ from Worksheet 1C	from Table 12-4	$(9)_{PDO}$ from Worksheet 1C	$(9)_{TOTAL}$ from Worksheet 1C
Total	1.000	0.169	1.000	0.365	0.535
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Rear-end collision	0.511	0.087	0.506	0.185	0.271
Head-on collision	0.077	0.013	0.004	0.001	0.014
Angle collision	0.181	0.031	0.130	0.048	0.078
Sideswipe, same direction	0.093	0.016	0.249	0.091	0.107
Sideswipe, opposite direction	0.082	0.014	0.031	0.011	0.025
Other multiple-vehicle collision	0.056	0.009	0.080	0.029	0.039

Worksheet 1E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brsv}**	**Proportion of Total Crashes**	**Adjusted N_{brsv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brsv}**
	from Table 12-5		from Table 12-5	from Equation 12-13		$(4)_{TOTAL}*(5)$	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-7.99	0.81	0.91	0.115	1.000	0.115	1.35	1.00	0.155
Fatal and Injury (FI)	-7.37	0.61	0.54	0.033	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.264	0.030	1.35	1.00	0.041
Property Damage Only (PDO)	-8.50	0.84	0.97	0.091	$(5)_{TOTAL}-(5)_{FI}$ = 0.736	0.085	1.35	1.00	0.114

Worksheet 1F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brsv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brsv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brsv\ (TOTAL)}$ (crashes/year)**
	from Table 12-6	$(9)_{FI}$ from Worksheet 1E	from Table 12-6	$(9)_{PDO}$ from Worksheet 1E	$(9)_{TOTAL}$ from Worksheet 1E
Total	1.000	0.041	1.000	0.114	0.155
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Collision with animal	0.001	0.000	0.001	0.000	0.000
Collision with fixed object	0.612	0.025	0.809	0.092	0.117
Collision with other object	0.020	0.001	0.029	0.003	0.004
Other single-vehicle collision	0.367	0.015	0.161	0.018	0.033

Worksheet 1G -- Multiple-Vehicle Driveway-Related Collisions by Driveway Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Driveway Type	**Number of driveways, n_j**	**Crashes per driveway per year, N_j**	**Coefficient for traffic adjustment, t**	**Initial N_{brdwy}**	**Overdispersion parameter, k**
		from Table 12-7	from Table 12-7	Equation 12-16 $n_j * N_j * (AADT/15,000)^t$	from Table 12-7
Major commercial	0	0.182	1.172	0.000	
Minor commercial	1	0.058	1.172	0.044	
Major industrial/institutional	0	0.198	1.172	0.000	
Minor industrial/institutional	0	0.026	1.172	0.000	--
Major residential	0	0.096	1.172	0.000	
Minor residential	0	0.018	1.172	0.000	
Other	0	0.029	1.172	0.000	
Total	--	--	--	0.044	0.81

Worksheet 1H -- Multiple-Vehicle Driveway-Related Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Crash Severity Level	**Initial N_{brdwy}**	**Proportion of total crashes (f_{dwy})**	**Adjusted N_{brdwy}**	**Combined CMFs**	**Calibration factor, C_r**	**Predicted N_{brdwy}**
	$(5)_{TOTAL}$ from Worksheet 1G	from Table 12-7	$(2)_{TOTAL}$ * (3)	(6) from Worksheet 1B		(4)*(5)*(6)
Total	0.044	1.000	0.044	1.35	1.00	0.059
Fatal and injury (FI)	--	0.342	0.015	1.35	1.00	0.020
Property damage only (PDO)	--	0.658	0.029	1.35	1.00	0.039

Worksheet 1I -- Vehicle-Pedestrian Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(8)*
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{pedr}**	**Predicted N_{pedr}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-8	(5)*(6)
Total	0.535	0.155	0.059	0.749	0.009	0.007
Fatal and injury (FI)	--	--	--	--	--	0.007

* Column 7 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-19

Worksheet 1J -- Vehicle-Bicycle Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(8)*
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{biker}**	**Predicted N_{biker}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-9	(5)*(6)
Total	0.535	0.155	0.059	0.749	0.002	0.001
Fatal and injury (FI)	--	--	--	--	--	0.001

* Column 7 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-20

Worksheet 1K -- Crash Severity Distribution for Urban and Suburban Roadway Segments			
(1)	(2)	(3)	(4)
Collision type	**Fatal and injury (FI)**	**Property damage only (PDO)**	**Total**
	(3) from Worksheet 1D and 1F; (7) from Worksheet 1H; and (8) from Worksheet 1I and 1J	(5) from Worksheet 1D and 1F; and (7) from Worksheet 1H	(6) from Worksheet 1D and 1F; (7) from Worksheet 1H; and (8) from Worksheet 1I and 1J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 1D)	0.087	0.185	0.271
Head-on collisions (from Worksheet 1D)	0.013	0.001	0.014
Angle collisions (from Worksheet 1D)	0.031	0.048	0.078
Sideswipe, same direction (from Worksheet 1D)	0.016	0.091	0.107
Sideswipe, opposite direction (from Worksheet 1D)	0.014	0.011	0.025
Driveway-related collisions (from Worksheet 1H)	0.020	0.039	0.059
Other multiple-vehicle collision (from Worksheet 1D)	0.009	0.029	0.039
Subtotal	0.190	0.405	0.594
SINGLE-VEHICLE			
Collision with animal (from Worksheet 1F)	0.000	0.000	0.000
Collision with fixed object (from Worksheet 1F)	0.025	0.092	0.117
Collision with other object (from Worksheet 1F)	0.001	0.003	0.004
Other single-vehicle collision (from Worksheet 1F)	0.015	0.018	0.033
Collision with pedestrian (from Worksheet 1I)	0.007	0.000	0.007
Collision with bicycle (from Worksheet 1J)	0.001	0.000	0.001
Subtotal	0.049	0.114	0.163
Total	0.239	0.519	0.757

Worksheet 1L -- Summary Results for Urban and Suburban Roadway Segments			
(1)	(2)	(3)	(4)
Crash Severity Level	**Predicted average crash frequency, $N_{predicted\ rs}$ (crashes/year)**	**Roadway segment length, L (mi)**	**Crash rate (crashes/mi/year)**
	(Total) from Worksheet 1K		(2) / (3)
Total	0.8	0.17	4.5
Fatal and injury (FI)	0.2	0.17	1.4
Property damage only (PDO)	0.5	0.17	3.1

Worksheet 2A -- General Information and Input Data for Urban and Suburban Arterial Intersections						
General Information				**Location Information**		
Analyst	TL			Roadway	Tower Oaks Blvd	
Agency or Company	ATCS			Intersection	At I-270 NB Ramps/Geico Ent.	
Date Performed	12/07/21			Jurisdiction	Montgomery County	
				Analysis Year	2045	
Input Data				**Base Conditions**	**Site Conditions**	
Intersection type (3ST, 3SG, 4ST, 4SG)				--	4SG	
AADT $_{major}$ (veh/day)	$AADT_{MAX}$ =	67,700	(veh/day)	--	11,961	
AADT $_{minor}$ (veh/day)	$AADT_{MAX}$ =	33,400	(veh/day)	--	7,681	
Intersection lighting (present/not present)				Not Present	Present	
Calibration factor, C_i				1.00	1.00	
Data for unsignalized intersections only:				--	--	
Number of major-road approaches with left-turn lanes (0,1,2)				0	0	
Number of major-road approaches with right-turn lanes (0,1,2)				0	0	
Data for signalized intersections only:				--	--	
Number of approaches with left-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]				0	1	
Number of approaches with right-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]				0	1	
Number of approaches with left-turn signal phasing [for 3SG, use maximum value of 3]				--	2	
Type of left-turn signal phasing for Leg #1				Permissive	Protected	
Type of left-turn signal phasing for Leg #2				--	Permissive	
Type of left-turn signal phasing for Leg #3				--	Protected	
Type of left-turn signal phasing for Leg #4 (if applicable)				--	Permissive	
Number of approaches with right-turn-on-red prohibited [for 3SG, use maximum value of 3]				0	0	
Intersection red light cameras (present/not present)				Not Present	Not Present	
Sum of all pedestrian crossing volumes (PedVol) -- Signalized intersections only					123	
Maximum number of lanes crossed by a pedestrian (n_{lanesx})				--	4	
Number of bus stops within 300 m (1,000 ft) of the intersection				0	4	
Schools within 300 m (1,000 ft) of the intersection (present/not present)				Not Present	Not Present	
Number of alcohol sales establishments within 300 m (1,000 ft) of the intersection				0	0	

Worksheet 2B -- Crash Modification Factors for Urban and Suburban Arterial Intersections						
(1)	(2)	(3)	(4)	(5)	(6)	(7)
CMF for Left-Turn Lanes	CMF for Left-Turn Signal Phasing	CMF for Right-Turn Lanes	CMF for Right Turn on Red	CMF for Lighting	CMF for Red Light Cameras	Combined CMF
CMF 1i	*CMF 2i*	*CMF 3i*	*CMF 4i*	*CMF 5i*	*CMF 6i*	*CMF $_{COMB}$*
from Table 12-24	from Table 12-25	from Table 12-26	from Equation 12-35	from Equation 12-36	from Equation 12-37	(1)*(2)*(3)*(4)*(5)*(6)
0.90	0.94	0.96	1.00	0.91	1.00	0.74

Worksheet 2C -- Multiple-Vehicle Collisions by Severity Level for Urban and Suburban Arterial Intersections

(1)	(2)			(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**			**Overdispersion Parameter, k**	**Initial N_{bimv}**	**Proportion of Total Crashes**	**Adjusted N_{bimv}**	**Combined CMFs**	**Calibration Factor, C_i**	**Predicted N_{bimv}**
	from Table 12-10			from Table 12-10	from Equation 12-21		$(4)_{TOTAL}$*(5)	(7) from Worksheet 2B		(6)*(7)*(8)
	a	b	c							
Total	-10.99	1.07	0.23	0.39	3.048	1.000	3.048	0.74	1.00	2.254
Fatal and Injury (FI)	-13.14	1.18	0.22	0.33	0.912	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.311	0.947	0.74	1.00	0.700
Property Damage Only (PDO)	-11.02	1.02	0.24	0.44	2.023	$(5)_{TOTAL}-(5)_{FI}$ = 0.689	2.101	0.74	1.00	1.554

Worksheet 2D -- Multiple-Vehicle Collisions by Collision Type for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{bimv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{bimv\ (PDO)}$ (crashes/year)**	**Predicted N $_{bimv\ (TOTAL)}$ (crashes/year)**
	from Table 12-11	$(9)_{FI}$ from Worksheet 2C	from Table 12-11	$(9)_{PDO}$ from Worksheet 2C	$(9)_{PDO}$ from Worksheet 2C
Total	1.000	0.700	1.000	1.554	2.254
		(2)*$(3)_{FI}$		(4)*$(5)_{PDO}$	(3)+(5)
Rear-end collision	0.450	0.315	0.483	0.750	1.066
Head-on collision	0.049	0.034	0.030	0.047	0.081
Angle collision	0.347	0.243	0.244	0.379	0.622
Sideswipe	0.099	0.069	0.032	0.050	0.119
Other multiple-vehicle collision	0.055	0.039	0.211	0.328	0.366

Worksheet 2E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Arterial Intersections

(1)	(2)			(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**			**Overdispersion Parameter, k**	**Initial N_{bisv}**	**Proportion of Total Crashes**	**Adjusted N_{bimv}**	**Combined CMFs**	**Calibration Factor, C_i**	**Predicted N_{bisv}**
	from Table 12-12			from Table 12-12	from Eqn. 12-24; (FI) from Eqn. 12-24 or 12-27		$(4)_{TOTAL}$*(5)	(7) from Worksheet 2B		(6)*(7)*(8)
	a	b	c							
Total	-10.21	0.68	0.27	0.36	0.244	1.000	0.244	0.74	1.00	0.181
Fatal and Injury (FI)	-9.25	0.43	0.29	0.09	0.073	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.302	0.074	0.74	1.00	0.055
Property Damage Only (PDO)	-11.34	0.78	0.25	0.44	0.169	$(5)_{TOTAL}-(5)_{FI}$ = 0.698	0.171	0.74	1.00	0.126

Worksheet 2F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{bisv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{bisv\ (PDO)}$ (crashes/year)**	**Predicted N $_{bisv\ (TOTAL)}$ (crashes/year)**
	from Table 12-13	(9)$_{FI}$ from Worksheet 2E	from Table 12-13	(9)$_{PDO}$ from Worksheet 2E	(9)$_{PDO}$ from Worksheet 2E
Total	1.000	0.055	1.000	0.126	0.181
		(2)*(3)$_{FI}$		(4)*(5)$_{PDO}$	(3)+(5)
Collision with parked vehicle	0.001	0.000	0.001	0.000	0.000
Collision with animal	0.002	0.000	0.002	0.000	0.000
Collision with fixed object	0.744	0.041	0.870	0.110	0.150
Collision with other object	0.072	0.004	0.070	0.009	0.013
Other single-vehicle collision	0.040	0.002	0.023	0.003	0.005
Single-vehicle noncollision	0.141	0.008	0.034	0.004	0.012

Worksheet 2G -- Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Stop-Controlled Intersections

(1)	(2)	(3)	(4)	(5)	(7)*
Crash Severity Level	**Predicted N_{bimv}**	**Predicted N_{bisv}**	**Predicted N_{bi}**	**f_{pedi}**	**Predicted N_{pedi}**
	(9) from Worksheet 2C	(9) from Worksheet 2E	(2) + (3)	from Table 12-16	(4)*(5)
Total	--	--	--	--	--
Fatal and injury (FI)	--	--	--	--	--

* Column 6 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-30

Worksheet 2H -- Crash Modification Factors for Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Signalized Intersections

(1)	(2)	(3)	(4)
CMF for Bus Stops	CMF for Schools	CMF for Alcohol Sales Establishments	Combined CMF
CMF_{1p}	CMF_{2p}	CMF_{3p}	
from Table 12-28	from Table 12-29	from Table 12-30	(1)*(2)*(3)
4.15	1.00	1.00	4.15

Worksheet 2I -- Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Signalized Intersections

(1)	(2)					(3)	(4)	(5)	(6)	(7)
Crash Severity Level	**SPF Coefficients**					**Overdispersion Parameter, k**	**$N_{pedbase}$**	**Combined CMF**	**Calibration factor, C_i**	**Predicted N_{pedi}**
	from Table 12-14						from Equation 12-29	(4) from Worksheet 2H		(4)*(5)*(6)
	a	b	c	d	e					
Total	-9.53	0.40	0.26	0.45	0.04	0.24	0.035	4.15	1.00	0.143
Fatal and Injury (FI)	--	--	--	--	--	--	--	--	1.00	0.143

Worksheet 2J -- Vehicle-Bicycle Collisions for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(7)*
Crash Severity Level	**Predicted N_{bimv}**	**Predicted N_{bisv}**	**Predicted N_{bi}**	**f_{bikei}**	**Predicted N_{bikei}**
	(9) from Worksheet 2C	(9) from Worksheet 2E	(2) + (3)	from Table 12-17	(4)*(5)
Total	2.254	0.181	2.435	0.015	0.037
Fatal and injury (FI)	--	--	--	--	0.037

* Column 6 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-31

Worksheet 2K -- Crash Severity Distribution for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)
	Fatal and injury (FI)	**Property damage only (PDO)**	**Total**
Collision type	(3) from Worksheet 2D and 2F; (7) from 2G or 2I and 2J	(5) from Worksheet 2D and 2F	(6) from Worksheet 2D and 2F; (7) from 2G or 2I and 2J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 2D)	0.315	0.750	1.066
Head-on collisions (from Worksheet 2D)	0.034	0.047	0.081
Angle collisions (from Worksheet 2D)	0.243	0.379	0.622
Sideswipe (from Worksheet 2D)	0.069	0.050	0.119
Other multiple-vehicle collision (from Worksheet 2D)	0.039	0.328	0.366
Subtotal	0.700	1.554	2.254
SINGLE-VEHICLE			
Collision with parked vehicle (from Worksheet 2F)	0.000	0.000	0.000
Collision with animal (from Worksheet 2F)	0.000	0.000	0.000
Collision with fixed object (from Worksheet 2F)	0.041	0.110	0.150
Collision with other object (from Worksheet 2F)	0.004	0.009	0.013
Other single-vehicle collision (from Worksheet 2F)	0.002	0.003	0.005
Single-vehicle noncollision (from Worksheet 2F)	0.008	0.004	0.012
Collision with pedestrian (from Worksheet 2G or 2I)	0.143	0.000	0.143
Collision with bicycle (from Worksheet 2J)	0.037	0.000	0.037
Subtotal	0.234	0.126	0.361
Total	0.935	1.680	2.615

Worksheet 2L -- Summary Results for Urban and Suburban Arterial Intersections

(1)	(2)
Crash severity level	**Predicted average crash frequency, $N_{predicted\ int}$ (crashes/year)**
	(Total) from Worksheet 2K
Total	2.6
Fatal and injury (FI)	0.9
Property damage only (PDO)	1.7

Worksheet 2A -- General Information and Input Data for Urban and Suburban Arterial Intersections						
General Information				**Location Information**		
Analyst	TL			Roadway	MD 28 Key W Ave	
Agency or Company	ATCS			Intersection	At Omega Dr/Medical Center Dr	
Date Performed	12/07/21			Jurisdiction	Montgomery County	
				Analysis Year	2045	
Input Data				**Base Conditions**	**Site Conditions**	
Intersection type (3ST, 3SG, 4ST, 4SG)				--	4SG	
AADT $_{major}$ (veh/day)	$AADT_{MAX}$ =	67,700	(veh/day)	--	28,732	
AADT $_{minor}$ (veh/day)	$AADT_{MAX}$ =	33,400	(veh/day)	--	11,281	
Intersection lighting (present/not present)				Not Present	Present	
Calibration factor, C_i				1.00	1.00	
Data for unsignalized intersections only:				--	--	
Number of major-road approaches with left-turn lanes (0,1,2)				0	0	
Number of major-road approaches with right-turn lanes (0,1,2)				0	0	
Data for signalized intersections only:				--	--	
Number of approaches with left-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]				0	4	
Number of approaches with right-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]				0	4	
Number of approaches with left-turn signal phasing [for 3SG, use maximum value of 3]				--	4	
Type of left-turn signal phasing for Leg #1				Permissive	Protected	
Type of left-turn signal phasing for Leg #2				--	Protected	
Type of left-turn signal phasing for Leg #3				--	Protected	
Type of left-turn signal phasing for Leg #4 (if applicable)				--	Protected	
Number of approaches with right-turn-on-red prohibited [for 3SG, use maximum value of 3]				0	0	
Intersection red light cameras (present/not present)				Not Present	Not Present	
Sum of all pedestrian crossing volumes (PedVol) -- Signalized intersections only					260	
Maximum number of lanes crossed by a pedestrian (n_{lanesx})				--	9	
Number of bus stops within 300 m (1,000 ft) of the intersection				0	10	
Schools within 300 m (1,000 ft) of the intersection (present/not present)				Not Present	Not Present	
Number of alcohol sales establishments within 300 m (1,000 ft) of the intersection				0	0	

Worksheet 2B -- Crash Modification Factors for Urban and Suburban Arterial Intersections						
(1)	(2)	(3)	(4)	(5)	(6)	(7)
CMF for Left-Turn Lanes	CMF for Left-Turn Signal Phasing	CMF for Right-Turn Lanes	CMF for Right Turn on Red	CMF for Lighting	CMF for Red Light Cameras	Combined CMF
CMF 1i	*CMF 2i*	*CMF 3i*	*CMF 4i*	*CMF 5i*	*CMF 6i*	*CMF $_{COMB}$*
from Table 12-24	from Table 12-25	from Table 12-26	from Equation 12-35	from Equation 12-36	from Equation 12-37	(1)*(2)*(3)*(4)*(5)*(6)
0.66	0.78	0.85	1.00	0.91	1.00	0.40

Worksheet 2C -- Multiple-Vehicle Collisions by Severity Level for Urban and Suburban Arterial Intersections

(1)	(2)			(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**			**Overdispersion Parameter, k**	**Initial N_{bimv}**	**Proportion of Total Crashes**	**Adjusted N_{bimv}**	**Combined CMFs**	**Calibration Factor, C_i**	**Predicted N_{bimv}**
	from Table 12-10			from Table 12-10	from Equation 12-21		$(4)_{TOTAL}$*(5)	(7) from Worksheet 2B		(6)*(7)*(8)
	a	b	c							
Total	-10.99	1.07	0.23	0.39	8.503	1.000	8.503	0.40	1.00	3.389
Fatal and Injury (FI)	-13.14	1.18	0.22	0.33	2.791	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ 0.340	2.890	0.40	1.00	1.152
Property Damage Only (PDO)	-11.02	1.02	0.24	0.44	5.422	$(5)_{TOTAL}-(5)_{FI}$ 0.660	5.614	0.40	1.00	2.238

Worksheet 2D -- Multiple-Vehicle Collisions by Collision Type for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{bimv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{bimv\ (PDO)}$ (crashes/year)**	**Predicted N $_{bimv\ (TOTAL)}$ (crashes/year)**
	from Table 12-11	$(9)_{FI}$ from Worksheet 2C	from Table 12-11	$(9)_{PDO}$ from Worksheet 2C	$(9)_{PDO}$ from Worksheet 2C
Total	1.000	1.152	1.000	2.238	3.389
		(2)*$(3)_{FI}$		(4)*$(5)_{PDO}$	(3)+(5)
Rear-end collision	0.450	0.518	0.483	1.081	1.599
Head-on collision	0.049	0.056	0.030	0.067	0.124
Angle collision	0.347	0.400	0.244	0.546	0.946
Sideswipe	0.099	0.114	0.032	0.072	0.186
Other multiple-vehicle collision	0.055	0.063	0.211	0.472	0.535

Worksheet 2E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Arterial Intersections

(1)	(2)			(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**			**Overdispersion Parameter, k**	**Initial N_{bisv}**	**Proportion of Total Crashes**	**Adjusted N_{bimv}**	**Combined CMFs**	**Calibration Factor, C_i**	**Predicted N_{bisv}**
	from Table 12-12			from Table 12-12	from Eqn. 12-24; (FI) from Eqn. 12-24 or 12-27		$(4)_{TOTAL}$*(5)	(7) from Worksheet 2B		(6)*(7)*(8)
	a	b	c							
Total	-10.21	0.68	0.27	0.36	0.492	1.000	0.492	0.40	1.00	0.196
Fatal and Injury (FI)	-9.25	0.43	0.29	0.09	0.119	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ 0.244	0.120	0.40	1.00	0.048
Property Damage Only (PDO)	-11.34	0.78	0.25	0.44	0.368	$(5)_{TOTAL}-(5)_{FI}$ 0.756	0.372	0.40	1.00	0.148

Worksheet 2F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{bisv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{bisv\ (PDO)}$ (crashes/year)**	**Predicted N $_{bisv\ (TOTAL)}$ (crashes/year)**
	from Table 12-13	(9)$_{FI}$ from Worksheet 2E	from Table 12-13	(9)$_{PDO}$ from Worksheet 2E	(9)$_{PDO}$ from Worksheet 2E
Total	1.000	0.048	1.000	0.148	0.196
		(2)*(3)$_{FI}$		(4)*(5)$_{PDO}$	(3)+(5)
Collision with parked vehicle	0.001	0.000	0.001	0.000	0.000
Collision with animal	0.002	0.000	0.002	0.000	0.000
Collision with fixed object	0.744	0.036	0.870	0.129	0.164
Collision with other object	0.072	0.003	0.070	0.010	0.014
Other single-vehicle collision	0.040	0.002	0.023	0.003	0.005
Single-vehicle noncollision	0.141	0.007	0.034	0.005	0.012

Worksheet 2G -- Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Stop-Controlled Intersections

(1)	(2)	(3)	(4)	(5)	(7)*
Crash Severity Level	**Predicted N_{bimv}**	**Predicted N_{bisv}**	**Predicted N_{bi}**	**f_{pedi}**	**Predicted N_{pedi}**
	(9) from Worksheet 2C	(9) from Worksheet 2E	(2) + (3)	from Table 12-16	(4)*(5)
Total	--	--	--	--	--
Fatal and injury (FI)	--	--	--	--	--

* Column 6 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-30

Worksheet 2H -- Crash Modification Factors for Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Signalized Intersections

(1)	(2)	(3)	(4)
CMF for Bus Stops	CMF for Schools	CMF for Alcohol Sales Establishments	Combined CMF
CMF_{1p}	CMF_{2p}	CMF_{3p}	
from Table 12-28	from Table 12-29	from Table 12-30	(1)*(2)*(3)
4.15	1.00	1.00	4.15

Worksheet 2I -- Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Signalized Intersections

(1)	(2)					(3)	(4)	(5)	(6)	(7)
Crash Severity Level	**SPF Coefficients**					**Overdispersion Parameter, k**	**$N_{pedbase}$**	**Combined CMF**	**Calibration factor, C_i**	**Predicted N_{pedi}**
	from Table 12-14						from Equation 12-29	(4) from Worksheet 2H		(4)*(5)*(6)
	a	b	c	d	e					
Total	-9.53	0.40	0.26	0.45	0.04	0.24	0.069	4.15	1.00	0.287
Fatal and Injury (FI)	--	--	--	--	--	--	--	--	1.00	0.287

Worksheet 2J -- Vehicle-Bicycle Collisions for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(7)*
Crash Severity Level	**Predicted N_{bimv}**	**Predicted N_{bisv}**	**Predicted N_{bi}**	**f_{bikei}**	**Predicted N_{bikei}**
	(9) from Worksheet 2C	(9) from Worksheet 2E	(2) + (3)	from Table 12-17	(4)*(5)
Total	3.389	0.196	3.585	0.015	0.054
Fatal and injury (FI)	--	--	--	--	0.054

* Column 6 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-31

Worksheet 2K -- Crash Severity Distribution for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)
	Fatal and injury (FI)	**Property damage only (PDO)**	**Total**
Collision type	(3) from Worksheet 2D and 2F; (7) from 2G or 2I and 2J	(5) from Worksheet 2D and 2F	(6) from Worksheet 2D and 2F; (7) from 2G or 2I and 2J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 2D)	0.518	1.081	1.599
Head-on collisions (from Worksheet 2D)	0.056	0.067	0.124
Angle collisions (from Worksheet 2D)	0.400	0.546	0.946
Sideswipe (from Worksheet 2D)	0.114	0.072	0.186
Other multiple-vehicle collision (from Worksheet 2D)	0.063	0.472	0.535
Subtotal	1.152	2.238	3.389
SINGLE-VEHICLE			
Collision with parked vehicle (from Worksheet 2F)	0.000	0.000	0.000
Collision with animal (from Worksheet 2F)	0.000	0.000	0.000
Collision with fixed object (from Worksheet 2F)	0.036	0.129	0.164
Collision with other object (from Worksheet 2F)	0.003	0.010	0.014
Other single-vehicle collision (from Worksheet 2F)	0.002	0.003	0.005
Single-vehicle noncollision (from Worksheet 2F)	0.007	0.005	0.012
Collision with pedestrian (from Worksheet 2G or 2I)	0.287	0.000	0.287
Collision with bicycle (from Worksheet 2J)	0.054	0.000	0.054
Subtotal	0.388	0.148	0.537
Total	1.540	2.386	3.926

Worksheet 2L -- Summary Results for Urban and Suburban Arterial Intersections

(1)	(2)
Crash severity level	**Predicted average crash frequency, $N_{predicted\ int}$ (crashes/year)**
	(Total) from Worksheet 2K
Total	3.9
Fatal and injury (FI)	1.5
Property damage only (PDO)	2.4

Worksheet 1A -- General Information and Input Data for Urban and Suburban Roadway Segments

General Information		Location Information	
Analyst	TL	Roadway	Omega Dr
Agency or Company	ATCS	Roadway Section	MD 28 to Research Blvd
Date Performed	12/07/21	Jurisdiction	Montgomery County
		Analysis Year	2045

Input Data		Base Conditions	Site Conditions
Roadway type (2U, 3T, 4U, 4D, ST)		--	4D
Length of segment, L (mi)		--	0.04
AADT (veh/day)	$AADT_{MAX}$ = 66,000 (veh/day)	--	11,731
Type of on-street parking (none/parallel/angle)		None	None
Proportion of curb length with on-street parking		--	0
Median width (ft) - for divided only		15	10
Lighting (present / not present)		Not Present	Present
Auto speed enforcement (present / not present)		Not Present	Not Present
Major commercial driveways (number)		--	0
Minor commercial driveways (number)		--	0
Major industrial / institutional driveways (number)		--	0
Minor industrial / institutional driveways (number)		--	0
Major residential driveways (number)		--	0
Minor residential driveways (number)		--	0
Other driveways (number)		--	0
Speed Category		--	Posted Speed Greater than 30 mph
Roadside fixed object density (fixed objects / mi)		0	0
Offset to roadside fixed objects (ft) [If greater than 30 or Not Present, input 30]		30	30
Calibration Factor, Cr		1.00	1.00

Worksheet 1B -- Crash Modification Factors for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
CMF for On-Street Parking	CMF for Roadside Fixed Objects	CMF for Median Width	CMF for Lighting	CMF for Automated Speed Enforcement	Combined CMF
CMF 1r	*CMF 2r*	*CMF 3r*	*CMF 4r*	*CMF 5r*	*CMF comb*
from Equation 12-32	from Equation 12-33	from Table 12-22	from Equation 12-34	from Section 12.7.1	(1)*(2)*(3)*(4)*(5)
1.00	1.00	1.01	0.91	1.00	0.92

Worksheet 1C -- Multiple-Vehicle Nondriveway Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brmv}**	**Proportion of Total Crashes**	**Adjusted N_{brmv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brmv}**
	from Table 12-3		from Table 12-3	from Equation 12-10		$(4)_{TOTAL}$*(5)	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-12.34	1.36	1.32	0.060	1.000	0.060	0.92	1.00	0.055
Fatal and Injury (FI)	-12.76	1.28	1.31	0.019	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.292	0.017	0.92	1.00	0.016
Property Damage Only (PDO)	-12.81	1.38	1.34	0.045	$(5)_{TOTAL}-(5)_{FI}$ = 0.708	0.042	0.92	1.00	0.039

Worksheet 1D -- Multiple-Vehicle Nondriveway Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brmv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brmv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brmv\ (TOTAL)}$ (crashes/year)**
	from Table 12-4	$(9)_{FI}$ from Worksheet 1C	from Table 12-4	$(9)_{PDO}$ from Worksheet 1C	$(9)_{TOTAL}$ from Worksheet 1C
Total	1.000	0.016	1.000	0.039	0.055
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Rear-end collision	0.832	0.013	0.662	0.026	0.039
Head-on collision	0.020	0.000	0.007	0.000	0.001
Angle collision	0.040	0.001	0.036	0.001	0.002
Sideswipe, same direction	0.050	0.001	0.223	0.009	0.010
Sideswipe, opposite direction	0.010	0.000	0.001	0.000	0.000
Other multiple-vehicle collision	0.048	0.001	0.071	0.003	0.004

Worksheet 1E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brsv}**	**Proportion of Total Crashes**	**Adjusted N_{brsv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brsv}**
	from Table 12-5		from Table 12-5	from Equation 12-13		$(4)_{TOTAL}*(5)$	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-5.05	0.47	0.86	0.021	1.000	0.021	0.92	1.00	0.019
Fatal and Injury (FI)	-8.71	0.66	0.28	0.003	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.154	0.003	0.92	1.00	0.003
Property Damage Only (PDO)	-5.04	0.45	1.06	0.018	$(5)_{TOTAL}-(5)_{FI}$ = 0.846	0.018	0.92	1.00	0.016

Worksheet 1F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brsv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brsv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brsv\ (TOTAL)}$ (crashes/year)**
	from Table 12-6	$(9)_{FI}$ from Worksheet 1E	from Table 12-6	$(9)_{PDO}$ from Worksheet 1E	$(9)_{TOTAL}$ from Worksheet 1E
Total	1.000	0.003	1.000	0.016	0.019
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Collision with animal	0.001	0.000	0.063	0.001	0.001
Collision with fixed object	0.500	0.001	0.813	0.013	0.015
Collision with other object	0.028	0.000	0.016	0.000	0.000
Other single-vehicle collision	0.471	0.001	0.108	0.002	0.003

Worksheet 1G -- Multiple-Vehicle Driveway-Related Collisions by Driveway Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Driveway Type	**Number of driveways, n_j**	**Crashes per driveway per year, N_j**	**Coefficient for traffic adjustment, t**	**Initial N_{brdwy}**	**Overdispersion parameter, k**
		from Table 12-7	from Table 12-7	Equation 12-16 $n_j * N_j * (AADT/15,000)^t$	from Table 12-7
Major commercial	0	0.033	1.106	0.000	
Minor commercial	0	0.011	1.106	0.000	
Major industrial/institutional	0	0.036	1.106	0.000	
Minor industrial/institutional	0	0.005	1.106	0.000	--
Major residential	0	0.018	1.106	0.000	
Minor residential	0	0.003	1.106	0.000	
Other	0	0.005	1.106	0.000	
Total	--	--	--	0.000	1.39

Worksheet 1H -- Multiple-Vehicle Driveway-Related Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Crash Severity Level	**Initial N_{brdwy}**	**Proportion of total crashes (f_{dwy})**	**Adjusted N_{brdwy}**	**Combined CMFs**	**Calibration factor, C_r**	**Predicted N_{brdwy}**
	$(5)_{TOTAL}$ from Worksheet 1G	from Table 12-7	$(2)_{TOTAL}$ * (3)	(6) from Worksheet 1B		(4)*(5)*(6)
Total	0.000	1.000	0.000	0.92	1.00	0.000
Fatal and injury (FI)	--	0.284	0.000	0.92	1.00	0.000
Property damage only (PDO)	--	0.716	0.000	0.92	1.00	0.000

Worksheet 1I -- Vehicle-Pedestrian Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(8)*
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{pedr}**	**Predicted N_{pedr}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-8	(5)*(6)
Total	0.055	0.019	0.000	0.075	0.019	0.001
Fatal and injury (FI)	--	--	--	--	--	0.001

* Column 7 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-19

Worksheet 1J -- Vehicle-Bicycle Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(8)*
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{biker}**	**Predicted N_{biker}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-9	(5)*(6)
Total	0.055	0.019	0.000	0.075	0.005	0.000
Fatal and injury (FI)	--	--	--	--	--	0.000

* Column 7 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-20

Worksheet 1K -- Crash Severity Distribution for Urban and Suburban Roadway Segments			
(1)	(2)	(3)	(4)
Collision type	**Fatal and injury (FI)**	**Property damage only (PDO)**	**Total**
	(3) from Worksheet 1D and 1F; (7) from Worksheet 1H; and (8) from Worksheet 1I and 1J	(5) from Worksheet 1D and 1F; and (7) from Worksheet 1H	(6) from Worksheet 1D and 1F; (7) from Worksheet 1H; and (8) from Worksheet 1I and 1J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 1D)	0.013	0.026	0.039
Head-on collisions (from Worksheet 1D)	0.000	0.000	0.001
Angle collisions (from Worksheet 1D)	0.001	0.001	0.002
Sideswipe, same direction (from Worksheet 1D)	0.001	0.009	0.010
Sideswipe, opposite direction (from Worksheet 1D)	0.000	0.000	0.000
Driveway-related collisions (from Worksheet 1H)	0.000	0.000	0.000
Other multiple-vehicle collision (from Worksheet 1D)	0.001	0.003	0.004
Subtotal	0.016	0.039	0.055
SINGLE-VEHICLE			
Collision with animal (from Worksheet 1F)	0.000	0.001	0.001
Collision with fixed object (from Worksheet 1F)	0.001	0.013	0.015
Collision with other object (from Worksheet 1F)	0.000	0.000	0.000
Other single-vehicle collision (from Worksheet 1F)	0.001	0.002	0.003
Collision with pedestrian (from Worksheet 1I)	0.001	0.000	0.001
Collision with bicycle (from Worksheet 1J)	0.000	0.000	0.000
Subtotal	0.005	0.016	0.021
Total	0.021	0.056	0.076

Worksheet 1L -- Summary Results for Urban and Suburban Roadway Segments			
(1)	(2)	(3)	(4)
Crash Severity Level	**Predicted average crash frequency, $N_{predicted\ rs}$ (crashes/year)**	**Roadway segment length, L (mi)**	**Crash rate (crashes/mi/year)**
	(Total) from Worksheet 1K		(2) / (3)
Total	0.1	0.04	1.9
Fatal and injury (FI)	0.0	0.04	0.5
Property damage only (PDO)	0.1	0.04	1.4

Worksheet 2A -- General Information and Input Data for Urban and Suburban Arterial Intersections						
General Information				**Location Information**		
Analyst	TL			Roadway	Omega Dr	
Agency or Company	ATCS			Intersection	At Research Blvd/Driveway	
Date Performed	12/07/21			Jurisdiction	Montgomery County	
				Analysis Year	2045	
Input Data				**Base Conditions**	**Site Conditions**	
Intersection type (3ST, 3SG, 4ST, 4SG)				--	3ST	
AADT $_{major}$ (veh/day)	$AADT_{MAX}$ =	45,700	(veh/day)	--	11,686	
AADT $_{minor}$ (veh/day)	$AADT_{MAX}$ =	9,300	(veh/day)	--	4,202	
Intersection lighting (present/not present)				Not Present	Present	
Calibration factor, C_i				1.00	1.00	
Data for unsignalized intersections only:				--	--	
Number of major-road approaches with left-turn lanes (0,1,2)				0	1	
Number of major-road approaches with right-turn lanes (0,1,2)				0	0	
Data for signalized intersections only:				--	--	
Number of approaches with left-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]				0		
Number of approaches with right-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]				0		
Number of approaches with left-turn signal phasing [for 3SG, use maximum value of 3]				--		
Type of left-turn signal phasing for Leg #1				Permissive		
Type of left-turn signal phasing for Leg #2				--		
Type of left-turn signal phasing for Leg #3				--		
Type of left-turn signal phasing for Leg #4 (if applicable)				--		
Number of approaches with right-turn-on-red prohibited [for 3SG, use maximum value of 3]				0		
Intersection red light cameras (present/not present)				Not Present		
Sum of all pedestrian crossing volumes (PedVol) -- Signalized intersections only						
Maximum number of lanes crossed by a pedestrian (n_{lanesx})				--		
Number of bus stops within 300 m (1,000 ft) of the intersection				0		
Schools within 300 m (1,000 ft) of the intersection (present/not present)				Not Present		
Number of alcohol sales establishments within 300 m (1,000 ft) of the intersection				0		

Worksheet 2B -- Crash Modification Factors for Urban and Suburban Arterial Intersections						
(1)	(2)	(3)	(4)	(5)	(6)	(7)
CMF for Left-Turn Lanes	CMF for Left-Turn Signal Phasing	CMF for Right-Turn Lanes	CMF for Right Turn on Red	CMF for Lighting	CMF for Red Light Cameras	Combined CMF
CMF 1i	*CMF 2i*	*CMF 3i*	*CMF 4i*	*CMF 5i*	*CMF 6i*	*CMF $_{COMB}$*
from Table 12-24	from Table 12-25	from Table 12-26	from Equation 12-35	from Equation 12-36	from Equation 12-37	(1)*(2)*(3)*(4)*(5)*(6)
0.67	1.00	1.00	1.00	0.91	1.00	0.61

Worksheet 2C -- Multiple-Vehicle Collisions by Severity Level for Urban and Suburban Arterial Intersections

(1)	(2)			(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**			**Overdispersion Parameter, k**	**Initial N_{bimv}**	**Proportion of Total Crashes**	**Adjusted N_{bimv}**	**Combined CMFs**	**Calibration Factor, C_i**	**Predicted N_{bimv}**
	from Table 12-10			from Table 12-10	from Equation 12-21		$(4)_{TOTAL}$*(5)	(7) from Worksheet 2B		(6)*(7)*(8)
	a	b	c							
Total	-13.36	1.11	0.41	0.80	1.580	1.000	1.580	0.61	1.00	0.965
Fatal and Injury (FI)	-14.01	1.16	0.30	0.69	0.526	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ 0.319	0.504	0.61	1.00	0.308
Property Damage Only (PDO)	-15.38	1.20	0.51	0.77	1.121	$(5)_{TOTAL}-(5)_{FI}$ 0.681	1.075	0.61	1.00	0.657

Worksheet 2D -- Multiple-Vehicle Collisions by Collision Type for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{bimv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{bimv\ (PDO)}$ (crashes/year)**	**Predicted N $_{bimv\ (TOTAL)}$ (crashes/year)**
	from Table 12-11	$(9)_{FI}$ from Worksheet 2C	from Table 12-11	$(9)_{PDO}$ from Worksheet 2C	$(9)_{PDO}$ from Worksheet 2C
Total	1.000	0.308	1.000	0.657	0.965
		(2)*$(3)_{FI}$		(4)*$(5)_{PDO}$	(3)+(5)
Rear-end collision	0.421	0.130	0.440	0.289	0.419
Head-on collision	0.045	0.014	0.023	0.015	0.029
Angle collision	0.343	0.106	0.262	0.172	0.278
Sideswipe	0.126	0.039	0.040	0.026	0.065
Other multiple-vehicle collision	0.065	0.020	0.235	0.154	0.174

Worksheet 2E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Arterial Intersections

(1)	(2)			(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**			**Overdispersion Parameter, k**	**Initial N_{bisv}**	**Proportion of Total Crashes**	**Adjusted N_{bimv}**	**Combined CMFs**	**Calibration Factor, C_i**	**Predicted N_{bisv}**
	from Table 12-12			from Table 12-12	from Eqn. 12-24; (FI) from Eqn. 12-24 or 12-27		$(4)_{TOTAL}$*(5)	(7) from Worksheet 2B		(6)*(7)*(8)
	a	b	c							
Total	-6.81	0.16	0.51	1.14	0.348	1.000	0.348	0.61	1.00	0.212
Fatal and Injury (FI)	--	--	--	--	0.108	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ 0.310	0.108	0.61	1.00	0.066
Property Damage Only (PDO)	-8.36	0.25	0.55	1.29	0.239	$(5)_{TOTAL}-(5)_{FI}$ 0.690	0.240	0.61	1.00	0.147

Worksheet 2F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{bisv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{bisv\ (PDO)}$ (crashes/year)**	**Predicted N $_{bisv\ (TOTAL)}$ (crashes/year)**
	from Table 12-13	$(9)_{FI}$ from Worksheet 2E	from Table 12-13	$(9)_{PDO}$ from Worksheet 2E	$(9)_{PDO}$ from Worksheet 2E
Total	1.000	0.066	1.000	0.147	0.212
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Collision with parked vehicle	0.001	0.000	0.003	0.000	0.001
Collision with animal	0.003	0.000	0.018	0.003	0.003
Collision with fixed object	0.762	0.050	0.834	0.122	0.172
Collision with other object	0.090	0.006	0.092	0.013	0.019
Other single-vehicle collision	0.039	0.003	0.023	0.003	0.006
Single-vehicle noncollision	0.105	0.007	0.030	0.004	0.011

Worksheet 2G -- Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Stop-Controlled Intersections

(1)	(2)	(3)	(4)	(5)	(7)*
Crash Severity Level	**Predicted N_{bimv}**	**Predicted N_{bisv}**	**Predicted N_{bi}**	**f_{pedi}**	**Predicted N_{pedi}**
	(9) from Worksheet 2C	(9) from Worksheet 2E	(2) + (3)	from Table 12-16	(4)*(5)
Total	0.965	0.212	1.178	0.021	0.025
Fatal and injury (FI)	--	--	--	--	0.025

* Column 6 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-30

Worksheet 2H -- Crash Modification Factors for Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Signalized Intersections

(1)	(2)	(3)	(4)
CMF for Bus Stops	CMF for Schools	CMF for Alcohol Sales Establishments	Combined CMF
CMF_{1p}	CMF_{2p}	CMF_{3p}	
from Table 12-28	from Table 12-29	from Table 12-30	(1)*(2)*(3)
--	--	--	--

Worksheet 2I -- Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Signalized Intersections

(1)	(2)					(3)	(4)	(5)	(6)	(7)
Crash Severity Level	**SPF Coefficients**					**Overdispersion Parameter, k**	**$N_{pedbase}$**	**Combined CMF**	**Calibration factor, C_i**	**Predicted N_{pedi}**
	from Table 12-14						from Equation 12-29	(4) from Worksheet 2H		(4)*(5)*(6)
	a	b	c	d	e					
Total	--	--	--	--	--	--	--	--	1.00	--
Fatal and Injury (FI)	--	--	--	--	--	--	--	--	1.00	--

Worksheet 2J -- Vehicle-Bicycle Collisions for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(7)*
Crash Severity Level	**Predicted N_{bimv}**	**Predicted N_{bisv}**	**Predicted N_{bi}**	**f_{bikei}**	**Predicted N_{bikei}**
	(9) from Worksheet 2C	(9) from Worksheet 2E	(2) + (3)	from Table 12-17	(4)*(5)
Total	0.965	0.212	1.178	0.016	0.019
Fatal and injury (FI)	--	--	--	--	0.019

* Column 6 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-31

Worksheet 2K -- Crash Severity Distribution for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)
	Fatal and injury (FI)	**Property damage only (PDO)**	**Total**
Collision type	(3) from Worksheet 2D and 2F; (7) from 2G or 2I and 2J	(5) from Worksheet 2D and 2F	(6) from Worksheet 2D and 2F; (7) from 2G or 2I and 2J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 2D)	0.130	0.289	0.419
Head-on collisions (from Worksheet 2D)	0.014	0.015	0.029
Angle collisions (from Worksheet 2D)	0.106	0.172	0.278
Sideswipe (from Worksheet 2D)	0.039	0.026	0.065
Other multiple-vehicle collision (from Worksheet 2D)	0.020	0.154	0.174
Subtotal	0.308	0.657	0.965
SINGLE-VEHICLE			
Collision with parked vehicle (from Worksheet 2F)	0.000	0.000	0.001
Collision with animal (from Worksheet 2F)	0.000	0.003	0.003
Collision with fixed object (from Worksheet 2F)	0.050	0.122	0.172
Collision with other object (from Worksheet 2F)	0.006	0.013	0.019
Other single-vehicle collision (from Worksheet 2F)	0.003	0.003	0.006
Single-vehicle noncollision (from Worksheet 2F)	0.007	0.004	0.011
Collision with pedestrian (from Worksheet 2G or 2I)	0.025	0.000	0.025
Collision with bicycle (from Worksheet 2J)	0.019	0.000	0.019
Subtotal	0.110	0.147	0.256
Total	0.418	0.803	1.221

Worksheet 2L -- Summary Results for Urban and Suburban Arterial Intersections

(1)	(2)
Crash severity level	**Predicted average crash frequency, $N_{predicted\ int}$ (crashes/year)**
	(Total) from Worksheet 2K
Total	1.2
Fatal and injury (FI)	0.4
Property damage only (PDO)	0.8

Worksheet 1A -- General Information and Input Data for Urban and Suburban Roadway Segments

General Information		Location Information	
Analyst	TL	Roadway	Omega Dr
Agency or Company	ATCS	Roadway Section	Research Blvd to I-270 SB Off-Ramp
Date Performed	12/07/21	Jurisdiction	Montgomery County
		Analysis Year	2045

Input Data		Base Conditions	Site Conditions
Roadway type (2U, 3T, 4U, 4D, ST)		--	4D
Length of segment, L (mi)		--	0.24
AADT (veh/day)	$AADT_{MAX}$ = 66,000 (veh/day)	--	11,706
Type of on-street parking (none/parallel/angle)		None	None
Proportion of curb length with on-street parking		--	0
Median width (ft) - for divided only		15	15
Lighting (present / not present)		Not Present	Present
Auto speed enforcement (present / not present)		Not Present	Not Present
Major commercial driveways (number)		--	0
Minor commercial driveways (number)		--	0
Major industrial / institutional driveways (number)		--	0
Minor industrial / institutional driveways (number)		--	0
Major residential driveways (number)		--	1
Minor residential driveways (number)		--	0
Other driveways (number)		--	1
Speed Category		--	Posted Speed Greater than 30 mph
Roadside fixed object density (fixed objects / mi)		0	0
Offset to roadside fixed objects (ft) [If greater than 30 or Not Present, input 30]		30	30
Calibration Factor, Cr		1.00	1.00

Worksheet 1B -- Crash Modification Factors for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
CMF for On-Street Parking	CMF for Roadside Fixed Objects	CMF for Median Width	CMF for Lighting	CMF for Automated Speed Enforcement	Combined CMF
CMF 1r	*CMF 2r*	*CMF 3r*	*CMF 4r*	*CMF 5r*	*CMF comb*
from Equation 12-32	from Equation 12-33	from Table 12-22	from Equation 12-34	from Section 12.7.1	(1)*(2)*(3)*(4)*(5)
1.00	1.00	1.00	0.91	1.00	0.91

Worksheet 1C -- Multiple-Vehicle Nondriveway Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brmv}**	**Proportion of Total Crashes**	**Adjusted N_{brmv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brmv}**
	from Table 12-3		from Table 12-3	from Equation 12-10		$(4)_{TOTAL}$*(5)	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-12.34	1.36	1.32	0.358	1.000	0.358	0.91	1.00	0.327
Fatal and Injury (FI)	-12.76	1.28	1.31	0.111	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.292	0.104	0.91	1.00	0.095
Property Damage Only (PDO)	-12.81	1.38	1.34	0.270	$(5)_{TOTAL}-(5)_{FI}$ = 0.708	0.254	0.91	1.00	0.232

Worksheet 1D -- Multiple-Vehicle Nondriveway Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brmv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brmv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brmv\ (TOTAL)}$ (crashes/year)**
	from Table 12-4	$(9)_{FI}$ from Worksheet 1C	from Table 12-4	$(9)_{PDO}$ from Worksheet 1C	$(9)_{TOTAL}$ from Worksheet 1C
Total	1.000	0.095	1.000	0.232	0.327
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Rear-end collision	0.832	0.079	0.662	0.153	0.233
Head-on collision	0.020	0.002	0.007	0.002	0.004
Angle collision	0.040	0.004	0.036	0.008	0.012
Sideswipe, same direction	0.050	0.005	0.223	0.052	0.056
Sideswipe, opposite direction	0.010	0.001	0.001	0.000	0.001
Other multiple-vehicle collision	0.048	0.005	0.071	0.016	0.021

Worksheet 1E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brsv}**	**Proportion of Total Crashes**	**Adjusted N_{brsv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brsv}**
	from Table 12-5		from Table 12-5	from Equation 12-13		$(4)_{TOTAL}*(5)$	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-5.05	0.47	0.86	0.126	1.000	0.126	0.91	1.00	0.115
Fatal and Injury (FI)	-8.71	0.66	0.28	0.019	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.154	0.019	0.91	1.00	0.018
Property Damage Only (PDO)	-5.04	0.45	1.06	0.105	$(5)_{TOTAL}-(5)_{FI}$ = 0.846	0.106	0.91	1.00	0.097

Worksheet 1F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brsv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brsv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brsv\ (TOTAL)}$ (crashes/year)**
	from Table 12-6	$(9)_{FI}$ from Worksheet 1E	from Table 12-6	$(9)_{PDO}$ from Worksheet 1E	$(9)_{TOTAL}$ from Worksheet 1E
Total	1.000	0.018	1.000	0.097	0.115
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Collision with animal	0.001	0.000	0.063	0.006	0.006
Collision with fixed object	0.500	0.009	0.813	0.079	0.088
Collision with other object	0.028	0.000	0.016	0.002	0.002
Other single-vehicle collision	0.471	0.008	0.108	0.010	0.019

Worksheet 1G -- Multiple-Vehicle Driveway-Related Collisions by Driveway Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Driveway Type	**Number of driveways, n_j**	**Crashes per driveway per year, N_j**	**Coefficient for traffic adjustment, t**	**Initial N_{brdwy}**	**Overdispersion parameter, k**
		from Table 12-7	from Table 12-7	Equation 12-16 $n_j * N_j * (AADT/15,000)^t$	from Table 12-7
Major commercial	0	0.033	1.106	0.000	--
Minor commercial	0	0.011	1.106	0.000	
Major industrial/institutional	0	0.036	1.106	0.000	
Minor industrial/institutional	0	0.005	1.106	0.000	
Major residential	1	0.018	1.106	0.014	
Minor residential	0	0.003	1.106	0.000	
Other	1	0.005	1.106	0.004	
Total	--	--	--	0.017	1.39

Worksheet 1H -- Multiple-Vehicle Driveway-Related Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Crash Severity Level	**Initial N_{brdwy}**	**Proportion of total crashes (f_{dwy})**	**Adjusted N_{brdwy}**	**Combined CMFs**	**Calibration factor, C_r**	**Predicted N_{brdwy}**
	$(5)_{TOTAL}$ from Worksheet 1G	from Table 12-7	$(2)_{TOTAL}$ * (3)	(6) from Worksheet 1B		(4)*(5)*(6)
Total	0.017	1.000	0.017	0.91	1.00	0.016
Fatal and injury (FI)	--	0.284	0.005	0.91	1.00	0.005
Property damage only (PDO)	--	0.716	0.013	0.91	1.00	0.011

Worksheet 1I -- Vehicle-Pedestrian Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(8)*
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{pedr}**	**Predicted N_{pedr}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-8	(5)*(6)
Total	0.327	0.115	0.016	0.458	0.019	0.009
Fatal and injury (FI)	--	--	--	--	--	0.009

* Column 7 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-19

Worksheet 1J -- Vehicle-Bicycle Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(8)*
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{biker}**	**Predicted N_{biker}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-9	(5)*(6)
Total	0.327	0.115	0.016	0.458	0.005	0.002
Fatal and injury (FI)	--	--	--	--	--	0.002

* Column 7 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-20

Worksheet 1K -- Crash Severity Distribution for Urban and Suburban Roadway Segments			
(1)	(2)	(3)	(4)
Collision type	**Fatal and injury (FI)**	**Property damage only (PDO)**	**Total**
	(3) from Worksheet 1D and 1F; (7) from Worksheet 1H; and (8) from Worksheet 1I and 1J	(5) from Worksheet 1D and 1F; and (7) from Worksheet 1H	(6) from Worksheet 1D and 1F; (7) from Worksheet 1H; and (8) from Worksheet 1I and 1J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 1D)	0.079	0.153	0.233
Head-on collisions (from Worksheet 1D)	0.002	0.002	0.004
Angle collisions (from Worksheet 1D)	0.004	0.008	0.012
Sideswipe, same direction (from Worksheet 1D)	0.005	0.052	0.056
Sideswipe, opposite direction (from Worksheet 1D)	0.001	0.000	0.001
Driveway-related collisions (from Worksheet 1H)	0.005	0.011	0.016
Other multiple-vehicle collision (from Worksheet 1D)	0.005	0.016	0.021
Subtotal	0.100	0.243	0.343
SINGLE-VEHICLE			
Collision with animal (from Worksheet 1F)	0.000	0.006	0.006
Collision with fixed object (from Worksheet 1F)	0.009	0.079	0.088
Collision with other object (from Worksheet 1F)	0.000	0.002	0.002
Other single-vehicle collision (from Worksheet 1F)	0.008	0.010	0.019
Collision with pedestrian (from Worksheet 1I)	0.009	0.000	0.009
Collision with bicycle (from Worksheet 1J)	0.002	0.000	0.002
Subtotal	0.029	0.097	0.126
Total	0.129	0.340	0.469

Worksheet 1L -- Summary Results for Urban and Suburban Roadway Segments			
(1)	(2)	(3)	(4)
Crash Severity Level	**Predicted average crash frequency, $N_{predicted\ rs}$ (crashes/year)**	**Roadway segment length, L (mi)**	**Crash rate (crashes/mi/year)**
	(Total) from Worksheet 1K		(2) / (3)
Total	0.5	0.24	2.0
Fatal and injury (FI)	0.1	0.24	0.5
Property damage only (PDO)	0.3	0.24	1.4

Worksheet 2A -- General Information and Input Data for Urban and Suburban Arterial Intersections						
General Information				**Location Information**		
Analyst	TL			Roadway	Omega Dr/Fields Rd	
Agency or Company	ATCS			Intersection	At I-270 SB Off-Ramp	
Date Performed	12/07/21			Jurisdiction	Montgomery County	
				Analysis Year	2045	
Input Data				**Base Conditions**	**Site Conditions**	
Intersection type (3ST, 3SG, 4ST, 4SG)				--	3ST	
AADT $_{major}$ (veh/day)	$AADT_{MAX}$ =	45,700	(veh/day)	--	11,761	
AADT $_{minor}$ (veh/day)	$AADT_{MAX}$ =	9,300	(veh/day)	--	2,896	
Intersection lighting (present/not present)				Not Present	Present	
Calibration factor, C_i				1.00	1.00	
Data for unsignalized intersections only:				--	--	
Number of major-road approaches with left-turn lanes (0,1,2)				0	0	
Number of major-road approaches with right-turn lanes (0,1,2)				0	0	
Data for signalized intersections only:				--	--	
				0		
Number of approaches with right-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]				0		
Number of approaches with left-turn signal phasing [for 3SG, use maximum value of 3]				--		
Type of left-turn signal phasing for Leg #1				Permissive		
Type of left-turn signal phasing for Leg #2				--		
Type of left-turn signal phasing for Leg #3				--		
Type of left-turn signal phasing for Leg #4 (if applicable)				--		
Number of approaches with right-turn-on-red prohibited [for 3SG, use maximum value of 3]				0		
Intersection red light cameras (present/not present)				Not Present		
Sum of all pedestrian crossing volumes (PedVol) -- Signalized intersections only						
Maximum number of lanes crossed by a pedestrian (n_{lanesx})				--		
Number of bus stops within 300 m (1,000 ft) of the intersection				0		
Schools within 300 m (1,000 ft) of the intersection (present/not present)				Not Present		
Number of alcohol sales establishments within 300 m (1,000 ft) of the intersection				0		

Worksheet 2B -- Crash Modification Factors for Urban and Suburban Arterial Intersections						
(1)	(2)	(3)	(4)	(5)	(6)	(7)
CMF for Left-Turn Lanes	CMF for Left-Turn Signal Phasing	CMF for Right-Turn Lanes	CMF for Right Turn on Red	CMF for Lighting	CMF for Red Light Cameras	Combined CMF
CMF 1i	*CMF 2i*	*CMF 3i*	*CMF 4i*	*CMF 5i*	*CMF 6i*	*CMF $_{COMB}$*
from Table 12-24	from Table 12-25	from Table 12-26	from Equation 12-35	from Equation 12-36	from Equation 12-37	(1)*(2)*(3)*(4)*(5)*(6)
1.00	1.00	1.00	1.00	0.91	1.00	0.91

Worksheet 2C -- Multiple-Vehicle Collisions by Severity Level for Urban and Suburban Arterial Intersections

(1)	(2)			(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**			**Overdispersion Parameter, k**	**Initial N_{bimv}**	**Proportion of Total Crashes**	**Adjusted N_{bimv}**	**Combined CMFs**	**Calibration Factor, C_i**	**Predicted N_{bimv}**
	from Table 12-10			from Table 12-10	from Equation 12-21		$(4)_{TOTAL}$*(5)	(7) from Worksheet 2B		(6)*(7)*(8)
	a	b	c							
Total	-13.36	1.11	0.41	0.80	1.366	1.000	1.366	0.91	1.00	1.245
Fatal and Injury (FI)	-14.01	1.16	0.30	0.69	0.474	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.337	0.460	0.91	1.00	0.419
Property Damage Only (PDO)	-15.38	1.20	0.51	0.77	0.935	$(5)_{TOTAL}-(5)_{FI}$ = 0.663	0.906	0.91	1.00	0.826

Worksheet 2D -- Multiple-Vehicle Collisions by Collision Type for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{bimv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{bimv\ (PDO)}$ (crashes/year)**	**Predicted N $_{bimv\ (TOTAL)}$ (crashes/year)**
	from Table 12-11	$(9)_{FI}$ from Worksheet 2C	from Table 12-11	$(9)_{PDO}$ from Worksheet 2C	$(9)_{PDO}$ from Worksheet 2C
Total	1.000	0.419	1.000	0.826	1.245
		(2)*$(3)_{FI}$		(4)*$(5)_{PDO}$	(3)+(5)
Rear-end collision	0.421	0.176	0.440	0.363	0.540
Head-on collision	0.045	0.019	0.023	0.019	0.038
Angle collision	0.343	0.144	0.262	0.216	0.360
Sideswipe	0.126	0.053	0.040	0.033	0.086
Other multiple-vehicle collision	0.065	0.027	0.235	0.194	0.221

Worksheet 2E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Arterial Intersections

(1)	(2)			(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**			**Overdispersion Parameter, k**	**Initial N_{bisv}**	**Proportion of Total Crashes**	**Adjusted N_{bimv}**	**Combined CMFs**	**Calibration Factor, C_i**	**Predicted N_{bisv}**
	from Table 12-12			from Table 12-12	from Eqn. 12-24; (FI) from Eqn. 12-24 or 12-27		$(4)_{TOTAL}$*(5)	(7) from Worksheet 2B		(6)*(7)*(8)
	a	b	c							
Total	-6.81	0.16	0.51	1.14	0.288	1.000	0.288	0.91	1.00	0.262
Fatal and Injury (FI)	--	--	--	--	0.089	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.314	0.090	0.91	1.00	0.082
Property Damage Only (PDO)	-8.36	0.25	0.55	1.29	0.195	$(5)_{TOTAL}-(5)_{FI}$ = 0.686	0.198	0.91	1.00	0.180

Worksheet 2F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{bisv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{bisv\ (PDO)}$ (crashes/year)**	**Predicted N $_{bisv\ (TOTAL)}$ (crashes/year)**
	from Table 12-13	(9)$_{FI}$ from Worksheet 2E	from Table 12-13	(9)$_{PDO}$ from Worksheet 2E	(9)$_{PDO}$ from Worksheet 2E
Total	1.000	0.082	1.000	0.180	0.262
		(2)*(3)$_{FI}$		(4)*(5)$_{PDO}$	(3)+(5)
Collision with parked vehicle	0.001	0.000	0.003	0.001	0.001
Collision with animal	0.003	0.000	0.018	0.003	0.003
Collision with fixed object	0.762	0.063	0.834	0.150	0.213
Collision with other object	0.090	0.007	0.092	0.017	0.024
Other single-vehicle collision	0.039	0.003	0.023	0.004	0.007
Single-vehicle noncollision	0.105	0.009	0.030	0.005	0.014

Worksheet 2G -- Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Stop-Controlled Intersections

(1)	(2)	(3)	(4)	(5)	(7)*
Crash Severity Level	**Predicted N_{bimv}**	**Predicted N_{bisv}**	**Predicted N_{bi}**	**f_{pedi}**	**Predicted N_{pedi}**
	(9) from Worksheet 2C	(9) from Worksheet 2E	(2) + (3)	from Table 12-16	(4)*(5)
Total	1.245	0.262	1.508	0.021	0.032
Fatal and injury (FI)	--	--	--	--	0.032

* Column 6 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-30

Worksheet 2H -- Crash Modification Factors for Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Signalized Intersections

(1)	(2)	(3)	(4)
CMF for Bus Stops	CMF for Schools	CMF for Alcohol Sales Establishments	Combined CMF
CMF_{1p}	CMF_{2p}	CMF_{3p}	
from Table 12-28	from Table 12-29	from Table 12-30	(1)*(2)*(3)
--	--	--	--

Worksheet 2I -- Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Signalized Intersections

(1)	(2)					(3)	(4)	(5)	(6)	(7)
Crash Severity Level	**SPF Coefficients**					**Overdispersion Parameter, k**	**$N_{pedbase}$**	**Combined CMF**	**Calibration factor, C_i**	**Predicted N_{pedi}**
	from Table 12-14						from Equation 12-29	(4) from Worksheet 2H		(4)*(5)*(6)
	a	b	c	d	e					
Total	--	--	--	--	--	--	--	--	1.00	--
Fatal and Injury (FI)	--	--	--	--	--	--	--	--	1.00	--

Worksheet 2J -- Vehicle-Bicycle Collisions for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(7)*
Crash Severity Level	**Predicted N_{bimv}**	**Predicted N_{bisv}**	**Predicted N_{bi}**	**f_{bikei}**	**Predicted N_{bikei}**
	(9) from Worksheet 2C	(9) from Worksheet 2E	(2) + (3)	from Table 12-17	(4)*(5)
Total	1.245	0.262	1.508	0.016	0.024
Fatal and injury (FI)	--	--	--	--	0.024

* Column 6 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-31

Worksheet 2K -- Crash Severity Distribution for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)
	Fatal and injury (FI)	**Property damage only (PDO)**	**Total**
Collision type	(3) from Worksheet 2D and 2F; (7) from 2G or 2I and 2J	(5) from Worksheet 2D and 2F	(6) from Worksheet 2D and 2F; (7) from 2G or 2I and 2J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 2D)	0.176	0.363	0.540
Head-on collisions (from Worksheet 2D)	0.019	0.019	0.038
Angle collisions (from Worksheet 2D)	0.144	0.216	0.360
Sideswipe (from Worksheet 2D)	0.053	0.033	0.086
Other multiple-vehicle collision (from Worksheet 2D)	0.027	0.194	0.221
Subtotal	0.419	0.826	1.245
SINGLE-VEHICLE			
Collision with parked vehicle (from Worksheet 2F)	0.000	0.001	0.001
Collision with animal (from Worksheet 2F)	0.000	0.003	0.003
Collision with fixed object (from Worksheet 2F)	0.063	0.150	0.213
Collision with other object (from Worksheet 2F)	0.007	0.017	0.024
Other single-vehicle collision (from Worksheet 2F)	0.003	0.004	0.007
Single-vehicle noncollision (from Worksheet 2F)	0.009	0.005	0.014
Collision with pedestrian (from Worksheet 2G or 2I)	0.032	0.000	0.032
Collision with bicycle (from Worksheet 2J)	0.024	0.000	0.024
Subtotal	0.138	0.180	0.318
Total	0.557	1.006	1.563

Worksheet 2L -- Summary Results for Urban and Suburban Arterial Intersections

(1)	(2)
Crash severity level	**Predicted average crash frequency, $N_{predicted\ int}$ (crashes/year)**
	(Total) from Worksheet 2K
Total	1.6
Fatal and injury (FI)	0.6
Property damage only (PDO)	1.0

Worksheet 2A -- General Information and Input Data for Urban and Suburban Arterial Intersections						
General Information				**Location Information**		
Analyst	TL			Roadway	W. Gude Drive	
Agency or Company	ATCS			Intersection	W. Gude Drive at Research Boulevard	
Date Performed	12/07/21			Jurisdiction	Montgomery County	
				Analysis Year	2045	
Input Data				**Base Conditions**	**Site Conditions**	
Intersection type (3ST, 3SG, 4ST, 4SG)				--	4SG	
AADT $_{major}$ (veh/day)	$AADT_{MAX}$ =	67,700	(veh/day)	--	30,111	
AADT $_{minor}$ (veh/day)	$AADT_{MAX}$ =	33,400	(veh/day)	--	12,105	
Intersection lighting (present/not present)				Not Present	Present	
Calibration factor, C_i				1.00	1.00	
Data for unsignalized intersections only:				--		
Number of major-road approaches with left-turn lanes (0,1,2)				0		
Number of major-road approaches with right-turn lanes (0,1,2)				0		
Data for signalized intersections only:				--		
Number of approaches with left-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]				0	4	
Number of approaches with right-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]				0	3	
Number of approaches with left-turn signal phasing [for 3SG, use maximum value of 3]				--	3	
Type of left-turn signal phasing for Leg #1				Permissive	Protected	
Type of left-turn signal phasing for Leg #2				--	Permissive / Protected	
Type of left-turn signal phasing for Leg #3				--	Permissive / Protected	
Type of left-turn signal phasing for Leg #4 (if applicable)				--	Permissive	
Number of approaches with right-turn-on-red prohibited [for 3SG, use maximum value of 3]				0	0	
Intersection red light cameras (present/not present)				Not Present	Not Present	
Sum of all pedestrian crossing volumes (PedVol) -- Signalized intersections only					129	
Maximum number of lanes crossed by a pedestrian (n_{lanesx})				--	7	
Number of bus stops within 300 m (1,000 ft) of the intersection				0	4	
Schools within 300 m (1,000 ft) of the intersection (present/not present)				Not Present	Not Present	
Number of alcohol sales establishments within 300 m (1,000 ft) of the intersection				0	0	

Worksheet 2B -- Crash Modification Factors for Urban and Suburban Arterial Intersections						
(1)	(2)	(3)	(4)	(5)	(6)	(7)
CMF for Left-Turn Lanes	CMF for Left-Turn Signal Phasing	CMF for Right-Turn Lanes	CMF for Right Turn on Red	CMF for Lighting	CMF for Red Light Cameras	Combined CMF
CMF 1i	*CMF 2i*	*CMF 3i*	*CMF 4i*	*CMF 5i*	*CMF 6i*	*CMF $_{COMB}$*
from Table 12-24	from Table 12-25	from Table 12-26	from Equation 12-35	from Equation 12-36	from Equation 12-37	(1)*(2)*(3)*(4)*(5)*(6)
0.66	0.92	0.88	1.00	0.91	1.00	0.49

Worksheet 2C -- Multiple-Vehicle Collisions by Severity Level for Urban and Suburban Arterial Intersections

(1)	(2)			(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**			**Overdispersion Parameter, k**	**Initial N_{bimv}**	**Proportion of Total Crashes**	**Adjusted N_{bimv}**	**Combined CMFs**	**Calibration Factor, C_i**	**Predicted N_{bimv}**
	from Table 12-10			from Table 12-10	from Equation 12-21		$(4)_{TOTAL}$*(5)	(7) from Worksheet 2B		(6)*(7)*(8)
	a	b	c							
Total	-10.99	1.07	0.23	0.39	9.087	1.000	9.087	0.49	1.00	4.452
Fatal and Injury (FI)	-13.14	1.18	0.22	0.33	2.996	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.341	3.100	0.49	1.00	1.519
Property Damage Only (PDO)	-11.02	1.02	0.24	0.44	5.785	$(5)_{TOTAL}-(5)_{FI}$ = 0.659	5.987	0.49	1.00	2.933

Worksheet 2D -- Multiple-Vehicle Collisions by Collision Type for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{bimv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{bimv\ (PDO)}$ (crashes/year)**	**Predicted N $_{bimv\ (TOTAL)}$ (crashes/year)**
	from Table 12-11	$(9)_{FI}$ from Worksheet 2C	from Table 12-11	$(9)_{PDO}$ from Worksheet 2C	$(9)_{PDO}$ from Worksheet 2C
Total	1.000	1.519	1.000	2.933	4.452
		(2)*$(3)_{FI}$		(4)*$(5)_{PDO}$	(3)+(5)
Rear-end collision	0.450	0.684	0.483	1.417	2.100
Head-on collision	0.049	0.074	0.030	0.088	0.162
Angle collision	0.347	0.527	0.244	0.716	1.243
Sideswipe	0.099	0.150	0.032	0.094	0.244
Other multiple-vehicle collision	0.055	0.084	0.211	0.619	0.702

Worksheet 2E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Arterial Intersections

(1)	(2)			(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**			**Overdispersion Parameter, k**	**Initial N_{bisv}**	**Proportion of Total Crashes**	**Adjusted N_{bimv}**	**Combined CMFs**	**Calibration Factor, C_i**	**Predicted N_{bisv}**
	from Table 12-12			from Table 12-12	from Eqn. 12-24; (FI) from Eqn. 12-24 or 12-27		$(4)_{TOTAL}$*(5)	(7) from Worksheet 2B		(6)*(7)*(8)
	a	b	c							
Total	-10.21	0.68	0.27	0.36	0.517	1.000	0.517	0.49	1.00	0.253
Fatal and Injury (FI)	-9.25	0.43	0.29	0.09	0.124	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.242	0.125	0.49	1.00	0.061
Property Damage Only (PDO)	-11.34	0.78	0.25	0.44	0.388	$(5)_{TOTAL}-(5)_{FI}$ = 0.758	0.392	0.49	1.00	0.192

Worksheet 2F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{bisv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{bisv\ (PDO)}$ (crashes/year)**	**Predicted N $_{bisv\ (TOTAL)}$ (crashes/year)**
	from Table 12-13	(9)$_{FI}$ from Worksheet 2E	from Table 12-13	(9)$_{PDO}$ from Worksheet 2E	(9)$_{PDO}$ from Worksheet 2E
Total	1.000	0.061	1.000	0.192	0.253
		(2)*(3)$_{FI}$		(4)*(5)$_{PDO}$	(3)+(5)
Collision with parked vehicle	0.001	0.000	0.001	0.000	0.000
Collision with animal	0.002	0.000	0.002	0.000	0.001
Collision with fixed object	0.744	0.046	0.870	0.167	0.213
Collision with other object	0.072	0.004	0.070	0.013	0.018
Other single-vehicle collision	0.040	0.002	0.023	0.004	0.007
Single-vehicle noncollision	0.141	0.009	0.034	0.007	0.015

Worksheet 2G -- Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Stop-Controlled Intersections

(1)	(2)	(3)	(4)	(5)	(7)*
Crash Severity Level	**Predicted N_{bimv}**	**Predicted N_{bisv}**	**Predicted N_{bi}**	**f_{pedi}**	**Predicted N_{pedi}**
	(9) from Worksheet 2C	(9) from Worksheet 2E	(2) + (3)	from Table 12-16	(4)*(5)
Total	--	--	--	--	--
Fatal and injury (FI)	--	--	--	--	--

* Column 6 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-30

Worksheet 2H -- Crash Modification Factors for Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Signalized Intersections

(1)	(2)	(3)	(4)
CMF for Bus Stops	CMF for Schools	CMF for Alcohol Sales Establishments	Combined CMF
CMF_{1p}	CMF_{2p}	CMF_{3p}	
from Table 12-28	from Table 12-29	from Table 12-30	(1)*(2)*(3)
4.15	1.00	1.00	4.15

Worksheet 2I -- Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Signalized Intersections

(1)	(2)					(3)	(4)	(5)	(6)	(7)
Crash Severity Level	**SPF Coefficients**					**Overdispersion Parameter, k**	**$N_{pedbase}$**	**Combined CMF**	**Calibration factor, C_i**	**Predicted N_{pedi}**
	from Table 12-14						from Equation 12-29	(4) from Worksheet 2H		(4)*(5)*(6)
	a	b	c	d	e					
Total	-9.53	0.40	0.26	0.45	0.04	0.24	0.048	4.15	1.00	0.199
Fatal and Injury (FI)	--	--	--	--	--	--	--	--	1.00	0.199

Worksheet 2J -- Vehicle-Bicycle Collisions for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(7)*
Crash Severity Level	**Predicted N_{bimv}**	**Predicted N_{bisv}**	**Predicted N_{bi}**	**f_{bikei}**	**Predicted N_{bikei}**
	(9) from Worksheet 2C	(9) from Worksheet 2E	(2) + (3)	from Table 12-17	(4)*(5)
Total	4.452	0.253	4.705	0.015	0.071
Fatal and injury (FI)	--	--	--	--	0.071

* Column 6 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-31

Worksheet 2K -- Crash Severity Distribution for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)
	Fatal and injury (FI)	**Property damage only (PDO)**	**Total**
Collision type	(3) from Worksheet 2D and 2F; (7) from 2G or 2I and 2J	(5) from Worksheet 2D and 2F	(6) from Worksheet 2D and 2F; (7) from 2G or 2I and 2J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 2D)	0.684	1.417	2.100
Head-on collisions (from Worksheet 2D)	0.074	0.088	0.162
Angle collisions (from Worksheet 2D)	0.527	0.716	1.243
Sideswipe (from Worksheet 2D)	0.150	0.094	0.244
Other multiple-vehicle collision (from Worksheet 2D)	0.084	0.619	0.702
Subtotal	1.519	2.933	4.452
SINGLE-VEHICLE			
Collision with parked vehicle (from Worksheet 2F)	0.000	0.000	0.000
Collision with animal (from Worksheet 2F)	0.000	0.000	0.001
Collision with fixed object (from Worksheet 2F)	0.046	0.167	0.213
Collision with other object (from Worksheet 2F)	0.004	0.013	0.018
Other single-vehicle collision (from Worksheet 2F)	0.002	0.004	0.007
Single-vehicle noncollision (from Worksheet 2F)	0.009	0.007	0.015
Collision with pedestrian (from Worksheet 2G or 2I)	0.199	0.000	0.199
Collision with bicycle (from Worksheet 2J)	0.071	0.000	0.071
Subtotal	0.330	0.192	0.523
Total	1.849	3.125	4.975

Worksheet 2L -- Summary Results for Urban and Suburban Arterial Intersections

(1)	(2)
Crash severity level	**Predicted average crash frequency, $N_{predicted\ int}$ (crashes/year)**
	(Total) from Worksheet 2K
Total	5.0
Fatal and injury (FI)	1.8
Property damage only (PDO)	3.1

Worksheet 1A -- General Information and Input Data for Urban and Suburban Roadway Segments

General Information		Location Information	
Analyst	TL	Roadway	W. Gude Drive
Agency or Company	ATCS	Roadway Section	250 ft east of Research Blvd to I-270 ML Ramps
Date Performed	12/07/21	Jurisdiction	Montgomery County
		Analysis Year	2045

Input Data		Base Conditions	Site Conditions
Roadway type (2U, 3T, 4U, 4D, ST)		--	4D
Length of segment, L (mi)		--	0.06
AADT (veh/day)	$AADT_{MAX}$ = 66,000 (veh/day)	--	35,153
Type of on-street parking (none/parallel/angle)		None	None
Proportion of curb length with on-street parking		--	
Median width (ft) - for divided only		15	10
Lighting (present / not present)		Not Present	Present
Auto speed enforcement (present / not present)		Not Present	Not Present
Major commercial driveways (number)		--	0
Minor commercial driveways (number)		--	0
Major industrial / institutional driveways (number)		--	0
Minor industrial / institutional driveways (number)		--	0
Major residential driveways (number)		--	0
Minor residential driveways (number)		--	0
Other driveways (number)		--	0
Speed Category		--	Posted Speed Greater than 30 mph
Roadside fixed object density (fixed objects / mi)		0	50
Offset to roadside fixed objects (ft) [If greater than 30 or Not Present, input 30]		30	6
Calibration Factor, Cr		1.00	1.00

Worksheet 1B -- Crash Modification Factors for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
CMF for On-Street Parking	CMF for Roadside Fixed Objects	CMF for Median Width	CMF for Lighting	CMF for Automated Speed Enforcement	Combined CMF
CMF 1r	*CMF 2r*	*CMF 3r*	*CMF 4r*	*CMF 5r*	*CMF comb*
from Equation 12-32	from Equation 12-33	from Table 12-22	from Equation 12-34	from Section 12.7.1	(1)*(2)*(3)*(4)*(5)
1.00	1.18	1.01	0.91	1.00	1.09

Worksheet 1C -- Multiple-Vehicle Nondriveway Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brmv}**	**Proportion of Total Crashes**	**Adjusted N_{brmv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brmv}**
	from Table 12-3		from Table 12-3	from Equation 12-10		$(4)_{TOTAL}$*(5)	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-12.34	1.36	1.32	0.399	1.000	0.399	1.09	1.00	0.434
Fatal and Injury (FI)	-12.76	1.28	1.31	0.114	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.270	0.108	1.09	1.00	0.117
Property Damage Only (PDO)	-12.81	1.38	1.34	0.308	$(5)_{TOTAL}-(5)_{FI}$ = 0.730	0.292	1.09	1.00	0.317

Worksheet 1D -- Multiple-Vehicle Nondriveway Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brmv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brmv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brmv\ (TOTAL)}$ (crashes/year)**
	from Table 12-4	$(9)_{FI}$ from Worksheet 1C	from Table 12-4	$(9)_{PDO}$ from Worksheet 1C	$(9)_{TOTAL}$ from Worksheet 1C
Total	1.000	0.117	1.000	0.317	0.434
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Rear-end collision	0.832	0.097	0.662	0.210	0.307
Head-on collision	0.020	0.002	0.007	0.002	0.005
Angle collision	0.040	0.005	0.036	0.011	0.016
Sideswipe, same direction	0.050	0.006	0.223	0.071	0.077
Sideswipe, opposite direction	0.010	0.001	0.001	0.000	0.001
Other multiple-vehicle collision	0.048	0.006	0.071	0.023	0.028

Worksheet 1E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brsv}**	**Proportion of Total Crashes**	**Adjusted N_{brsv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brsv}**
	from Table 12-5		from Table 12-5	from Equation 12-13		$(4)_{TOTAL}*(5)$	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-5.05	0.47	0.86	0.053	1.000	0.053	1.09	1.00	0.057
Fatal and Injury (FI)	-8.71	0.66	0.28	0.010	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.187	0.010	1.09	1.00	0.011
Property Damage Only (PDO)	-5.04	0.45	1.06	0.043	$(5)_{TOTAL}-(5)_{FI}$ = 0.813	0.043	1.09	1.00	0.047

Worksheet 1F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brsv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brsv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brsv\ (TOTAL)}$ (crashes/year)**
	from Table 12-6	$(9)_{FI}$ from Worksheet 1E	from Table 12-6	$(9)_{PDO}$ from Worksheet 1E	$(9)_{TOTAL}$ from Worksheet 1E
Total	1.000	0.011	1.000	0.047	0.057
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Collision with animal	0.001	0.000	0.063	0.003	0.003
Collision with fixed object	0.500	0.005	0.813	0.038	0.043
Collision with other object	0.028	0.000	0.016	0.001	0.001
Other single-vehicle collision	0.471	0.005	0.108	0.005	0.010

Worksheet 1G -- Multiple-Vehicle Driveway-Related Collisions by Driveway Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Driveway Type	**Number of driveways, n_j**	**Crashes per driveway per year, N_j**	**Coefficient for traffic adjustment, t**	**Initial N_{brdwy}**	**Overdispersion parameter, k**
		from Table 12-7	from Table 12-7	Equation 12-16 $n_j * N_j * (AADT/15,000)^t$	from Table 12-7
Major commercial	0	0.033	1.106	0.000	
Minor commercial	0	0.011	1.106	0.000	
Major industrial/institutional	0	0.036	1.106	0.000	
Minor industrial/institutional	0	0.005	1.106	0.000	--
Major residential	0	0.018	1.106	0.000	
Minor residential	0	0.003	1.106	0.000	
Other	0	0.005	1.106	0.000	
Total	--	--	--	0.000	1.39

Worksheet 1H -- Multiple-Vehicle Driveway-Related Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Crash Severity Level	**Initial N_{brdwy}**	**Proportion of total crashes (f_{dwy})**	**Adjusted N_{brdwy}**	**Combined CMFs**	**Calibration factor, C_r**	**Predicted N_{brdwy}**
	$(5)_{TOTAL}$ from Worksheet 1G	from Table 12-7	$(2)_{TOTAL}$ * (3)	(6) from Worksheet 1B		(4)*(5)*(6)
Total	0.000	1.000	0.000	1.09	1.00	0.000
Fatal and injury (FI)	--	0.284	0.000	1.09	1.00	0.000
Property damage only (PDO)	--	0.716	0.000	1.09	1.00	0.000

Worksheet 1I -- Vehicle-Pedestrian Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(8)*
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{pedr}**	**Predicted N_{pedr}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-8	(5)*(6)
Total	0.434	0.057	0.000	0.491	0.019	0.009
Fatal and injury (FI)	--	--	--	--	--	0.009

* Column 7 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-19

Worksheet 1J -- Vehicle-Bicycle Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(8)*
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{biker}**	**Predicted N_{biker}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-9	(5)*(6)
Total	0.434	0.057	0.000	0.491	0.005	0.002
Fatal and injury (FI)	--	--	--	--	--	0.002

* Column 7 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-20

Worksheet 1K -- Crash Severity Distribution for Urban and Suburban Roadway Segments			
(1)	(2)	(3)	(4)
Collision type	**Fatal and injury (FI)**	**Property damage only (PDO)**	**Total**
	(3) from Worksheet 1D and 1F; (7) from Worksheet 1H; and (8) from Worksheet 1I and 1J	(5) from Worksheet 1D and 1F; and (7) from Worksheet 1H	(6) from Worksheet 1D and 1F; (7) from Worksheet 1H; and (8) from Worksheet 1I and 1J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 1D)	0.097	0.210	0.307
Head-on collisions (from Worksheet 1D)	0.002	0.002	0.005
Angle collisions (from Worksheet 1D)	0.005	0.011	0.016
Sideswipe, same direction (from Worksheet 1D)	0.006	0.071	0.077
Sideswipe, opposite direction (from Worksheet 1D)	0.001	0.000	0.001
Driveway-related collisions (from Worksheet 1H)	0.000	0.000	0.000
Other multiple-vehicle collision (from Worksheet 1D)	0.006	0.023	0.028
Subtotal	0.117	0.317	0.434
SINGLE-VEHICLE			
Collision with animal (from Worksheet 1F)	0.000	0.003	0.003
Collision with fixed object (from Worksheet 1F)	0.005	0.038	0.043
Collision with other object (from Worksheet 1F)	0.000	0.001	0.001
Other single-vehicle collision (from Worksheet 1F)	0.005	0.005	0.010
Collision with pedestrian (from Worksheet 1I)	0.009	0.000	0.009
Collision with bicycle (from Worksheet 1J)	0.002	0.000	0.002
Subtotal	0.022	0.047	0.069
Total	0.140	0.364	0.503

Worksheet 1L -- Summary Results for Urban and Suburban Roadway Segments			
(1)	(2)	(3)	(4)
Crash Severity Level	**Predicted average crash frequency, $N_{predicted\ rs}$ (crashes/year)**	**Roadway segment length, L (mi)**	**Crash rate (crashes/mi/year)**
	(Total) from Worksheet 1K		(2) / (3)
Total	0.5	0.06	8.4
Fatal and injury (FI)	0.1	0.06	2.3
Property damage only (PDO)	0.4	0.06	6.1

Worksheet 2A -- General Information and Input Data for Urban and Suburban Arterial Intersections						
General Information				**Location Information**		
Analyst	TL			Roadway	W. Gude Drive	
Agency or Company	ATCS			Intersection	W. Gude Drive at I-270 ML Ramps	
Date Performed	12/07/21			Jurisdiction	Montgomery County	
				Analysis Year	2045	
Input Data				**Base Conditions**	**Site Conditions**	
Intersection type (3ST, 3SG, 4ST, 4SG)				--	4SG	
AADT $_{major}$ (veh/day)	$AADT_{MAX}$ =	67,700	(veh/day)	--	37,590	
AADT $_{minor}$ (veh/day)	$AADT_{MAX}$ =	33,400	(veh/day)	--	16,827	
Intersection lighting (present/not present)				Not Present	Present	
Calibration factor, C_i				1.00	1.00	
Data for unsignalized intersections only:				--		
Number of major-road approaches with left-turn lanes (0,1,2)				0		
Number of major-road approaches with right-turn lanes (0,1,2)				0		
Data for signalized intersections only:				--		
Number of approaches with left-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]				0	4	
Number of approaches with right-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]				0	3	
Number of approaches with left-turn signal phasing [for 3SG, use maximum value of 3]				--	4	
Type of left-turn signal phasing for Leg #1				Permissive	Protected	
Type of left-turn signal phasing for Leg #2				--	Protected	
Type of left-turn signal phasing for Leg #3				--	Protected	
Type of left-turn signal phasing for Leg #4 (if applicable)				--	Protected	
Number of approaches with right-turn-on-red prohibited [for 3SG, use maximum value of 3]				0	0	
Intersection red light cameras (present/not present)				Not Present	Not Present	
Sum of all pedestrian crossing volumes (PedVol) -- Signalized intersections only					231	
Maximum number of lanes crossed by a pedestrian (n_{lanesx})				--	6	
Number of bus stops within 300 m (1,000 ft) of the intersection				0	0	
Schools within 300 m (1,000 ft) of the intersection (present/not present)				Not Present	Not Present	
Number of alcohol sales establishments within 300 m (1,000 ft) of the intersection				0	0	

Worksheet 2B -- Crash Modification Factors for Urban and Suburban Arterial Intersections						
(1)	(2)	(3)	(4)	(5)	(6)	(7)
CMF for Left-Turn Lanes	CMF for Left-Turn Signal Phasing	CMF for Right-Turn Lanes	CMF for Right Turn on Red	CMF for Lighting	CMF for Red Light Cameras	Combined CMF
CMF 1i	*CMF 2i*	*CMF 3i*	*CMF 4i*	*CMF 5i*	*CMF 6i*	*CMF $_{COMB}$*
from Table 12-24	from Table 12-25	from Table 12-26	from Equation 12-35	from Equation 12-36	from Equation 12-37	(1)*(2)*(3)*(4)*(5)*(6)
0.66	0.78	0.88	1.00	0.91	1.00	0.42

Worksheet 2C -- Multiple-Vehicle Collisions by Severity Level for Urban and Suburban Arterial Intersections

(1)	(2)			(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**			**Overdispersion Parameter, k**	**Initial N_{bimv}**	**Proportion of Total Crashes**	**Adjusted N_{bimv}**	**Combined CMFs**	**Calibration Factor, C_i**	**Predicted N_{bimv}**
	from Table 12-10			from Table 12-10	from Equation 12-21		$(4)_{TOTAL}$*(5)	(7) from Worksheet 2B		(6)*(7)*(8)
	a	b	c							
Total	-10.99	1.07	0.23	0.39	12.428	1.000	12.428	0.42	1.00	5.160
Fatal and Injury (FI)	-13.14	1.18	0.22	0.33	4.185	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.348	4.322	0.42	1.00	1.794
Property Damage Only (PDO)	-11.02	1.02	0.24	0.44	7.850	$(5)_{TOTAL}-(5)_{FI}$ = 0.652	8.107	0.42	1.00	3.366

Worksheet 2D -- Multiple-Vehicle Collisions by Collision Type for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{bimv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{bimv\ (PDO)}$ (crashes/year)**	**Predicted N $_{bimv\ (TOTAL)}$ (crashes/year)**
	from Table 12-11	$(9)_{FI}$ from Worksheet 2C	from Table 12-11	$(9)_{PDO}$ from Worksheet 2C	$(9)_{PDO}$ from Worksheet 2C
Total	1.000	1.794	1.000	3.366	5.160
		(2)*$(3)_{FI}$		(4)*$(5)_{PDO}$	(3)+(5)
Rear-end collision	0.450	0.807	0.483	1.626	2.433
Head-on collision	0.049	0.088	0.030	0.101	0.189
Angle collision	0.347	0.623	0.244	0.821	1.444
Sideswipe	0.099	0.178	0.032	0.108	0.285
Other multiple-vehicle collision	0.055	0.099	0.211	0.710	0.809

Worksheet 2E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Arterial Intersections

(1)	(2)			(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**			**Overdispersion Parameter, k**	**Initial N_{bisv}**	**Proportion of Total Crashes**	**Adjusted N_{bimv}**	**Combined CMFs**	**Calibration Factor, C_i**	**Predicted N_{bisv}**
	from Table 12-12			from Table 12-12	from Eqn. 12-24; (FI) from Eqn. 12-24 or 12-27		$(4)_{TOTAL}$*(5)	(7) from Worksheet 2B		(6)*(7)*(8)
	a	b	c							
Total	-10.21	0.68	0.27	0.36	0.658	1.000	0.658	0.42	1.00	0.273
Fatal and Injury (FI)	-9.25	0.43	0.29	0.09	0.150	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.230	0.151	0.42	1.00	0.063
Property Damage Only (PDO)	-11.34	0.78	0.25	0.44	0.501	$(5)_{TOTAL}-(5)_{FI}$ = 0.770	0.506	0.42	1.00	0.210

Worksheet 2F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{bisv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{bisv\ (PDO)}$ (crashes/year)**	**Predicted N $_{bisv\ (TOTAL)}$ (crashes/year)**
	from Table 12-13	(9)$_{FI}$ from Worksheet 2E	from Table 12-13	(9)$_{PDO}$ from Worksheet 2E	(9)$_{PDO}$ from Worksheet 2E
Total	1.000	0.063	1.000	0.210	0.273
		(2)*(3)$_{FI}$		(4)*(5)$_{PDO}$	(3)+(5)
Collision with parked vehicle	0.001	0.000	0.001	0.000	0.000
Collision with animal	0.002	0.000	0.002	0.000	0.001
Collision with fixed object	0.744	0.047	0.870	0.183	0.230
Collision with other object	0.072	0.005	0.070	0.015	0.019
Other single-vehicle collision	0.040	0.003	0.023	0.005	0.007
Single-vehicle noncollision	0.141	0.009	0.034	0.007	0.016

Worksheet 2G -- Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Stop-Controlled Intersections

(1)	(2)	(3)	(4)	(5)	(7)*
Crash Severity Level	**Predicted N_{bimv}**	**Predicted N_{bisv}**	**Predicted N_{bi}**	**f_{pedi}**	**Predicted N_{pedi}**
	(9) from Worksheet 2C	(9) from Worksheet 2E	(2) + (3)	from Table 12-16	(4)*(5)
Total	--	--	--	--	--
Fatal and injury (FI)	--	--	--	--	--

* Column 6 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-30

Worksheet 2H -- Crash Modification Factors for Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Signalized Intersections

(1)	(2)	(3)	(4)
CMF for Bus Stops	CMF for Schools	CMF for Alcohol Sales Establishments	Combined CMF
CMF_{1p}	CMF_{2p}	CMF_{3p}	
from Table 12-28	from Table 12-29	from Table 12-30	(1)*(2)*(3)
1.00	1.00	1.00	1.00

Worksheet 2I -- Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Signalized Intersections

(1)	(2)					(3)	(4)	(5)	(6)	(7)
Crash Severity Level	**SPF Coefficients**					**Overdispersion Parameter, k**	**$N_{pedbase}$**	**Combined CMF**	**Calibration factor, C_i**	**Predicted N_{pedi}**
	from Table 12-14						from Equation 12-29	(4) from Worksheet 2H		(4)*(5)*(6)
	a	b	c	d	e					
Total	-9.53	0.40	0.26	0.45	0.04	0.24	0.068	1.00	1.00	0.068
Fatal and Injury (FI)	--	--	--	--	--	--	--	--	1.00	0.068

Worksheet 2J -- Vehicle-Bicycle Collisions for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(7)*
Crash Severity Level	**Predicted N_{bimv}**	**Predicted N_{bisv}**	**Predicted N_{bi}**	**f_{bikei}**	**Predicted N_{bikei}**
	(9) from Worksheet 2C	(9) from Worksheet 2E	(2) + (3)	from Table 12-17	(4)*(5)
Total	5.160	0.273	5.433	0.015	0.081
Fatal and injury (FI)	--	--	--	--	0.081

* Column 6 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-31

Worksheet 2K -- Crash Severity Distribution for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)
	Fatal and injury (FI)	**Property damage only (PDO)**	**Total**
Collision type	(3) from Worksheet 2D and 2F; (7) from 2G or 2I and 2J	(5) from Worksheet 2D and 2F	(6) from Worksheet 2D and 2F; (7) from 2G or 2I and 2J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 2D)	0.807	1.626	2.433
Head-on collisions (from Worksheet 2D)	0.088	0.101	0.189
Angle collisions (from Worksheet 2D)	0.623	0.821	1.444
Sideswipe (from Worksheet 2D)	0.178	0.108	0.285
Other multiple-vehicle collision (from Worksheet 2D)	0.099	0.710	0.809
Subtotal	1.794	3.366	5.160
SINGLE-VEHICLE			
Collision with parked vehicle (from Worksheet 2F)	0.000	0.000	0.000
Collision with animal (from Worksheet 2F)	0.000	0.000	0.001
Collision with fixed object (from Worksheet 2F)	0.047	0.183	0.230
Collision with other object (from Worksheet 2F)	0.005	0.015	0.019
Other single-vehicle collision (from Worksheet 2F)	0.003	0.005	0.007
Single-vehicle noncollision (from Worksheet 2F)	0.009	0.007	0.016
Collision with pedestrian (from Worksheet 2G or 2I)	0.068	0.000	0.068
Collision with bicycle (from Worksheet 2J)	0.081	0.000	0.081
Subtotal	0.212	0.210	0.423
Total	2.007	3.576	5.583

Worksheet 2L -- Summary Results for Urban and Suburban Arterial Intersections

(1)	(2)
Crash severity level	**Predicted average crash frequency, $N_{predicted\ int}$ (crashes/year)**
	(Total) from Worksheet 2K
Total	5.6
Fatal and injury (FI)	2.0
Property damage only (PDO)	3.6

Worksheet 1A -- General Information and Input Data for Urban and Suburban Roadway Segments

General Information		Location Information	
Analyst	TL	Roadway	W. Gude Drive
Agency or Company	ATCS	Roadway Section	I-270 ML Ramps to 250 ft west of Piccard Dr
Date Performed	12/07/21	Jurisdiction	Montgomery County
		Analysis Year	2045

Input Data		Base Conditions	Site Conditions
Roadway type (2U, 3T, 4U, 4D, ST)		--	4D
Length of segment, L (mi)		--	0.04
AADT (veh/day)	$AADT_{MAX}$ = 66,000 (veh/day)	--	40,027
Type of on-street parking (none/parallel/angle)		None	None
Proportion of curb length with on-street parking		--	
Median width (ft) - for divided only		15	10
Lighting (present / not present)		Not Present	Present
Auto speed enforcement (present / not present)		Not Present	Not Present
Major commercial driveways (number)		--	0
Minor commercial driveways (number)		--	0
Major industrial / institutional driveways (number)		--	0
Minor industrial / institutional driveways (number)		--	0
Major residential driveways (number)		--	0
Minor residential driveways (number)		--	0
Other driveways (number)		--	0
Speed Category		--	Posted Speed Greater than 30 mph
Roadside fixed object density (fixed objects / mi)		0	75
Offset to roadside fixed objects (ft) [If greater than 30 or Not Present, input 30]		30	6
Calibration Factor, Cr		1.00	1.00

Worksheet 1B -- Crash Modification Factors for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
CMF for On-Street Parking	CMF for Roadside Fixed Objects	CMF for Median Width	CMF for Lighting	CMF for Automated Speed Enforcement	Combined CMF
CMF 1r	*CMF 2r*	*CMF 3r*	*CMF 4r*	*CMF 5r*	*CMF comb*
from Equation 12-32	from Equation 12-33	from Table 12-22	from Equation 12-34	from Section 12.7.1	(1)*(2)*(3)*(4)*(5)
1.00	1.28	1.01	0.91	1.00	1.19

Worksheet 1C -- Multiple-Vehicle Nondriveway Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brmv}**	**Proportion of Total Crashes**	**Adjusted N_{brmv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brmv}**
	from Table 12-3		from Table 12-3	from Equation 12-10		$(4)_{TOTAL}$*(5)	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-12.34	1.36	1.32	0.318	1.000	0.318	1.19	1.00	0.377
Fatal and Injury (FI)	-12.76	1.28	1.31	0.089	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.267	0.085	1.19	1.00	0.101
Property Damage Only (PDO)	-12.81	1.38	1.34	0.245	$(5)_{TOTAL}-(5)_{FI}$ = 0.733	0.233	1.19	1.00	0.276

Worksheet 1D -- Multiple-Vehicle Nondriveway Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brmv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brmv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brmv\ (TOTAL)}$ (crashes/year)**
	from Table 12-4	$(9)_{FI}$ from Worksheet 1C	from Table 12-4	$(9)_{PDO}$ from Worksheet 1C	$(9)_{TOTAL}$ from Worksheet 1C
Total	1.000	0.101	1.000	0.276	0.377
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Rear-end collision	0.832	0.084	0.662	0.183	0.266
Head-on collision	0.020	0.002	0.007	0.002	0.004
Angle collision	0.040	0.004	0.036	0.010	0.014
Sideswipe, same direction	0.050	0.005	0.223	0.062	0.067
Sideswipe, opposite direction	0.010	0.001	0.001	0.000	0.001
Other multiple-vehicle collision	0.048	0.005	0.071	0.020	0.024

Worksheet 1E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brsv}**	**Proportion of Total Crashes**	**Adjusted N_{brsv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brsv}**
	from Table 12-5		from Table 12-5	from Equation 12-13		$(4)_{TOTAL}*(5)$	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-5.05	0.47	0.86	0.037	1.000	0.037	1.19	1.00	0.044
Fatal and Injury (FI)	-8.71	0.66	0.28	0.007	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.191	0.007	1.19	1.00	0.008
Property Damage Only (PDO)	-5.04	0.45	1.06	0.030	$(5)_{TOTAL}-(5)_{FI}$ = 0.809	0.030	1.19	1.00	0.036

Worksheet 1F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brsv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brsv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brsv\ (TOTAL)}$ (crashes/year)**
	from Table 12-6	$(9)_{FI}$ from Worksheet 1E	from Table 12-6	$(9)_{PDO}$ from Worksheet 1E	$(9)_{TOTAL}$ from Worksheet 1E
Total	1.000	0.008	1.000	0.036	0.044
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Collision with animal	0.001	0.000	0.063	0.002	0.002
Collision with fixed object	0.500	0.004	0.813	0.029	0.033
Collision with other object	0.028	0.000	0.016	0.001	0.001
Other single-vehicle collision	0.471	0.004	0.108	0.004	0.008

Worksheet 1G -- Multiple-Vehicle Driveway-Related Collisions by Driveway Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Driveway Type	**Number of driveways, n_j**	**Crashes per driveway per year, N_j**	**Coefficient for traffic adjustment, t**	**Initial N_{brdwy}**	**Overdispersion parameter, k**
		from Table 12-7	from Table 12-7	Equation 12-16 $n_j * N_j * (AADT/15,000)^t$	from Table 12-7
Major commercial	0	0.033	1.106	0.000	
Minor commercial	0	0.011	1.106	0.000	
Major industrial/institutional	0	0.036	1.106	0.000	
Minor industrial/institutional	0	0.005	1.106	0.000	--
Major residential	0	0.018	1.106	0.000	
Minor residential	0	0.003	1.106	0.000	
Other	0	0.005	1.106	0.000	
Total	--	--	--	0.000	1.39

Worksheet 1H -- Multiple-Vehicle Driveway-Related Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Crash Severity Level	**Initial N_{brdwy}**	**Proportion of total crashes (f_{dwy})**	**Adjusted N_{brdwy}**	**Combined CMFs**	**Calibration factor, C_r**	**Predicted N_{brdwy}**
	$(5)_{TOTAL}$ from Worksheet 1G	from Table 12-7	$(2)_{TOTAL}$ * (3)	(6) from Worksheet 1B		(4)*(5)*(6)
Total	0.000	1.000	0.000	1.19	1.00	0.000
Fatal and injury (FI)	--	0.284	0.000	1.19	1.00	0.000
Property damage only (PDO)	--	0.716	0.000	1.19	1.00	0.000

Worksheet 1I -- Vehicle-Pedestrian Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(8)*
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{pedr}**	**Predicted N_{pedr}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-8	(5)*(6)
Total	0.377	0.044	0.000	0.421	0.019	0.008
Fatal and injury (FI)	--	--	--	--	--	0.008

* Column 7 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-19

Worksheet 1J -- Vehicle-Bicycle Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(8)*
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{biker}**	**Predicted N_{biker}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-9	(5)*(6)
Total	0.377	0.044	0.000	0.421	0.005	0.002
Fatal and injury (FI)	--	--	--	--	--	0.002

* Column 7 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-20

Worksheet 1K -- Crash Severity Distribution for Urban and Suburban Roadway Segments			
(1)	(2)	(3)	(4)
Collision type	**Fatal and injury (FI)**	**Property damage only (PDO)**	**Total**
	(3) from Worksheet 1D and 1F; (7) from Worksheet 1H; and (8) from Worksheet 1I and 1J	(5) from Worksheet 1D and 1F; and (7) from Worksheet 1H	(6) from Worksheet 1D and 1F; (7) from Worksheet 1H; and (8) from Worksheet 1I and 1J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 1D)	0.084	0.183	0.266
Head-on collisions (from Worksheet 1D)	0.002	0.002	0.004
Angle collisions (from Worksheet 1D)	0.004	0.010	0.014
Sideswipe, same direction (from Worksheet 1D)	0.005	0.062	0.067
Sideswipe, opposite direction (from Worksheet 1D)	0.001	0.000	0.001
Driveway-related collisions (from Worksheet 1H)	0.000	0.000	0.000
Other multiple-vehicle collision (from Worksheet 1D)	0.005	0.020	0.024
Subtotal	0.101	0.276	0.377
SINGLE-VEHICLE			
Collision with animal (from Worksheet 1F)	0.000	0.002	0.002
Collision with fixed object (from Worksheet 1F)	0.004	0.029	0.033
Collision with other object (from Worksheet 1F)	0.000	0.001	0.001
Other single-vehicle collision (from Worksheet 1F)	0.004	0.004	0.008
Collision with pedestrian (from Worksheet 1I)	0.008	0.000	0.008
Collision with bicycle (from Worksheet 1J)	0.002	0.000	0.002
Subtotal	0.019	0.036	0.054
Total	0.119	0.312	0.431

Worksheet 1L -- Summary Results for Urban and Suburban Roadway Segments			
(1)	(2)	(3)	(4)
Crash Severity Level	**Predicted average crash frequency, $N_{predicted\ rs}$ (crashes/year)**	**Roadway segment length, L (mi)**	**Crash rate (crashes/mi/year)**
	(Total) from Worksheet 1K		(2) / (3)
Total	0.4	0.04	10.8
Fatal and injury (FI)	0.1	0.04	3.0
Property damage only (PDO)	0.3	0.04	7.8

Worksheet 2A -- General Information and Input Data for Urban and Suburban Arterial Intersections						
General Information				**Location Information**		
Analyst	TL			Roadway	W. Gude Drive	
Agency or Company	ATCS			Intersection	W. Gude Drive at Piccard Drive	
Date Performed	12/07/21			Jurisdiction	Montgomery County	
				Analysis Year	2045	
Input Data				**Base Conditions**	**Site Conditions**	
Intersection type (3ST, 3SG, 4ST, 4SG)				--	3SG	
AADT $_{major}$ (veh/day)	$AADT_{MAX}$ =	58,100	(veh/day)	--	30,375	
AADT $_{minor}$ (veh/day)	$AADT_{MAX}$ =	16,400	(veh/day)	--	7,707	
Intersection lighting (present/not present)				Not Present	Present	
Calibration factor, C_i				1.00	1.00	
Data for unsignalized intersections only:				--		
Number of major-road approaches with left-turn lanes (0,1,2)				0		
Number of major-road approaches with right-turn lanes (0,1,2)				0		
Data for signalized intersections only:				--		
Number of approaches with left-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]				0	2	
Number of approaches with right-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]				0	2	
Number of approaches with left-turn signal phasing [for 3SG, use maximum value of 3]				--	2	
Type of left-turn signal phasing for Leg #1				Permissive	Permissive / Protected	
Type of left-turn signal phasing for Leg #2				--	Not Applicable	
Type of left-turn signal phasing for Leg #3				--	Protected	
Type of left-turn signal phasing for Leg #4 (if applicable)				--	Not Applicable	
Number of approaches with right-turn-on-red prohibited [for 3SG, use maximum value of 3]				0	0	
Intersection red light cameras (present/not present)				Not Present	Not Present	
Sum of all pedestrian crossing volumes (PedVol) -- Signalized intersections only					231	
Maximum number of lanes crossed by a pedestrian (n_{lanesx})				--	5	
Number of bus stops within 300 m (1,000 ft) of the intersection				0	2	
Schools within 300 m (1,000 ft) of the intersection (present/not present)				Not Present	Not Present	
Number of alcohol sales establishments within 300 m (1,000 ft) of the intersection				0	0	

Worksheet 2B -- Crash Modification Factors for Urban and Suburban Arterial Intersections						
(1)	(2)	(3)	(4)	(5)	(6)	(7)
CMF for Left-Turn Lanes	CMF for Left-Turn Signal Phasing	CMF for Right-Turn Lanes	CMF for Right Turn on Red	CMF for Lighting	CMF for Red Light Cameras	Combined CMF
CMF 1i	*CMF 2i*	*CMF 3i*	*CMF 4i*	*CMF 5i*	*CMF 6i*	*CMF $_{COMB}$*
from Table 12-24	from Table 12-25	from Table 12-26	from Equation 12-35	from Equation 12-36	from Equation 12-37	(1)*(2)*(3)*(4)*(5)*(6)
0.86	0.98	0.92	1.00	0.91	1.00	0.71

Worksheet 2C -- Multiple-Vehicle Collisions by Severity Level for Urban and Suburban Arterial Intersections

(1)	(2)			(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**			**Overdispersion Parameter, k**	**Initial N_{bimv}**	**Proportion of Total Crashes**	**Adjusted N_{bimv}**	**Combined CMFs**	**Calibration Factor, C_i**	**Predicted N_{bimv}**
	from Table 12-10			from Table 12-10	from Equation 12-21		$(4)_{TOTAL}$*(5)	(7) from Worksheet 2B		(6)*(7)*(8)
	a	b	c							
Total	-12.13	1.11	0.26	0.33	5.226	1.000	5.226	0.71	1.00	3.697
Fatal and Injury (FI)	-11.58	1.02	0.17	0.30	1.599	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.323	1.686	0.71	1.00	1.193
Property Damage Only (PDO)	-13.24	1.14	0.30	0.36	3.358	$(5)_{TOTAL}-(5)_{FI}$ = 0.677	3.540	0.71	1.00	2.505

Worksheet 2D -- Multiple-Vehicle Collisions by Collision Type for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{bimv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{bimv\ (PDO)}$ (crashes/year)**	**Predicted N $_{bimv\ (TOTAL)}$ (crashes/year)**
	from Table 12-11	$(9)_{FI}$ from Worksheet 2C	from Table 12-11	$(9)_{PDO}$ from Worksheet 2C	$(9)_{PDO}$ from Worksheet 2C
Total	1.000	1.193	1.000	2.505	3.697
		(2)*$(3)_{FI}$		(4)*$(5)_{PDO}$	(3)+(5)
Rear-end collision	0.549	0.655	0.546	1.368	2.022
Head-on collision	0.038	0.045	0.020	0.050	0.095
Angle collision	0.280	0.334	0.204	0.511	0.845
Sideswipe	0.076	0.091	0.032	0.080	0.171
Other multiple-vehicle collision	0.057	0.068	0.198	0.496	0.564

Worksheet 2E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Arterial Intersections

(1)	(2)			(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**			**Overdispersion Parameter, k**	**Initial N_{bisv}**	**Proportion of Total Crashes**	**Adjusted N_{bimv}**	**Combined CMFs**	**Calibration Factor, C_i**	**Predicted N_{bisv}**
	from Table 12-12			from Table 12-12	from Eqn. 12-24; (FI) from Eqn. 12-24 or 12-27		$(4)_{TOTAL}$*(5)	(7) from Worksheet 2B		(6)*(7)*(8)
	a	b	c							
Total	-9.02	0.42	0.40	0.36	0.331	1.000	0.331	0.71	1.00	0.234
Fatal and Injury (FI)	-9.75	0.27	0.51	0.24	0.091	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.286	0.095	0.71	1.00	0.067
Property Damage Only (PDO)	-9.08	0.45	0.33	0.53	0.227	$(5)_{TOTAL}-(5)_{FI}$ = 0.714	0.237	0.71	1.00	0.167

Worksheet 2F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{bisv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{bisv\ (PDO)}$ (crashes/year)**	**Predicted N $_{bisv\ (TOTAL)}$ (crashes/year)**
	from Table 12-13	(9)$_{FI}$ from Worksheet 2E	from Table 12-13	(9)$_{PDO}$ from Worksheet 2E	(9)$_{PDO}$ from Worksheet 2E
Total	1.000	0.067	1.000	0.167	0.234
		(2)*(3)$_{FI}$		(4)*(5)$_{PDO}$	(3)+(5)
Collision with parked vehicle	0.001	0.000	0.001	0.000	0.000
Collision with animal	0.001	0.000	0.003	0.001	0.001
Collision with fixed object	0.653	0.044	0.895	0.150	0.194
Collision with other object	0.091	0.006	0.069	0.012	0.018
Other single-vehicle collision	0.045	0.003	0.018	0.003	0.006
Single-vehicle noncollision	0.209	0.014	0.014	0.002	0.016

Worksheet 2G -- Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Stop-Controlled Intersections

(1)	(2)	(3)	(4)	(5)	(7)*
Crash Severity Level	**Predicted N_{bimv}**	**Predicted N_{bisv}**	**Predicted N_{bi}**	**f_{pedi}**	**Predicted N_{pedi}**
	(9) from Worksheet 2C	(9) from Worksheet 2E	(2) + (3)	from Table 12-16	(4)*(5)
Total	--	--	--	--	--
Fatal and injury (FI)	--	--	--	--	--

* Column 6 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-30

Worksheet 2H -- Crash Modification Factors for Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Signalized Intersections

(1)	(2)	(3)	(4)
CMF for Bus Stops	CMF for Schools	CMF for Alcohol Sales Establishments	Combined CMF
CMF_{1p}	CMF_{2p}	CMF_{3p}	
from Table 12-28	from Table 12-29	from Table 12-30	(1)*(2)*(3)
2.78	1.00	1.00	2.78

Worksheet 2I -- Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Signalized Intersections

(1)	(2)					(3)	(4)	(5)	(6)	(7)
Crash Severity Level	**SPF Coefficients**					**Overdispersion Parameter, k**	**$N_{pedbase}$**	**Combined CMF**	**Calibration factor, C_i**	**Predicted N_{pedi}**
	from Table 12-14						from Equation 12-29	(4) from Worksheet 2H		(4)*(5)*(6)
	a	b	c	d	e					
Total	-6.60	0.05	0.24	0.41	0.09	0.52	0.024	2.78	1.00	0.067
Fatal and Injury (FI)	--	--	--	--	--	--	--	--	1.00	0.067

Worksheet 2J -- Vehicle-Bicycle Collisions for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(7)*
Crash Severity Level	**Predicted N_{bimv}**	**Predicted N_{bisv}**	**Predicted N_{bi}**	**f_{bikei}**	**Predicted N_{bikei}**
	(9) from Worksheet 2C	(9) from Worksheet 2E	(2) + (3)	from Table 12-17	(4)*(5)
Total	3.697	0.234	3.932	0.011	0.043
Fatal and injury (FI)	--	--	--	--	0.043

* Column 6 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-31

Worksheet 2K -- Crash Severity Distribution for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)
	Fatal and injury (FI)	**Property damage only (PDO)**	**Total**
Collision type	(3) from Worksheet 2D and 2F; (7) from 2G or 2I and 2J	(5) from Worksheet 2D and 2F	(6) from Worksheet 2D and 2F; (7) from 2G or 2I and 2J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 2D)	0.655	1.368	2.022
Head-on collisions (from Worksheet 2D)	0.045	0.050	0.095
Angle collisions (from Worksheet 2D)	0.334	0.511	0.845
Sideswipe (from Worksheet 2D)	0.091	0.080	0.171
Other multiple-vehicle collision (from Worksheet 2D)	0.068	0.496	0.564
Subtotal	1.193	2.505	3.697
SINGLE-VEHICLE			
Collision with parked vehicle (from Worksheet 2F)	0.000	0.000	0.000
Collision with animal (from Worksheet 2F)	0.000	0.001	0.001
Collision with fixed object (from Worksheet 2F)	0.044	0.150	0.194
Collision with other object (from Worksheet 2F)	0.006	0.012	0.018
Other single-vehicle collision (from Worksheet 2F)	0.003	0.003	0.006
Single-vehicle noncollision (from Worksheet 2F)	0.014	0.002	0.016
Collision with pedestrian (from Worksheet 2G or 2I)	0.067	0.000	0.067
Collision with bicycle (from Worksheet 2J)	0.043	0.000	0.043
Subtotal	0.178	0.167	0.345
Total	1.370	2.672	4.042

Worksheet 2L -- Summary Results for Urban and Suburban Arterial Intersections

(1)	(2)
Crash severity level	**Predicted average crash frequency, $N_{predicted\ int}$ (crashes/year)**
	(Total) from Worksheet 2K
Total	4.0
Fatal and injury (FI)	1.4
Property damage only (PDO)	2.7

Worksheet 2A -- General Information and Input Data for Urban and Suburban Arterial Intersections						
General Information				**Location Information**		
Analyst	TL			Roadway	Westlake Terrace	
Agency or Company	ATCS			Intersection	At Motor City Drive	
Date Performed	12/07/21			Jurisdiction	City of Rockville	
				Analysis Year	2045	
Input Data				**Base Conditions**	**Site Conditions**	
Intersection type (3ST, 3SG, 4ST, 4SG)				--	4SG	
AADT $_{major}$ (veh/day)	$AADT_{MAX}$ =	67,700	(veh/day)	--	17,239	
AADT $_{minor}$ (veh/day)	$AADT_{MAX}$ =	33,400	(veh/day)	--	4,831	
Intersection lighting (present/not present)				Not Present	Present	
Calibration factor, C_i				1.00	1.00	
Data for unsignalized intersections only:				--	--	
Number of major-road approaches with left-turn lanes (0,1,2)				0	0	
Number of major-road approaches with right-turn lanes (0,1,2)				0	0	
Data for signalized intersections only:				--	--	
Number of approaches with left-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]				0	4	
Number of approaches with right-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]				0	0	
Number of approaches with left-turn signal phasing [for 3SG, use maximum value of 3]				--	1	
Type of left-turn signal phasing for Leg #1				Permissive	Permissive	
Type of left-turn signal phasing for Leg #2				--	Permissive / Protected	
Type of left-turn signal phasing for Leg #3				--	Permissive	
Type of left-turn signal phasing for Leg #4 (if applicable)				--	Permissive	
Number of approaches with right-turn-on-red prohibited [for 3SG, use maximum value of 3]				0	0	
Intersection red light cameras (present/not present)				Not Present	Not Present	
Sum of all pedestrian crossing volumes (PedVol) -- Signalized intersections only					54	
Maximum number of lanes crossed by a pedestrian (n_{lanesx})				--	5	
Number of bus stops within 300 m (1,000 ft) of the intersection				0	2	
Schools within 300 m (1,000 ft) of the intersection (present/not present)				Not Present	Not Present	
Number of alcohol sales establishments within 300 m (1,000 ft) of the intersection				0	0	

Worksheet 2B -- Crash Modification Factors for Urban and Suburban Arterial Intersections						
(1)	(2)	(3)	(4)	(5)	(6)	(7)
CMF for Left-Turn Lanes	CMF for Left-Turn Signal Phasing	CMF for Right-Turn Lanes	CMF for Right Turn on Red	CMF for Lighting	CMF for Red Light Cameras	Combined CMF
CMF 1i	*CMF 2i*	*CMF 3i*	*CMF 4i*	*CMF 5i*	*CMF 6i*	*CMF $_{COMB}$*
from Table 12-24	from Table 12-25	from Table 12-26	from Equation 12-35	from Equation 12-36	from Equation 12-37	(1)*(2)*(3)*(4)*(5)*(6)
0.66	1.00	1.00	1.00	0.91	1.00	0.60

Worksheet 2C -- Multiple-Vehicle Collisions by Severity Level for Urban and Suburban Arterial Intersections

(1)	(2)			(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**			**Overdispersion Parameter, k**	**Initial N_{bimv}**	**Proportion of Total Crashes**	**Adjusted N_{bimv}**	**Combined CMFs**	**Calibration Factor, C_i**	**Predicted N_{bimv}**
	from Table 12-10			from Table 12-10	from Equation 12-21		$(4)_{TOTAL}$*(5)	(7) from Worksheet 2B		(6)*(7)*(8)
	a	b	c							
Total	-10.99	1.07	0.23	0.39	4.050	1.000	4.050	0.60	1.00	2.435
Fatal and Injury (FI)	-13.14	1.18	0.22	0.33	1.267	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ 0.325	1.318	0.60	1.00	0.792
Property Damage Only (PDO)	-11.02	1.02	0.24	0.44	2.627	$(5)_{TOTAL}-(5)_{FI}$ 0.675	2.732	0.60	1.00	1.642

Worksheet 2D -- Multiple-Vehicle Collisions by Collision Type for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{bimv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{bimv\ (PDO)}$ (crashes/year)**	**Predicted N $_{bimv\ (TOTAL)}$ (crashes/year)**
	from Table 12-11	$(9)_{FI}$ from Worksheet 2C	from Table 12-11	$(9)_{PDO}$ from Worksheet 2C	$(9)_{PDO}$ from Worksheet 2C
Total	1.000	0.792	1.000	1.642	2.435
		(2)*$(3)_{FI}$		(4)*$(5)_{PDO}$	(3)+(5)
Rear-end collision	0.450	0.357	0.483	0.793	1.150
Head-on collision	0.049	0.039	0.030	0.049	0.088
Angle collision	0.347	0.275	0.244	0.401	0.676
Sideswipe	0.099	0.078	0.032	0.053	0.131
Other multiple-vehicle collision	0.055	0.044	0.211	0.347	0.390

Worksheet 2E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Arterial Intersections

(1)	(2)			(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**			**Overdispersion Parameter, k**	**Initial N_{bisv}**	**Proportion of Total Crashes**	**Adjusted N_{bimv}**	**Combined CMFs**	**Calibration Factor, C_i**	**Predicted N_{bisv}**
	from Table 12-12			from Table 12-12	from Eqn. 12-24; (FI) from Eqn. 12-24 or 12-27		$(4)_{TOTAL}$*(5)	(7) from Worksheet 2B		(6)*(7)*(8)
	a	b	c							
Total	-10.21	0.68	0.27	0.36	0.276	1.000	0.276	0.60	1.00	0.166
Fatal and Injury (FI)	-9.25	0.43	0.29	0.09	0.075	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ 0.272	0.075	0.60	1.00	0.045
Property Damage Only (PDO)	-11.34	0.78	0.25	0.44	0.200	$(5)_{TOTAL}-(5)_{FI}$ 0.728	0.201	0.60	1.00	0.121

Worksheet 2F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{bisv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{bisv\ (PDO)}$ (crashes/year)**	**Predicted N $_{bisv\ (TOTAL)}$ (crashes/year)**
	from Table 12-13	(9)$_{FI}$ from Worksheet 2E	from Table 12-13	(9)$_{PDO}$ from Worksheet 2E	(9)$_{PDO}$ from Worksheet 2E
Total	1.000	0.045	1.000	0.121	0.166
		(2)*(3)$_{FI}$		(4)*(5)$_{PDO}$	(3)+(5)
Collision with parked vehicle	0.001	0.000	0.001	0.000	0.000
Collision with animal	0.002	0.000	0.002	0.000	0.000
Collision with fixed object	0.744	0.034	0.870	0.105	0.139
Collision with other object	0.072	0.003	0.070	0.008	0.012
Other single-vehicle collision	0.040	0.002	0.023	0.003	0.005
Single-vehicle noncollision	0.141	0.006	0.034	0.004	0.010

Worksheet 2G -- Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Stop-Controlled Intersections

(1)	(2)	(3)	(4)	(5)	(7)*
Crash Severity Level	**Predicted N_{bimv}**	**Predicted N_{bisv}**	**Predicted N_{bi}**	**f_{pedi}**	**Predicted N_{pedi}**
	(9) from Worksheet 2C	(9) from Worksheet 2E	(2) + (3)	from Table 12-16	(4)*(5)
Total	--	--	--	--	--
Fatal and injury (FI)	--	--	--	--	--

* Column 6 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-30

Worksheet 2H -- Crash Modification Factors for Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Signalized Intersections

(1)	(2)	(3)	(4)
CMF for Bus Stops	CMF for Schools	CMF for Alcohol Sales Establishments	Combined CMF
CMF_{1p}	CMF_{2p}	CMF_{3p}	
from Table 12-28	from Table 12-29	from Table 12-30	(1)*(2)*(3)
2.78	1.00	1.00	2.78

Worksheet 2I -- Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Signalized Intersections

(1)	(2)					(3)	(4)	(5)	(6)	(7)
Crash Severity Level	**SPF Coefficients**					**Overdispersion Parameter, k**	**$N_{pedbase}$**	**Combined CMF**	**Calibration factor, C_i**	**Predicted N_{pedi}**
	from Table 12-14						from Equation 12-29	(4) from Worksheet 2H		(4)*(5)*(6)
	a	b	c	d	e					
Total	-9.53	0.40	0.26	0.45	0.04	0.24	0.021	2.78	1.00	0.058
Fatal and Injury (FI)	--	--	--	--	--	--	--	--	1.00	0.058

Worksheet 2J -- Vehicle-Bicycle Collisions for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(7)*
Crash Severity Level	**Predicted N_{bimv}**	**Predicted N_{bisv}**	**Predicted N_{bi}**	**f_{bikei}**	**Predicted N_{bikei}**
	(9) from Worksheet 2C	(9) from Worksheet 2E	(2) + (3)	from Table 12-17	(4)*(5)
Total	2.435	0.166	2.601	0.015	0.039
Fatal and injury (FI)	--	--	--	--	0.039

* Column 6 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-31

Worksheet 2K -- Crash Severity Distribution for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)
	Fatal and injury (FI)	**Property damage only (PDO)**	**Total**
Collision type	(3) from Worksheet 2D and 2F; (7) from 2G or 2I and 2J	(5) from Worksheet 2D and 2F	(6) from Worksheet 2D and 2F; (7) from 2G or 2I and 2J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 2D)	0.357	0.793	1.150
Head-on collisions (from Worksheet 2D)	0.039	0.049	0.088
Angle collisions (from Worksheet 2D)	0.275	0.401	0.676
Sideswipe (from Worksheet 2D)	0.078	0.053	0.131
Other multiple-vehicle collision (from Worksheet 2D)	0.044	0.347	0.390
Subtotal	0.792	1.642	2.435
SINGLE-VEHICLE			
Collision with parked vehicle (from Worksheet 2F)	0.000	0.000	0.000
Collision with animal (from Worksheet 2F)	0.000	0.000	0.000
Collision with fixed object (from Worksheet 2F)	0.034	0.105	0.139
Collision with other object (from Worksheet 2F)	0.003	0.008	0.012
Other single-vehicle collision (from Worksheet 2F)	0.002	0.003	0.005
Single-vehicle noncollision (from Worksheet 2F)	0.006	0.004	0.010
Collision with pedestrian (from Worksheet 2G or 2I)	0.058	0.000	0.058
Collision with bicycle (from Worksheet 2J)	0.039	0.000	0.039
Subtotal	0.142	0.121	0.263
Total	0.935	1.763	2.698

Worksheet 2L -- Summary Results for Urban and Suburban Arterial Intersections

(1)	(2)
Crash severity level	**Predicted average crash frequency, $N_{predicted\ int}$ (crashes/year)**
	(Total) from Worksheet 2K
Total	2.7
Fatal and injury (FI)	0.9
Property damage only (PDO)	1.8

Worksheet 1A -- General Information and Input Data for Urban and Suburban Roadway Segments

General Information		Location Information	
Analyst	TL	Roadway	Westlake Terrace
Agency or Company	ATCS	Roadway Section	Motor City Dr to I-270 Spur Ramps
Date Performed	12/07/21	Jurisdiction	City of Rockville
		Analysis Year	2045

Input Data		Base Conditions	Site Conditions
Roadway type (2U, 3T, 4U, 4D, ST)		--	4D
Length of segment, L (mi)		--	0.03
AADT (veh/day)	$AADT_{MAX}$ = 66,000 (veh/day)	--	17,206
Type of on-street parking (none/parallel/angle)		None	None
Proportion of curb length with on-street parking		--	0
Median width (ft) - for divided only		15	15
Lighting (present / not present)		Not Present	Present
Auto speed enforcement (present / not present)		Not Present	Not Present
Major commercial driveways (number)		--	0
Minor commercial driveways (number)		--	0
Major industrial / institutional driveways (number)		--	0
Minor industrial / institutional driveways (number)		--	0
Major residential driveways (number)		--	0
Minor residential driveways (number)		--	0
Other driveways (number)		--	0
Speed Category		--	Posted Speed 30 mph or Lower
Roadside fixed object density (fixed objects / mi)		0	67
Offset to roadside fixed objects (ft) [If greater than 30 or Not Present, input 30]		30	12
Calibration Factor, Cr		1.00	1.00

Worksheet 1B -- Crash Modification Factors for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
CMF for On-Street Parking	CMF for Roadside Fixed Objects	CMF for Median Width	CMF for Lighting	CMF for Automated Speed Enforcement	Combined CMF
CMF 1r	*CMF 2r*	*CMF 3r*	*CMF 4r*	*CMF 5r*	*CMF comb*
from Equation 12-32	from Equation 12-33	from Table 12-22	from Equation 12-34	from Section 12.7.1	(1)*(2)*(3)*(4)*(5)
1.00	1.15	1.00	0.91	1.00	1.05

Worksheet 1C -- Multiple-Vehicle Nondriveway Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brmv}**	**Proportion of Total Crashes**	**Adjusted N_{brmv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brmv}**
	from Table 12-3		from Table 12-3	from Equation 12-10		$(4)_{TOTAL}$*(5)	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-12.34	1.36	1.32	0.076	1.000	0.076	1.05	1.00	0.079
Fatal and Injury (FI)	-12.76	1.28	1.31	0.023	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.284	0.021	1.05	1.00	0.023
Property Damage Only (PDO)	-12.81	1.38	1.34	0.057	$(5)_{TOTAL}-(5)_{FI}$ = 0.716	0.054	1.05	1.00	0.057

Worksheet 1D -- Multiple-Vehicle Nondriveway Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brmv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brmv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brmv\ (TOTAL)}$ (crashes/year)**
	from Table 12-4	$(9)_{FI}$ from Worksheet 1C	from Table 12-4	$(9)_{PDO}$ from Worksheet 1C	$(9)_{TOTAL}$ from Worksheet 1C
Total	1.000	0.023	1.000	0.057	0.079
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Rear-end collision	0.832	0.019	0.662	0.038	0.056
Head-on collision	0.020	0.000	0.007	0.000	0.001
Angle collision	0.040	0.001	0.036	0.002	0.003
Sideswipe, same direction	0.050	0.001	0.223	0.013	0.014
Sideswipe, opposite direction	0.010	0.000	0.001	0.000	0.000
Other multiple-vehicle collision	0.048	0.001	0.071	0.004	0.005

Worksheet 1E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brsv}**	**Proportion of Total Crashes**	**Adjusted N_{brsv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brsv}**
	from Table 12-5		from Table 12-5	from Equation 12-13		$(4)_{TOTAL}*(5)$	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-5.05	0.47	0.86	0.019	1.000	0.019	1.05	1.00	0.020
Fatal and Injury (FI)	-8.71	0.66	0.28	0.003	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.165	0.003	1.05	1.00	0.003
Property Damage Only (PDO)	-5.04	0.45	1.06	0.016	$(5)_{TOTAL}-(5)_{FI}$ = 0.835	0.016	1.05	1.00	0.017

Worksheet 1F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brsv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brsv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brsv\ (TOTAL)}$ (crashes/year)**
	from Table 12-6	$(9)_{FI}$ from Worksheet 1E	from Table 12-6	$(9)_{PDO}$ from Worksheet 1E	$(9)_{TOTAL}$ from Worksheet 1E
Total	1.000	0.003	1.000	0.017	0.020
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Collision with animal	0.001	0.000	0.063	0.001	0.001
Collision with fixed object	0.500	0.002	0.813	0.013	0.015
Collision with other object	0.028	0.000	0.016	0.000	0.000
Other single-vehicle collision	0.471	0.002	0.108	0.002	0.003

Worksheet 1G -- Multiple-Vehicle Driveway-Related Collisions by Driveway Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Driveway Type	**Number of driveways, n_j**	**Crashes per driveway per year, N_j**	**Coefficient for traffic adjustment, t**	**Initial N_{brdwy}**	**Overdispersion parameter, k**
		from Table 12-7	from Table 12-7	Equation 12-16 $n_j * N_j * (AADT/15,000)^t$	from Table 12-7
Major commercial	0	0.033	1.106	0.000	
Minor commercial	0	0.011	1.106	0.000	
Major industrial/institutional	0	0.036	1.106	0.000	
Minor industrial/institutional	0	0.005	1.106	0.000	--
Major residential	0	0.018	1.106	0.000	
Minor residential	0	0.003	1.106	0.000	
Other	0	0.005	1.106	0.000	
Total	--	--	--	0.000	1.39

Worksheet 1H -- Multiple-Vehicle Driveway-Related Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Crash Severity Level	**Initial N_{brdwy}**	**Proportion of total crashes (f_{dwy})**	**Adjusted N_{brdwy}**	**Combined CMFs**	**Calibration factor, C_r**	**Predicted N_{brdwy}**
	$(5)_{TOTAL}$ from Worksheet 1G	from Table 12-7	$(2)_{TOTAL}$ * (3)	(6) from Worksheet 1B		(4)*(5)*(6)
Total	0.000	1.000	0.000	1.05	1.00	0.000
Fatal and injury (FI)	--	0.284	0.000	1.05	1.00	0.000
Property damage only (PDO)	--	0.716	0.000	1.05	1.00	0.000

Worksheet 1I -- Vehicle-Pedestrian Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(8)*
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{pedr}**	**Predicted N_{pedr}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-8	(5)*(6)
Total	0.079	0.020	0.000	0.099	0.067	0.007
Fatal and injury (FI)	--	--	--	--	--	0.007

* Column 7 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-19

Worksheet 1J -- Vehicle-Bicycle Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(8)*
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{biker}**	**Predicted N_{biker}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-9	(5)*(6)
Total	0.079	0.020	0.000	0.099	0.013	0.001
Fatal and injury (FI)	--	--	--	--	--	0.001

* Column 7 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-20

Worksheet 1K -- Crash Severity Distribution for Urban and Suburban Roadway Segments			
(1)	(2)	(3)	(4)
Collision type	**Fatal and injury (FI)**	**Property damage only (PDO)**	**Total**
	(3) from Worksheet 1D and 1F; (7) from Worksheet 1H; and (8) from Worksheet 1I and 1J	(5) from Worksheet 1D and 1F; and (7) from Worksheet 1H	(6) from Worksheet 1D and 1F; (7) from Worksheet 1H; and (8) from Worksheet 1I and 1J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 1D)	0.019	0.038	0.056
Head-on collisions (from Worksheet 1D)	0.000	0.000	0.001
Angle collisions (from Worksheet 1D)	0.001	0.002	0.003
Sideswipe, same direction (from Worksheet 1D)	0.001	0.013	0.014
Sideswipe, opposite direction (from Worksheet 1D)	0.000	0.000	0.000
Driveway-related collisions (from Worksheet 1H)	0.000	0.000	0.000
Other multiple-vehicle collision (from Worksheet 1D)	0.001	0.004	0.005
Subtotal	0.023	0.057	0.079
SINGLE-VEHICLE			
Collision with animal (from Worksheet 1F)	0.000	0.001	0.001
Collision with fixed object (from Worksheet 1F)	0.002	0.013	0.015
Collision with other object (from Worksheet 1F)	0.000	0.000	0.000
Other single-vehicle collision (from Worksheet 1F)	0.002	0.002	0.003
Collision with pedestrian (from Worksheet 1I)	0.007	0.000	0.007
Collision with bicycle (from Worksheet 1J)	0.001	0.000	0.001
Subtotal	0.011	0.017	0.028
Total	0.034	0.073	0.107

Worksheet 1L -- Summary Results for Urban and Suburban Roadway Segments			
(1)	(2)	(3)	(4)
Crash Severity Level	**Predicted average crash frequency, $N_{predicted\ rs}$ (crashes/year)**	**Roadway segment length, L (mi)**	**Crash rate (crashes/mi/year)**
	(Total) from Worksheet 1K		(2) / (3)
Total	0.1	0.03	3.6
Fatal and injury (FI)	0.0	0.03	1.1
Property damage only (PDO)	0.1	0.03	2.4

Worksheet 2A -- General Information and Input Data for Urban and Suburban Arterial Intersections						
General Information				**Location Information**		
Analyst	TL			Roadway	Westlake Terrace	
Agency or Company	ATCS			Intersection	At I-270 ML Ramp Terminal	
Date Performed	12/07/21			Jurisdiction	City of Rockville	
				Analysis Year	2045	
Input Data				**Base Conditions**	**Site Conditions**	
Intersection type (3ST, 3SG, 4ST, 4SG)				--	4SG	
AADT $_{major}$ (veh/day)	$AADT_{MAX}$ =	67,700	(veh/day)	--	24,349	
AADT $_{minor}$ (veh/day)	$AADT_{MAX}$ =	33,400	(veh/day)	--	9,249	
Intersection lighting (present/not present)				Not Present	Present	
Calibration factor, C_i				1.00	1.00	
Data for unsignalized intersections only:				--	--	
Number of major-road approaches with left-turn lanes (0,1,2)				0	0	
Number of major-road approaches with right-turn lanes (0,1,2)				0	0	
Data for signalized intersections only:				--	--	
Number of approaches with left-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]				0	2	
Number of approaches with right-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]				0	0	
Number of approaches with left-turn signal phasing [for 3SG, use maximum value of 3]				--	2	
Type of left-turn signal phasing for Leg #1				Permissive	Protected	
Type of left-turn signal phasing for Leg #2				--	Protected	
Type of left-turn signal phasing for Leg #3				--	Permissive	
Type of left-turn signal phasing for Leg #4 (if applicable)				--	Permissive	
Number of approaches with right-turn-on-red prohibited [for 3SG, use maximum value of 3]				0	0	
Intersection red light cameras (present/not present)				Not Present	Not Present	
Sum of all pedestrian crossing volumes (PedVol) -- Signalized intersections only					54	
Maximum number of lanes crossed by a pedestrian (n_{lanesx})				--	5	
Number of bus stops within 300 m (1,000 ft) of the intersection				0	3	
Schools within 300 m (1,000 ft) of the intersection (present/not present)				Not Present	Not Present	
Number of alcohol sales establishments within 300 m (1,000 ft) of the intersection				0	0	

Worksheet 2B -- Crash Modification Factors for Urban and Suburban Arterial Intersections						
(1)	(2)	(3)	(4)	(5)	(6)	(7)
CMF for Left-Turn Lanes	CMF for Left-Turn Signal Phasing	CMF for Right-Turn Lanes	CMF for Right Turn on Red	CMF for Lighting	CMF for Red Light Cameras	Combined CMF
CMF 1i	*CMF 2i*	*CMF 3i*	*CMF 4i*	*CMF 5i*	*CMF 6i*	*CMF $_{COMB}$*
from Table 12-24	from Table 12-25	from Table 12-26	from Equation 12-35	from Equation 12-36	from Equation 12-37	(1)*(2)*(3)*(4)*(5)*(6)
0.81	0.88	1.00	1.00	0.91	1.00	0.65

Worksheet 2C -- Multiple-Vehicle Collisions by Severity Level for Urban and Suburban Arterial Intersections

(1)	(2)			(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**			**Overdispersion Parameter, k**	**Initial N_{bimv}**	**Proportion of Total Crashes**	**Adjusted N_{bimv}**	**Combined CMFs**	**Calibration Factor, C_i**	**Predicted N_{bimv}**
	from Table 12-10			from Table 12-10	from Equation 12-21		$(4)_{TOTAL}$*(5)	(7) from Worksheet 2B		(6)*(7)*(8)
	a	b	c							
Total	-10.99	1.07	0.23	0.39	6.805	1.000	6.805	0.65	1.00	4.436
Fatal and Injury (FI)	-13.14	1.18	0.22	0.33	2.198	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ 0.335	2.278	0.65	1.00	1.485
Property Damage Only (PDO)	-11.02	1.02	0.24	0.44	4.367	$(5)_{TOTAL}-(5)_{FI}$ 0.665	4.527	0.65	1.00	2.951

Worksheet 2D -- Multiple-Vehicle Collisions by Collision Type for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{bimv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{bimv\ (PDO)}$ (crashes/year)**	**Predicted N $_{bimv\ (TOTAL)}$ (crashes/year)**
	from Table 12-11	$(9)_{FI}$ from Worksheet 2C	from Table 12-11	$(9)_{PDO}$ from Worksheet 2C	$(9)_{PDO}$ from Worksheet 2C
Total	1.000	1.485	1.000	2.951	4.436
		(2)*$(3)_{FI}$		(4)*$(5)_{PDO}$	(3)+(5)
Rear-end collision	0.450	0.668	0.483	1.425	2.093
Head-on collision	0.049	0.073	0.030	0.089	0.161
Angle collision	0.347	0.515	0.244	0.720	1.235
Sideswipe	0.099	0.147	0.032	0.094	0.241
Other multiple-vehicle collision	0.055	0.082	0.211	0.623	0.704

Worksheet 2E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Arterial Intersections

(1)	(2)			(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**			**Overdispersion Parameter, k**	**Initial N_{bisv}**	**Proportion of Total Crashes**	**Adjusted N_{bimv}**	**Combined CMFs**	**Calibration Factor, C_i**	**Predicted N_{bisv}**
	from Table 12-12			from Table 12-12	from Eqn. 12-24; (FI) from Eqn. 12-24 or 12-27		$(4)_{TOTAL}$*(5)	(7) from Worksheet 2B		(6)*(7)*(8)
	a	b	c							
Total	-10.21	0.68	0.27	0.36	0.416	1.000	0.416	0.65	1.00	0.271
Fatal and Injury (FI)	-9.25	0.43	0.29	0.09	0.105	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ 0.254	0.106	0.65	1.00	0.069
Property Damage Only (PDO)	-11.34	0.78	0.25	0.44	0.308	$(5)_{TOTAL}-(5)_{FI}$ 0.746	0.311	0.65	1.00	0.203

Worksheet 2F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{bisv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{bisv\ (PDO)}$ (crashes/year)**	**Predicted N $_{bisv\ (TOTAL)}$ (crashes/year)**
	from Table 12-13	(9)$_{FI}$ from Worksheet 2E	from Table 12-13	(9)$_{PDO}$ from Worksheet 2E	(9)$_{PDO}$ from Worksheet 2E
Total	1.000	0.069	1.000	0.203	0.271
		(2)*(3)$_{FI}$		(4)*(5)$_{PDO}$	(3)+(5)
Collision with parked vehicle	0.001	0.000	0.001	0.000	0.000
Collision with animal	0.002	0.000	0.002	0.000	0.001
Collision with fixed object	0.744	0.051	0.870	0.176	0.227
Collision with other object	0.072	0.005	0.070	0.014	0.019
Other single-vehicle collision	0.040	0.003	0.023	0.005	0.007
Single-vehicle noncollision	0.141	0.010	0.034	0.007	0.017

Worksheet 2G -- Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Stop-Controlled Intersections

(1)	(2)	(3)	(4)	(5)	(7)*
Crash Severity Level	**Predicted N_{bimv}**	**Predicted N_{bisv}**	**Predicted N_{bi}**	**f_{pedi}**	**Predicted N_{pedi}**
	(9) from Worksheet 2C	(9) from Worksheet 2E	(2) + (3)	from Table 12-16	(4)*(5)
Total	--	--	--	--	--
Fatal and injury (FI)	--	--	--	--	--

* Column 6 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-30

Worksheet 2H -- Crash Modification Factors for Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Signalized Intersections

(1)	(2)	(3)	(4)
CMF for Bus Stops	CMF for Schools	CMF for Alcohol Sales Establishments	Combined CMF
CMF_{1p}	CMF_{2p}	CMF_{3p}	
from Table 12-28	from Table 12-29	from Table 12-30	(1)*(2)*(3)
4.15	1.00	1.00	4.15

Worksheet 2I -- Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Signalized Intersections

(1)	(2)					(3)	(4)	(5)	(6)	(7)
Crash Severity Level	**SPF Coefficients**					**Overdispersion Parameter, k**	**$N_{pedbase}$**	**Combined CMF**	**Calibration factor, C_i**	**Predicted N_{pedi}**
	from Table 12-14						from Equation 12-29	(4) from Worksheet 2H		(4)*(5)*(6)
	a	b	c	d	e					
Total	-9.53	0.40	0.26	0.45	0.04	0.24	0.027	4.15	1.00	0.111
Fatal and Injury (FI)	--	--	--	--	--	--	--	--	1.00	0.111

Worksheet 2J -- Vehicle-Bicycle Collisions for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(7)*
Crash Severity Level	**Predicted N_{bimv}**	**Predicted N_{bisv}**	**Predicted N_{bi}**	**f_{bikei}**	**Predicted N_{bikei}**
	(9) from Worksheet 2C	(9) from Worksheet 2E	(2) + (3)	from Table 12-17	(4)*(5)
Total	4.436	0.271	4.707	0.015	0.071
Fatal and injury (FI)	--	--	--	--	0.071

* Column 6 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-31

Worksheet 2K -- Crash Severity Distribution for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)
	Fatal and injury (FI)	**Property damage only (PDO)**	**Total**
Collision type	(3) from Worksheet 2D and 2F; (7) from 2G or 2I and 2J	(5) from Worksheet 2D and 2F	(6) from Worksheet 2D and 2F; (7) from 2G or 2I and 2J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 2D)	0.668	1.425	2.093
Head-on collisions (from Worksheet 2D)	0.073	0.089	0.161
Angle collisions (from Worksheet 2D)	0.515	0.720	1.235
Sideswipe (from Worksheet 2D)	0.147	0.094	0.241
Other multiple-vehicle collision (from Worksheet 2D)	0.082	0.623	0.704
Subtotal	1.485	2.951	4.436
SINGLE-VEHICLE			
Collision with parked vehicle (from Worksheet 2F)	0.000	0.000	0.000
Collision with animal (from Worksheet 2F)	0.000	0.000	0.001
Collision with fixed object (from Worksheet 2F)	0.051	0.176	0.227
Collision with other object (from Worksheet 2F)	0.005	0.014	0.019
Other single-vehicle collision (from Worksheet 2F)	0.003	0.005	0.007
Single-vehicle noncollision (from Worksheet 2F)	0.010	0.007	0.017
Collision with pedestrian (from Worksheet 2G or 2I)	0.111	0.000	0.111
Collision with bicycle (from Worksheet 2J)	0.071	0.000	0.071
Subtotal	0.251	0.203	0.453
Total	1.736	3.153	4.889

Worksheet 2L -- Summary Results for Urban and Suburban Arterial Intersections

(1)	(2)
Crash severity level	**Predicted average crash frequency, $N_{predicted\ int}$ (crashes/year)**
	(Total) from Worksheet 2K
Total	4.9
Fatal and injury (FI)	1.7
Property damage only (PDO)	3.2

Worksheet 1A -- General Information and Input Data for Urban and Suburban Roadway Segments

General Information		Location Information	
Analyst	TL	Roadway	Westlake Terrace
Agency or Company	ATCS	Roadway Section	I-270 Spur Ramps to Rockledge Dr
Date Performed	12/07/21	Jurisdiction	City of Rockville
		Analysis Year	2045

Input Data		Base Conditions	Site Conditions
Roadway type (2U, 3T, 4U, 4D, ST)		--	4D
Length of segment, L (mi)		--	0.05
AADT (veh/day)	$AADT_{MAX}$ = 66,000 (veh/day)	--	19,210
Type of on-street parking (none/parallel/angle)		None	None
Proportion of curb length with on-street parking		--	0
Median width (ft) - for divided only		15	15
Lighting (present / not present)		Not Present	Present
Auto speed enforcement (present / not present)		Not Present	Not Present
Major commercial driveways (number)		--	0
Minor commercial driveways (number)		--	0
Major industrial / institutional driveways (number)		--	0
Minor industrial / institutional driveways (number)		--	0
Major residential driveways (number)		--	0
Minor residential driveways (number)		--	0
Other driveways (number)		--	0
Speed Category		--	Posted Speed 30 mph or Lower
Roadside fixed object density (fixed objects / mi)		0	40
Offset to roadside fixed objects (ft) [If greater than 30 or Not Present, input 30]		30	12
Calibration Factor, Cr		1.00	1.00

Worksheet 1B -- Crash Modification Factors for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
CMF for On-Street Parking	CMF for Roadside Fixed Objects	CMF for Median Width	CMF for Lighting	CMF for Automated Speed Enforcement	Combined CMF
CMF 1r	*CMF 2r*	*CMF 3r*	*CMF 4r*	*CMF 5r*	*CMF comb*
from Equation 12-32	from Equation 12-33	from Table 12-22	from Equation 12-34	from Section 12.7.1	(1)*(2)*(3)*(4)*(5)
1.00	1.08	1.00	0.91	1.00	0.98

Worksheet 1C -- Multiple-Vehicle Nondriveway Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brmv}**	**Proportion of Total Crashes**	**Adjusted N_{brmv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brmv}**
	from Table 12-3		from Table 12-3	from Equation 12-10		$(4)_{TOTAL}$*(5)	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-12.34	1.36	1.32	0.146	1.000	0.146	0.98	1.00	0.144
Fatal and Injury (FI)	-12.76	1.28	1.31	0.044	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.282	0.041	0.98	1.00	0.041
Property Damage Only (PDO)	-12.81	1.38	1.34	0.111	$(5)_{TOTAL}-(5)_{FI}$ = 0.718	0.105	0.98	1.00	0.103

Worksheet 1D -- Multiple-Vehicle Nondriveway Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brmv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brmv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brmv\ (TOTAL)}$ (crashes/year)**
	from Table 12-4	$(9)_{FI}$ from Worksheet 1C	from Table 12-4	$(9)_{PDO}$ from Worksheet 1C	$(9)_{TOTAL}$ from Worksheet 1C
Total	1.000	0.041	1.000	0.103	0.144
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Rear-end collision	0.832	0.034	0.662	0.068	0.102
Head-on collision	0.020	0.001	0.007	0.001	0.002
Angle collision	0.040	0.002	0.036	0.004	0.005
Sideswipe, same direction	0.050	0.002	0.223	0.023	0.025
Sideswipe, opposite direction	0.010	0.000	0.001	0.000	0.001
Other multiple-vehicle collision	0.048	0.002	0.071	0.007	0.009

Worksheet 1E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brsv}**	**Proportion of Total Crashes**	**Adjusted N_{brsv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brsv}**
	from Table 12-5		from Table 12-5	from Equation 12-13		$(4)_{TOTAL}*(5)$	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-5.05	0.47	0.86	0.033	1.000	0.033	0.98	1.00	0.032
Fatal and Injury (FI)	-8.71	0.66	0.28	0.006	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.168	0.006	0.98	1.00	0.005
Property Damage Only (PDO)	-5.04	0.45	1.06	0.027	$(5)_{TOTAL}-(5)_{FI}$ = 0.832	0.027	0.98	1.00	0.027

Worksheet 1F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brsv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brsv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brsv\ (TOTAL)}$ (crashes/year)**
	from Table 12-6	$(9)_{FI}$ from Worksheet 1E	from Table 12-6	$(9)_{PDO}$ from Worksheet 1E	$(9)_{TOTAL}$ from Worksheet 1E
Total	1.000	0.005	1.000	0.027	0.032
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Collision with animal	0.001	0.000	0.063	0.002	0.002
Collision with fixed object	0.500	0.003	0.813	0.022	0.025
Collision with other object	0.028	0.000	0.016	0.000	0.001
Other single-vehicle collision	0.471	0.003	0.108	0.003	0.005

Worksheet 1G -- Multiple-Vehicle Driveway-Related Collisions by Driveway Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Driveway Type	**Number of driveways, n_j**	**Crashes per driveway per year, N_j**	**Coefficient for traffic adjustment, t**	**Initial N_{brdwy}**	**Overdispersion parameter, k**
		from Table 12-7	from Table 12-7	Equation 12-16 $n_j * N_j * (AADT/15,000)^t$	from Table 12-7
Major commercial	0	0.033	1.106	0.000	
Minor commercial	0	0.011	1.106	0.000	
Major industrial/institutional	0	0.036	1.106	0.000	
Minor industrial/institutional	0	0.005	1.106	0.000	--
Major residential	0	0.018	1.106	0.000	
Minor residential	0	0.003	1.106	0.000	
Other	0	0.005	1.106	0.000	
Total	--	--	--	0.000	1.39

Worksheet 1H -- Multiple-Vehicle Driveway-Related Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Crash Severity Level	**Initial N_{brdwy}**	**Proportion of total crashes (f_{dwy})**	**Adjusted N_{brdwy}**	**Combined CMFs**	**Calibration factor, C_r**	**Predicted N_{brdwy}**
	$(5)_{TOTAL}$ from Worksheet 1G	from Table 12-7	$(2)_{TOTAL}$ * (3)	(6) from Worksheet 1B		(4)*(5)*(6)
Total	0.000	1.000	0.000	0.98	1.00	0.000
Fatal and injury (FI)	--	0.284	0.000	0.98	1.00	0.000
Property damage only (PDO)	--	0.716	0.000	0.98	1.00	0.000

Worksheet 1I -- Vehicle-Pedestrian Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(8)*
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{pedr}**	**Predicted N_{pedr}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-8	(5)*(6)
Total	0.144	0.032	0.000	0.176	0.067	0.012
Fatal and injury (FI)	--	--	--	--	--	0.012

* Column 7 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-19

Worksheet 1J -- Vehicle-Bicycle Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(8)*
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{biker}**	**Predicted N_{biker}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-9	(5)*(6)
Total	0.144	0.032	0.000	0.176	0.013	0.002
Fatal and injury (FI)	--	--	--	--	--	0.002

* Column 7 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-20

Worksheet 1K -- Crash Severity Distribution for Urban and Suburban Roadway Segments			
(1)	(2)	(3)	(4)
Collision type	**Fatal and injury (FI)**	**Property damage only (PDO)**	**Total**
	(3) from Worksheet 1D and 1F; (7) from Worksheet 1H; and (8) from Worksheet 1I and 1J	(5) from Worksheet 1D and 1F; and (7) from Worksheet 1H	(6) from Worksheet 1D and 1F; (7) from Worksheet 1H; and (8) from Worksheet 1I and 1J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 1D)	0.034	0.068	0.102
Head-on collisions (from Worksheet 1D)	0.001	0.001	0.002
Angle collisions (from Worksheet 1D)	0.002	0.004	0.005
Sideswipe, same direction (from Worksheet 1D)	0.002	0.023	0.025
Sideswipe, opposite direction (from Worksheet 1D)	0.000	0.000	0.001
Driveway-related collisions (from Worksheet 1H)	0.000	0.000	0.000
Other multiple-vehicle collision (from Worksheet 1D)	0.002	0.007	0.009
Subtotal	0.041	0.103	0.144
SINGLE-VEHICLE			
Collision with animal (from Worksheet 1F)	0.000	0.002	0.002
Collision with fixed object (from Worksheet 1F)	0.003	0.022	0.025
Collision with other object (from Worksheet 1F)	0.000	0.000	0.001
Other single-vehicle collision (from Worksheet 1F)	0.003	0.003	0.005
Collision with pedestrian (from Worksheet 1I)	0.012	0.000	0.012
Collision with bicycle (from Worksheet 1J)	0.002	0.000	0.002
Subtotal	0.020	0.027	0.047
Total	0.060	0.130	0.190

Worksheet 1L -- Summary Results for Urban and Suburban Roadway Segments			
(1)	(2)	(3)	(4)
Crash Severity Level	**Predicted average crash frequency, $N_{predicted\ rs}$ (crashes/year)**	**Roadway segment length, L (mi)**	**Crash rate (crashes/mi/year)**
	(Total) from Worksheet 1K		(2) / (3)
Total	0.2	0.05	3.8
Fatal and injury (FI)	0.1	0.05	1.2
Property damage only (PDO)	0.1	0.05	2.6

Worksheet 2A -- General Information and Input Data for Urban and Suburban Arterial Intersections						
General Information				**Location Information**		
Analyst	TL			Roadway	Westlake Terrace	
Agency or Company	ATCS			Intersection	At Rockledge Drive	
Date Performed	12/07/21			Jurisdiction	City of Rockville	
				Analysis Year	2045	
Input Data				**Base Conditions**	**Site Conditions**	
Intersection type (3ST, 3SG, 4ST, 4SG)				--	4SG	
AADT $_{major}$ (veh/day)	$AADT_{MAX}$ =	67,700	(veh/day)	--	18,699	
AADT $_{minor}$ (veh/day)	$AADT_{MAX}$ =	33,400	(veh/day)	--	13,784	
Intersection lighting (present/not present)				Not Present	Not Present	
Calibration factor, C_i				1.00	1.00	
Data for unsignalized intersections only:				--	--	
Number of major-road approaches with left-turn lanes (0,1,2)				0	0	
Number of major-road approaches with right-turn lanes (0,1,2)				0	0	
Data for signalized intersections only:				--	--	
Number of approaches with left-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]				0	3	
Number of approaches with right-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]				0	2	
Number of approaches with left-turn signal phasing [for 3SG, use maximum value of 3]				--	4	
Type of left-turn signal phasing for Leg #1				Permissive	Permissive / Protected	
Type of left-turn signal phasing for Leg #2				--	Permissive / Protected	
Type of left-turn signal phasing for Leg #3				--	Protected	
Type of left-turn signal phasing for Leg #4 (if applicable)				--	Protected	
Number of approaches with right-turn-on-red prohibited [for 3SG, use maximum value of 3]				0	0	
Intersection red light cameras (present/not present)				Not Present	Not Present	
Sum of all pedestrian crossing volumes (PedVol) -- Signalized intersections only					54	
Maximum number of lanes crossed by a pedestrian (n_{lanesx})				--	5	
Number of bus stops within 300 m (1,000 ft) of the intersection				0	6	
Schools within 300 m (1,000 ft) of the intersection (present/not present)				Not Present	Not Present	
Number of alcohol sales establishments within 300 m (1,000 ft) of the intersection				0	0	

Worksheet 2B -- Crash Modification Factors for Urban and Suburban Arterial Intersections						
(1)	(2)	(3)	(4)	(5)	(6)	(7)
CMF for Left-Turn Lanes	CMF for Left-Turn Signal Phasing	CMF for Right-Turn Lanes	CMF for Right Turn on Red	CMF for Lighting	CMF for Red Light Cameras	Combined CMF
CMF 1i	*CMF 2i*	*CMF 3i*	*CMF 4i*	*CMF 5i*	*CMF 6i*	*CMF $_{COMB}$*
from Table 12-24	from Table 12-25	from Table 12-26	from Equation 12-35	from Equation 12-36	from Equation 12-37	(1)*(2)*(3)*(4)*(5)*(6)
0.73	0.87	0.92	1.00	1.00	1.00	0.58

Worksheet 2C -- Multiple-Vehicle Collisions by Severity Level for Urban and Suburban Arterial Intersections

(1)	(2)			(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**			**Overdispersion Parameter, k**	**Initial N_{bimv}**	**Proportion of Total Crashes**	**Adjusted N_{bimv}**	**Combined CMFs**	**Calibration Factor, C_i**	**Predicted N_{bimv}**
	from Table 12-10			from Table 12-10	from Equation 12-21		$(4)_{TOTAL}$*(5)	(7) from Worksheet 2B		(6)*(7)*(8)
	a	b	c							
Total	-10.99	1.07	0.23	0.39	5.623	1.000	5.623	0.58	1.00	3.276
Fatal and Injury (FI)	-13.14	1.18	0.22	0.33	1.757	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.324	1.820	0.58	1.00	1.061
Property Damage Only (PDO)	-11.02	1.02	0.24	0.44	3.671	$(5)_{TOTAL}-(5)_{FI}$ = 0.676	3.803	0.58	1.00	2.216

Worksheet 2D -- Multiple-Vehicle Collisions by Collision Type for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{bimv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{bimv\ (PDO)}$ (crashes/year)**	**Predicted N $_{bimv\ (TOTAL)}$ (crashes/year)**
	from Table 12-11	$(9)_{FI}$ from Worksheet 2C	from Table 12-11	$(9)_{PDO}$ from Worksheet 2C	$(9)_{PDO}$ from Worksheet 2C
Total	1.000	1.061	1.000	2.216	3.276
		(2)*$(3)_{FI}$		(4)*$(5)_{PDO}$	(3)+(5)
Rear-end collision	0.450	0.477	0.483	1.070	1.548
Head-on collision	0.049	0.052	0.030	0.066	0.118
Angle collision	0.347	0.368	0.244	0.541	0.909
Sideswipe	0.099	0.105	0.032	0.071	0.176
Other multiple-vehicle collision	0.055	0.058	0.211	0.468	0.526

Worksheet 2E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Arterial Intersections

(1)	(2)			(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**			**Overdispersion Parameter, k**	**Initial N_{bisv}**	**Proportion of Total Crashes**	**Adjusted N_{bimv}**	**Combined CMFs**	**Calibration Factor, C_i**	**Predicted N_{bisv}**
	from Table 12-12			from Table 12-12	from Eqn. 12-24; (FI) from Eqn. 12-24 or 12-27		$(4)_{TOTAL}$*(5)	(7) from Worksheet 2B		(6)*(7)*(8)
	a	b	c							
Total	-10.21	0.68	0.27	0.36	0.388	1.000	0.388	0.58	1.00	0.226
Fatal and Injury (FI)	-9.25	0.43	0.29	0.09	0.105	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.275	0.106	0.58	1.00	0.062
Property Damage Only (PDO)	-11.34	0.78	0.25	0.44	0.277	$(5)_{TOTAL}-(5)_{FI}$ = 0.725	0.281	0.58	1.00	0.164

Worksheet 2F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{bisv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{bisv\ (PDO)}$ (crashes/year)**	**Predicted N $_{bisv\ (TOTAL)}$ (crashes/year)**
	from Table 12-13	$(9)_{FI}$ from Worksheet 2E	from Table 12-13	$(9)_{PDO}$ from Worksheet 2E	$(9)_{PDO}$ from Worksheet 2E
Total	1.000	0.062	1.000	0.164	0.226
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Collision with parked vehicle	0.001	0.000	0.001	0.000	0.000
Collision with animal	0.002	0.000	0.002	0.000	0.000
Collision with fixed object	0.744	0.046	0.870	0.142	0.189
Collision with other object	0.072	0.004	0.070	0.011	0.016
Other single-vehicle collision	0.040	0.002	0.023	0.004	0.006
Single-vehicle noncollision	0.141	0.009	0.034	0.006	0.014

Worksheet 2G -- Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Stop-Controlled Intersections

(1)	(2)	(3)	(4)	(5)	(7)*
Crash Severity Level	**Predicted N_{bimv}**	**Predicted N_{bisv}**	**Predicted N_{bi}**	**f_{pedi}**	**Predicted N_{pedi}**
	(9) from Worksheet 2C	(9) from Worksheet 2E	(2) + (3)	from Table 12-16	(4)*(5)
Total	--	--	--	--	--
Fatal and injury (FI)	--	--	--	--	--

* Column 6 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-30

Worksheet 2H -- Crash Modification Factors for Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Signalized Intersections

(1)	(2)	(3)	(4)
CMF for Bus Stops	CMF for Schools	CMF for Alcohol Sales Establishments	Combined CMF
CMF_{1p}	CMF_{2p}	CMF_{3p}	
from Table 12-28	from Table 12-29	from Table 12-30	(1)*(2)*(3)
4.15	1.00	1.00	4.15

Worksheet 2I -- Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Signalized Intersections

(1)	(2)					(3)	(4)	(5)	(6)	(7)
Crash Severity Level	**SPF Coefficients**					**Overdispersion Parameter, k**	**$N_{pedbase}$**	**Combined CMF**	**Calibration factor, C_i**	**Predicted N_{pedi}**
	from Table 12-14						from Equation 12-29	(4) from Worksheet 2H		(4)*(5)*(6)
	a	b	c	d	e					
Total	-9.53	0.40	0.26	0.45	0.04	0.24	0.031	4.15	1.00	0.131
Fatal and Injury (FI)	--	--	--	--	--	--	--	--	1.00	0.131

Worksheet 2J -- Vehicle-Bicycle Collisions for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(7)*
Crash Severity Level	**Predicted N_{bimv}**	**Predicted N_{bisv}**	**Predicted N_{bi}**	**f_{bikei}**	**Predicted N_{bikei}**
	(9) from Worksheet 2C	(9) from Worksheet 2E	(2) + (3)	from Table 12-17	(4)*(5)
Total	3.276	0.226	3.502	0.015	0.053
Fatal and injury (FI)	--	--	--	--	0.053

* Column 6 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-31

Worksheet 2K -- Crash Severity Distribution for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)
	Fatal and injury (FI)	**Property damage only (PDO)**	**Total**
Collision type	(3) from Worksheet 2D and 2F; (7) from 2G or 2I and 2J	(5) from Worksheet 2D and 2F	(6) from Worksheet 2D and 2F; (7) from 2G or 2I and 2J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 2D)	0.477	1.070	1.548
Head-on collisions (from Worksheet 2D)	0.052	0.066	0.118
Angle collisions (from Worksheet 2D)	0.368	0.541	0.909
Sideswipe (from Worksheet 2D)	0.105	0.071	0.176
Other multiple-vehicle collision (from Worksheet 2D)	0.058	0.468	0.526
Subtotal	1.061	2.216	3.276
SINGLE-VEHICLE			
Collision with parked vehicle (from Worksheet 2F)	0.000	0.000	0.000
Collision with animal (from Worksheet 2F)	0.000	0.000	0.000
Collision with fixed object (from Worksheet 2F)	0.046	0.142	0.189
Collision with other object (from Worksheet 2F)	0.004	0.011	0.016
Other single-vehicle collision (from Worksheet 2F)	0.002	0.004	0.006
Single-vehicle noncollision (from Worksheet 2F)	0.009	0.006	0.014
Collision with pedestrian (from Worksheet 2G or 2I)	0.131	0.000	0.131
Collision with bicycle (from Worksheet 2J)	0.053	0.000	0.053
Subtotal	0.245	0.164	0.409
Total	1.306	2.380	3.685

Worksheet 2L -- Summary Results for Urban and Suburban Arterial Intersections

(1)	(2)
Crash severity level	**Predicted average crash frequency, $N_{predicted\ int}$ (crashes/year)**
	(Total) from Worksheet 2K
Total	3.7
Fatal and injury (FI)	1.3
Property damage only (PDO)	2.4

Worksheet 2A -- General Information and Input Data for Urban and Suburban Arterial Intersections						
General Information				**Location Information**		
Analyst	TL			Roadway	Wootton Parkway	
Agency or Company	ATCS			Intersection	At Seven Locks Road	
Date Performed	12/07/21			Jurisdiction	Montgomery County	
				Analysis Year	2045	
Input Data				**Base Conditions**	**Site Conditions**	
Intersection type (3ST, 3SG, 4ST, 4SG)				--	4SG	
AADT $_{major}$ (veh/day)	$AADT_{MAX}$ =	67,700	(veh/day)	--	23,494	
AADT $_{minor}$ (veh/day)	$AADT_{MAX}$ =	33,400	(veh/day)	--	18,991	
Intersection lighting (present/not present)				Not Present	Present	
Calibration factor, C_i				1.00	1.00	
Data for unsignalized intersections only:				--	--	
Number of major-road approaches with left-turn lanes (0,1,2)				0	0	
Number of major-road approaches with right-turn lanes (0,1,2)				0	0	
Data for signalized intersections only:				--	--	
Number of approaches with left-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]				0	3	
Number of approaches with right-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]				0	3	
Number of approaches with left-turn signal phasing [for 3SG, use maximum value of 3]				--	3	
Type of left-turn signal phasing for Leg #1				Permissive	Permissive	
Type of left-turn signal phasing for Leg #2				--	Permissive / Protected	
Type of left-turn signal phasing for Leg #3				--	Protected	
Type of left-turn signal phasing for Leg #4 (if applicable)				--	Protected	
Number of approaches with right-turn-on-red prohibited [for 3SG, use maximum value of 3]				0	0	
Intersection red light cameras (present/not present)				Not Present	Not Present	
Sum of all pedestrian crossing volumes (PedVol) -- Signalized intersections only					122	
Maximum number of lanes crossed by a pedestrian (n_{lanesx})				--	6	
Number of bus stops within 300 m (1,000 ft) of the intersection				0	2	
Schools within 300 m (1,000 ft) of the intersection (present/not present)				Not Present	Not Present	
Number of alcohol sales establishments within 300 m (1,000 ft) of the intersection				0	0	

Worksheet 2B -- Crash Modification Factors for Urban and Suburban Arterial Intersections						
(1)	(2)	(3)	(4)	(5)	(6)	(7)
CMF for Left-Turn Lanes	CMF for Left-Turn Signal Phasing	CMF for Right-Turn Lanes	CMF for Right Turn on Red	CMF for Lighting	CMF for Red Light Cameras	Combined CMF
CMF 1i	*CMF 2i*	*CMF 3i*	*CMF 4i*	*CMF 5i*	*CMF 6i*	*CMF $_{COMB}$*
from Table 12-24	from Table 12-25	from Table 12-26	from Equation 12-35	from Equation 12-36	from Equation 12-37	(1)*(2)*(3)*(4)*(5)*(6)
0.73	0.87	0.88	1.00	0.91	1.00	0.51

Worksheet 2C -- Multiple-Vehicle Collisions by Severity Level for Urban and Suburban Arterial Intersections

(1)	(2)			(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**			**Overdispersion Parameter, k**	**Initial N_{bimv}**	**Proportion of Total Crashes**	**Adjusted N_{bimv}**	**Combined CMFs**	**Calibration Factor, C_i**	**Predicted N_{bimv}**
	from Table 12-10			from Table 12-10	from Equation 12-21		$(4)_{TOTAL}$*(5)	(7) from Worksheet 2B		(6)*(7)*(8)
	a	b	c							
Total	-10.99	1.07	0.23	0.39	7.728	1.000	7.728	0.51	1.00	3.976
Fatal and Injury (FI)	-13.14	1.18	0.22	0.33	2.468	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ 0.330	2.553	0.51	1.00	1.314
Property Damage Only (PDO)	-11.02	1.02	0.24	0.44	5.004	$(5)_{TOTAL}-(5)_{FI}$ 0.670	5.176	0.51	1.00	2.663

Worksheet 2D -- Multiple-Vehicle Collisions by Collision Type for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{bimv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{bimv\ (PDO)}$ (crashes/year)**	**Predicted N $_{bimv\ (TOTAL)}$ (crashes/year)**
	from Table 12-11	$(9)_{FI}$ from Worksheet 2C	from Table 12-11	$(9)_{PDO}$ from Worksheet 2C	$(9)_{PDO}$ from Worksheet 2C
Total	1.000	1.314	1.000	2.663	3.976
		(2)*$(3)_{FI}$		(4)*$(5)_{PDO}$	(3)+(5)
Rear-end collision	0.450	0.591	0.483	1.286	1.877
Head-on collision	0.049	0.064	0.030	0.080	0.144
Angle collision	0.347	0.456	0.244	0.650	1.106
Sideswipe	0.099	0.130	0.032	0.085	0.215
Other multiple-vehicle collision	0.055	0.072	0.211	0.562	0.634

Worksheet 2E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Arterial Intersections

(1)	(2)			(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**			**Overdispersion Parameter, k**	**Initial N_{bisv}**	**Proportion of Total Crashes**	**Adjusted N_{bimv}**	**Combined CMFs**	**Calibration Factor, C_i**	**Predicted N_{bisv}**
	from Table 12-12			from Table 12-12	from Eqn. 12-24; (FI) from Eqn. 12-24 or 12-27		$(4)_{TOTAL}$*(5)	(7) from Worksheet 2B		(6)*(7)*(8)
	a	b	c							
Total	-10.21	0.68	0.27	0.36	0.494	1.000	0.494	0.51	1.00	0.254
Fatal and Injury (FI)	-9.25	0.43	0.29	0.09	0.127	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ 0.261	0.129	0.51	1.00	0.066
Property Damage Only (PDO)	-11.34	0.78	0.25	0.44	0.358	$(5)_{TOTAL}-(5)_{FI}$ 0.739	0.365	0.51	1.00	0.188

Worksheet 2F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{bisv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{bisv\ (PDO)}$ (crashes/year)**	**Predicted N $_{bisv\ (TOTAL)}$ (crashes/year)**
	from Table 12-13	(9)$_{FI}$ from Worksheet 2E	from Table 12-13	(9)$_{PDO}$ from Worksheet 2E	(9)$_{PDO}$ from Worksheet 2E
Total	1.000	0.066	1.000	0.188	0.254
		(2)*(3)$_{FI}$		(4)*(5)$_{PDO}$	(3)+(5)
Collision with parked vehicle	0.001	0.000	0.001	0.000	0.000
Collision with animal	0.002	0.000	0.002	0.000	0.001
Collision with fixed object	0.744	0.049	0.870	0.163	0.213
Collision with other object	0.072	0.005	0.070	0.013	0.018
Other single-vehicle collision	0.040	0.003	0.023	0.004	0.007
Single-vehicle noncollision	0.141	0.009	0.034	0.006	0.016

Worksheet 2G -- Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Stop-Controlled Intersections

(1)	(2)	(3)	(4)	(5)	(7)*
Crash Severity Level	**Predicted N_{bimv}**	**Predicted N_{bisv}**	**Predicted N_{bi}**	**f_{pedi}**	**Predicted N_{pedi}**
	(9) from Worksheet 2C	(9) from Worksheet 2E	(2) + (3)	from Table 12-16	(4)*(5)
Total	--	--	--	--	--
Fatal and injury (FI)	--	--	--	--	--

* Column 6 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-30

Worksheet 2H -- Crash Modification Factors for Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Signalized Intersections

(1)	(2)	(3)	(4)
CMF for Bus Stops	CMF for Schools	CMF for Alcohol Sales Establishments	Combined CMF
CMF_{1p}	CMF_{2p}	CMF_{3p}	
from Table 12-28	from Table 12-29	from Table 12-30	(1)*(2)*(3)
2.78	1.00	1.00	2.78

Worksheet 2I -- Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Signalized Intersections

(1)	(2)					(3)	(4)	(5)	(6)	(7)
Crash Severity Level	**SPF Coefficients**					**Overdispersion Parameter, k**	**$N_{pedbase}$**	**Combined CMF**	**Calibration factor, C_i**	**Predicted N_{pedi}**
	from Table 12-14						from Equation 12-29	(4) from Worksheet 2H		(4)*(5)*(6)
	a	b	c	d	e					
Total	-9.53	0.40	0.26	0.45	0.04	0.24	0.054	2.78	1.00	0.150
Fatal and Injury (FI)	--	--	--	--	--	--	--	--	1.00	0.150

Worksheet 2J -- Vehicle-Bicycle Collisions for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(7)*
Crash Severity Level	**Predicted N_{bimv}**	**Predicted N_{bisv}**	**Predicted N_{bi}**	**f_{bikei}**	**Predicted N_{bikei}**
	(9) from Worksheet 2C	(9) from Worksheet 2E	(2) + (3)	from Table 12-17	(4)*(5)
Total	3.976	0.254	4.230	0.015	0.063
Fatal and injury (FI)	--	--	--	--	0.063

* Column 6 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-31

Worksheet 2K -- Crash Severity Distribution for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)
	Fatal and injury (FI)	**Property damage only (PDO)**	**Total**
Collision type	(3) from Worksheet 2D and 2F; (7) from 2G or 2I and 2J	(5) from Worksheet 2D and 2F	(6) from Worksheet 2D and 2F; (7) from 2G or 2I and 2J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 2D)	0.591	1.286	1.877
Head-on collisions (from Worksheet 2D)	0.064	0.080	0.144
Angle collisions (from Worksheet 2D)	0.456	0.650	1.106
Sideswipe (from Worksheet 2D)	0.130	0.085	0.215
Other multiple-vehicle collision (from Worksheet 2D)	0.072	0.562	0.634
Subtotal	1.314	2.663	3.976
SINGLE-VEHICLE			
Collision with parked vehicle (from Worksheet 2F)	0.000	0.000	0.000
Collision with animal (from Worksheet 2F)	0.000	0.000	0.001
Collision with fixed object (from Worksheet 2F)	0.049	0.163	0.213
Collision with other object (from Worksheet 2F)	0.005	0.013	0.018
Other single-vehicle collision (from Worksheet 2F)	0.003	0.004	0.007
Single-vehicle noncollision (from Worksheet 2F)	0.009	0.006	0.016
Collision with pedestrian (from Worksheet 2G or 2I)	0.150	0.000	0.150
Collision with bicycle (from Worksheet 2J)	0.063	0.000	0.063
Subtotal	0.280	0.188	0.467
Total	1.593	2.850	4.444

Worksheet 2L -- Summary Results for Urban and Suburban Arterial Intersections

(1)	(2)
Crash severity level	**Predicted average crash frequency, $N_{predicted\ int}$ (crashes/year)**
	(Total) from Worksheet 2K
Total	4.4
Fatal and injury (FI)	1.6
Property damage only (PDO)	2.9

Worksheet 1A -- General Information and Input Data for Urban and Suburban Roadway Segments

General Information		Location Information	
Analyst	TL	Roadway	Wootton Parkway
Agency or Company	ATCS	Roadway Section	Seven Locks Rd to I-270 ML Ramps
Date Performed	12/07/21	Jurisdiction	Montgomery County
		Analysis Year	2045

Input Data		Base Conditions	Site Conditions
Roadway type (2U, 3T, 4U, 4D, ST)		--	4D
Length of segment, L (mi)		--	0.11
AADT (veh/day)	$AADT_{MAX}$ = 66,000 (veh/day)	--	21,156
Type of on-street parking (none/parallel/angle)		None	None
Proportion of curb length with on-street parking		--	0
Median width (ft) - for divided only		15	15
Lighting (present / not present)		Not Present	Present
Auto speed enforcement (present / not present)		Not Present	Not Present
Major commercial driveways (number)		--	0
Minor commercial driveways (number)		--	0
Major industrial / institutional driveways (number)		--	0
Minor industrial / institutional driveways (number)		--	0
Major residential driveways (number)		--	0
Minor residential driveways (number)		--	0
Other driveways (number)		--	0
Speed Category		--	Posted Speed Greater than 30 mph
Roadside fixed object density (fixed objects / mi)		0	64
Offset to roadside fixed objects (ft) [If greater than 30 or Not Present, input 30]		30	9
Calibration Factor, Cr		1.00	1.00

Worksheet 1B -- Crash Modification Factors for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
CMF for On-Street Parking	CMF for Roadside Fixed Objects	CMF for Median Width	CMF for Lighting	CMF for Automated Speed Enforcement	Combined CMF
CMF 1r	*CMF 2r*	*CMF 3r*	*CMF 4r*	*CMF 5r*	*CMF comb*
from Equation 12-32	from Equation 12-33	from Table 12-22	from Equation 12-34	from Section 12.7.1	(1)*(2)*(3)*(4)*(5)
1.00	1.18	1.00	0.91	1.00	1.08

Worksheet 1C -- Multiple-Vehicle Nondriveway Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brmv}**	**Proportion of Total Crashes**	**Adjusted N_{brmv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brmv}**
	from Table 12-3		from Table 12-3	from Equation 12-10		$(4)_{TOTAL}$*(5)	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-12.34	1.36	1.32	0.367	1.000	0.367	1.08	1.00	0.395
Fatal and Injury (FI)	-12.76	1.28	1.31	0.109	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.280	0.103	1.08	1.00	0.110
Property Damage Only (PDO)	-12.81	1.38	1.34	0.280	$(5)_{TOTAL}-(5)_{FI}$ = 0.720	0.264	1.08	1.00	0.284

Worksheet 1D -- Multiple-Vehicle Nondriveway Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brmv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brmv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brmv\ (TOTAL)}$ (crashes/year)**
	from Table 12-4	$(9)_{FI}$ from Worksheet 1C	from Table 12-4	$(9)_{PDO}$ from Worksheet 1C	$(9)_{TOTAL}$ from Worksheet 1C
Total	1.000	0.110	1.000	0.284	0.395
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Rear-end collision	0.832	0.092	0.662	0.188	0.280
Head-on collision	0.020	0.002	0.007	0.002	0.004
Angle collision	0.040	0.004	0.036	0.010	0.015
Sideswipe, same direction	0.050	0.006	0.223	0.063	0.069
Sideswipe, opposite direction	0.010	0.001	0.001	0.000	0.001
Other multiple-vehicle collision	0.048	0.005	0.071	0.020	0.025

Worksheet 1E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brsv}**	**Proportion of Total Crashes**	**Adjusted N_{brsv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brsv}**
	from Table 12-5		from Table 12-5	from Equation 12-13		$(4)_{TOTAL}*(5)$	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-5.05	0.47	0.86	0.076	1.000	0.076	1.08	1.00	0.082
Fatal and Injury (FI)	-8.71	0.66	0.28	0.013	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.171	0.013	1.08	1.00	0.014
Property Damage Only (PDO)	-5.04	0.45	1.06	0.063	$(5)_{TOTAL}-(5)_{FI}$ = 0.829	0.063	1.08	1.00	0.068

Worksheet 1F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brsv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brsv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brsv\ (TOTAL)}$ (crashes/year)**
	from Table 12-6	$(9)_{FI}$ from Worksheet 1E	from Table 12-6	$(9)_{PDO}$ from Worksheet 1E	$(9)_{TOTAL}$ from Worksheet 1E
Total	1.000	0.014	1.000	0.068	0.082
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Collision with animal	0.001	0.000	0.063	0.004	0.004
Collision with fixed object	0.500	0.007	0.813	0.055	0.062
Collision with other object	0.028	0.000	0.016	0.001	0.001
Other single-vehicle collision	0.471	0.007	0.108	0.007	0.014

Worksheet 1G -- Multiple-Vehicle Driveway-Related Collisions by Driveway Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Driveway Type	**Number of driveways, n_j**	**Crashes per driveway per year, N_j**	**Coefficient for traffic adjustment, t**	**Initial N_{brdwy}**	**Overdispersion parameter, k**
		from Table 12-7	from Table 12-7	Equation 12-16 $n_j * N_j * (AADT/15,000)^t$	from Table 12-7
Major commercial	0	0.033	1.106	0.000	
Minor commercial	0	0.011	1.106	0.000	
Major industrial/institutional	0	0.036	1.106	0.000	
Minor industrial/institutional	0	0.005	1.106	0.000	--
Major residential	0	0.018	1.106	0.000	
Minor residential	0	0.003	1.106	0.000	
Other	0	0.005	1.106	0.000	
Total	--	--	--	0.000	1.39

Worksheet 1H -- Multiple-Vehicle Driveway-Related Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Crash Severity Level	**Initial N_{brdwy}**	**Proportion of total crashes (f_{dwy})**	**Adjusted N_{brdwy}**	**Combined CMFs**	**Calibration factor, C_r**	**Predicted N_{brdwy}**
	$(5)_{TOTAL}$ from Worksheet 1G	from Table 12-7	$(2)_{TOTAL}$ * (3)	(6) from Worksheet 1B		(4)*(5)*(6)
Total	0.000	1.000	0.000	1.08	1.00	0.000
Fatal and injury (FI)	--	0.284	0.000	1.08	1.00	0.000
Property damage only (PDO)	--	0.716	0.000	1.08	1.00	0.000

Worksheet 1I -- Vehicle-Pedestrian Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(8)*
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{pedr}**	**Predicted N_{pedr}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-8	(5)*(6)
Total	0.395	0.082	0.000	0.477	0.019	0.009
Fatal and injury (FI)	--	--	--	--	--	0.009

* Column 7 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-19

Worksheet 1J -- Vehicle-Bicycle Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(8)*
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{biker}**	**Predicted N_{biker}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-9	(5)*(6)
Total	0.395	0.082	0.000	0.477	0.005	0.002
Fatal and injury (FI)	--	--	--	--	--	0.002

* Column 7 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-20

Worksheet 1K -- Crash Severity Distribution for Urban and Suburban Roadway Segments			
(1)	(2)	(3)	(4)
Collision type	**Fatal and injury (FI)**	**Property damage only (PDO)**	**Total**
	(3) from Worksheet 1D and 1F; (7) from Worksheet 1H; and (8) from Worksheet 1I and 1J	(5) from Worksheet 1D and 1F; and (7) from Worksheet 1H	(6) from Worksheet 1D and 1F; (7) from Worksheet 1H; and (8) from Worksheet 1I and 1J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 1D)	0.092	0.188	0.280
Head-on collisions (from Worksheet 1D)	0.002	0.002	0.004
Angle collisions (from Worksheet 1D)	0.004	0.010	0.015
Sideswipe, same direction (from Worksheet 1D)	0.006	0.063	0.069
Sideswipe, opposite direction (from Worksheet 1D)	0.001	0.000	0.001
Driveway-related collisions (from Worksheet 1H)	0.000	0.000	0.000
Other multiple-vehicle collision (from Worksheet 1D)	0.005	0.020	0.025
Subtotal	0.110	0.284	0.395
SINGLE-VEHICLE			
Collision with animal (from Worksheet 1F)	0.000	0.004	0.004
Collision with fixed object (from Worksheet 1F)	0.007	0.055	0.062
Collision with other object (from Worksheet 1F)	0.000	0.001	0.001
Other single-vehicle collision (from Worksheet 1F)	0.007	0.007	0.014
Collision with pedestrian (from Worksheet 1I)	0.009	0.000	0.009
Collision with bicycle (from Worksheet 1J)	0.002	0.000	0.002
Subtotal	0.025	0.068	0.093
Total	0.136	0.352	0.488

Worksheet 1L -- Summary Results for Urban and Suburban Roadway Segments			
(1)	(2)	(3)	(4)
Crash Severity Level	**Predicted average crash frequency, $N_{predicted\ rs}$ (crashes/year)**	**Roadway segment length, L (mi)**	**Crash rate (crashes/mi/year)**
	(Total) from Worksheet 1K		(2) / (3)
Total	0.5	0.11	4.4
Fatal and injury (FI)	0.1	0.11	1.2
Property damage only (PDO)	0.4	0.11	3.2

Worksheet 2A -- General Information and Input Data for Urban and Suburban Arterial Intersections						
General Information				**Location Information**		
Analyst	TL			Roadway	Wootton Parkway	
Agency or Company	ATCS			Intersection	At I-270 ML Ramps	
Date Performed	12/07/21			Jurisdiction	Montgomery County	
				Analysis Year	2045	
Input Data				**Base Conditions**	**Site Conditions**	
Intersection type (3ST, 3SG, 4ST, 4SG)				--	4SG	
AADT $_{major}$ (veh/day)	$AADT_{MAX}$ =	67,700	(veh/day)	--	27,315	
AADT $_{minor}$ (veh/day)	$AADT_{MAX}$ =	33,400	(veh/day)	--	15,726	
Intersection lighting (present/not present)				Not Present	Present	
Calibration factor, C_i				1.00	1.00	
Data for unsignalized intersections only:				--	--	
Number of major-road approaches with left-turn lanes (0,1,2)				0	0	
Number of major-road approaches with right-turn lanes (0,1,2)				0	0	
Data for signalized intersections only:				--	--	
Number of approaches with left-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]				0	4	
Number of approaches with right-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]				0	2	
Number of approaches with left-turn signal phasing [for 3SG, use maximum value of 3]				--	4	
Type of left-turn signal phasing for Leg #1				Permissive	Protected	
Type of left-turn signal phasing for Leg #2				--	Protected	
Type of left-turn signal phasing for Leg #3				--	Protected	
Type of left-turn signal phasing for Leg #4 (if applicable)				--	Protected	
Number of approaches with right-turn-on-red prohibited [for 3SG, use maximum value of 3]				0	0	
Intersection red light cameras (present/not present)				Not Present	Not Present	
Sum of all pedestrian crossing volumes (PedVol) -- Signalized intersections only					122	
Maximum number of lanes crossed by a pedestrian (n_{lanesx})				--	5	
Number of bus stops within 300 m (1,000 ft) of the intersection				0	0	
Schools within 300 m (1,000 ft) of the intersection (present/not present)				Not Present	Not Present	
Number of alcohol sales establishments within 300 m (1,000 ft) of the intersection				0	0	

Worksheet 2B -- Crash Modification Factors for Urban and Suburban Arterial Intersections						
(1)	(2)	(3)	(4)	(5)	(6)	(7)
CMF for Left-Turn Lanes	CMF for Left-Turn Signal Phasing	CMF for Right-Turn Lanes	CMF for Right Turn on Red	CMF for Lighting	CMF for Red Light Cameras	Combined CMF
CMF 1i	*CMF 2i*	*CMF 3i*	*CMF 4i*	*CMF 5i*	*CMF 6i*	*CMF $_{COMB}$*
from Table 12-24	from Table 12-25	from Table 12-26	from Equation 12-35	from Equation 12-36	from Equation 12-37	(1)*(2)*(3)*(4)*(5)*(6)
0.66	0.78	0.92	1.00	0.91	1.00	0.43

Worksheet 2C -- Multiple-Vehicle Collisions by Severity Level for Urban and Suburban Arterial Intersections

(1)	(2)			(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**			**Overdispersion Parameter, k**	**Initial N_{bimv}**	**Proportion of Total Crashes**	**Adjusted N_{bimv}**	**Combined CMFs**	**Calibration Factor, C_i**	**Predicted N_{bimv}**
	from Table 12-10			from Table 12-10	from Equation 12-21		$(4)_{TOTAL}$*(5)	(7) from Worksheet 2B		(6)*(7)*(8)
	a	b	c							
Total	-10.99	1.07	0.23	0.39	8.695	1.000	8.695	0.43	1.00	3.761
Fatal and Injury (FI)	-13.14	1.18	0.22	0.33	2.829	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ 0.337	2.926	0.43	1.00	1.265
Property Damage Only (PDO)	-11.02	1.02	0.24	0.44	5.577	$(5)_{TOTAL}-(5)_{FI}$ 0.663	5.769	0.43	1.00	2.495

Worksheet 2D -- Multiple-Vehicle Collisions by Collision Type for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{bimv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{bimv\ (PDO)}$ (crashes/year)**	**Predicted N $_{bimv\ (TOTAL)}$ (crashes/year)**
	from Table 12-11	$(9)_{FI}$ from Worksheet 2C	from Table 12-11	$(9)_{PDO}$ from Worksheet 2C	$(9)_{PDO}$ from Worksheet 2C
Total	1.000	1.265	1.000	2.495	3.761
		(2)*$(3)_{FI}$		(4)*$(5)_{PDO}$	(3)+(5)
Rear-end collision	0.450	0.569	0.483	1.205	1.775
Head-on collision	0.049	0.062	0.030	0.075	0.137
Angle collision	0.347	0.439	0.244	0.609	1.048
Sideswipe	0.099	0.125	0.032	0.080	0.205
Other multiple-vehicle collision	0.055	0.070	0.211	0.526	0.596

Worksheet 2E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Arterial Intersections

(1)	(2)			(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**			**Overdispersion Parameter, k**	**Initial N_{bisv}**	**Proportion of Total Crashes**	**Adjusted N_{bimv}**	**Combined CMFs**	**Calibration Factor, C_i**	**Predicted N_{bisv}**
	from Table 12-12			from Table 12-12	from Eqn. 12-24; (FI) from Eqn. 12-24 or 12-27		$(4)_{TOTAL}$*(5)	(7) from Worksheet 2B		(6)*(7)*(8)
	a	b	c							
Total	-10.21	0.68	0.27	0.36	0.520	1.000	0.520	0.43	1.00	0.225
Fatal and Injury (FI)	-9.25	0.43	0.29	0.09	0.128	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ 0.250	0.130	0.43	1.00	0.056
Property Damage Only (PDO)	-11.34	0.78	0.25	0.44	0.384	$(5)_{TOTAL}-(5)_{FI}$ 0.750	0.390	0.43	1.00	0.169

Worksheet 2F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{bisv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{bisv\ (PDO)}$ (crashes/year)**	**Predicted N $_{bisv\ (TOTAL)}$ (crashes/year)**
	from Table 12-13	(9)$_{FI}$ from Worksheet 2E	from Table 12-13	(9)$_{PDO}$ from Worksheet 2E	(9)$_{PDO}$ from Worksheet 2E
Total	1.000	0.056	1.000	0.169	0.225
		(2)*(3)$_{FI}$		(4)*(5)$_{PDO}$	(3)+(5)
Collision with parked vehicle	0.001	0.000	0.001	0.000	0.000
Collision with animal	0.002	0.000	0.002	0.000	0.000
Collision with fixed object	0.744	0.042	0.870	0.147	0.188
Collision with other object	0.072	0.004	0.070	0.012	0.016
Other single-vehicle collision	0.040	0.002	0.023	0.004	0.006
Single-vehicle noncollision	0.141	0.008	0.034	0.006	0.014

Worksheet 2G -- Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Stop-Controlled Intersections

(1)	(2)	(3)	(4)	(5)	(7)*
Crash Severity Level	**Predicted N_{bimv}**	**Predicted N_{bisv}**	**Predicted N_{bi}**	**f_{pedi}**	**Predicted N_{pedi}**
	(9) from Worksheet 2C	(9) from Worksheet 2E	(2) + (3)	from Table 12-16	(4)*(5)
Total	--	--	--	--	--
Fatal and injury (FI)	--	--	--	--	--

* Column 6 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-30

Worksheet 2H -- Crash Modification Factors for Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Signalized Intersections

(1)	(2)	(3)	(4)
CMF for Bus Stops	CMF for Schools	CMF for Alcohol Sales Establishments	Combined CMF
CMF_{1p}	CMF_{2p}	CMF_{3p}	
from Table 12-28	from Table 12-29	from Table 12-30	(1)*(2)*(3)
1.00	1.00	1.00	1.00

Worksheet 2I -- Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Signalized Intersections

(1)	(2)					(3)	(4)	(5)	(6)	(7)
Crash Severity Level	**SPF Coefficients**					**Overdispersion Parameter, k**	**$N_{pedbase}$**	**Combined CMF**	**Calibration factor, C_i**	**Predicted N_{pedi}**
	from Table 12-14						from Equation 12-29	(4) from Worksheet 2H		(4)*(5)*(6)
	a	b	c	d	e					
Total	-9.53	0.40	0.26	0.45	0.04	0.24	0.048	1.00	1.00	0.048
Fatal and Injury (FI)	--	--	--	--	--	--	--	--	1.00	0.048

Worksheet 2J -- Vehicle-Bicycle Collisions for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(7)*
Crash Severity Level	**Predicted N_{bimv}**	**Predicted N_{bisv}**	**Predicted N_{bi}**	**f_{bikei}**	**Predicted N_{bikei}**
	(9) from Worksheet 2C	(9) from Worksheet 2E	(2) + (3)	from Table 12-17	(4)*(5)
Total	3.761	0.225	3.985	0.015	0.060
Fatal and injury (FI)	--	--	--	--	0.060

* Column 6 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-31

Worksheet 2K -- Crash Severity Distribution for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)
	Fatal and injury (FI)	**Property damage only (PDO)**	**Total**
Collision type	(3) from Worksheet 2D and 2F; (7) from 2G or 2I and 2J	(5) from Worksheet 2D and 2F	(6) from Worksheet 2D and 2F; (7) from 2G or 2I and 2J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 2D)	0.569	1.205	1.775
Head-on collisions (from Worksheet 2D)	0.062	0.075	0.137
Angle collisions (from Worksheet 2D)	0.439	0.609	1.048
Sideswipe (from Worksheet 2D)	0.125	0.080	0.205
Other multiple-vehicle collision (from Worksheet 2D)	0.070	0.526	0.596
Subtotal	1.265	2.495	3.761
SINGLE-VEHICLE			
Collision with parked vehicle (from Worksheet 2F)	0.000	0.000	0.000
Collision with animal (from Worksheet 2F)	0.000	0.000	0.000
Collision with fixed object (from Worksheet 2F)	0.042	0.147	0.188
Collision with other object (from Worksheet 2F)	0.004	0.012	0.016
Other single-vehicle collision (from Worksheet 2F)	0.002	0.004	0.006
Single-vehicle noncollision (from Worksheet 2F)	0.008	0.006	0.014
Collision with pedestrian (from Worksheet 2G or 2I)	0.048	0.000	0.048
Collision with bicycle (from Worksheet 2J)	0.060	0.000	0.060
Subtotal	0.164	0.169	0.332
Total	1.429	2.664	4.093

Worksheet 2L -- Summary Results for Urban and Suburban Arterial Intersections

(1)	(2)
Crash severity level	**Predicted average crash frequency, $N_{predicted\ int}$ (crashes/year)**
	(Total) from Worksheet 2K
Total	4.1
Fatal and injury (FI)	1.4
Property damage only (PDO)	2.7

Worksheet 1A -- General Information and Input Data for Urban and Suburban Roadway Segments

General Information		Location Information	
Analyst	TL	Roadway	Wootton Parkway
Agency or Company	ATCS	Roadway Section	I-270 ML Ramps to Tower Oaks Blvd
Date Performed	12/07/21	Jurisdiction	Montgomery County
		Analysis Year	2045

Input Data		Base Conditions	Site Conditions
Roadway type (2U, 3T, 4U, 4D, ST)		--	4D
Length of segment, L (mi)		--	0.12
AADT (veh/day)	$AADT_{MAX}$ = 66,000 (veh/day)	--	33,475
Type of on-street parking (none/parallel/angle)		None	None
Proportion of curb length with on-street parking		--	0
Median width (ft) - for divided only		15	15
Lighting (present / not present)		Not Present	Present
Auto speed enforcement (present / not present)		Not Present	Not Present
Major commercial driveways (number)		--	1
Minor commercial driveways (number)		--	0
Major industrial / institutional driveways (number)		--	0
Minor industrial / institutional driveways (number)		--	0
Major residential driveways (number)		--	0
Minor residential driveways (number)		--	0
Other driveways (number)		--	0
Speed Category		--	Posted Speed Greater than 30 mph
Roadside fixed object density (fixed objects / mi)		0	67
Offset to roadside fixed objects (ft) [If greater than 30 or Not Present, input 30]		30	11
Calibration Factor, Cr		1.00	1.00

Worksheet 1B -- Crash Modification Factors for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
CMF for On-Street Parking	CMF for Roadside Fixed Objects	CMF for Median Width	CMF for Lighting	CMF for Automated Speed Enforcement	Combined CMF
CMF 1r	*CMF 2r*	*CMF 3r*	*CMF 4r*	*CMF 5r*	*CMF comb*
from Equation 12-32	from Equation 12-33	from Table 12-22	from Equation 12-34	from Section 12.7.1	(1)*(2)*(3)*(4)*(5)
1.00	1.16	1.00	0.91	1.00	1.06

Worksheet 1C -- Multiple-Vehicle Nondriveway Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brmv}**	**Proportion of Total Crashes**	**Adjusted N_{brmv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brmv}**
	from Table 12-3		from Table 12-3	from Equation 12-10		$(4)_{TOTAL}$*(5)	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-12.34	1.36	1.32	0.747	1.000	0.747	1.06	1.00	0.793
Fatal and Injury (FI)	-12.76	1.28	1.31	0.213	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.271	0.202	1.06	1.00	0.215
Property Damage Only (PDO)	-12.81	1.38	1.34	0.575	$(5)_{TOTAL}-(5)_{FI}$ = 0.729	0.545	1.06	1.00	0.579

Worksheet 1D -- Multiple-Vehicle Nondriveway Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brmv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brmv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brmv\ (TOTAL)}$ (crashes/year)**
	from Table 12-4	$(9)_{FI}$ from Worksheet 1C	from Table 12-4	$(9)_{PDO}$ from Worksheet 1C	$(9)_{TOTAL}$ from Worksheet 1C
Total	1.000	0.215	1.000	0.579	0.793
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Rear-end collision	0.832	0.179	0.662	0.383	0.562
Head-on collision	0.020	0.004	0.007	0.004	0.008
Angle collision	0.040	0.009	0.036	0.021	0.029
Sideswipe, same direction	0.050	0.011	0.223	0.129	0.140
Sideswipe, opposite direction	0.010	0.002	0.001	0.001	0.003
Other multiple-vehicle collision	0.048	0.010	0.071	0.041	0.051

Worksheet 1E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brsv}**	**Proportion of Total Crashes**	**Adjusted N_{brsv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brsv}**
	from Table 12-5		from Table 12-5	from Equation 12-13		$(4)_{TOTAL}*(5)$	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-5.05	0.47	0.86	0.103	1.000	0.103	1.06	1.00	0.109
Fatal and Injury (FI)	-8.71	0.66	0.28	0.019	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.185	0.019	1.06	1.00	0.020
Property Damage Only (PDO)	-5.04	0.45	1.06	0.084	$(5)_{TOTAL}-(5)_{FI}$ = 0.815	0.084	1.06	1.00	0.089

Worksheet 1F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brsv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brsv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brsv\ (TOTAL)}$ (crashes/year)**
	from Table 12-6	$(9)_{FI}$ from Worksheet 1E	from Table 12-6	$(9)_{PDO}$ from Worksheet 1E	$(9)_{TOTAL}$ from Worksheet 1E
Total	1.000	0.020	1.000	0.089	0.109
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Collision with animal	0.001	0.000	0.063	0.006	0.006
Collision with fixed object	0.500	0.010	0.813	0.072	0.082
Collision with other object	0.028	0.001	0.016	0.001	0.002
Other single-vehicle collision	0.471	0.010	0.108	0.010	0.019

Worksheet 1G -- Multiple-Vehicle Driveway-Related Collisions by Driveway Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Driveway Type	**Number of driveways, n_j**	**Crashes per driveway per year, N_j**	**Coefficient for traffic adjustment, t**	**Initial N_{brdwy}**	**Overdispersion parameter, k**
		from Table 12-7	from Table 12-7	Equation 12-16 $n_j * N_j * (AADT/15,000)^t$	from Table 12-7
Major commercial	1	0.033	1.106	0.080	--
Minor commercial	0	0.011	1.106	0.000	
Major industrial/institutional	0	0.036	1.106	0.000	
Minor industrial/institutional	0	0.005	1.106	0.000	
Major residential	0	0.018	1.106	0.000	
Minor residential	0	0.003	1.106	0.000	
Other	0	0.005	1.106	0.000	
Total	--	--	--	0.080	1.39

Worksheet 1H -- Multiple-Vehicle Driveway-Related Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Crash Severity Level	**Initial N_{brdwy}**	**Proportion of total crashes (f_{dwy})**	**Adjusted N_{brdwy}**	**Combined CMFs**	**Calibration factor, C_r**	**Predicted N_{brdwy}**
	$(5)_{TOTAL}$ from Worksheet 1G	from Table 12-7	$(2)_{TOTAL}$ * (3)	(6) from Worksheet 1B		(4)*(5)*(6)
Total	0.080	1.000	0.080	1.06	1.00	0.085
Fatal and injury (FI)	--	0.284	0.023	1.06	1.00	0.024
Property damage only (PDO)	--	0.716	0.057	1.06	1.00	0.061

Worksheet 1I -- Vehicle-Pedestrian Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(8)*
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{pedr}**	**Predicted N_{pedr}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-8	(5)*(6)
Total	0.793	0.109	0.085	0.988	0.019	0.019
Fatal and injury (FI)	--	--	--	--	--	0.019

* Column 7 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-19

Worksheet 1J -- Vehicle-Bicycle Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(8)*
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{biker}**	**Predicted N_{biker}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-9	(5)*(6)
Total	0.793	0.109	0.085	0.988	0.005	0.005
Fatal and injury (FI)	--	--	--	--	--	0.005

* Column 7 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-20

Worksheet 1K -- Crash Severity Distribution for Urban and Suburban Roadway Segments			
(1)	(2)	(3)	(4)
Collision type	**Fatal and injury (FI)**	**Property damage only (PDO)**	**Total**
	(3) from Worksheet 1D and 1F; (7) from Worksheet 1H; and (8) from Worksheet 1I and 1J	(5) from Worksheet 1D and 1F; and (7) from Worksheet 1H	(6) from Worksheet 1D and 1F; (7) from Worksheet 1H; and (8) from Worksheet 1I and 1J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 1D)	0.179	0.383	0.562
Head-on collisions (from Worksheet 1D)	0.004	0.004	0.008
Angle collisions (from Worksheet 1D)	0.009	0.021	0.029
Sideswipe, same direction (from Worksheet 1D)	0.011	0.129	0.140
Sideswipe, opposite direction (from Worksheet 1D)	0.002	0.001	0.003
Driveway-related collisions (from Worksheet 1H)	0.024	0.061	0.085
Other multiple-vehicle collision (from Worksheet 1D)	0.010	0.041	0.051
Subtotal	0.239	0.640	0.878
SINGLE-VEHICLE			
Collision with animal (from Worksheet 1F)	0.000	0.006	0.006
Collision with fixed object (from Worksheet 1F)	0.010	0.072	0.082
Collision with other object (from Worksheet 1F)	0.001	0.001	0.002
Other single-vehicle collision (from Worksheet 1F)	0.010	0.010	0.019
Collision with pedestrian (from Worksheet 1I)	0.019	0.000	0.019
Collision with bicycle (from Worksheet 1J)	0.005	0.000	0.005
Subtotal	0.044	0.089	0.133
Total	0.283	0.729	1.011

Worksheet 1L -- Summary Results for Urban and Suburban Roadway Segments			
(1)	(2)	(3)	(4)
Crash Severity Level	**Predicted average crash frequency, $N_{predicted\ rs}$ (crashes/year)**	**Roadway segment length, L (mi)**	**Crash rate (crashes/mi/year)**
	(Total) from Worksheet 1K		(2) / (3)
Total	1.0	0.12	8.4
Fatal and injury (FI)	0.3	0.12	2.4
Property damage only (PDO)	0.7	0.12	6.1

Worksheet 2A -- General Information and Input Data for Urban and Suburban Arterial Intersections						
General Information				**Location Information**		
Analyst	TL			Roadway	Wootton Parkway	
Agency or Company	ATCS			Intersection	At Tower Oaks Boulevard	
Date Performed	12/07/21			Jurisdiction	Montgomery County	
				Analysis Year	2045	
Input Data				**Base Conditions**	**Site Conditions**	
Intersection type (3ST, 3SG, 4ST, 4SG)				--	4SG	
AADT $_{major}$ (veh/day)	$AADT_{MAX}$ =	67,700	(veh/day)	--	25,867	
AADT $_{minor}$ (veh/day)	$AADT_{MAX}$ =	33,400	(veh/day)	--	6,254	
Intersection lighting (present/not present)				Not Present	Present	
Calibration factor, C_i				1.00	1.00	
Data for unsignalized intersections only:				--	--	
Number of major-road approaches with left-turn lanes (0,1,2)				0	0	
Number of major-road approaches with right-turn lanes (0,1,2)				0	0	
Data for signalized intersections only:				--	--	
Number of approaches with left-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]				0	4	
Number of approaches with right-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]				0	4	
Number of approaches with left-turn signal phasing [for 3SG, use maximum value of 3]				--	4	
Type of left-turn signal phasing for Leg #1				Permissive	Protected	
Type of left-turn signal phasing for Leg #2				--	Permissive / Protected	
Type of left-turn signal phasing for Leg #3				--	Permissive / Protected	
Type of left-turn signal phasing for Leg #4 (if applicable)				--	Permissive / Protected	
Number of approaches with right-turn-on-red prohibited [for 3SG, use maximum value of 3]				0	0	
Intersection red light cameras (present/not present)				Not Present	Not Present	
Sum of all pedestrian crossing volumes (PedVol) -- Signalized intersections only					122	
Maximum number of lanes crossed by a pedestrian (n_{lanesx})				--	7	
Number of bus stops within 300 m (1,000 ft) of the intersection				0	2	
Schools within 300 m (1,000 ft) of the intersection (present/not present)				Not Present	Not Present	
Number of alcohol sales establishments within 300 m (1,000 ft) of the intersection				0	0	

Worksheet 2B -- Crash Modification Factors for Urban and Suburban Arterial Intersections						
(1)	(2)	(3)	(4)	(5)	(6)	(7)
CMF for Left-Turn Lanes	CMF for Left-Turn Signal Phasing	CMF for Right-Turn Lanes	CMF for Right Turn on Red	CMF for Lighting	CMF for Red Light Cameras	Combined CMF
CMF 1i	*CMF 2i*	*CMF 3i*	*CMF 4i*	*CMF 5i*	*CMF 6i*	*CMF $_{COMB}$*
from Table 12-24	from Table 12-25	from Table 12-26	from Equation 12-35	from Equation 12-36	from Equation 12-37	(1)*(2)*(3)*(4)*(5)*(6)
0.66	0.91	0.85	1.00	0.91	1.00	0.47

Worksheet 2C -- Multiple-Vehicle Collisions by Severity Level for Urban and Suburban Arterial Intersections

(1)	(2)			(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**			**Overdispersion Parameter, k**	**Initial N_{bimv}**	**Proportion of Total Crashes**	**Adjusted N_{bimv}**	**Combined CMFs**	**Calibration Factor, C_i**	**Predicted N_{bimv}**
	from Table 12-10			from Table 12-10	from Equation 12-21		$(4)_{TOTAL}$*(5)	(7) from Worksheet 2B		(6)*(7)*(8)
	a	b	c							
Total	-10.99	1.07	0.23	0.39	6.635	1.000	6.635	0.47	1.00	3.090
Fatal and Injury (FI)	-13.14	1.18	0.22	0.33	2.166	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ 0.339	2.247	0.47	1.00	1.046
Property Damage Only (PDO)	-11.02	1.02	0.24	0.44	4.228	$(5)_{TOTAL}-(5)_{FI}$ 0.661	4.388	0.47	1.00	2.043

Worksheet 2D -- Multiple-Vehicle Collisions by Collision Type for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{bimv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{bimv\ (PDO)}$ (crashes/year)**	**Predicted N $_{bimv\ (TOTAL)}$ (crashes/year)**
	from Table 12-11	$(9)_{FI}$ from Worksheet 2C	from Table 12-11	$(9)_{PDO}$ from Worksheet 2C	$(9)_{PDO}$ from Worksheet 2C
Total	1.000	1.046	1.000	2.043	3.090
		(2)*$(3)_{FI}$		(4)*$(5)_{PDO}$	(3)+(5)
Rear-end collision	0.450	0.471	0.483	0.987	1.458
Head-on collision	0.049	0.051	0.030	0.061	0.113
Angle collision	0.347	0.363	0.244	0.499	0.862
Sideswipe	0.099	0.104	0.032	0.065	0.169
Other multiple-vehicle collision	0.055	0.058	0.211	0.431	0.489

Worksheet 2E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Arterial Intersections

(1)	(2)			(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**			**Overdispersion Parameter, k**	**Initial N_{bisv}**	**Proportion of Total Crashes**	**Adjusted N_{bimv}**	**Combined CMFs**	**Calibration Factor, C_i**	**Predicted N_{bisv}**
	from Table 12-12			from Table 12-12	from Eqn. 12-24; (FI) from Eqn. 12-24 or 12-27		$(4)_{TOTAL}$*(5)	(7) from Worksheet 2B		(6)*(7)*(8)
	a	b	c							
Total	-10.21	0.68	0.27	0.36	0.390	1.000	0.390	0.47	1.00	0.182
Fatal and Injury (FI)	-9.25	0.43	0.29	0.09	0.096	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ 0.247	0.096	0.47	1.00	0.045
Property Damage Only (PDO)	-11.34	0.78	0.25	0.44	0.292	$(5)_{TOTAL}-(5)_{FI}$ 0.753	0.294	0.47	1.00	0.137

Worksheet 2F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{bisv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{bisv\ (PDO)}$ (crashes/year)**	**Predicted N $_{bisv\ (TOTAL)}$ (crashes/year)**
	from Table 12-13	(9)$_{FI}$ from Worksheet 2E	from Table 12-13	(9)$_{PDO}$ from Worksheet 2E	(9)$_{PDO}$ from Worksheet 2E
Total	1.000	0.045	1.000	0.137	0.182
		(2)*(3)$_{FI}$		(4)*(5)$_{PDO}$	(3)+(5)
Collision with parked vehicle	0.001	0.000	0.001	0.000	0.000
Collision with animal	0.002	0.000	0.002	0.000	0.000
Collision with fixed object	0.744	0.033	0.870	0.119	0.152
Collision with other object	0.072	0.003	0.070	0.010	0.013
Other single-vehicle collision	0.040	0.002	0.023	0.003	0.005
Single-vehicle noncollision	0.141	0.006	0.034	0.005	0.011

Worksheet 2G -- Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Stop-Controlled Intersections

(1)	(2)	(3)	(4)	(5)	(7)*
Crash Severity Level	**Predicted N_{bimv}**	**Predicted N_{bisv}**	**Predicted N_{bi}**	**f_{pedi}**	**Predicted N_{pedi}**
	(9) from Worksheet 2C	(9) from Worksheet 2E	(2) + (3)	from Table 12-16	(4)*(5)
Total	--	--	--	--	--
Fatal and injury (FI)	--	--	--	--	--

* Column 6 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-30

Worksheet 2H -- Crash Modification Factors for Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Signalized Intersections

(1)	(2)	(3)	(4)
CMF for Bus Stops	CMF for Schools	CMF for Alcohol Sales Establishments	Combined CMF
CMF_{1p}	CMF_{2p}	CMF_{3p}	
from Table 12-28	from Table 12-29	from Table 12-30	(1)*(2)*(3)
2.78	1.00	1.00	2.78

Worksheet 2I -- Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Signalized Intersections

(1)	(2)					(3)	(4)	(5)	(6)	(7)
Crash Severity Level	**SPF Coefficients**					**Overdispersion Parameter, k**	**$N_{pedbase}$**	**Combined CMF**	**Calibration factor, C_i**	**Predicted N_{pedi}**
	from Table 12-14						from Equation 12-29	(4) from Worksheet 2H		(4)*(5)*(6)
	a	b	c	d	e					
Total	-9.53	0.40	0.26	0.45	0.04	0.24	0.037	2.78	1.00	0.102
Fatal and Injury (FI)	--	--	--	--	--	--	--	--	1.00	0.102

Worksheet 2J -- Vehicle-Bicycle Collisions for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(7)*
Crash Severity Level	**Predicted N_{bimv}**	**Predicted N_{bisv}**	**Predicted N_{bi}**	**f_{bikei}**	**Predicted N_{bikei}**
	(9) from Worksheet 2C	(9) from Worksheet 2E	(2) + (3)	from Table 12-17	(4)*(5)
Total	3.090	0.182	3.271	0.015	0.049
Fatal and injury (FI)	--	--	--	--	0.049

* Column 6 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-31

Worksheet 2K -- Crash Severity Distribution for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)
	Fatal and injury (FI)	**Property damage only (PDO)**	**Total**
Collision type	(3) from Worksheet 2D and 2F; (7) from 2G or 2I and 2J	(5) from Worksheet 2D and 2F	(6) from Worksheet 2D and 2F; (7) from 2G or 2I and 2J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 2D)	0.471	0.987	1.458
Head-on collisions (from Worksheet 2D)	0.051	0.061	0.113
Angle collisions (from Worksheet 2D)	0.363	0.499	0.862
Sideswipe (from Worksheet 2D)	0.104	0.065	0.169
Other multiple-vehicle collision (from Worksheet 2D)	0.058	0.431	0.489
Subtotal	1.046	2.043	3.090
SINGLE-VEHICLE			
Collision with parked vehicle (from Worksheet 2F)	0.000	0.000	0.000
Collision with animal (from Worksheet 2F)	0.000	0.000	0.000
Collision with fixed object (from Worksheet 2F)	0.033	0.119	0.152
Collision with other object (from Worksheet 2F)	0.003	0.010	0.013
Other single-vehicle collision (from Worksheet 2F)	0.002	0.003	0.005
Single-vehicle noncollision (from Worksheet 2F)	0.006	0.005	0.011
Collision with pedestrian (from Worksheet 2G or 2I)	0.102	0.000	0.102
Collision with bicycle (from Worksheet 2J)	0.049	0.000	0.049
Subtotal	0.196	0.137	0.333
Total	1.242	2.180	3.422

Worksheet 2L -- Summary Results for Urban and Suburban Arterial Intersections

(1)	(2)
Crash severity level	**Predicted average crash frequency, $N_{predicted\ int}$ (crashes/year)**
	(Total) from Worksheet 2K
Total	3.4
Fatal and injury (FI)	1.2
Property damage only (PDO)	2.2

Crossroad Predictive Crash Analysis

Predicted Crash Frequency for Six-Lane and One-Way Urban and Suburban Arterials using NCHRP Report 17-58

for the

No Build Scenario

Safety Prediction Worksheet for Two-Way Urban and Suburban Arterial Segments

General Information

Analyst	PC
Agency	ATCS
Date	1/31/2022
Location	Montgomery County

Site Information

Street number	CO-166
Street name	Democracy Blvd from Taveshire
Segment number	1
Analysis year	2045

Add to Totals worksheet | Restore equations | Reset input cells

Output Summary

Predicted crash frequency, crashes / year

	F+I	PDO	Total
Total crashes	0.674	0.933	1.607
Multiple-vehicle crashes	0.437	0.679	
Single-vehicle crashes	0.201	0.254	
Vehicle-pedestrian crashes	0.024		
Vehicle-bicycle crashes	0.013		

Combined CMF

	F+I	PDO
Multiple-vehicle crashes	0.685	0.685
Single-vehicle crashes	2.266	2.266

Severity distribution for F+I crashes

K	A	B	C
0.008	0.053	0.207	0.405

Input Data		*Value*	*Advisory Messages*
Basic Roadway Data			
Area type		Suburban	.
Segment type		6D	.
Segment length, mi		0.13	.
Annual average daily traffic (AADT), veh/day		40327	.
Number of highway-rail grade crossings present		0	.
Posted speed limit, mi/h		35	.
Automated speed enforcement present?		No	.
Access Data			
Driveway count	Major commercial	1	**8 major comm. driveways per mile.**
	Major industrial	0	.
	Minor	0	.
Cross Section Data			
Lane width, ft		10	.
Outside shoulder width, ft		1.5	.
Median width, ft		23	.
Median barrier present?		Yes	.
Roadside Data			
Roadside fixed object count		5	**38 objects per mile.**
Average roadside fixed object offset, ft		7	.

Calibration Factors	*Value*	*Default Values*
Local calibration factor (C)	1.000	1.000
Adjustment factor for pedestrians (f_{ped})	0.015	0.015
Adjustment factor for bicyclists (f_{bike})	0.008	0.008
Severity distribution calibration factor ($C_{sdf,tws}$)	1.000	1.000

Crash Modification Factors	*F+I*		*PDO*	
	Multiple	*Single*	*Multiple*	*Single*
Lane width	1.045	1.045	1.045	1.045
Outside shoulder width	1.000	1.000	1.000	1.000
Median width	0.955	0.955	0.955	0.955
Median barrier	0.600	1.967	0.600	1.967
Highway-rail grade crossing	1.000	1.000	1.000	1.000
Major commercial driveways	1.220		1.220	
Major industrial driveways	0.989		0.989	
Minor driveways	0.947		0.947	
Automated speed enforcement	1.000	1.000	1.000	1.000
Roadside fixed objects		1.154		1.154

Safety Prediction Worksheet for Two-Way Urban and Suburban Arterial Segments

General Information

Analyst	PC
Agency	ATCS
Date	1/31/2022
Location	Montgomery County

Site Information

Street number	CO-166
Street name	Democracy Blvd from I-270 On-R
Segment number	2
Analysis year	2045

Add to Totals worksheet | Restore equations | Reset input cells

Output Summary

Predicted crash frequency, crashes / year

	F+I	PDO	Total
Total crashes	1.823	2.499	4.322
Multiple-vehicle crashes	1.062	1.662	
Single-vehicle crashes	0.664	0.838	
Vehicle-pedestrian crashes	0.063		
Vehicle-bicycle crashes	0.034		

Combined CMF

	F+I	PDO
Multiple-vehicle crashes	0.527	0.527
Single-vehicle crashes	2.299	2.299

Severity distribution for F+I crashes

K	A	B	C
0.022	0.144	0.561	1.095

Input Data		*Value*	*Advisory Messages*
Basic Roadway Data			
Area type		Suburban	.
Segment type		6D	.
Segment length, mi		0.43	.
Annual average daily traffic (AADT), veh/day		38902	.
Number of highway-rail grade crossings present		0	.
Posted speed limit, mi/h		35	.
Automated speed enforcement present?		No	.
Access Data			
Driveway count	Major commercial	0	.
	Major industrial	2	**5 major industrial driveways per mile.**
	Minor	0	.
Cross Section Data			
Lane width, ft		12	.
Outside shoulder width, ft		1.5	.
Median width, ft		23	.
Median barrier present?		Yes	.
Roadside Data			
Roadside fixed object count		24	**56 objects per mile.**
Average roadside fixed object offset, ft		7	.

Calibration Factors	*Value*	*Default Values*
Local calibration factor (C)	1.000	1.000
Adjustment factor for pedestrians (f_{ped})	0.015	0.015
Adjustment factor for bicyclists (f_{bike})	0.008	0.008
Severity distribution calibration factor ($C_{sdf,tws}$)	1.000	1.000

Crash Modification Factors	*F+I*		*PDO*	
	Multiple	*Single*	*Multiple*	*Single*
Lane width	1.000	1.000	1.000	1.000
Outside shoulder width	1.000	1.000	1.000	1.000
Median width	0.955	0.955	0.955	0.955
Median barrier	0.600	1.967	0.600	1.967
Highway-rail grade crossing	1.000	1.000	1.000	1.000
Major commercial driveways	0.932		0.932	
Major industrial driveways	1.040		1.040	
Minor driveways	0.947		0.947	
Automated speed enforcement	1.000	1.000	1.000	1.000
Roadside fixed objects		1.223		1.223

Safety Prediction Worksheet for Urban and Suburban Arterial Intersections

General Information

Analyst	PC
Agency	ATCS
Date	1/31/2022
Location	Montgomery County

Site Information

Major street name	Democracy Blvd
Minor street name	Taveshire Way
Intersection number	1
Analysis year	2045

Add to Totals worksheet | Restore equations | Reset input cells

Output Summary

Predicted crash frequency, crashes / year

	F+I	PDO	Total
Total crashes	2.365	2.136	4.501
Total-vehicle crashes	2.217	2.136	
Vehicle-pedestrian crashes	0.022		
Vehicle-bicycle crashes	0.126		

Combined CMF

	F+I	PDO
Total-vehicle crashes	0.723	0.723
Vehicle-pedestrian crashes	1.000	

Severity distribution for F+I crashes

K	A	B	C
0.014	0.131	0.659	1.562

Input Data	*Value*	*Advisory Messages*
Intersection Data		
Area type	Suburban	.
Number of legs	3	3SG intersection type
Traffic control type	Signalized	.
Lighting present?	Yes	.
Red-light cameras present?	No	.
Daily pedestrian volume crossing all legs (peds/day)	166	.
Maximum number of lanes crossed by a pedestrian	8	.
Number of bus stops within 1,000 ft of intersection	0	.
School(s) present within 1,000 ft of intersection?	No	.
Alcohol sales establishments within 1,000 ft	0	.

Street Data	*Major*	*Minor*	.
Street configuration	Two-way	Two-way	2x2 intersection configuration
Annual average daily traffic (AADT), veh/day	40795	4075	.
Number of through lanes	6	4	.
Number of approaches with left-turn lanes	0	1	.
Number of left-turn movements with protected phasing	0	1	.
Number of right-turn movements prohibited on red	0	0	.
Number of U-turn movements prohibited	2	1	.
Number of approaches with right-turn channelization	0	0	.

Calibration Factors	*Value*	*Default Values*
Local calibration factor (C)	1.000	1.000
Adjustment factor for pedestrians for stop control (f_{ped})	0.051	0.051
Adjustment factor for bicyclists (f_{bike})	0.029	0.029
Severity distribution calibration factor, 2-way ($C_{sdf,twi}$)	1.000	1.000
Severity distribution calibration factor, 1-way ($C_{sdf,owi}$)	1.000	1.000
Probability of fatality given K+A severity ($P_{K\|K+A}$)	0.094	0.094

Manner of Collision Proportions

2x2 intersections	3ST, F+I	3ST, PDO	3SG, F+I	3SG, PDO	4ST, F+I	4ST, PDO	4SG, F+I	4SG, PDO
Rear-end collision proportion	0.094	0.154	0.120	0.189	0.079	0.098	0.083	0.148
Angle colllision proportion	0.764	0.629	0.676	0.554	0.806	0.707	0.746	0.552

1x2 or 1x1 intersections	3ST, F+I	3ST, PDO	3SG, F+I	3SG, PDO	4ST, F+I	4ST, PDO	4SG, F+I	4SG, PDO
Rear-end collision proportion	0.100	0.100	0.111	0.143	0.047	0.065	0.030	0.059
Angle colllision proportion	0.300	0.250	0.889	0.571	0.822	0.706	0.837	0.733

Crash Modification Factors	*F+I*	*PDO*
Total-vehicle crash CMFs		
Lighting	0.911	0.911
Red-light cameras	1.000	1.000
Left-turn signal phasing	0.860	0.860
Right-turn-on-red	1.000	1.000
U-turn prohibition	0.885	0.885
Right-turn channelization	1.000	1.000
Number of lanes	1.043	1.043
Vehicle-pedestrian crash CMFs		
Bus stops	1.000	
Schools	1.000	
Alcohol sales establishments	1.000	

Safety Prediction Worksheet for Urban and Suburban Arterial Intersections

General Information

Analyst	PC
Agency	ATCS
Date	1/31/2022
Location	Montgomery County

Site Information

Major street name	Democracy Blvd
Minor street name	Fernwood Road
Intersection number	2
Analysis year	2045

Add to Totals worksheet | Restore equations | Reset input cells

Output Summary

Predicted crash frequency, crashes / year

	F+I	PDO	Total
Total crashes	4.243	3.552	7.795
Total-vehicle crashes	3.782	3.552	
Vehicle-pedestrian crashes	0.321		
Vehicle-bicycle crashes	0.139		

Combined CMF

	F+I	PDO
Total-vehicle crashes	0.752	0.752
Vehicle-pedestrian crashes	4.150	

Severity distribution for F+I crashes

K	A	B	C
0.023	0.224	1.122	2.874

Input Data	*Value*		*Advisory Messages*
Intersection Data			
Area type	Suburban		.
Number of legs	4		**4SG intersection type**
Traffic control type	Signalized		.
Lighting present?	Yes		.
Red-light cameras present?	Yes		.
Daily pedestrian volume crossing all legs (peds/day)	328		.
Maximum number of lanes crossed by a pedestrian	8		.
Number of bus stops within 1,000 ft of intersection	2		.
School(s) present within 1,000 ft of intersection?	No		.
Alcohol sales establishments within 1,000 ft	0		.
Street Data	*Major*	*Minor*	.
Street configuration	Two-way	Two-way	**2x2 intersection configuration**
Annual average daily traffic (AADT), veh/day	28351	12852	.
Number of through lanes	6	4	.
Number of approaches with left-turn lanes	2	2	.
Number of left-turn movements with protected phasing	2	2	.
Number of right-turn movements prohibited on red	0	0	.
Number of U-turn movements prohibited	0	0	.
Number of approaches with right-turn channelization	2	2	.

Calibration Factors	*Value*	*Default Values*
Local calibration factor (C)	1.000	1.000
Adjustment factor for pedestrians for stop control (f_{ped})	0.049	0.049
Adjustment factor for bicyclists (f_{bike})	0.019	0.019
Severity distribution calibration factor, 2-way ($C_{sdf,twi}$)	1.000	1.000
Severity distribution calibration factor, 1-way ($C_{sdf,owi}$)	1.000	1.000
Probability of fatality given K+A severity ($P_{K\|K+A}$)	0.094	0.094

Manner of Collision Proportions

2x2 intersections	3ST, F+I	3ST, PDO	3SG, F+I	3SG, PDO	4ST, F+I	4ST, PDO	4SG, F+I	4SG, PDO
Rear-end collision proportion	0.094	0.154	0.120	0.189	0.079	0.098	0.083	0.148
Angle colllision proportion	0.764	0.629	0.676	0.554	0.806	0.707	0.746	0.552
1x2 or 1x1 intersections	3ST, F+I	3ST, PDO	3SG, F+I	3SG, PDO	4ST, F+I	4ST, PDO	4SG, F+I	4SG, PDO
Rear-end collision proportion	0.100	0.100	0.111	0.143	0.047	0.065	0.030	0.059
Angle colllision proportion	0.300	0.250	0.889	0.571	0.822	0.706	0.837	0.733

Crash Modification Factors	*F+I*	*PDO*
Total-vehicle crash CMFs		
Lighting	0.911	0.911
Red-light cameras	0.851	0.851
Left-turn signal phasing	0.547	0.547
Right-turn-on-red	1.000	1.000
U-turn prohibition	1.000	1.000
Right-turn channelization	1.545	1.545
Number of lanes	1.148	1.148
Vehicle-pedestrian crash CMFs		
Bus stops	4.150	
Schools	1.000	
Alcohol sales establishments	1.000	

Safety Prediction Worksheet for Urban and Suburban Arterial Intersections

General Information

Analyst	TL
Agency	ATCS
Date	1/31/2022
Location	Montgomery County

Site Information

Major street name	MD 187 Old Georgetown Rd
Minor street name	Lone Oak Way/Manor Oak Way
Intersection number	1
Analysis year	2045

Add to Totals worksheet | Restore equations | Reset input cells

Output Summary

Predicted crash frequency, crashes / year

	F+I	PDO	Total
Total crashes	4.450	3.578	8.027
Total-vehicle crashes	4.018	3.578	
Vehicle-pedestrian crashes	0.288		
Vehicle-bicycle crashes	0.144		

Combined CMF

	F+I	PDO
Total-vehicle crashes	0.911	0.911
Vehicle-pedestrian crashes	5.603	

Severity distribution for F+I crashes

K	A	B	C
0.024	0.235	1.176	3.014

Input Data	*Value*		*Advisory Messages*
Intersection Data			
Area type	Suburban		.
Number of legs	4		**4SG intersection type**
Traffic control type	Signalized		.
Lighting present?	Yes		.
Red-light cameras present?	No		.
Daily pedestrian volume crossing all legs (peds/day)	301		.
Maximum number of lanes crossed by a pedestrian	8		.
Number of bus stops within 1,000 ft of intersection	6		.
School(s) present within 1,000 ft of intersection?	Yes		.
Alcohol sales establishments within 1,000 ft	0		.
Street Data	*Major*	*Minor*	.
Street configuration	Two-way	Two-way	**2x2 intersection configuration**
Annual average daily traffic (AADT), veh/day	51254	3590	.
Number of through lanes	6	2	.
Number of approaches with left-turn lanes	2	0	.
Number of left-turn movements with protected phasing	0	0	.
Number of right-turn movements prohibited on red	0	0	.
Number of U-turn movements prohibited	0	0	.
Number of approaches with right-turn channelization	0	0	.

Calibration Factors	*Value*	*Default Values*
Local calibration factor (C)	1.000	1.000
Adjustment factor for pedestrians for stop control (f_{ped})	0.049	0.049
Adjustment factor for bicyclists (f_{bike})	0.019	0.019
Severity distribution calibration factor, 2-way ($C_{sdf,twi}$)	1.000	1.000
Severity distribution calibration factor, 1-way ($C_{sdf,owi}$)	1.000	1.000
Probability of fatality given K+A severity ($P_{K\|K+A}$)	0.094	0.094

Manner of Collision Proportions

2x2 intersections	3ST, F+I	3ST, PDO	3SG, F+I	3SG, PDO	4ST, F+I	4ST, PDO	4SG, F+I	4SG, PDO
Rear-end collision proportion	0.094	0.154	0.120	0.189	0.079	0.098	0.083	0.148
Angle colllision proportion	0.764	0.629	0.676	0.554	0.806	0.707	0.746	0.552
1x2 or 1x1 intersections	3ST, F+I	3ST, PDO	3SG, F+I	3SG, PDO	4ST, F+I	4ST, PDO	4SG, F+I	4SG, PDO
Rear-end collision proportion	0.100	0.100	0.111	0.143	0.047	0.065	0.030	0.059
Angle colllision proportion	0.300	0.250	0.889	0.571	0.822	0.706	0.837	0.733

Crash Modification Factors	*F+I*	*PDO*
Total-vehicle crash CMFs		
Lighting	0.911	0.911
Red-light cameras	1.000	1.000
Left-turn signal phasing	1.000	1.000
Right-turn-on-red	1.000	1.000
U-turn prohibition	1.000	1.000
Right-turn channelization	1.000	1.000
Number of lanes	1.000	1.000
Vehicle-pedestrian crash CMFs		
Bus stops	4.150	
Schools	1.350	
Alcohol sales establishments	1.000	

Safety Prediction Worksheet for Two-Way Urban and Suburban Arterial Segments

General Information

Analyst	TL
Agency	ATCS
Date	1/31/2022
Location	Montgomery County

Site Information

Street number	MD 187
Street name	Lone Oak Way/Manor Oak Way t
Segment number	1
Analysis year	2045

Add to Totals worksheet | Restore equations | Reset input cells

Output Summary

Predicted crash frequency, crashes / year

	F+I	PDO	Total
Total crashes	1.420	1.897	3.317
Multiple-vehicle crashes	0.920	1.365	
Single-vehicle crashes	0.425	0.532	
Vehicle-pedestrian crashes	0.049		
Vehicle-bicycle crashes	0.026		

Combined CMF

	F+I	PDO
Multiple-vehicle crashes	0.569	0.569
Single-vehicle crashes	2.308	2.308

Severity distribution for F+I crashes

K	A	B	C
0.017	0.112	0.437	0.853

Input Data		*Value*	*Advisory Messages*
Basic Roadway Data			
Area type		Suburban	.
Segment type		6D	.
Segment length, mi		0.24	.
Annual average daily traffic (AADT), veh/day		52101	.
Number of highway-rail grade crossings present		0	.
Posted speed limit, mi/h		35	.
Automated speed enforcement present?		No	.
Access Data			
Driveway count	Major commercial	0	.
	Major industrial	0	.
	Minor	2	**8 minor driveways per mile.**
Cross Section Data			
Lane width, ft		11	.
Outside shoulder width, ft		1	.
Median width, ft		15	.
Median barrier present?		Yes	.
Roadside Data			
Roadside fixed object count		9	**38 objects per mile.**
Average roadside fixed object offset, ft		8	.

Calibration Factors	*Value*	*Default Values*
Local calibration factor (C)	1.000	1.000
Adjustment factor for pedestrians (f_{ped})	0.015	0.015
Adjustment factor for bicyclists (f_{bike})	0.008	0.008
Severity distribution calibration factor ($C_{sdf,tws}$)	1.000	1.000

Crash Modification Factors	*F+I*		*PDO*	
	Multiple	*Single*	*Multiple*	*Single*
Lane width	1.022	1.022	1.022	1.022
Outside shoulder width	1.014	1.014	1.014	1.014
Median width	1.000	1.000	1.000	1.000
Median barrier	0.600	1.967	0.600	1.967
Highway-rail grade crossing	1.000	1.000	1.000	1.000
Major commercial driveways	0.932		0.932	
Major industrial driveways	0.989		0.989	
Minor driveways	0.991		0.991	
Automated speed enforcement	1.000	1.000	1.000	1.000
Roadside fixed objects		1.131		1.131

Safety Prediction Worksheet for Two-Way Urban and Suburban Arterial Segments

General Information

Analyst	TL
Agency	ATCS
Date	1/31/2022
Location	Montgomery County

Site Information

Street number	MD 187
Street name	I-495 to Ryland Dr
Segment number	2
Analysis year	2045

Add to Totals worksheet | Restore equations | Reset input cells

Output Summary

Predicted crash frequency, crashes / year

	F+I	PDO	Total
Total crashes	0.451	0.602	1.052
Multiple-vehicle crashes	0.270	0.405	
Single-vehicle crashes	0.157	0.197	
Vehicle-pedestrian crashes	0.015		
Vehicle-bicycle crashes	0.008		

Combined CMF

	F+I	PDO
Multiple-vehicle crashes	0.535	0.535
Single-vehicle crashes	2.614	2.614

Severity distribution for F+I crashes

K	A	B	C
0.005	0.036	0.139	0.271

Input Data		*Value*	*Advisory Messages*
Basic Roadway Data			
Area type		Suburban	.
Segment type		6D	.
Segment length, mi		0.08	.
Annual average daily traffic (AADT), veh/day		49489	.
Number of highway-rail grade crossings present		0	.
Posted speed limit, mi/h		35	.
Automated speed enforcement present?		No	.
Access Data			
Driveway count	Major commercial	0	.
	Major industrial	0	.
	Minor	0	.
Cross Section Data			
Lane width, ft		11	.
Outside shoulder width, ft		1	.
Median width, ft		18	.
Median barrier present?		Yes	.
Roadside Data			
Roadside fixed object count		9	**113 objects per mile.**
Average roadside fixed object offset, ft		10	.

Calibration Factors	*Value*	*Default Values*
Local calibration factor (C)	1.000	1.000
Adjustment factor for pedestrians (f_{ped})	0.015	0.015
Adjustment factor for bicyclists (f_{bike})	0.008	0.008
Severity distribution calibration factor ($C_{sdf,tws}$)	1.000	1.000

Crash Modification Factors	*F+I*		*PDO*	
	Multiple	*Single*	*Multiple*	*Single*
Lane width	1.022	1.022	1.022	1.022
Outside shoulder width	1.014	1.014	1.014	1.014
Median width	0.983	0.983	0.983	0.983
Median barrier	0.600	1.967	0.600	1.967
Highway-rail grade crossing	1.000	1.000	1.000	1.000
Major commercial driveways	0.932		0.932	
Major industrial driveways	0.989		0.989	
Minor driveways	0.947		0.947	
Automated speed enforcement	1.000	1.000	1.000	1.000
Roadside fixed objects		1.304		1.304

Safety Prediction Worksheet for Urban and Suburban Arterial Intersections

General Information

Analyst	TL
Agency	ATCS
Date	1/31/2022
Location	Montgomery County

Site Information

Major street name	MD 187 Old Georgetown Rd
Minor street name	Ryland Dr
Intersection number	2
Analysis year	2045

Add to Totals worksheet | Restore equations | Reset input cells

Output Summary

Predicted crash frequency, crashes / year

	F+I	PDO	Total
Total crashes	4.392	3.595	7.988
Total-vehicle crashes	4.025	3.595	
Vehicle-pedestrian crashes	0.223		
Vehicle-bicycle crashes	0.145		

Combined CMF

	F+I	PDO
Total-vehicle crashes	0.911	0.911
Vehicle-pedestrian crashes	5.603	

Severity distribution for F+I crashes

K	A	B	C
0.024	0.232	1.161	2.976

Input Data	*Value*	*Advisory Messages*
Intersection Data		
Area type	Suburban	.
Number of legs	4	4SG intersection type
Traffic control type	Signalized	.
Lighting present?	Yes	.
Red-light cameras present?	No	.
Daily pedestrian volume crossing all legs (peds/day)	182	.
Maximum number of lanes crossed by a pedestrian	7	.
Number of bus stops within 1,000 ft of intersection	5	.
School(s) present within 1,000 ft of intersection?	Yes	.
Alcohol sales establishments within 1,000 ft	0	.

Street Data	*Major*	*Minor*	
Street configuration	Two-way	Two-way	2x2 intersection configuration
Annual average daily traffic (AADT), veh/day	49427	3792	.
Number of through lanes	6	2	.
Number of approaches with left-turn lanes	2	1	.
Number of left-turn movements with protected phasing	0	0	.
Number of right-turn movements prohibited on red	0	0	.
Number of U-turn movements prohibited	0	0	.
Number of approaches with right-turn channelization	0	0	.

Calibration Factors	*Value*	*Default Values*
Local calibration factor (C)	1.000	1.000
Adjustment factor for pedestrians for stop control (f_{ped})	0.049	0.049
Adjustment factor for bicyclists (f_{bike})	0.019	0.019
Severity distribution calibration factor, 2-way ($C_{sdf,twi}$)	1.000	1.000
Severity distribution calibration factor, 1-way ($C_{sdf,owi}$)	1.000	1.000
Probability of fatality given K+A severity ($P_{K\|K+A}$)	0.094	0.094

Manner of Collision Proportions

2x2 intersections	3ST, F+I	3ST, PDO	3SG, F+I	3SG, PDO	4ST, F+I	4ST, PDO	4SG, F+I	4SG, PDO
Rear-end collision proportion	0.094	0.154	0.120	0.189	0.079	0.098	0.083	0.148
Angle colllision proportion	0.764	0.629	0.676	0.554	0.806	0.707	0.746	0.552
1x2 or 1x1 intersections	3ST, F+I	3ST, PDO	3SG, F+I	3SG, PDO	4ST, F+I	4ST, PDO	4SG, F+I	4SG, PDO
Rear-end collision proportion	0.100	0.100	0.111	0.143	0.047	0.065	0.030	0.059
Angle colllision proportion	0.300	0.250	0.889	0.571	0.822	0.706	0.837	0.733

Crash Modification Factors	*F+I*	*PDO*
Total-vehicle crash CMFs		
Lighting	0.911	0.911
Red-light cameras	1.000	1.000
Left-turn signal phasing	1.000	1.000
Right-turn-on-red	1.000	1.000
U-turn prohibition	1.000	1.000
Right-turn channelization	1.000	1.000
Number of lanes	1.000	1.000
Vehicle-pedestrian crash CMFs		
Bus stops	4.150	
Schools	1.350	
Alcohol sales establishments	1.000	

Safety Prediction Worksheet for Two-Way Urban and Suburban Arterial Segments

General Information

Analyst	PC
Agency	ATCS
Date	1/31/2022
Location	Montgomery County

Site Information

Street number	MD 187
Street name	Old Georgetown Rd from Rock S
Segment number	1
Analysis year	2045

Add to Totals worksheet | Restore equations | Reset input cells

Output Summary

Predicted crash frequency, crashes / year

	F+I	PDO	Total
Total crashes	0.848	1.090	1.938
Multiple-vehicle crashes	0.364	0.539	
Single-vehicle crashes	0.440	0.551	
Vehicle-pedestrian crashes	0.028		
Vehicle-bicycle crashes	0.015		

Combined CMF

	F+I	PDO
Multiple-vehicle crashes	0.529	0.529
Single-vehicle crashes	5.686	5.686

Severity distribution for F+I crashes

K	A	B	C
0.013	0.067	0.260	0.508

Input Data		*Value*	*Advisory Messages*
Basic Roadway Data			
Area type		Suburban	.
Segment type		6D	.
Segment length, mi		0.1	.
Annual average daily traffic (AADT), veh/day		53058	.
Number of highway-rail grade crossings present		0	.
Posted speed limit, mi/h		40	.
Automated speed enforcement present?		No	.
Access Data			
Driveway count	Major commercial	0	.
	Major industrial	0	.
	Minor	1	**10 minor driveways per mile.**
Cross Section Data			
Lane width, ft		12	.
Outside shoulder width, ft		1.5	.
Median width, ft		23	.
Median barrier present?		Yes	.
Roadside Data			
Roadside fixed object count		30	**300 objects per mile.**
Average roadside fixed object offset, ft		3	.

Calibration Factors	*Value*	*Default Values*
Local calibration factor (C)	1.000	1.000
Adjustment factor for pedestrians (f_{ped})	0.015	0.015
Adjustment factor for bicyclists (f_{bike})	0.008	0.008
Severity distribution calibration factor ($C_{sdf,tws}$)	1.000	1.000

Crash Modification Factors	*F+I*		*PDO*	
	Multiple	*Single*	*Multiple*	*Single*
Lane width	1.000	1.000	1.000	1.000
Outside shoulder width	1.000	1.000	1.000	1.000
Median width	0.955	0.955	0.955	0.955
Median barrier	0.600	1.967	0.600	1.967
Highway-rail grade crossing	1.000	1.000	1.000	1.000
Major commercial driveways	0.932		0.932	
Major industrial driveways	0.989		0.989	
Minor driveways	1.000		1.000	
Automated speed enforcement	1.000	1.000	1.000	1.000
Roadside fixed objects		3.025		3.025

Safety Prediction Worksheet for Two-Way Urban and Suburban Arterial Segments

General Information

Analyst	PC
Agency	ATCS
Date	1/31/2022
Location	Montgomery County

Site Information

Street number	MD 187
Street name	Old Georgetown Rd from I-270 N
Segment number	2
Analysis year	2045

Add to Totals worksheet | Restore equations | Reset input cells

Output Summary

Predicted crash frequency, crashes / year

	F+I	PDO	Total
Total crashes	1.056	1.366	2.422
Multiple-vehicle crashes	0.543	0.793	
Single-vehicle crashes	0.459	0.573	
Vehicle-pedestrian crashes	0.036		
Vehicle-bicycle crashes	0.019		

Combined CMF

	F+I	PDO
Multiple-vehicle crashes	0.515	0.515
Single-vehicle crashes	4.098	4.098

Severity distribution for F+I crashes

K	A	B	C
0.016	0.083	0.324	0.633

Input Data		*Value*	*Advisory Messages*
Basic Roadway Data			
Area type		Suburban	.
Segment type		6D	.
Segment length, mi		0.14	.
Annual average daily traffic (AADT), veh/day		56981	.
Number of highway-rail grade crossings present		0	.
Posted speed limit, mi/h		40	.
Automated speed enforcement present?		No	.
Access Data			
Driveway count	Major commercial	0	.
	Major industrial	0	.
	Minor	1	**7 minor driveways per mile.**
Cross Section Data			
Lane width, ft		12	.
Outside shoulder width, ft		1.5	.
Median width, ft		25	.
Median barrier present?		Yes	.
Roadside Data			
Roadside fixed object count		25	**179 objects per mile.**
Average roadside fixed object offset, ft		3	.

Calibration Factors	*Value*	*Default Values*
Local calibration factor (C)	1.000	1.000
Adjustment factor for pedestrians (f_{ped})	0.015	0.015
Adjustment factor for bicyclists (f_{bike})	0.008	0.008
Severity distribution calibration factor ($C_{sdf,tws}$)	1.000	1.000

Crash Modification Factors	*F+I*		*PDO*	
	Multiple	*Single*	*Multiple*	*Single*
Lane width	1.000	1.000	1.000	1.000
Outside shoulder width	1.000	1.000	1.000	1.000
Median width	0.945	0.945	0.945	0.945
Median barrier	0.600	1.967	0.600	1.967
Highway-rail grade crossing	1.000	1.000	1.000	1.000
Major commercial driveways	0.932		0.932	
Major industrial driveways	0.989		0.989	
Minor driveways	0.985		0.985	
Automated speed enforcement	1.000	1.000	1.000	1.000
Roadside fixed objects		2.205		2.205

Safety Prediction Worksheet for Urban and Suburban Arterial Intersections

General Information

Analyst	PC
Agency	ATCS
Date	1/31/2022
Location	Montgomery County

Site Information

Major street name	MD 187 (Old Georgetown Rd)
Minor street name	Rock Spring Dr
Intersection number	4
Analysis year	2045

Add to Totals worksheet | Restore equations | Reset input cells

Output Summary

Predicted crash frequency, crashes / year

	F+I	PDO	Total
Total crashes	4.921	3.792	8.713
Total-vehicle crashes	4.264	3.792	
Vehicle-pedestrian crashes	0.504		
Vehicle-bicycle crashes	0.153		

Combined CMF

	F+I	PDO
Total-vehicle crashes	0.619	0.619
Vehicle-pedestrian crashes	6.275	

Severity distribution for F+I crashes

K	A	B	C
0.027	0.260	1.301	3.334

Input Data	Value		Advisory Messages
Intersection Data			
Area type	Suburban		.
Number of legs	4		4SG intersection type
Traffic control type	Signalized		.
Lighting present?	Yes		.
Red-light cameras present?	No		.
Daily pedestrian volume crossing all legs (peds/day)	256		.
Maximum number of lanes crossed by a pedestrian	8		.
Number of bus stops within 1,000 ft of intersection	2		.
School(s) present within 1,000 ft of intersection?	Yes		.
Alcohol sales establishments within 1,000 ft	2		.
Street Data	*Major*	*Minor*	.
Street configuration	Two-way	Two-way	2x2 intersection configuration
Annual average daily traffic (AADT), veh/day	52069	18297	.
Number of through lanes	6	2	.
Number of approaches with left-turn lanes	2	1	.
Number of left-turn movements with protected phasing	2	2	.
Number of right-turn movements prohibited on red	0	0	.
Number of U-turn movements prohibited	0	0	.
Number of approaches with right-turn channelization	1	0	.

Calibration Factors	Value	Default Values
Local calibration factor (C)	1.000	1.000
Adjustment factor for pedestrians for stop control (f_{ped})	0.049	0.049
Adjustment factor for bicyclists (f_{bike})	0.019	0.019
Severity distribution calibration factor, 2-way ($C_{sdf,twi}$)	1.000	1.000
Severity distribution calibration factor, 1-way ($C_{sdf,owi}$)	1.000	1.000
Probability of fatality given K+A severity ($P_{K\|K+A}$)	0.094	0.094

Manner of Collision Proportions

2x2 intersections	3ST, F+I	3ST, PDO	3SG, F+I	3SG, PDO	4ST, F+I	4ST, PDO	4SG, F+I	4SG, PDO
Rear-end collision proportion	0.094	0.154	0.120	0.189	0.079	0.098	0.083	0.148
Angle colllision proportion	0.764	0.629	0.676	0.554	0.806	0.707	0.746	0.552
1x2 or 1x1 intersections	3ST, F+I	3ST, PDO	3SG, F+I	3SG, PDO	4ST, F+I	4ST, PDO	4SG, F+I	4SG, PDO
Rear-end collision proportion	0.100	0.100	0.111	0.143	0.047	0.065	0.030	0.059
Angle colllision proportion	0.300	0.250	0.889	0.571	0.822	0.706	0.837	0.733

Crash Modification Factors	F+I	PDO
Total-vehicle crash CMFs		
Lighting	0.911	0.911
Red-light cameras	1.000	1.000
Left-turn signal phasing	0.547	0.547
Right-turn-on-red	1.000	1.000
U-turn prohibition	1.000	1.000
Right-turn channelization	1.243	1.243
Number of lanes	1.000	1.000
Vehicle-pedestrian crash CMFs		
Bus stops	4.150	
Schools	1.350	
Alcohol sales establishments	1.120	

Safety Prediction Worksheet for Urban and Suburban Arterial Intersections

General Information

Analyst	PC
Agency	ATCS
Date	1/31/2022
Location	Montgomery County

Site Information

Major street name	MD 187 (Old Georgetown Rd)
Minor street name	Tuckerman Ln
Intersection number	7
Analysis year	2045

Add to Totals worksheet | Restore equations | Reset input cells

Output Summary

Predicted crash frequency, crashes / year

	F+I	PDO	Total
Total crashes	5.420	4.180	9.600
Total-vehicle crashes	4.741	4.180	
Vehicle-pedestrian crashes	0.510		
Vehicle-bicycle crashes	0.169		

Combined CMF

	F+I	PDO
Total-vehicle crashes	0.640	0.640
Vehicle-pedestrian crashes	5.603	

Severity distribution for F+I crashes

K	A	B	C
0.030	0.286	1.433	3.672

Input Data	*Value*		*Advisory Messages*
Intersection Data			
Area type	Suburban		.
Number of legs	4		**4SG intersection type**
Traffic control type	Signalized		.
Lighting present?	Yes		.
Red-light cameras present?	No		.
Daily pedestrian volume crossing all legs (peds/day)	327		.
Maximum number of lanes crossed by a pedestrian	7		.
Number of bus stops within 1,000 ft of intersection	5		.
School(s) present within 1,000 ft of intersection?	Yes		.
Alcohol sales establishments within 1,000 ft	0		.
Street Data	*Major*	*Minor*	.
Street configuration	Two-way	Two-way	**2x2 intersection configuration**
Annual average daily traffic (AADT), veh/day	57200	21114	.
Number of through lanes	6	4	.
Number of approaches with left-turn lanes	2	2	.
Number of left-turn movements with protected phasing	1	2	.
Number of right-turn movements prohibited on red	0	1	.
Number of U-turn movements prohibited	0	0	.
Number of approaches with right-turn channelization	0	0	.

Calibration Factors	*Value*	*Default Values*
Local calibration factor (C)	1.000	1.000
Adjustment factor for pedestrians for stop control (f_{ped})	0.049	0.049
Adjustment factor for bicyclists (f_{bike})	0.019	0.019
Severity distribution calibration factor, 2-way ($C_{sdf,twi}$)	1.000	1.000
Severity distribution calibration factor, 1-way ($C_{sdf,owi}$)	1.000	1.000
Probability of fatality given K+A severity ($P_{K\|K+A}$)	0.094	0.094

Manner of Collision Proportions

2x2 intersections	3ST, F+I	3ST, PDO	3SG, F+I	3SG, PDO	4ST, F+I	4ST, PDO	4SG, F+I	4SG, PDO
Rear-end collision proportion	0.094	0.154	0.120	0.189	0.079	0.098	0.083	0.148
Angle colllision proportion	0.764	0.629	0.676	0.554	0.806	0.707	0.746	0.552
1x2 or 1x1 intersections	3ST, F+I	3ST, PDO	3SG, F+I	3SG, PDO	4ST, F+I	4ST, PDO	4SG, F+I	4SG, PDO
Rear-end collision proportion	0.100	0.100	0.111	0.143	0.047	0.065	0.030	0.059
Angle colllision proportion	0.300	0.250	0.889	0.571	0.822	0.706	0.837	0.733

Crash Modification Factors	*F+I*	*PDO*
Total-vehicle crash CMFs		
Lighting	0.911	0.911
Red-light cameras	1.000	1.000
Left-turn signal phasing	0.636	0.636
Right-turn-on-red	0.980	0.980
U-turn prohibition	1.000	1.000
Right-turn channelization	1.000	1.000
Number of lanes	1.128	1.128
Vehicle-pedestrian crash CMFs		
Bus stops	4.150	
Schools	1.350	
Alcohol sales establishments	1.000	

Safety Prediction Worksheet for Urban and Suburban Arterial Intersections

General Information

Analyst	PC
Agency	ATCS
Date	1/31/2022
Location	Montgomery County

Site Information

Major street name	MD 187 (Old Georgetown Rd)
Minor street name	I-270 SB Ramp Connector/I-270
Intersection number	5
Analysis year	2045

Add to Totals worksheet | Restore equations | Reset input cells

Output Summary

Predicted crash frequency, crashes / year

	F+I	PDO	Total
Total crashes	#N/A	#N/A	#N/A
Total-vehicle crashes	#N/A	#N/A	
Vehicle-pedestrian crashes	0.014		
Vehicle-bicycle crashes	#N/A		

Combined CMF

	F+I	PDO
Total-vehicle crashes	1.126	1.126
Vehicle-pedestrian crashes	1.000	

Severity distribution for F+I crashes

K	A	B	C
#N/A	#N/A	#N/A	#N/A

Input Data	*Value*		*Advisory Messages*
Intersection Data			
Area type	Suburban		.
Number of legs	3		**3SG intersection type**
Traffic control type	Signalized		.
Lighting present?	Yes		.
Red-light cameras present?	No		.
Daily pedestrian volume crossing all legs (peds/day)	52		.
Maximum number of lanes crossed by a pedestrian	6		.
Number of bus stops within 1,000 ft of intersection	0		.
School(s) present within 1,000 ft of intersection?	No		.
Alcohol sales establishments within 1,000 ft	0		.
Street Data	*Major*	*Minor*	.
Street configuration	Two-way	One-way	**Major street must be one-way.**
Annual average daily traffic (AADT), veh/day	49223	8959	**#N/A**
Number of through lanes	8	2	**Invalid lane count combination.**
Number of approaches with left-turn lanes	1	1	.
Number of left-turn movements with protected phasing	1	1	.
Number of right-turn movements prohibited on red	0	0	.
Number of U-turn movements prohibited	1	0	.
Number of approaches with right-turn channelization	1	1	.

Calibration Factors	*Value*	*Default Values*
Local calibration factor (C)	1.000	1.000
Adjustment factor for pedestrians for stop control (f_{ped})	0.051	0.051
Adjustment factor for bicyclists (f_{bike})	0.029	0.029
Severity distribution calibration factor, 2-way ($C_{sdf,twi}$)	1.000	1.000
Severity distribution calibration factor, 1-way ($C_{sdf,owi}$)	1.000	1.000
Probability of fatality given K+A severity ($P_{K\|K+A}$)	0.094	0.094

Manner of Collision Proportions

2x2 intersections	3ST, F+I	3ST, PDO	3SG, F+I	3SG, PDO	4ST, F+I	4ST, PDO	4SG, F+I	4SG, PDO
Rear-end collision proportion	0.094	0.154	0.120	0.189	0.079	0.098	0.083	0.148
Angle colllision proportion	0.764	0.629	0.676	0.554	0.806	0.707	0.746	0.552
1x2 or 1x1 intersections	3ST, F+I	3ST, PDO	3SG, F+I	3SG, PDO	4ST, F+I	4ST, PDO	4SG, F+I	4SG, PDO
Rear-end collision proportion	0.100	0.100	0.111	0.143	0.047	0.065	0.030	0.059
Angle colllision proportion	0.300	0.250	0.889	0.571	0.822	0.706	0.837	0.733

Crash Modification Factors	*F+I*	*PDO*
Total-vehicle crash CMFs		
Lighting	0.911	0.911
Red-light cameras	1.000	1.000
Left-turn signal phasing	0.740	0.740
Right-turn-on-red	1.000	1.000
U-turn prohibition	0.960	0.960
Right-turn channelization	1.243	1.243
Number of lanes	1.401	1.401
Vehicle-pedestrian crash CMFs		
Bus stops	1.000	
Schools	1.000	
Alcohol sales establishments	1.000	

Safety Prediction Worksheet for Urban and Suburban Arterial Intersections

General Information

Analyst	PC
Agency	ATCS
Date	1/31/2022
Location	Montgomery County

Site Information

Major street name	MD 187 (Old Georgetown Rd)
Minor street name	I-270 NB Ramp Connector/I-270
Intersection number	6
Analysis year	2045

Add to Totals worksheet | Restore equations | Reset input cells

Output Summary

Predicted crash frequency, crashes / year

	F+I	PDO	Total
Total crashes	#N/A	#N/A	#N/A
Total-vehicle crashes	#N/A	#N/A	
Vehicle-pedestrian crashes	0.020		
Vehicle-bicycle crashes	#N/A		

Combined CMF

	F+I	PDO
Total-vehicle crashes	1.145	1.145
Vehicle-pedestrian crashes	1.000	

Severity distribution for F+I crashes

K	A	B	C
#N/A	#N/A	#N/A	#N/A

Input Data	*Value*		*Advisory Messages*
Intersection Data			
Area type	Suburban		.
Number of legs	3		**3SG intersection type**
Traffic control type	Signalized		.
Lighting present?	Yes		.
Red-light cameras present?	No		.
Daily pedestrian volume crossing all legs (peds/day)	175		.
Maximum number of lanes crossed by a pedestrian	6		.
Number of bus stops within 1,000 ft of intersection	0		.
School(s) present within 1,000 ft of intersection?	No		.
Alcohol sales establishments within 1,000 ft	0		.
Street Data	*Major*	*Minor*	.
Street configuration	Two-way	One-way	**Major street must be one-way.**
Annual average daily traffic (AADT), veh/day	56457	6479	**#N/A**
Number of through lanes	8	2	**Invalid lane count combination.**
Number of approaches with left-turn lanes	1	1	.
Number of left-turn movements with protected phasing	1	1	.
Number of right-turn movements prohibited on red	0	0	.
Number of U-turn movements prohibited	1	0	.
Number of approaches with right-turn channelization	1	1	.

Calibration Factors	*Value*	*Default Values*
Local calibration factor (C)	1.000	1.000
Adjustment factor for pedestrians for stop control (f_{ped})	0.051	0.051
Adjustment factor for bicyclists (f_{bike})	0.029	0.029
Severity distribution calibration factor, 2-way ($C_{sdf,twi}$)	1.000	1.000
Severity distribution calibration factor, 1-way ($C_{sdf,owi}$)	1.000	1.000
Probability of fatality given K+A severity ($P_{K\|K+A}$)	0.094	0.094

Manner of Collision Proportions

2x2 intersections	3ST, F+I	3ST, PDO	3SG, F+I	3SG, PDO	4ST, F+I	4ST, PDO	4SG, F+I	4SG, PDO
Rear-end collision proportion	0.094	0.154	0.120	0.189	0.079	0.098	0.083	0.148
Angle colllision proportion	0.764	0.629	0.676	0.554	0.806	0.707	0.746	0.552
1x2 or 1x1 intersections	3ST, F+I	3ST, PDO	3SG, F+I	3SG, PDO	4ST, F+I	4ST, PDO	4SG, F+I	4SG, PDO
Rear-end collision proportion	0.100	0.100	0.111	0.143	0.047	0.065	0.030	0.059
Angle colllision proportion	0.300	0.250	0.889	0.571	0.822	0.706	0.837	0.733

Crash Modification Factors	F+I	PDO
Total-vehicle crash CMFs		
Lighting	0.911	0.911
Red-light cameras	1.000	1.000
Left-turn signal phasing	0.740	0.740
Right-turn-on-red	1.000	1.000
U-turn prohibition	0.960	0.960
Right-turn channelization	1.243	1.243
Number of lanes	1.425	1.425
Vehicle-pedestrian crash CMFs		
Bus stops	1.000	
Schools	1.000	
Alcohol sales establishments	1.000	

Safety Prediction Worksheet for Urban and Suburban Arterial Intersections

General Information

Analyst	TL
Agency	ATCS
Date	1/31/2022
Location	Montgomery County

Site Information

Major street name	MD 355 Rockville Pike
Minor street name	Grosvenor Ln
Intersection number	1
Analysis year	2045

Add to Totals worksheet | Restore equations | Reset input cells

Output Summary

Predicted crash frequency, crashes / year

	F+I	PDO	Total
Total crashes	3.544	2.828	6.373
Total-vehicle crashes	3.221	2.828	
Vehicle-pedestrian crashes	0.209		
Vehicle-bicycle crashes	0.115		

Combined CMF

	F+I	PDO
Total-vehicle crashes	0.528	0.528
Vehicle-pedestrian crashes	4.150	

Severity distribution for F+I crashes

K	A	B	C
0.020	0.196	0.987	2.341

Input Data	*Value*		*Advisory Messages*
Intersection Data			
Area type	Suburban		.
Number of legs	4		**4SG intersection type**
Traffic control type	Signalized		.
Lighting present?	Yes		.
Red-light cameras present?	Yes		.
Daily pedestrian volume crossing all legs (peds/day)	156		.
Maximum number of lanes crossed by a pedestrian	7		.
Number of bus stops within 1,000 ft of intersection	4		.
School(s) present within 1,000 ft of intersection?	No		.
Alcohol sales establishments within 1,000 ft	0		.
Street Data	*Major*	*Minor*	.
Street configuration	Two-way	Two-way	**2x2 intersection configuration**
Annual average daily traffic (AADT), veh/day	59822	9723	.
Number of through lanes	6	2	.
Number of approaches with left-turn lanes	0	2	.
Number of left-turn movements with protected phasing	0	2	.
Number of right-turn movements prohibited on red	0	0	.
Number of U-turn movements prohibited	2	0	.
Number of approaches with right-turn channelization	0	2	.

Calibration Factors	*Value*	*Default Values*
Local calibration factor (C)	1.000	1.000
Adjustment factor for pedestrians for stop control (f_{ped})	0.049	0.049
Adjustment factor for bicyclists (f_{bike})	0.019	0.019
Severity distribution calibration factor, 2-way ($C_{sdf,twi}$)	1.000	1.000
Severity distribution calibration factor, 1-way ($C_{sdf,owi}$)	1.000	1.000
Probability of fatality given K+A severity ($P_{K\|K+A}$)	0.094	0.094

Manner of Collision Proportions

2x2 intersections	3ST, F+I	3ST, PDO	3SG, F+I	3SG, PDO	4ST, F+I	4ST, PDO	4SG, F+I	4SG, PDO
Rear-end collision proportion	0.094	0.154	0.120	0.189	0.079	0.098	0.083	0.148
Angle colllision proportion	0.764	0.629	0.676	0.554	0.806	0.707	0.746	0.552
1x2 or 1x1 intersections	3ST, F+I	3ST, PDO	3SG, F+I	3SG, PDO	4ST, F+I	4ST, PDO	4SG, F+I	4SG, PDO
Rear-end collision proportion	0.100	0.100	0.111	0.143	0.047	0.065	0.030	0.059
Angle colllision proportion	0.300	0.250	0.889	0.571	0.822	0.706	0.837	0.733

Crash Modification Factors	*F+I*	*PDO*
Total-vehicle crash CMFs		
Lighting	0.911	0.911
Red-light cameras	0.850	0.850
Left-turn signal phasing	0.740	0.740
Right-turn-on-red	1.000	1.000
U-turn prohibition	0.922	0.922
Right-turn channelization	1.000	1.000
Number of lanes	1.000	1.000
Vehicle-pedestrian crash CMFs		
Bus stops	4.150	
Schools	1.000	
Alcohol sales establishments	1.000	

Safety Prediction Worksheet for Two-Way Urban and Suburban Arterial Segments

General Information

Analyst	TL
Agency	ATCS
Date	1/31/2022
Location	Montgomery County

Site Information

Street number	MD 355
Street name	Rockville Pike from Grosvenor Ln
Segment number	1
Analysis year	2045

Add to Totals worksheet | Restore equations | Reset input cells

Output Summary

Predicted crash frequency, crashes / year

	F+I	PDO	Total
Total crashes	1.155	1.515	2.670
Multiple-vehicle crashes	0.775	1.117	
Single-vehicle crashes	0.320	0.398	
Vehicle-pedestrian crashes	0.039		
Vehicle-bicycle crashes	0.021		

Combined CMF

	F+I	PDO
Multiple-vehicle crashes	0.204	0.204
Single-vehicle crashes	0.840	0.840

Severity distribution for F+I crashes

K	A	B	C
0.017	0.091	0.354	0.692

Input Data		*Value*	*Advisory Messages*
Basic Roadway Data			
Area type		Suburban	.
Segment type		6D	.
Segment length, mi		0.46	.
Annual average daily traffic (AADT), veh/day		61335	.
Number of highway-rail grade crossings present		0	.
Posted speed limit, mi/h		40	.
Automated speed enforcement present?		No	.
Access Data			
Driveway count	Major commercial	0	.
	Major industrial	0	.
	Minor	1	**2 minor driveways per mile.**
Cross Section Data			
Lane width, ft		12	.
Outside shoulder width, ft		2	.
Median width, ft		180	.
Median barrier present?		Yes	.
Roadside Data			
Roadside fixed object count		11	**24 objects per mile.**
Average roadside fixed object offset, ft		6	.

Calibration Factors	*Value*	*Default Values*
Local calibration factor (C)	1.000	1.000
Adjustment factor for pedestrians (f_{ped})	0.015	0.015
Adjustment factor for bicyclists (f_{bike})	0.008	0.008
Severity distribution calibration factor ($C_{sdf,tws}$)	1.000	1.000

Crash Modification Factors	*F+I*		*PDO*	
	Multiple	*Single*	*Multiple*	*Single*
Lane width	1.000	1.000	1.000	1.000
Outside shoulder width	0.986	0.986	0.986	0.986
Median width	0.390	0.390	0.390	0.390
Median barrier	0.600	1.967	0.600	1.967
Highway-rail grade crossing	1.000	1.000	1.000	1.000
Major commercial driveways	0.932		0.932	
Major industrial driveways	0.989		0.989	
Minor driveways	0.959		0.959	
Automated speed enforcement	1.000	1.000	1.000	1.000
Roadside fixed objects		1.109		1.109

Safety Prediction Worksheet for Urban and Suburban Arterial Intersections

General Information

Analyst	TL
Agency	ATCS
Date	1/31/2022
Location	Montgomery County

Site Information

Major street name	MD 355 Rockville Pike
Minor street name	Pooks Hill Rd
Intersection number	2
Analysis year	2045

Add to Totals worksheet | Restore equations | Reset input cells

Output Summary

Predicted crash frequency, crashes / year

	F+I	PDO	Total
Total crashes	3.480	2.757	6.236
Total-vehicle crashes	3.225	2.757	
Vehicle-pedestrian crashes	0.082		
Vehicle-bicycle crashes	0.173		

Combined CMF

	F+I	PDO
Total-vehicle crashes	0.634	0.634
Vehicle-pedestrian crashes	4.150	

Severity distribution for F+I crashes

K	A	B	C
0.019	0.188	0.945	2.328

Input Data	*Value*	*Advisory Messages*
Intersection Data		
Area type	Suburban	.
Number of legs	3	3SG intersection type
Traffic control type	Signalized	.
Lighting present?	Yes	.
Red-light cameras present?	No	.
Daily pedestrian volume crossing all legs (peds/day)	78	.
Maximum number of lanes crossed by a pedestrian	9	.
Number of bus stops within 1,000 ft of intersection	5	.
School(s) present within 1,000 ft of intersection?	No	.
Alcohol sales establishments within 1,000 ft	0	.

Street Data	*Major*	*Minor*	.
Street configuration	Two-way	Two-way	2x2 intersection configuration
Annual average daily traffic (AADT), veh/day	72165	9511	.
Number of through lanes	6	2	.
Number of approaches with left-turn lanes	1	1	.
Number of left-turn movements with protected phasing	1	1	.
Number of right-turn movements prohibited on red	1	0	.
Number of U-turn movements prohibited	1	0	.
Number of approaches with right-turn channelization	0	1	.

Calibration Factors	*Value*	*Default Values*
Local calibration factor (C)	1.000	1.000
Adjustment factor for pedestrians for stop control (f_{ped})	0.051	0.051
Adjustment factor for bicyclists (f_{bike})	0.029	0.029
Severity distribution calibration factor, 2-way ($C_{sdf,twi}$)	1.000	1.000
Severity distribution calibration factor, 1-way ($C_{sdf,owi}$)	1.000	1.000
Probability of fatality given K+A severity ($P_{K\|K+A}$)	0.094	0.094

Manner of Collision Proportions

2x2 intersections	3ST, F+I	3ST, PDO	3SG, F+I	3SG, PDO	4ST, F+I	4ST, PDO	4SG, F+I	4SG, PDO
Rear-end collision proportion	0.094	0.154	0.120	0.189	0.079	0.098	0.083	0.148
Angle colllision proportion	0.764	0.629	0.676	0.554	0.806	0.707	0.746	0.552

1x2 or 1x1 intersections	3ST, F+I	3ST, PDO	3SG, F+I	3SG, PDO	4ST, F+I	4ST, PDO	4SG, F+I	4SG, PDO
Rear-end collision proportion	0.100	0.100	0.111	0.143	0.047	0.065	0.030	0.059
Angle colllision proportion	0.300	0.250	0.889	0.571	0.822	0.706	0.837	0.733

Crash Modification Factors	*F+I*	*PDO*
Total-vehicle crash CMFs		
Lighting	0.911	0.911
Red-light cameras	1.000	1.000
Left-turn signal phasing	0.740	0.740
Right-turn-on-red	0.980	0.980
U-turn prohibition	0.960	0.960
Right-turn channelization	1.000	1.000
Number of lanes	1.000	1.000
Vehicle-pedestrian crash CMFs		
Bus stops	4.150	
Schools	1.000	
Alcohol sales establishments	1.000	

Safety Prediction Worksheet for Two-Way Urban and Suburban Arterial Segments

General Information

Analyst	TL
Agency	ATCS
Date	1/31/2022
Location	Montgomery County

Site Information

Street number	MD 355
Street name	Rockville Pike from Pooks Hill Rd
Segment number	2
Analysis year	2045

Add to Totals worksheet | Restore equations | Reset input cells

Output Summary

Predicted crash frequency, crashes / year

	F+I	PDO	Total
Total crashes	0.716	0.940	1.656
Multiple-vehicle crashes	0.615	0.861	
Single-vehicle crashes	0.064	0.079	
Vehicle-pedestrian crashes	0.024		
Vehicle-bicycle crashes	0.013		

Combined CMF

	F+I	PDO
Multiple-vehicle crashes	1.020	1.020
Single-vehicle crashes	1.191	1.191

Severity distribution for F+I crashes

K	A	B	C
0.009	0.057	0.220	0.430

Input Data		*Value*	*Advisory Messages*
Basic Roadway Data			
Area type		Suburban	.
Segment type		6D	.
Segment length, mi		0.06	.
Annual average daily traffic (AADT), veh/day		71893	.
Number of highway-rail grade crossings present		0	.
Posted speed limit, mi/h		35	.
Automated speed enforcement present?		No	.
Access Data			
Driveway count	Major commercial	0	.
	Major industrial	0	.
	Minor	1	**17 minor driveways per mile.**
Cross Section Data			
Lane width, ft		11	.
Outside shoulder width, ft		0	.
Median width, ft		15	.
Median barrier present?		No	.
Roadside Data			
Roadside fixed object count		2	**33 objects per mile.**
Average roadside fixed object offset, ft		8	.

Calibration Factors	*Value*	*Default Values*
Local calibration factor (C)	1.000	1.000
Adjustment factor for pedestrians (f_{ped})	0.015	0.015
Adjustment factor for bicyclists (f_{bike})	0.008	0.008
Severity distribution calibration factor ($C_{sdf,tws}$)	1.000	1.000

Crash Modification Factors	*F+I*		*PDO*	
	Multiple	*Single*	*Multiple*	*Single*
Lane width	1.022	1.022	1.022	1.022
Outside shoulder width	1.044	1.044	1.044	1.044
Median width	1.000	1.000	1.000	1.000
Median barrier	1.000	1.000	1.000	1.000
Highway-rail grade crossing	1.000	1.000	1.000	1.000
Major commercial driveways	0.932		0.932	
Major industrial driveways	0.989		0.989	
Minor driveways	1.037		1.037	
Automated speed enforcement	1.000	1.000	1.000	1.000
Roadside fixed objects		1.117		1.117

Safety Prediction Worksheet for Urban and Suburban Arterial Intersections

General Information

Analyst	TL
Agency	ATCS
Date	1/31/2022
Location	Montgomery County

Site Information

Major street name	MD 355 Rockville Pike
Minor street name	Bellevue Dr/Alta Vista Rd
Intersection number	3
Analysis year	2045

Add to Totals worksheet | Restore equations | Reset input cells

Output Summary

Predicted crash frequency, crashes / year

	F+I	PDO	Total
Total crashes	3.565	2.917	6.482
Total-vehicle crashes	3.359	2.917	
Vehicle-pedestrian crashes	0.086		
Vehicle-bicycle crashes	0.119		

Combined CMF

	F+I	PDO
Total-vehicle crashes	0.911	0.911
Vehicle-pedestrian crashes	4.150	

Severity distribution for F+I crashes

K	A	B	C
0.020	0.188	0.942	2.415

Input Data	*Value*		*Advisory Messages*
Intersection Data			
Area type	Suburban		.
Number of legs	4		**4SG intersection type**
Traffic control type	Signalized		.
Lighting present?	Yes		.
Red-light cameras present?	No		.
Daily pedestrian volume crossing all legs (peds/day)	77		.
Maximum number of lanes crossed by a pedestrian	7		.
Number of bus stops within 1,000 ft of intersection	6		.
School(s) present within 1,000 ft of intersection?	No		.
Alcohol sales establishments within 1,000 ft	0		.
Street Data	*Major*	*Minor*	.
Street configuration	Two-way	Two-way	**2x2 intersection configuration**
Annual average daily traffic (AADT), veh/day	67704	1276	.
Number of through lanes	6	2	.
Number of approaches with left-turn lanes	2	0	.
Number of left-turn movements with protected phasing	0	0	.
Number of right-turn movements prohibited on red	0	0	.
Number of U-turn movements prohibited	0	0	.
Number of approaches with right-turn channelization	0	0	.

Calibration Factors	*Value*	*Default Values*
Local calibration factor (C)	1.000	1.000
Adjustment factor for pedestrians for stop control (f_{ped})	0.049	0.049
Adjustment factor for bicyclists (f_{bike})	0.019	0.019
Severity distribution calibration factor, 2-way ($C_{sdf,twi}$)	1.000	1.000
Severity distribution calibration factor, 1-way ($C_{sdf,owi}$)	1.000	1.000
Probability of fatality given K+A severity ($P_{K\|K+A}$)	0.094	0.094

Manner of Collision Proportions

2x2 intersections	3ST, F+I	3ST, PDO	3SG, F+I	3SG, PDO	4ST, F+I	4ST, PDO	4SG, F+I	4SG, PDO
Rear-end collision proportion	0.094	0.154	0.120	0.189	0.079	0.098	0.083	0.148
Angle colllision proportion	0.764	0.629	0.676	0.554	0.806	0.707	0.746	0.552
1x2 or 1x1 intersections	3ST, F+I	3ST, PDO	3SG, F+I	3SG, PDO	4ST, F+I	4ST, PDO	4SG, F+I	4SG, PDO
Rear-end collision proportion	0.100	0.100	0.111	0.143	0.047	0.065	0.030	0.059
Angle colllision proportion	0.300	0.250	0.889	0.571	0.822	0.706	0.837	0.733

Crash Modification Factors	*F+I*	*PDO*
Total-vehicle crash CMFs		
Lighting	0.911	0.911
Red-light cameras	1.000	1.000
Left-turn signal phasing	1.000	1.000
Right-turn-on-red	1.000	1.000
U-turn prohibition	1.000	1.000
Right-turn channelization	1.000	1.000
Number of lanes	1.000	1.000
Vehicle-pedestrian crash CMFs		
Bus stops	4.150	
Schools	1.000	
Alcohol sales establishments	1.000	

Safety Prediction Worksheet for Urban and Suburban Arterial Intersections

General Information

Analyst	TL
Agency	ATCS
Date	1/31/2022
Location	Montgomery County

Site Information

Major street name	Sam Eig Hwy
Minor street name	MD 119 Great Senecca Hwy
Intersection number	1
Analysis year	2045

Add to Totals worksheet | Restore equations | Reset input cells

Output Summary

Predicted crash frequency, crashes / year

	F+I	PDO	Total
Total crashes	3.353	2.942	6.295
Total-vehicle crashes	3.152	2.942	
Vehicle-pedestrian crashes	0.024		
Vehicle-bicycle crashes	0.177		

Combined CMF

	F+I	PDO
Total-vehicle crashes	0.767	0.767
Vehicle-pedestrian crashes	1.000	

Severity distribution for F+I crashes

K	A	B	C
0.019	0.181	0.910	2.243

Input Data	*Value*	*Advisory Messages*
Intersection Data		
Area type	Suburban	.
Number of legs	3	3SG intersection type
Traffic control type	Signalized	.
Lighting present?	Yes	.
Red-light cameras present?	No	.
Daily pedestrian volume crossing all legs (peds/day)	67	.
Maximum number of lanes crossed by a pedestrian	7	.
Number of bus stops within 1,000 ft of intersection	0	.
School(s) present within 1,000 ft of intersection?	No	.
Alcohol sales establishments within 1,000 ft	0	.

Street Data	*Major*	*Minor*	.
Street configuration	Two-way	Two-way	2x2 intersection configuration
Annual average daily traffic (AADT), veh/day	38841	31000	Check minor volume.
Number of through lanes	6	4	.
Number of approaches with left-turn lanes	1	1	.
Number of left-turn movements with protected phasing	1	1	.
Number of right-turn movements prohibited on red	0	1	.
Number of U-turn movements prohibited	1	0	.
Number of approaches with right-turn channelization	0	1	.

Calibration Factors	*Value*	*Default Values*
Local calibration factor (C)	1.000	1.000
Adjustment factor for pedestrians for stop control (f_{ped})	0.051	0.051
Adjustment factor for bicyclists (f_{bike})	0.029	0.029
Severity distribution calibration factor, 2-way ($C_{sdf,twi}$)	1.000	1.000
Severity distribution calibration factor, 1-way ($C_{sdf,owi}$)	1.000	1.000
Probability of fatality given K+A severity ($P_{K\|K+A}$)	0.094	0.094

Manner of Collision Proportions

2x2 intersections	3ST, F+I	3ST, PDO	3SG, F+I	3SG, PDO	4ST, F+I	4ST, PDO	4SG, F+I	4SG, PDO
Rear-end collision proportion	0.094	0.154	0.120	0.189	0.079	0.098	0.083	0.148
Angle colllision proportion	0.764	0.629	0.676	0.554	0.806	0.707	0.746	0.552

1x2 or 1x1 intersections	3ST, F+I	3ST, PDO	3SG, F+I	3SG, PDO	4ST, F+I	4ST, PDO	4SG, F+I	4SG, PDO
Rear-end collision proportion	0.100	0.100	0.111	0.143	0.047	0.065	0.030	0.059
Angle colllision proportion	0.300	0.250	0.889	0.571	0.822	0.706	0.837	0.733

Crash Modification Factors	*F+I*	*PDO*
Total-vehicle crash CMFs		
Lighting	0.911	0.911
Red-light cameras	1.000	1.000
Left-turn signal phasing	0.740	0.740
Right-turn-on-red	0.980	0.980
U-turn prohibition	0.960	0.960
Right-turn channelization	1.000	1.000
Number of lanes	1.210	1.210
Vehicle-pedestrian crash CMFs		
Bus stops	1.000	
Schools	1.000	
Alcohol sales establishments	1.000	

Safety Prediction Worksheet for Two-Way Urban and Suburban Arterial Segments

General Information

Analyst	TL
Agency	ATCS
Date	1/31/2022
Location	Montgomery County

Site Information

Street number	I-370
Street name	Sam Eig Hwy from MD 119 to Dia
Segment number	1
Analysis year	2045

Add to Totals worksheet | Restore equations | Reset input cells

Output Summary

Predicted crash frequency, crashes / year

	F+I	PDO	Total
Total crashes	1.298	1.779	3.077
Multiple-vehicle crashes	0.755	1.181	
Single-vehicle crashes	0.474	0.598	
Vehicle-pedestrian crashes	0.045		
Vehicle-bicycle crashes	0.024		

Combined CMF

	F+I	PDO
Multiple-vehicle crashes	0.517	0.517
Single-vehicle crashes	2.273	2.273

Severity distribution for F+I crashes

K	A	B	C
0.030	0.102	0.395	0.771

Input Data		*Value*	*Advisory Messages*
Basic Roadway Data			
Area type		Suburban	.
Segment type		6D	.
Segment length, mi		0.31	.
Annual average daily traffic (AADT), veh/day		39049	.
Number of highway-rail grade crossings present		0	.
Posted speed limit, mi/h		50	.
Automated speed enforcement present?		No	.
Access Data			
Driveway count	Major commercial	0	.
	Major industrial	0	.
	Minor	0	.
Cross Section Data			
Lane width, ft		12	.
Outside shoulder width, ft		1	.
Median width, ft		20	.
Median barrier present?		Yes	.
Roadside Data			
Roadside fixed object count		9	**29 objects per mile.**
Average roadside fixed object offset, ft		4	.

Calibration Factors	*Value*	*Default Values*
Local calibration factor (C)	1.000	1.000
Adjustment factor for pedestrians (f_{ped})	0.015	0.015
Adjustment factor for bicyclists (f_{bike})	0.008	0.008
Severity distribution calibration factor ($C_{sdf,tws}$)	1.000	1.000

Crash Modification Factors	*F+I*		*PDO*	
	Multiple	*Single*	*Multiple*	*Single*
Lane width	1.000	1.000	1.000	1.000
Outside shoulder width	1.014	1.014	1.014	1.014
Median width	0.972	0.972	0.972	0.972
Median barrier	0.600	1.967	0.600	1.967
Highway-rail grade crossing	1.000	1.000	1.000	1.000
Major commercial driveways	0.932		0.932	
Major industrial driveways	0.989		0.989	
Minor driveways	0.947		0.947	
Automated speed enforcement	1.000	1.000	1.000	1.000
Roadside fixed objects		1.172		1.172

Safety Prediction Worksheet for Urban and Suburban Arterial Intersections

General Information

Analyst	TL
Agency	ATCS
Date	1/31/2022
Location	Montgomery County

Site Information

Major street name	Sam Eig Hwy
Minor street name	Diamondback Dr
Intersection number	2
Analysis year	2045

Add to Totals worksheet | Restore equations | Reset input cells

Output Summary

Predicted crash frequency, crashes / year

	F+I	PDO	Total
Total crashes	6.352	5.362	11.714
Total-vehicle crashes	5.873	5.362	
Vehicle-pedestrian crashes	0.266		
Vehicle-bicycle crashes	0.213		

Combined CMF

	F+I	PDO
Total-vehicle crashes	0.935	0.935
Vehicle-pedestrian crashes	4.150	

Severity distribution for F+I crashes

K	A	B	C
0.028	0.265	1.537	4.522

Input Data	*Value*	*Advisory Messages*
Intersection Data		
Area type	Suburban	.
Number of legs	4	4SG intersection type
Traffic control type	Signalized	.
Lighting present?	Yes	.
Red-light cameras present?	No	.
Daily pedestrian volume crossing all legs (peds/day)	151	.
Maximum number of lanes crossed by a pedestrian	8	.
Number of bus stops within 1,000 ft of intersection	3	.
School(s) present within 1,000 ft of intersection?	No	.
Alcohol sales establishments within 1,000 ft	0	.

Street Data	*Major*	*Minor*	.
Street configuration	Two-way	Two-way	2x2 intersection configuration
Annual average daily traffic (AADT), veh/day	38864	19215	.
Number of through lanes	6	4	.
Number of approaches with left-turn lanes	2	1	.
Number of left-turn movements with protected phasing	2	1	.
Number of right-turn movements prohibited on red	0	1	.
Number of U-turn movements prohibited	2	0	.
Number of approaches with right-turn channelization	2	1	.

Calibration Factors	*Value*	*Default Values*
Local calibration factor (C)	1.000	1.000
Adjustment factor for pedestrians for stop control (f_{ped})	0.049	0.049
Adjustment factor for bicyclists (f_{bike})	0.019	0.019
Severity distribution calibration factor, 2-way ($C_{sdf,twi}$)	1.000	1.000
Severity distribution calibration factor, 1-way ($C_{sdf,owi}$)	1.000	1.000
Probability of fatality given K+A severity ($P_{K\|K+A}$)	0.094	0.094

Manner of Collision Proportions

2x2 intersections	3ST, F+I	3ST, PDO	3SG, F+I	3SG, PDO	4ST, F+I	4ST, PDO	4SG, F+I	4SG, PDO
Rear-end collision proportion	0.094	0.154	0.120	0.189	0.079	0.098	0.083	0.148
Angle colllision proportion	0.764	0.629	0.676	0.554	0.806	0.707	0.746	0.552

1x2 or 1x1 intersections	3ST, F+I	3ST, PDO	3SG, F+I	3SG, PDO	4ST, F+I	4ST, PDO	4SG, F+I	4SG, PDO
Rear-end collision proportion	0.100	0.100	0.111	0.143	0.047	0.065	0.030	0.059
Angle colllision proportion	0.300	0.250	0.889	0.571	0.822	0.706	0.837	0.733

Crash Modification Factors	*F+I*	*PDO*
Total-vehicle crash CMFs		
Lighting	0.911	0.911
Red-light cameras	1.000	1.000
Left-turn signal phasing	0.636	0.636
Right-turn-on-red	0.980	0.980
U-turn prohibition	0.922	0.922
Right-turn channelization	1.545	1.545
Number of lanes	1.157	1.157
Vehicle-pedestrian crash CMFs		
Bus stops	4.150	
Schools	1.000	
Alcohol sales establishments	1.000	

Safety Prediction Worksheet for Two-Way Urban and Suburban Arterial Segments

General Information

Analyst	TL
Agency	ATCS
Date	1/31/2022
Location	Montgomery County

Site Information

Street number	I-370
Street name	Sam Eig Hwy from Diamondback
Segment number	2
Analysis year	2045

Add to Totals worksheet | Restore equations | Reset input cells

Output Summary

Predicted crash frequency, crashes / year

	F+I	PDO	Total
Total crashes	0.273	0.374	0.647
Multiple-vehicle crashes	0.156	0.244	
Single-vehicle crashes	0.103	0.130	
Vehicle-pedestrian crashes	0.009		
Vehicle-bicycle crashes	0.005		

Combined CMF

	F+I	PDO
Multiple-vehicle crashes	0.557	0.557
Single-vehicle crashes	2.564	2.564

Severity distribution for F+I crashes

K	A	B	C
0.006	0.021	0.083	0.162

Input Data		*Value*	*Advisory Messages*
Basic Roadway Data			
Area type		Suburban	.
Segment type		6D	.
Segment length, mi		0.06	.
Annual average daily traffic (AADT), veh/day		38714	.
Number of highway-rail grade crossings present		0	.
Posted speed limit, mi/h		50	.
Automated speed enforcement present?		No	.
Access Data			
Driveway count	Major commercial	0	.
	Major industrial	0	.
	Minor	0	.
Cross Section Data			
Lane width, ft		12	.
Outside shoulder width, ft		1	.
Median width, ft		7	.
Median barrier present?		Yes	.
Roadside Data			
Roadside fixed object count		3	**50 objects per mile.**
Average roadside fixed object offset, ft		6	.

Calibration Factors	*Value*	*Default Values*
Local calibration factor (C)	1.000	1.000
Adjustment factor for pedestrians (f_{ped})	0.015	0.015
Adjustment factor for bicyclists (f_{bike})	0.008	0.008
Severity distribution calibration factor ($C_{sdf,tws}$)	1.000	1.000

Crash Modification Factors	*F+I*		*PDO*	
	Multiple	*Single*	*Multiple*	*Single*
Lane width	1.000	1.000	1.000	1.000
Outside shoulder width	1.014	1.014	1.014	1.014
Median width	1.047	1.047	1.047	1.047
Median barrier	0.600	1.967	0.600	1.967
Highway-rail grade crossing	1.000	1.000	1.000	1.000
Major commercial driveways	0.932		0.932	
Major industrial driveways	0.989		0.989	
Minor driveways	0.947		0.947	
Automated speed enforcement	1.000	1.000	1.000	1.000
Roadside fixed objects		1.228		1.228

Safety Prediction Worksheet for Urban and Suburban Arterial Intersections

General Information

Analyst	TL
Agency	ATCS
Date	1/31/2022
Location	Montgomery County

Site Information

Major street name	Sam Eig Hwy
Minor street name	Fields Rd
Intersection number	3
Analysis year	2045

Add to Totals worksheet | Restore equations | Reset input cells

Output Summary

Predicted crash frequency, crashes / year

	F+I	PDO	Total
Total crashes	3.542	3.049	6.592
Total-vehicle crashes	3.231	3.049	
Vehicle-pedestrian crashes	0.130		
Vehicle-bicycle crashes	0.182		

Combined CMF

	F+I	PDO
Total-vehicle crashes	0.856	0.856
Vehicle-pedestrian crashes	3.114	

Severity distribution for F+I crashes

K	A	B	C
0.020	0.191	0.962	2.370

Input Data	*Value*	*Advisory Messages*
Intersection Data		
Area type	Suburban	.
Number of legs	3	3SG intersection type
Traffic control type	Signalized	.
Lighting present?	Yes	.
Red-light cameras present?	No	.
Daily pedestrian volume crossing all legs (peds/day)	151	.
Maximum number of lanes crossed by a pedestrian	11	.
Number of bus stops within 1,000 ft of intersection	1	.
School(s) present within 1,000 ft of intersection?	No	.
Alcohol sales establishments within 1,000 ft	1	.

Street Data	*Major*	*Minor*	.
Street configuration	Two-way	Two-way	2x2 intersection configuration
Annual average daily traffic (AADT), veh/day	38611	18696	.
Number of through lanes	6	4	.
Number of approaches with left-turn lanes	1	1	.
Number of left-turn movements with protected phasing	1	1	.
Number of right-turn movements prohibited on red	1	1	.
Number of U-turn movements prohibited	1	1	.
Number of approaches with right-turn channelization	1	1	.

Calibration Factors	*Value*	*Default Values*
Local calibration factor (C)	1.000	1.000
Adjustment factor for pedestrians for stop control (f_{ped})	0.051	0.051
Adjustment factor for bicyclists (f_{bike})	0.029	0.029
Severity distribution calibration factor, 2-way ($C_{sdf,twi}$)	1.000	1.000
Severity distribution calibration factor, 1-way ($C_{sdf,owi}$)	1.000	1.000
Probability of fatality given K+A severity ($P_{K\|K+A}$)	0.094	0.094

Manner of Collision Proportions

2x2 intersections	3ST, F+I	3ST, PDO	3SG, F+I	3SG, PDO	4ST, F+I	4ST, PDO	4SG, F+I	4SG, PDO
Rear-end collision proportion	0.094	0.154	0.120	0.189	0.079	0.098	0.083	0.148
Angle colllision proportion	0.764	0.629	0.676	0.554	0.806	0.707	0.746	0.552
1x2 or 1x1 intersections	3ST, F+I	3ST, PDO	3SG, F+I	3SG, PDO	4ST, F+I	4ST, PDO	4SG, F+I	4SG, PDO
Rear-end collision proportion	0.100	0.100	0.111	0.143	0.047	0.065	0.030	0.059
Angle colllision proportion	0.300	0.250	0.889	0.571	0.822	0.706	0.837	0.733

Crash Modification Factors	*F+I*	*PDO*
Total-vehicle crash CMFs		
Lighting	0.911	0.911
Red-light cameras	1.000	1.000
Left-turn signal phasing	0.740	0.740
Right-turn-on-red	0.960	0.960
U-turn prohibition	0.922	0.922
Right-turn channelization	1.243	1.243
Number of lanes	1.155	1.155
Vehicle-pedestrian crash CMFs		
Bus stops	2.780	
Schools	1.000	
Alcohol sales establishments	1.120	

Safety Prediction Worksheet for Urban and Suburban Arterial Intersections

General Information

Analyst	TL
Agency	ATCS
Date	1/31/2022
Location	Montgomery County

Site Information

Major street name	Shady Grove Rd
Minor street name	Corporate Blvd
Intersection number	1
Analysis year	2045

Add to Totals worksheet | Restore equations | Reset input cells

Output Summary

Predicted crash frequency, crashes / year

	F+I	PDO	Total
Total crashes	3.392	2.804	6.195
Total-vehicle crashes	3.087	2.804	
Vehicle-pedestrian crashes	0.192		
Vehicle-bicycle crashes	0.112		

Combined CMF

	F+I	PDO
Total-vehicle crashes	0.674	0.674
Vehicle-pedestrian crashes	4.648	

Severity distribution for F+I crashes

K	A	B	C
0.019	0.179	0.897	2.298

Input Data	*Value*	*Advisory Messages*
Intersection Data		
Area type	Suburban	.
Number of legs	4	4SG intersection type
Traffic control type	Signalized	.
Lighting present?	Yes	.
Red-light cameras present?	No	.
Daily pedestrian volume crossing all legs (peds/day)	161	.
Maximum number of lanes crossed by a pedestrian	7	.
Number of bus stops within 1,000 ft of intersection	4	.
School(s) present within 1,000 ft of intersection?	No	.
Alcohol sales establishments within 1,000 ft	1	.

Street Data	*Major*	*Minor*	.
Street configuration	Two-way	Two-way	2x2 intersection configuration
Annual average daily traffic (AADT), veh/day	41241	5528	.
Number of through lanes	6	2	.
Number of approaches with left-turn lanes	2	1	.
Number of left-turn movements with protected phasing	0	2	.
Number of right-turn movements prohibited on red	0	0	.
Number of U-turn movements prohibited	0	0	.
Number of approaches with right-turn channelization	0	0	.

Calibration Factors	*Value*	*Default Values*
Local calibration factor (C)	1.000	1.000
Adjustment factor for pedestrians for stop control (f_{ped})	0.049	0.049
Adjustment factor for bicyclists (f_{bike})	0.019	0.019
Severity distribution calibration factor, 2-way ($C_{sdf,twi}$)	1.000	1.000
Severity distribution calibration factor, 1-way ($C_{sdf,owi}$)	1.000	1.000
Probability of fatality given K+A severity ($P_{K\|K+A}$)	0.094	0.094

Manner of Collision Proportions

2x2 intersections	3ST, F+I	3ST, PDO	3SG, F+I	3SG, PDO	4ST, F+I	4ST, PDO	4SG, F+I	4SG, PDO
Rear-end collision proportion	0.094	0.154	0.120	0.189	0.079	0.098	0.083	0.148
Angle colllision proportion	0.764	0.629	0.676	0.554	0.806	0.707	0.746	0.552
1x2 or 1x1 intersections	3ST, F+I	3ST, PDO	3SG, F+I	3SG, PDO	4ST, F+I	4ST, PDO	4SG, F+I	4SG, PDO
Rear-end collision proportion	0.100	0.100	0.111	0.143	0.047	0.065	0.030	0.059
Angle colllision proportion	0.300	0.250	0.889	0.571	0.822	0.706	0.837	0.733

Crash Modification Factors	*F+I*	*PDO*
Total-vehicle crash CMFs		
Lighting	0.911	0.911
Red-light cameras	1.000	1.000
Left-turn signal phasing	0.740	0.740
Right-turn-on-red	1.000	1.000
U-turn prohibition	1.000	1.000
Right-turn channelization	1.000	1.000
Number of lanes	1.000	1.000
Vehicle-pedestrian crash CMFs		
Bus stops	4.150	
Schools	1.000	
Alcohol sales establishments	1.120	

Safety Prediction Worksheet for Two-Way Urban and Suburban Arterial Segments

General Information

Analyst	TL
Agency	ATCS
Date	1/31/2022
Location	Montgomery County

Site Information

Street number	Shady Grove Rd
Street name	Corporate Blvd to I-270 SB Ramp
Segment number	1
Analysis year	2045

Add to Totals worksheet | Restore equations | Reset input cells

Output Summary

Predicted crash frequency, crashes / year

	F+I	PDO	Total
Total crashes	0.271	0.368	0.639
Multiple-vehicle crashes	0.155	0.240	
Single-vehicle crashes	0.101	0.128	
Vehicle-pedestrian crashes	0.009		
Vehicle-bicycle crashes	0.005		

Combined CMF

	F+I	PDO
Multiple-vehicle crashes	0.514	0.514
Single-vehicle crashes	2.446	2.446

Severity distribution for F+I crashes

K	A	B	C
0.004	0.021	0.083	0.162

Input Data		*Value*	*Advisory Messages*
Basic Roadway Data			
Area type		Suburban	.
Segment type		6D	.
Segment length, mi		0.06	.
Annual average daily traffic (AADT), veh/day		41219	.
Number of highway-rail grade crossings present		0	.
Posted speed limit, mi/h		40	.
Automated speed enforcement present?		No	.
Access Data			
Driveway count	Major commercial	0	.
	Major industrial	0	.
	Minor	0	.
Cross Section Data			
Lane width, ft		11	.
Outside shoulder width, ft		3	.
Median width, ft		15	.
Median barrier present?		Yes	.
Roadside Data			
Roadside fixed object count		6	**100 objects per mile.**
Average roadside fixed object offset, ft		10	.

Calibration Factors	*Value*	*Default Values*
Local calibration factor (C)	1.000	1.000
Adjustment factor for pedestrians (f_{ped})	0.015	0.015
Adjustment factor for bicyclists (f_{bike})	0.008	0.008
Severity distribution calibration factor ($C_{sdf,tws}$)	1.000	1.000

Crash Modification Factors	*F+I*		*PDO*	
	Multiple	*Single*	*Multiple*	*Single*
Lane width	1.022	1.022	1.022	1.022
Outside shoulder width	0.958	0.958	0.958	0.958
Median width	1.000	1.000	1.000	1.000
Median barrier	0.600	1.967	0.600	1.967
Highway-rail grade crossing	1.000	1.000	1.000	1.000
Major commercial driveways	0.932		0.932	
Major industrial driveways	0.989		0.989	
Minor driveways	0.947		0.947	
Automated speed enforcement	1.000	1.000	1.000	1.000
Roadside fixed objects		1.270		1.270

Safety Prediction Worksheet for Two-Way Urban and Suburban Arterial Segments

General Information

Analyst	TL
Agency	ATCS
Date	1/31/2022
Location	Montgomery County

Site Information

Street number	Shady Grove Rd
Street name	I-270 SB Ramps to I-270 NB Ran
Segment number	2
Analysis year	2045

Add to Totals worksheet | Restore equations | Reset input cells

Output Summary

Predicted crash frequency, crashes / year

	F+I	PDO	Total
Total crashes	0.362	0.492	0.854
Multiple-vehicle crashes	0.212	0.327	
Single-vehicle crashes	0.131	0.165	
Vehicle-pedestrian crashes	0.013		
Vehicle-bicycle crashes	0.007		

Combined CMF

	F+I	PDO
Multiple-vehicle crashes	0.514	0.514
Single-vehicle crashes	2.357	2.357

Severity distribution for F+I crashes

K	A	B	C
0.005	0.029	0.111	0.217

Input Data		*Value*	*Advisory Messages*
Basic Roadway Data			
Area type		Suburban	.
Segment type		6D	.
Segment length, mi		0.08	.
Annual average daily traffic (AADT), veh/day		41969	.
Number of highway-rail grade crossings present		0	.
Posted speed limit, mi/h		40	.
Automated speed enforcement present?		No	.
Access Data			
Driveway count	Major commercial	0	.
	Major industrial	0	.
	Minor	0	.
Cross Section Data			
Lane width, ft		12	.
Outside shoulder width, ft		4	.
Median width, ft		6	.
Median barrier present?		Yes	.
Roadside Data			
Roadside fixed object count		3	**38 objects per mile.**
Average roadside fixed object offset, ft		4	.

Calibration Factors	*Value*	*Default Values*
Local calibration factor (C)	1.000	1.000
Adjustment factor for pedestrians (f_{ped})	0.015	0.015
Adjustment factor for bicyclists (f_{bike})	0.008	0.008
Severity distribution calibration factor ($C_{sdf,tws}$)	1.000	1.000

Crash Modification Factors	*F+I*		*PDO*	
	Multiple	*Single*	*Multiple*	*Single*
Lane width	1.000	1.000	1.000	1.000
Outside shoulder width	0.931	0.931	0.931	0.931
Median width	1.053	1.053	1.053	1.053
Median barrier	0.600	1.967	0.600	1.967
Highway-rail grade crossing	1.000	1.000	1.000	1.000
Major commercial driveways	0.932		0.932	
Major industrial driveways	0.989		0.989	
Minor driveways	0.947		0.947	
Automated speed enforcement	1.000	1.000	1.000	1.000
Roadside fixed objects		1.222		1.222

Safety Prediction Worksheet for Two-Way Urban and Suburban Arterial Segments

General Information

Analyst	TL
Agency	ATCS
Date	1/31/2022
Location	Montgomery County

Site Information

Street number	Shady Grove Rd
Street name	I-270 NB Ramps to Choke Cherry
Segment number	3
Analysis year	2045

Add to Totals worksheet | Restore equations | Reset input cells

Output Summary

Predicted crash frequency, crashes / year

	F+I	PDO	Total
Total crashes	0.670	0.918	1.589
Multiple-vehicle crashes	0.447	0.682	
Single-vehicle crashes	0.188	0.236	
Vehicle-pedestrian crashes	0.023		
Vehicle-bicycle crashes	0.012		

Combined CMF

	F+I	PDO
Multiple-vehicle crashes	0.731	0.731
Single-vehicle crashes	2.387	2.387

Severity distribution for F+I crashes

K	A	B	C
0.010	0.053	0.206	0.402

Input Data		*Value*	*Advisory Messages*
Basic Roadway Data			
Area type		Suburban	.
Segment type		6D	.
Segment length, mi		0.11	.
Annual average daily traffic (AADT), veh/day		44601	.
Number of highway-rail grade crossings present		0	.
Posted speed limit, mi/h		40	.
Automated speed enforcement present?		No	.
Access Data			
Driveway count	Major commercial	1	**9 major comm. driveways per mile.**
	Major industrial	0	.
	Minor	0	.
Cross Section Data			
Lane width, ft		12	.
Outside shoulder width, ft		1	.
Median width, ft		15	.
Median barrier present?		Yes	.
Roadside Data			
Roadside fixed object count		8	**73 objects per mile.**
Average roadside fixed object offset, ft		10	.

Calibration Factors	*Value*	*Default Values*
Local calibration factor (C)	1.000	1.000
Adjustment factor for pedestrians (f_{ped})	0.015	0.015
Adjustment factor for bicyclists (f_{bike})	0.008	0.008
Severity distribution calibration factor ($C_{sdf,tws}$)	1.000	1.000

Crash Modification Factors	*F+I*		*PDO*	
	Multiple	*Single*	*Multiple*	*Single*
Lane width	1.000	1.000	1.000	1.000
Outside shoulder width	1.014	1.014	1.014	1.014
Median width	1.000	1.000	1.000	1.000
Median barrier	0.600	1.967	0.600	1.967
Highway-rail grade crossing	1.000	1.000	1.000	1.000
Major commercial driveways	1.282		1.282	
Major industrial driveways	0.989		0.989	
Minor driveways	0.947		0.947	
Automated speed enforcement	1.000	1.000	1.000	1.000
Roadside fixed objects		1.196		1.196

Safety Prediction Worksheet for Urban and Suburban Arterial Intersections

General Information

Analyst	TL
Agency	ATCS
Date	1/31/2022
Location	Montgomery County

Site Information

Major street name	Shady Grove Rd
Minor street name	Choke Cherry Rd
Intersection number	2
Analysis year	2045

Add to Totals worksheet | Restore equations | Reset input cells

Output Summary

Predicted crash frequency, crashes / year

	F+I	PDO	Total
Total crashes	4.298	3.534	7.832
Total-vehicle crashes	3.905	3.534	
Vehicle-pedestrian crashes	0.252		
Vehicle-bicycle crashes	0.141		

Combined CMF

	F+I	PDO
Total-vehicle crashes	0.731	0.731
Vehicle-pedestrian crashes	4.150	

Severity distribution for F+I crashes

K	A	B	C
0.024	0.227	1.136	2.911

Input Data	*Value*	*Advisory Messages*
Intersection Data		
Area type	Suburban	.
Number of legs	4	4SG intersection type
Traffic control type	Signalized	.
Lighting present?	Yes	.
Red-light cameras present?	No	.
Daily pedestrian volume crossing all legs (peds/day)	237	.
Maximum number of lanes crossed by a pedestrian	8	.
Number of bus stops within 1,000 ft of intersection	2	.
School(s) present within 1,000 ft of intersection?	No	.
Alcohol sales establishments within 1,000 ft	0	.

Street Data	*Major*	*Minor*	
Street configuration	Two-way	Two-way	2x2 intersection configuration
Annual average daily traffic (AADT), veh/day	42749	9303	.
Number of through lanes	6	4	.
Number of approaches with left-turn lanes	2	1	.
Number of left-turn movements with protected phasing	0	2	.
Number of right-turn movements prohibited on red	0	0	.
Number of U-turn movements prohibited	0	0	.
Number of approaches with right-turn channelization	0		.

Calibration Factors	*Value*	*Default Values*
Local calibration factor (C)	1.000	1.000
Adjustment factor for pedestrians for stop control (f_{ped})	0.049	0.049
Adjustment factor for bicyclists (f_{bike})	0.019	0.019
Severity distribution calibration factor, 2-way ($C_{sdf,twi}$)	1.000	1.000
Severity distribution calibration factor, 1-way ($C_{sdf,owi}$)	1.000	1.000
Probability of fatality given K+A severity ($P_{K\|K+A}$)	0.094	0.094

Manner of Collision Proportions

2x2 intersections	3ST, F+I	3ST, PDO	3SG, F+I	3SG, PDO	4ST, F+I	4ST, PDO	4SG, F+I	4SG, PDO
Rear-end collision proportion	0.094	0.154	0.120	0.189	0.079	0.098	0.083	0.148
Angle colllision proportion	0.764	0.629	0.676	0.554	0.806	0.707	0.746	0.552
1x2 or 1x1 intersections	3ST, F+I	3ST, PDO	3SG, F+I	3SG, PDO	4ST, F+I	4ST, PDO	4SG, F+I	4SG, PDO
Rear-end collision proportion	0.100	0.100	0.111	0.143	0.047	0.065	0.030	0.059
Angle colllision proportion	0.300	0.250	0.889	0.571	0.822	0.706	0.837	0.733

Crash Modification Factors	*F+I*	*PDO*
Total-vehicle crash CMFs		
Lighting	0.911	0.911
Red-light cameras	1.000	1.000
Left-turn signal phasing	0.740	0.740
Right-turn-on-red	1.000	1.000
U-turn prohibition	1.000	1.000
Right-turn channelization	1.000	1.000
Number of lanes	1.085	1.085
Vehicle-pedestrian crash CMFs		
Bus stops	4.150	
Schools	1.000	
Alcohol sales establishments	1.000	

Crossroad Predictive Crash Analysis

Predicted Crash Frequency for Six-Lane and One-Way Urban and Suburban Arterials using NCHRP Report 17-58

for the

Preferred Alternative

Safety Prediction Worksheet for Two-Way Urban and Suburban Arterial Segments

General Information

Analyst	TL
Agency	ATCS
Date	1/31/2022
Location	Montgomery County

Site Information

Street number	CO-166
Street name	Democracy Blvd from Taveshire
Segment number	1
Analysis year	2045

Add to Totals worksheet | Restore equations | Reset input cells

Output Summary

Predicted crash frequency, crashes / year

	F+I	PDO	Total
Total crashes	0.718	0.987	1.705
Multiple-vehicle crashes	0.473	0.726	
Single-vehicle crashes	0.207	0.261	
Vehicle-pedestrian crashes	0.025		
Vehicle-bicycle crashes	0.013		

Combined CMF

	F+I	PDO
Multiple-vehicle crashes	0.685	0.685
Single-vehicle crashes	2.266	2.266

Severity distribution for F+I crashes

K	A	B	C
0.009	0.057	0.221	0.431

Input Data		*Value*	*Advisory Messages*
Basic Roadway Data			
Area type		Suburban	.
Segment type		6D	.
Segment length, mi		0.13	.
Annual average daily traffic (AADT), veh/day		42976	.
Number of highway-rail grade crossings present		0	.
Posted speed limit, mi/h		35	.
Automated speed enforcement present?		No	.
Access Data			
Driveway count	Major commercial	1	**8 major comm. driveways per mile.**
	Major industrial	0	.
	Minor	0	.
Cross Section Data			
Lane width, ft		10	.
Outside shoulder width, ft		1.5	.
Median width, ft		23	.
Median barrier present?		Yes	.
Roadside Data			
Roadside fixed object count		5	**38 objects per mile.**
Average roadside fixed object offset, ft		7	.

Calibration Factors	*Value*	*Default Values*
Local calibration factor (C)	1.000	1.000
Adjustment factor for pedestrians (f_{ped})	0.015	0.015
Adjustment factor for bicyclists (f_{bike})	0.008	0.008
Severity distribution calibration factor ($C_{sdf,tws}$)	1.000	1.000

Crash Modification Factors	*F+I*		*PDO*	
	Multiple	*Single*	*Multiple*	*Single*
Lane width	1.045	1.045	1.045	1.045
Outside shoulder width	1.000	1.000	1.000	1.000
Median width	0.955	0.955	0.955	0.955
Median barrier	0.600	1.967	0.600	1.967
Highway-rail grade crossing	1.000	1.000	1.000	1.000
Major commercial driveways	1.220		1.220	
Major industrial driveways	0.989		0.989	
Minor driveways	0.947		0.947	
Automated speed enforcement	1.000	1.000	1.000	1.000
Roadside fixed objects		1.154		1.154

Safety Prediction Worksheet for Two-Way Urban and Suburban Arterial Segments

General Information

Analyst	TL
Agency	ATCS
Date	1/31/2022
Location	Montgomery County

Site Information

Street number	CO-166
Street name	Democracy Blvd from I-270 On-R
Segment number	2
Analysis year	2045

Add to Totals worksheet | Restore equations | Reset input cells

Output Summary

Predicted crash frequency, crashes / year

	F+I	PDO	Total
Total crashes	1.892	2.585	4.477
Multiple-vehicle crashes	1.115	1.733	
Single-vehicle crashes	0.676	0.852	
Vehicle-pedestrian crashes	0.066		
Vehicle-bicycle crashes	0.035		

Combined CMF

	F+I	PDO
Multiple-vehicle crashes	0.527	0.527
Single-vehicle crashes	2.299	2.299

Severity distribution for F+I crashes

K	A	B	C
0.023	0.150	0.582	1.137

Input Data		*Value*	*Advisory Messages*
Basic Roadway Data			
Area type		Suburban	.
Segment type		6D	.
Segment length, mi		0.43	.
Annual average daily traffic (AADT), veh/day		40470	.
Number of highway-rail grade crossings present		0	.
Posted speed limit, mi/h		35	.
Automated speed enforcement present?		No	.
Access Data			
Driveway count	Major commercial	0	.
	Major industrial	2	**5 major industrial driveways per mile.**
	Minor	0	.
Cross Section Data			
Lane width, ft		12	.
Outside shoulder width, ft		1.5	.
Median width, ft		23	.
Median barrier present?		Yes	.
Roadside Data			
Roadside fixed object count		24	**56 objects per mile.**
Average roadside fixed object offset, ft		7	.

Calibration Factors	*Value*	*Default Values*
Local calibration factor (C)	1.000	1.000
Adjustment factor for pedestrians (f_{ped})	0.015	0.015
Adjustment factor for bicyclists (f_{bike})	0.008	0.008
Severity distribution calibration factor ($C_{sdf,tws}$)	1.000	1.000

Crash Modification Factors	*F+I*		*PDO*	
	Multiple	*Single*	*Multiple*	*Single*
Lane width	1.000	1.000	1.000	1.000
Outside shoulder width	1.000	1.000	1.000	1.000
Median width	0.955	0.955	0.955	0.955
Median barrier	0.600	1.967	0.600	1.967
Highway-rail grade crossing	1.000	1.000	1.000	1.000
Major commercial driveways	0.932		0.932	
Major industrial driveways	1.040		1.040	
Minor driveways	0.947		0.947	
Automated speed enforcement	1.000	1.000	1.000	1.000
Roadside fixed objects		1.223		1.223

Safety Prediction Worksheet for Urban and Suburban Arterial Intersections

General Information

Analyst	TL
Agency	ATCS
Date	1/31/2022
Location	Montgomery County

Site Information

Major street name	Democracy Blvd
Minor street name	Taveshire Way
Intersection number	1
Analysis year	2045

Add to Totals worksheet | Restore equations | Reset input cells

Output Summary

Predicted crash frequency, crashes / year

	F+I	PDO	Total
Total crashes	2.466	2.201	4.668
Total-vehicle crashes	2.313	2.201	
Vehicle-pedestrian crashes	0.022		
Vehicle-bicycle crashes	0.131		

Combined CMF

	F+I	PDO
Total-vehicle crashes	0.721	0.721
Vehicle-pedestrian crashes	1.000	

Severity distribution for F+I crashes

K	A	B	C
0.014	0.136	0.687	1.629

Input Data	*Value*	*Advisory Messages*
Intersection Data		
Area type	Suburban	.
Number of legs	3	3SG intersection type
Traffic control type	Signalized	.
Lighting present?	Yes	.
Red-light cameras present?	No	.
Daily pedestrian volume crossing all legs (peds/day)	166	.
Maximum number of lanes crossed by a pedestrian	8	.
Number of bus stops within 1,000 ft of intersection	0	.
School(s) present within 1,000 ft of intersection?	No	.
Alcohol sales establishments within 1,000 ft	0	.

Street Data	*Major*	*Minor*	.
Street configuration	Two-way	Two-way	2x2 intersection configuration
Annual average daily traffic (AADT), veh/day	43743	4075	.
Number of through lanes	6	4	.
Number of approaches with left-turn lanes	0	1	.
Number of left-turn movements with protected phasing	0	1	.
Number of right-turn movements prohibited on red	0	0	.
Number of U-turn movements prohibited	2	1	.
Number of approaches with right-turn channelization	0	0	.

Calibration Factors	*Value*	*Default Values*
Local calibration factor (C)	1.000	1.000
Adjustment factor for pedestrians for stop control (f_{ped})	0.051	0.051
Adjustment factor for bicyclists (f_{bike})	0.029	0.029
Severity distribution calibration factor, 2-way ($C_{sdf,twi}$)	1.000	1.000
Severity distribution calibration factor, 1-way ($C_{sdf,owi}$)	1.000	1.000
Probability of fatality given K+A severity ($P_{K\|K+A}$)	0.094	0.094

Manner of Collision Proportions

2x2 intersections	3ST, F+I	3ST, PDO	3SG, F+I	3SG, PDO	4ST, F+I	4ST, PDO	4SG, F+I	4SG, PDO
Rear-end collision proportion	0.094	0.154	0.120	0.189	0.079	0.098	0.083	0.148
Angle colllision proportion	0.764	0.629	0.676	0.554	0.806	0.707	0.746	0.552

1x2 or 1x1 intersections	3ST, F+I	3ST, PDO	3SG, F+I	3SG, PDO	4ST, F+I	4ST, PDO	4SG, F+I	4SG, PDO
Rear-end collision proportion	0.100	0.100	0.111	0.143	0.047	0.065	0.030	0.059
Angle colllision proportion	0.300	0.250	0.889	0.571	0.822	0.706	0.837	0.733

Crash Modification Factors	*F+I*	*PDO*
Total-vehicle crash CMFs		
Lighting	0.911	0.911
Red-light cameras	1.000	1.000
Left-turn signal phasing	0.860	0.860
Right-turn-on-red	1.000	1.000
U-turn prohibition	0.885	0.885
Right-turn channelization	1.000	1.000
Number of lanes	1.040	1.040
Vehicle-pedestrian crash CMFs		
Bus stops	1.000	
Schools	1.000	
Alcohol sales establishments	1.000	

Safety Prediction Worksheet for Urban and Suburban Arterial Intersections

General Information

Analyst	TL
Agency	ATCS
Date	1/31/2022
Location	Montgomery County

Site Information

Major street name	Democracy Blvd
Minor street name	Fernwood Road
Intersection number	2
Analysis year	2045

Add to Totals worksheet | Restore equations | Reset input cells

Output Summary

Predicted crash frequency, crashes / year

	F+I	PDO	Total
Total crashes	4.325	3.614	7.939
Total-vehicle crashes	3.858	3.614	
Vehicle-pedestrian crashes	0.326		
Vehicle-bicycle crashes	0.142		

Combined CMF

	F+I	PDO
Total-vehicle crashes	0.752	0.752
Vehicle-pedestrian crashes	4.150	

Severity distribution for F+I crashes

K	A	B	C
0.024	0.228	1.143	2.930

Input Data	*Value*	*Advisory Messages*
Intersection Data		
Area type	Suburban	.
Number of legs	4	4SG intersection type
Traffic control type	Signalized	.
Lighting present?	Yes	.
Red-light cameras present?	Yes	.
Daily pedestrian volume crossing all legs (peds/day)	328	.
Maximum number of lanes crossed by a pedestrian	8	.
Number of bus stops within 1,000 ft of intersection	2	.
School(s) present within 1,000 ft of intersection?	No	.
Alcohol sales establishments within 1,000 ft	0	.

Street Data	*Major*	*Minor*	
Street configuration	Two-way	Two-way	2x2 intersection configuration
Annual average daily traffic (AADT), veh/day	29192	13289	.
Number of through lanes	6	4	.
Number of approaches with left-turn lanes	2	2	.
Number of left-turn movements with protected phasing	2	2	.
Number of right-turn movements prohibited on red	0	0	.
Number of U-turn movements prohibited	0	0	.
Number of approaches with right-turn channelization	2	2	.

Calibration Factors	*Value*	*Default Values*
Local calibration factor (C)	1.000	1.000
Adjustment factor for pedestrians for stop control (f_{ped})	0.049	0.049
Adjustment factor for bicyclists (f_{bike})	0.019	0.019
Severity distribution calibration factor, 2-way ($C_{sdf,twi}$)	1.000	1.000
Severity distribution calibration factor, 1-way ($C_{sdf,owi}$)	1.000	1.000
Probability of fatality given K+A severity ($P_{K\|K+A}$)	0.094	0.094

Manner of Collision Proportions

2x2 intersections	3ST, F+I	3ST, PDO	3SG, F+I	3SG, PDO	4ST, F+I	4ST, PDO	4SG, F+I	4SG, PDO
Rear-end collision proportion	0.094	0.154	0.120	0.189	0.079	0.098	0.083	0.148
Angle colllision proportion	0.764	0.629	0.676	0.554	0.806	0.707	0.746	0.552

1x2 or 1x1 intersections	3ST, F+I	3ST, PDO	3SG, F+I	3SG, PDO	4ST, F+I	4ST, PDO	4SG, F+I	4SG, PDO
Rear-end collision proportion	0.100	0.100	0.111	0.143	0.047	0.065	0.030	0.059
Angle colllision proportion	0.300	0.250	0.889	0.571	0.822	0.706	0.837	0.733

Crash Modification Factors	*F+I*	*PDO*
Total-vehicle crash CMFs		
Lighting	0.911	0.911
Red-light cameras	0.851	0.851
Left-turn signal phasing	0.547	0.547
Right-turn-on-red	1.000	1.000
U-turn prohibition	1.000	1.000
Right-turn channelization	1.545	1.545
Number of lanes	1.148	1.148
Vehicle-pedestrian crash CMFs		
Bus stops	4.150	
Schools	1.000	
Alcohol sales establishments	1.000	

Safety Prediction Worksheet for Urban and Suburban Arterial Intersections

General Information

Analyst	TL
Agency	ATCS
Date	1/31/2022
Location	Montgomery County

Site Information

Major street name	MD 187 Old Georgetown Rd
Minor street name	Lone Oak Way/Manor Oak Way
Intersection number	1
Analysis year	2045

Add to Totals worksheet | Restore equations | Reset input cells

Output Summary

Predicted crash frequency, crashes / year

	F+I	PDO	Total
Total crashes	4.455	3.579	8.034
Total-vehicle crashes	4.023	3.579	
Vehicle-pedestrian crashes	0.288		
Vehicle-bicycle crashes	0.144		

Combined CMF

	F+I	PDO
Total-vehicle crashes	0.911	0.911
Vehicle-pedestrian crashes	5.603	

Severity distribution for F+I crashes

K	A	B	C
0.024	0.235	1.178	3.018

Input Data	*Value*		*Advisory Messages*
Intersection Data			
Area type	Suburban		.
Number of legs	4		**4SG intersection type**
Traffic control type	Signalized		.
Lighting present?	Yes		.
Red-light cameras present?	No		.
Daily pedestrian volume crossing all legs (peds/day)	301		.
Maximum number of lanes crossed by a pedestrian	8		.
Number of bus stops within 1,000 ft of intersection	6		.
School(s) present within 1,000 ft of intersection?	Yes		.
Alcohol sales establishments within 1,000 ft	0		.
Street Data	*Major*	*Minor*	.
Street configuration	Two-way	Two-way	**2x2 intersection configuration**
Annual average daily traffic (AADT), veh/day	51730	3563	.
Number of through lanes	6	2	.
Number of approaches with left-turn lanes	2	0	.
Number of left-turn movements with protected phasing	0	0	.
Number of right-turn movements prohibited on red	0	0	.
Number of U-turn movements prohibited	0	0	.
Number of approaches with right-turn channelization	0	0	.

Calibration Factors	*Value*	*Default Values*
Local calibration factor (C)	1.000	1.000
Adjustment factor for pedestrians for stop control (f_{ped})	0.049	0.049
Adjustment factor for bicyclists (f_{bike})	0.019	0.019
Severity distribution calibration factor, 2-way ($C_{sdf,twi}$)	1.000	1.000
Severity distribution calibration factor, 1-way ($C_{sdf,owi}$)	1.000	1.000
Probability of fatality given K+A severity ($P_{K\|K+A}$)	0.094	0.094

Manner of Collision Proportions

2x2 intersections	3ST, F+I	3ST, PDO	3SG, F+I	3SG, PDO	4ST, F+I	4ST, PDO	4SG, F+I	4SG, PDO
Rear-end collision proportion	0.094	0.154	0.120	0.189	0.079	0.098	0.083	0.148
Angle colllision proportion	0.764	0.629	0.676	0.554	0.806	0.707	0.746	0.552
1x2 or 1x1 intersections	3ST, F+I	3ST, PDO	3SG, F+I	3SG, PDO	4ST, F+I	4ST, PDO	4SG, F+I	4SG, PDO
Rear-end collision proportion	0.100	0.100	0.111	0.143	0.047	0.065	0.030	0.059
Angle colllision proportion	0.300	0.250	0.889	0.571	0.822	0.706	0.837	0.733

Crash Modification Factors	*F+I*	*PDO*
Total-vehicle crash CMFs		
Lighting	0.911	0.911
Red-light cameras	1.000	1.000
Left-turn signal phasing	1.000	1.000
Right-turn-on-red	1.000	1.000
U-turn prohibition	1.000	1.000
Right-turn channelization	1.000	1.000
Number of lanes	1.000	1.000
Vehicle-pedestrian crash CMFs		
Bus stops	4.150	
Schools	1.350	
Alcohol sales establishments	1.000	

Safety Prediction Worksheet for Two-Way Urban and Suburban Arterial Segments

General Information

Analyst	TL
Agency	ATCS
Date	1/31/2022
Location	Montgomery County

Site Information

Street number	MD 187
Street name	Lone Oak Way/Manor Oak Way t
Segment number	1
Analysis year	2045

Add to Totals worksheet | Restore equations | Reset input cells

Output Summary

Predicted crash frequency, crashes / year

	F+I	PDO	Total
Total crashes	1.432	1.912	3.343
Multiple-vehicle crashes	0.929	1.378	
Single-vehicle crashes	0.427	0.534	
Vehicle-pedestrian crashes	0.049		
Vehicle-bicycle crashes	0.026		

Combined CMF

	F+I	PDO
Multiple-vehicle crashes	0.569	0.569
Single-vehicle crashes	2.308	2.308

Severity distribution for F+I crashes

K	A	B	C
0.022	0.113	0.439	0.858

Input Data		*Value*	*Advisory Messages*
Basic Roadway Data			
Area type		Suburban	.
Segment type		6D	.
Segment length, mi		0.24	.
Annual average daily traffic (AADT), veh/day		52544	.
Number of highway-rail grade crossings present		0	.
Posted speed limit, mi/h		40	.
Automated speed enforcement present?		No	.
Access Data			
Driveway count	Major commercial	0	.
	Major industrial	0	.
	Minor	2	**8 minor driveways per mile.**
Cross Section Data			
Lane width, ft		11	.
Outside shoulder width, ft		1	.
Median width, ft		15	.
Median barrier present?		Yes	.
Roadside Data			
Roadside fixed object count		9	**38 objects per mile.**
Average roadside fixed object offset, ft		8	.

Calibration Factors	*Value*	*Default Values*
Local calibration factor (C)	1.000	1.000
Adjustment factor for pedestrians (f_{ped})	0.015	0.015
Adjustment factor for bicyclists (f_{bike})	0.008	0.008
Severity distribution calibration factor ($C_{sdf,tws}$)	1.000	1.000

Crash Modification Factors	*F+I*		*PDO*	
	Multiple	*Single*	*Multiple*	*Single*
Lane width	1.022	1.022	1.022	1.022
Outside shoulder width	1.014	1.014	1.014	1.014
Median width	1.000	1.000	1.000	1.000
Median barrier	0.600	1.967	0.600	1.967
Highway-rail grade crossing	1.000	1.000	1.000	1.000
Major commercial driveways	0.932		0.932	
Major industrial driveways	0.989		0.989	
Minor driveways	0.991		0.991	
Automated speed enforcement	1.000	1.000	1.000	1.000
Roadside fixed objects		1.131		1.131

Safety Prediction Worksheet for Two-Way Urban and Suburban Arterial Segments

General Information

Analyst	TL
Agency	ATCS
Date	1/31/2022
Location	Montgomery County

Site Information

Street number	MD 187
Street name	I-495 to Ryland Dr
Segment number	2
Analysis year	2045

Add to Totals worksheet | Restore equations | Reset input cells

Output Summary

Predicted crash frequency, crashes / year

	F+I	PDO	Total
Total crashes	0.465	0.618	1.083
Multiple-vehicle crashes	0.281	0.419	
Single-vehicle crashes	0.159	0.199	
Vehicle-pedestrian crashes	0.016		
Vehicle-bicycle crashes	0.008		

Combined CMF

	F+I	PDO
Multiple-vehicle crashes	0.535	0.535
Single-vehicle crashes	2.614	2.614

Severity distribution for F+I crashes

K	A	B	C
0.007	0.037	0.143	0.278

Input Data		*Value*	*Advisory Messages*
Basic Roadway Data			
Area type		Suburban	.
Segment type		6D	.
Segment length, mi		0.08	.
Annual average daily traffic (AADT), veh/day		51081	.
Number of highway-rail grade crossings present		0	.
Posted speed limit, mi/h		40	.
Automated speed enforcement present?		No	.
Access Data			
Driveway count	Major commercial	0	.
	Major industrial	0	.
	Minor	0	.
Cross Section Data			
Lane width, ft		11	.
Outside shoulder width, ft		1	.
Median width, ft		18	.
Median barrier present?		Yes	.
Roadside Data			
Roadside fixed object count		9	**113 objects per mile.**
Average roadside fixed object offset, ft		10	.

Calibration Factors	*Value*	*Default Values*
Local calibration factor (C)	1.000	1.000
Adjustment factor for pedestrians (f_{ped})	0.015	0.015
Adjustment factor for bicyclists (f_{bike})	0.008	0.008
Severity distribution calibration factor ($C_{sdf,tws}$)	1.000	1.000

Crash Modification Factors	*F+I*		*PDO*	
	Multiple	*Single*	*Multiple*	*Single*
Lane width	1.022	1.022	1.022	1.022
Outside shoulder width	1.014	1.014	1.014	1.014
Median width	0.983	0.983	0.983	0.983
Median barrier	0.600	1.967	0.600	1.967
Highway-rail grade crossing	1.000	1.000	1.000	1.000
Major commercial driveways	0.932		0.932	
Major industrial driveways	0.989		0.989	
Minor driveways	0.947		0.947	
Automated speed enforcement	1.000	1.000	1.000	1.000
Roadside fixed objects		1.304		1.304

Safety Prediction Worksheet for Urban and Suburban Arterial Intersections

General Information

Analyst	TL
Agency	ATCS
Date	1/31/2022
Location	Montgomery County

Site Information

Major street name	MD 187 Old Georgetown Rd
Minor street name	Ryland Dr
Intersection number	2
Analysis year	2045

Add to Totals worksheet | Restore equations | Reset input cells

Output Summary

Predicted crash frequency, crashes / year

	F+I	PDO	Total
Total crashes	4.485	3.663	8.148
Total-vehicle crashes	4.111	3.663	
Vehicle-pedestrian crashes	0.226		
Vehicle-bicycle crashes	0.148		

Combined CMF

	F+I	PDO
Total-vehicle crashes	0.911	0.911
Vehicle-pedestrian crashes	5.603	

Severity distribution for F+I crashes

K	A	B	C
0.025	0.237	1.186	3.038

Input Data	*Value*		*Advisory Messages*
Intersection Data			
Area type	Suburban		.
Number of legs	4		**4SG intersection type**
Traffic control type	Signalized		.
Lighting present?	Yes		.
Red-light cameras present?	No		.
Daily pedestrian volume crossing all legs (peds/day)	182		.
Maximum number of lanes crossed by a pedestrian	7		.
Number of bus stops within 1,000 ft of intersection	5		.
School(s) present within 1,000 ft of intersection?	Yes		.
Alcohol sales establishments within 1,000 ft	0		.
Street Data	*Major*	*Minor*	.
Street configuration	Two-way	Two-way	**2x2 intersection configuration**
Annual average daily traffic (AADT), veh/day	50974	3938	.
Number of through lanes	6	2	.
Number of approaches with left-turn lanes	2	1	.
Number of left-turn movements with protected phasing	0	0	.
Number of right-turn movements prohibited on red	0	0	.
Number of U-turn movements prohibited	0	0	.
Number of approaches with right-turn channelization	0	0	.

Calibration Factors	*Value*	*Default Values*
Local calibration factor (C)	1.000	1.000
Adjustment factor for pedestrians for stop control (f_{ped})	0.049	0.049
Adjustment factor for bicyclists (f_{bike})	0.019	0.019
Severity distribution calibration factor, 2-way ($C_{sdf,twi}$)	1.000	1.000
Severity distribution calibration factor, 1-way ($C_{sdf,owi}$)	1.000	1.000
Probability of fatality given K+A severity ($P_{K\|K+A}$)	0.094	0.094

Manner of Collision Proportions

2x2 intersections	3ST, F+I	3ST, PDO	3SG, F+I	3SG, PDO	4ST, F+I	4ST, PDO	4SG, F+I	4SG, PDO
Rear-end collision proportion	0.094	0.154	0.120	0.189	0.079	0.098	0.083	0.148
Angle colllision proportion	0.764	0.629	0.676	0.554	0.806	0.707	0.746	0.552
1x2 or 1x1 intersections	3ST, F+I	3ST, PDO	3SG, F+I	3SG, PDO	4ST, F+I	4ST, PDO	4SG, F+I	4SG, PDO
Rear-end collision proportion	0.100	0.100	0.111	0.143	0.047	0.065	0.030	0.059
Angle colllision proportion	0.300	0.250	0.889	0.571	0.822	0.706	0.837	0.733

Crash Modification Factors	*F+I*	*PDO*
Total-vehicle crash CMFs		
Lighting	0.911	0.911
Red-light cameras	1.000	1.000
Left-turn signal phasing	1.000	1.000
Right-turn-on-red	1.000	1.000
U-turn prohibition	1.000	1.000
Right-turn channelization	1.000	1.000
Number of lanes	1.000	1.000
Vehicle-pedestrian crash CMFs		
Bus stops	4.150	
Schools	1.350	
Alcohol sales establishments	1.000	

Safety Prediction Worksheet for Two-Way Urban and Suburban Arterial Segments

General Information

Analyst	TL
Agency	ATCS
Date	1/31/2022
Location	Montgomery County

Site Information

Street number	MD 187
Street name	Old Georgetown Rd from Rock S
Segment number	1
Analysis year	2045

Add to Totals worksheet | Restore equations | Reset input cells

Output Summary

Predicted crash frequency, crashes / year

	F+I	PDO	Total
Total crashes	0.857	1.100	1.957
Multiple-vehicle crashes	0.370	0.546	
Single-vehicle crashes	0.443	0.554	
Vehicle-pedestrian crashes	0.029		
Vehicle-bicycle crashes	0.015		

Combined CMF

	F+I	PDO
Multiple-vehicle crashes	0.529	0.529
Single-vehicle crashes	5.686	5.686

Severity distribution for F+I crashes

K	A	B	C
0.013	0.068	0.263	0.513

Input Data		*Value*	*Advisory Messages*
Basic Roadway Data			
Area type		Suburban	.
Segment type		6D	.
Segment length, mi		0.1	.
Annual average daily traffic (AADT), veh/day		53713	.
Number of highway-rail grade crossings present		0	.
Posted speed limit, mi/h		40	.
Automated speed enforcement present?		No	.
Access Data			
Driveway count	Major commercial	0	.
	Major industrial	0	.
	Minor	1	**10 minor driveways per mile.**
Cross Section Data			
Lane width, ft		12	.
Outside shoulder width, ft		1.5	.
Median width, ft		23	.
Median barrier present?		Yes	.
Roadside Data			
Roadside fixed object count		30	**300 objects per mile.**
Average roadside fixed object offset, ft		3	.

Calibration Factors	*Value*	*Default Values*
Local calibration factor (C)	1.000	1.000
Adjustment factor for pedestrians (f_{ped})	0.015	0.015
Adjustment factor for bicyclists (f_{bike})	0.008	0.008
Severity distribution calibration factor ($C_{sdf,tws}$)	1.000	1.000

Crash Modification Factors	*F+I*		*PDO*	
	Multiple	*Single*	*Multiple*	*Single*
Lane width	1.000	1.000	1.000	1.000
Outside shoulder width	1.000	1.000	1.000	1.000
Median width	0.955	0.955	0.955	0.955
Median barrier	0.600	1.967	0.600	1.967
Highway-rail grade crossing	1.000	1.000	1.000	1.000
Major commercial driveways	0.932		0.932	
Major industrial driveways	0.989		0.989	
Minor driveways	1.000		1.000	
Automated speed enforcement	1.000	1.000	1.000	1.000
Roadside fixed objects		3.025		3.025

Safety Prediction Worksheet for Two-Way Urban and Suburban Arterial Segments

General Information

Analyst	TL
Agency	ATCS
Date	1/31/2022
Location	Montgomery County

Site Information

Street number	MD 187
Street name	Old Georgetown Rd from I-270 N
Segment number	2
Analysis year	2045

Add to Totals worksheet | Restore equations | Reset input cells

Output Summary

Predicted crash frequency, crashes / year

	F+I	PDO	Total
Total crashes	1.071	1.382	2.453
Multiple-vehicle crashes	0.553	0.806	
Single-vehicle crashes	0.462	0.577	
Vehicle-pedestrian crashes	0.036		
Vehicle-bicycle crashes	0.019		

Combined CMF

	F+I	PDO
Multiple-vehicle crashes	0.515	0.515
Single-vehicle crashes	4.098	4.098

Severity distribution for F+I crashes

K	A	B	C
0.016	0.084	0.329	0.641

Input Data		Value	Advisory Messages
Basic Roadway Data			
Area type		Suburban	.
Segment type		6D	.
Segment length, mi		0.14	.
Annual average daily traffic (AADT), veh/day		57854	.
Number of highway-rail grade crossings present		0	.
Posted speed limit, mi/h		40	.
Automated speed enforcement present?		No	.
Access Data			
Driveway count	Major commercial	0	.
	Major industrial	0	.
	Minor	1	**7 minor driveways per mile.**
Cross Section Data			
Lane width, ft		12	.
Outside shoulder width, ft		1.5	.
Median width, ft		25	.
Median barrier present?		Yes	.
Roadside Data			
Roadside fixed object count		25	**179 objects per mile.**
Average roadside fixed object offset, ft		3	.

Calibration Factors	Value	Default Values
Local calibration factor (C)	1.000	1.000
Adjustment factor for pedestrians (f_{ped})	0.015	0.015
Adjustment factor for bicyclists (f_{bike})	0.008	0.008
Severity distribution calibration factor ($C_{sdf,tws}$)	1.000	1.000

Crash Modification Factors	F+I		PDO	
	Multiple	Single	Multiple	Single
Lane width	1.000	1.000	1.000	1.000
Outside shoulder width	1.000	1.000	1.000	1.000
Median width	0.945	0.945	0.945	0.945
Median barrier	0.600	1.967	0.600	1.967
Highway-rail grade crossing	1.000	1.000	1.000	1.000
Major commercial driveways	0.932		0.932	
Major industrial driveways	0.989		0.989	
Minor driveways	0.985		0.985	
Automated speed enforcement	1.000	1.000	1.000	1.000
Roadside fixed objects		2.205		2.205

Safety Prediction Worksheet for Urban and Suburban Arterial Intersections

General Information

Analyst	TL
Agency	ATCS
Date	1/31/2022
Location	Montgomery County

Site Information

Major street name	MD 187 (Old Georgetown Rd)
Minor street name	Rock Spring Dr
Intersection number	4
Analysis year	2045

Add to Totals worksheet | Restore equations | Reset input cells

Output Summary

Predicted crash frequency, crashes / year

	F+I	PDO	Total
Total crashes	4.936	3.800	8.736
Total-vehicle crashes	4.280	3.800	
Vehicle-pedestrian crashes	0.503		
Vehicle-bicycle crashes	0.154		

Combined CMF

	F+I	PDO
Total-vehicle crashes	0.619	0.619
Vehicle-pedestrian crashes	6.275	

Severity distribution for F+I crashes

K	A	B	C
0.027	0.260	1.305	3.344

Input Data

Input Data	Value	Advisory Messages
Intersection Data		
Area type	Suburban	.
Number of legs	4	4SG intersection type
Traffic control type	Signalized	.
Lighting present?	Yes	.
Red-light cameras present?	No	.
Daily pedestrian volume crossing all legs (peds/day)	256	.
Maximum number of lanes crossed by a pedestrian	8	.
Number of bus stops within 1,000 ft of intersection	2	.
School(s) present within 1,000 ft of intersection?	Yes	.
Alcohol sales establishments within 1,000 ft	2	.

Street Data	Major	Minor	
Street configuration	Two-way	Two-way	2x2 intersection configuration
Annual average daily traffic (AADT), veh/day	52878	18165	.
Number of through lanes	6	2	.
Number of approaches with left-turn lanes	2	1	.
Number of left-turn movements with protected phasing	2	2	.
Number of right-turn movements prohibited on red	0	0	.
Number of U-turn movements prohibited	0	0	.
Number of approaches with right-turn channelization	1	0	.

Calibration Factors

Calibration Factors	Value	Default Values
Local calibration factor (C)	1.000	1.000
Adjustment factor for pedestrians for stop control (f_{ped})	0.049	0.049
Adjustment factor for bicyclists (f_{bike})	0.019	0.019
Severity distribution calibration factor, 2-way ($C_{sdf,twi}$)	1.000	1.000
Severity distribution calibration factor, 1-way ($C_{sdf,owi}$)	1.000	1.000
Probability of fatality given K+A severity ($P_{K\|K+A}$)	0.094	0.094

Manner of Collision Proportions

2x2 intersections	3ST, F+I	3ST, PDO	3SG, F+I	3SG, PDO	4ST, F+I	4ST, PDO	4SG, F+I	4SG, PDO
Rear-end collision proportion	0.094	0.154	0.120	0.189	0.079	0.098	0.083	0.148
Angle colllision proportion	0.764	0.629	0.676	0.554	0.806	0.707	0.746	0.552

1x2 or 1x1 intersections	3ST, F+I	3ST, PDO	3SG, F+I	3SG, PDO	4ST, F+I	4ST, PDO	4SG, F+I	4SG, PDO
Rear-end collision proportion	0.100	0.100	0.111	0.143	0.047	0.065	0.030	0.059
Angle colllision proportion	0.300	0.250	0.889	0.571	0.822	0.706	0.837	0.733

Crash Modification Factors	F+I	PDO
Total-vehicle crash CMFs		
Lighting	0.911	0.911
Red-light cameras	1.000	1.000
Left-turn signal phasing	0.547	0.547
Right-turn-on-red	1.000	1.000
U-turn prohibition	1.000	1.000
Right-turn channelization	1.243	1.243
Number of lanes	1.000	1.000
Vehicle-pedestrian crash CMFs		
Bus stops	4.150	
Schools	1.350	
Alcohol sales establishments	1.120	

Safety Prediction Worksheet for Urban and Suburban Arterial Intersections

General Information

Analyst	PC
Agency	ATCS
Date	1/31/2022
Location	Montgomery County

Site Information

Major street name	MD 187 (Old Georgetown Rd)
Minor street name	I-270 SB Ramp Connector/I-270
Intersection number	5
Analysis year	2045

Add to Totals worksheet | Restore equations | Reset input cells

Output Summary

Predicted crash frequency, crashes / year

	F+I	PDO	Total
Total crashes	#N/A	#N/A	#N/A
Total-vehicle crashes	#N/A	#N/A	
Vehicle-pedestrian crashes	0.014		
Vehicle-bicycle crashes	#N/A		

Combined CMF

	F+I	PDO
Total-vehicle crashes	1.126	1.126
Vehicle-pedestrian crashes	1.000	

Severity distribution for F+I crashes

K	A	B	C
#N/A	#N/A	#N/A	#N/A

Input Data	*Value*		*Advisory Messages*
Intersection Data			
Area type	Suburban		.
Number of legs	3		**3SG intersection type**
Traffic control type	Signalized		.
Lighting present?	Yes		.
Red-light cameras present?	No		.
Daily pedestrian volume crossing all legs (peds/day)	52		.
Maximum number of lanes crossed by a pedestrian	6		.
Number of bus stops within 1,000 ft of intersection	0		.
School(s) present within 1,000 ft of intersection?	No		.
Alcohol sales establishments within 1,000 ft	0		.
Street Data	*Major*	*Minor*	.
Street configuration	Two-way	One-way	**Major street must be one-way.**
Annual average daily traffic (AADT), veh/day	49223	8959	**#N/A**
Number of through lanes	8	2	**Invalid lane count combination.**
Number of approaches with left-turn lanes	1	1	.
Number of left-turn movements with protected phasing	1	1	.
Number of right-turn movements prohibited on red	0	0	.
Number of U-turn movements prohibited	1	0	.
Number of approaches with right-turn channelization	1	1	.

Calibration Factors	*Value*	*Default Values*
Local calibration factor (C)	1.000	1.000
Adjustment factor for pedestrians for stop control (f_{ped})	0.051	0.051
Adjustment factor for bicyclists (f_{bike})	0.029	0.029
Severity distribution calibration factor, 2-way ($C_{sdf,twi}$)	1.000	1.000
Severity distribution calibration factor, 1-way ($C_{sdf,owi}$)	1.000	1.000
Probability of fatality given K+A severity ($P_{K\|K+A}$)	0.094	0.094

Manner of Collision Proportions

2x2 intersections	3ST, F+I	3ST, PDO	3SG, F+I	3SG, PDO	4ST, F+I	4ST, PDO	4SG, F+I	4SG, PDO
Rear-end collision proportion	0.094	0.154	0.120	0.189	0.079	0.098	0.083	0.148
Angle colllision proportion	0.764	0.629	0.676	0.554	0.806	0.707	0.746	0.552
1x2 or 1x1 intersections	3ST, F+I	3ST, PDO	3SG, F+I	3SG, PDO	4ST, F+I	4ST, PDO	4SG, F+I	4SG, PDO
Rear-end collision proportion	0.100	0.100	0.111	0.143	0.047	0.065	0.030	0.059
Angle colllision proportion	0.300	0.250	0.889	0.571	0.822	0.706	0.837	0.733

Crash Modification Factors	*F+I*	*PDO*
Total-vehicle crash CMFs		
Lighting	0.911	0.911
Red-light cameras	1.000	1.000
Left-turn signal phasing	0.740	0.740
Right-turn-on-red	1.000	1.000
U-turn prohibition	0.960	0.960
Right-turn channelization	1.243	1.243
Number of lanes	1.401	1.401
Vehicle-pedestrian crash CMFs		
Bus stops	1.000	
Schools	1.000	
Alcohol sales establishments	1.000	

Safety Prediction Worksheet for Urban and Suburban Arterial Intersections

General Information

Analyst	PC
Agency	ATCS
Date	1/31/2022
Location	Montgomery County

Site Information

Major street name	MD 187 (Old Georgetown Rd)
Minor street name	I-270 NB Ramp Connector/I-270
Intersection number	6
Analysis year	2045

Add to Totals worksheet | Restore equations | Reset input cells

Output Summary

Predicted crash frequency, crashes / year

	F+I	PDO	Total
Total crashes	#N/A	#N/A	#N/A
Total-vehicle crashes	#N/A	#N/A	
Vehicle-pedestrian crashes	0.020		
Vehicle-bicycle crashes	#N/A		

Combined CMF

	F+I	PDO
Total-vehicle crashes	1.145	1.145
Vehicle-pedestrian crashes	1.000	

Severity distribution for F+I crashes

K	A	B	C
#N/A	#N/A	#N/A	#N/A

Input Data	*Value*		*Advisory Messages*
Intersection Data			
Area type	Suburban		.
Number of legs	3		3SG intersection type
Traffic control type	Signalized		.
Lighting present?	Yes		.
Red-light cameras present?	No		.
Daily pedestrian volume crossing all legs (peds/day)	175		.
Maximum number of lanes crossed by a pedestrian	6		.
Number of bus stops within 1,000 ft of intersection	0		.
School(s) present within 1,000 ft of intersection?	No		.
Alcohol sales establishments within 1,000 ft	0		.
Street Data	*Major*	*Minor*	.
Street configuration	Two-way	One-way	Major street must be one-way.
Annual average daily traffic (AADT), veh/day	56457	6479	#N/A
Number of through lanes	8	2	Invalid lane count combination.
Number of approaches with left-turn lanes	1	1	.
Number of left-turn movements with protected phasing	1	1	.
Number of right-turn movements prohibited on red	0	0	.
Number of U-turn movements prohibited	1	0	.
Number of approaches with right-turn channelization	1	1	.

Calibration Factors	*Value*	*Default Values*
Local calibration factor (C)	1.000	1.000
Adjustment factor for pedestrians for stop control (f_{ped})	0.051	0.051
Adjustment factor for bicyclists (f_{bike})	0.029	0.029
Severity distribution calibration factor, 2-way ($C_{sdf,twi}$)	1.000	1.000
Severity distribution calibration factor, 1-way ($C_{sdf,owi}$)	1.000	1.000
Probability of fatality given K+A severity ($P_{K\|K+A}$)	0.094	0.094

Manner of Collision Proportions

2x2 intersections	3ST, F+I	3ST, PDO	3SG, F+I	3SG, PDO	4ST, F+I	4ST, PDO	4SG, F+I	4SG, PDO
Rear-end collision proportion	0.094	0.154	0.120	0.189	0.079	0.098	0.083	0.148
Angle colllision proportion	0.764	0.629	0.676	0.554	0.806	0.707	0.746	0.552
1x2 or 1x1 intersections	3ST, F+I	3ST, PDO	3SG, F+I	3SG, PDO	4ST, F+I	4ST, PDO	4SG, F+I	4SG, PDO
Rear-end collision proportion	0.100	0.100	0.111	0.143	0.047	0.065	0.030	0.059
Angle colllision proportion	0.300	0.250	0.889	0.571	0.822	0.706	0.837	0.733

Crash Modification Factors	*F+I*	*PDO*
Total-vehicle crash CMFs		
Lighting	0.911	0.911
Red-light cameras	1.000	1.000
Left-turn signal phasing	0.740	0.740
Right-turn-on-red	1.000	1.000
U-turn prohibition	0.960	0.960
Right-turn channelization	1.243	1.243
Number of lanes	1.425	1.425
Vehicle-pedestrian crash CMFs		
Bus stops	1.000	
Schools	1.000	
Alcohol sales establishments	1.000	

Safety Prediction Worksheet for Urban and Suburban Arterial Intersections

General Information

Analyst	TL
Agency	ATCS
Date	1/31/2022
Location	Montgomery County

Site Information

Major street name	MD 187 (Old Georgetown Rd)
Minor street name	Tuckerman Ln
Intersection number	7
Analysis year	2045

Add to Totals worksheet | Restore equations | Reset input cells

Output Summary

Predicted crash frequency, crashes / year

	F+I	PDO	Total
Total crashes	5.446	4.195	9.641
Total-vehicle crashes	4.765	4.195	
Vehicle-pedestrian crashes	0.511		
Vehicle-bicycle crashes	0.170		

Combined CMF

	F+I	PDO
Total-vehicle crashes	0.639	0.639
Vehicle-pedestrian crashes	5.603	

Severity distribution for F+I crashes

K	A	B	C
0.030	0.287	1.440	3.689

Input Data	*Value*		*Advisory Messages*
Intersection Data			
Area type	Suburban		.
Number of legs	4		**4SG intersection type**
Traffic control type	Signalized		.
Lighting present?	Yes		.
Red-light cameras present?	No		.
Daily pedestrian volume crossing all legs (peds/day)	327		.
Maximum number of lanes crossed by a pedestrian	7		.
Number of bus stops within 1,000 ft of intersection	5		.
School(s) present within 1,000 ft of intersection?	Yes		.
Alcohol sales establishments within 1,000 ft	0		.
Street Data	*Major*	*Minor*	.
Street configuration	Two-way	Two-way	**2x2 intersection configuration**
Annual average daily traffic (AADT), veh/day	58152	21144	.
Number of through lanes	6	4	.
Number of approaches with left-turn lanes	2	2	.
Number of left-turn movements with protected phasing	1	2	.
Number of right-turn movements prohibited on red	0	1	.
Number of U-turn movements prohibited	0	0	.
Number of approaches with right-turn channelization	0	0	.

Calibration Factors	*Value*	*Default Values*
Local calibration factor (C)	1.000	1.000
Adjustment factor for pedestrians for stop control (f_{ped})	0.049	0.049
Adjustment factor for bicyclists (f_{bike})	0.019	0.019
Severity distribution calibration factor, 2-way ($C_{sdf,twi}$)	1.000	1.000
Severity distribution calibration factor, 1-way ($C_{sdf,owi}$)	1.000	1.000
Probability of fatality given K+A severity ($P_{K\|K+A}$)	0.094	0.094

Manner of Collision Proportions

2x2 intersections	3ST, F+I	3ST, PDO	3SG, F+I	3SG, PDO	4ST, F+I	4ST, PDO	4SG, F+I	4SG, PDO
Rear-end collision proportion	0.094	0.154	0.120	0.189	0.079	0.098	0.083	0.148
Angle colllision proportion	0.764	0.629	0.676	0.554	0.806	0.707	0.746	0.552
1x2 or 1x1 intersections	3ST, F+I	3ST, PDO	3SG, F+I	3SG, PDO	4ST, F+I	4ST, PDO	4SG, F+I	4SG, PDO
Rear-end collision proportion	0.100	0.100	0.111	0.143	0.047	0.065	0.030	0.059
Angle colllision proportion	0.300	0.250	0.889	0.571	0.822	0.706	0.837	0.733

Crash Modification Factors	*F+I*	*PDO*
Total-vehicle crash CMFs		
Lighting	0.911	0.911
Red-light cameras	1.000	1.000
Left-turn signal phasing	0.636	0.636
Right-turn-on-red	0.980	0.980
U-turn prohibition	1.000	1.000
Right-turn channelization	1.000	1.000
Number of lanes	1.126	1.126
Vehicle-pedestrian crash CMFs		
Bus stops	4.150	
Schools	1.350	
Alcohol sales establishments	1.000	

Safety Prediction Worksheet for Urban and Suburban Arterial Intersections

General Information

Analyst	TL
Agency	ATCS
Date	1/31/2022
Location	Montgomery County

Site Information

Major street name	MD 355 Rockville Pike
Minor street name	Grosvenor Ln
Intersection number	1
Analysis year	2045

Add to Totals worksheet | Restore equations | Reset input cells

Output Summary

Predicted crash frequency, crashes / year

	F+I	PDO	Total
Total crashes	3.569	2.847	6.416
Total-vehicle crashes	3.243	2.847	
Vehicle-pedestrian crashes	0.210		
Vehicle-bicycle crashes	0.116		

Combined CMF

	F+I	PDO
Total-vehicle crashes	0.528	0.528
Vehicle-pedestrian crashes	4.150	

Severity distribution for F+I crashes

K	A	B	C
0.020	0.197	0.994	2.357

Input Data	*Value*		*Advisory Messages*
Intersection Data			
Area type	Suburban		.
Number of legs	4		**4SG intersection type**
Traffic control type	Signalized		.
Lighting present?	Yes		.
Red-light cameras present?	Yes		.
Daily pedestrian volume crossing all legs (peds/day)	156		.
Maximum number of lanes crossed by a pedestrian	7		.
Number of bus stops within 1,000 ft of intersection	4		.
School(s) present within 1,000 ft of intersection?	No		.
Alcohol sales establishments within 1,000 ft	0		.
Street Data	*Major*	*Minor*	.
Street configuration	Two-way	Two-way	**2x2 intersection configuration**
Annual average daily traffic (AADT), veh/day	60115	9912	.
Number of through lanes	6	2	.
Number of approaches with left-turn lanes	0	2	.
Number of left-turn movements with protected phasing	0	2	.
Number of right-turn movements prohibited on red	0	0	.
Number of U-turn movements prohibited	2	0	.
Number of approaches with right-turn channelization	0	2	.

Calibration Factors	*Value*	*Default Values*
Local calibration factor (C)	1.000	1.000
Adjustment factor for pedestrians for stop control (f_{ped})	0.049	0.049
Adjustment factor for bicyclists (f_{bike})	0.019	0.019
Severity distribution calibration factor, 2-way ($C_{sdf,twi}$)	1.000	1.000
Severity distribution calibration factor, 1-way ($C_{sdf,owi}$)	1.000	1.000
Probability of fatality given K+A severity ($P_{K\|K+A}$)	0.094	0.094

Manner of Collision Proportions

2x2 intersections	3ST, F+I	3ST, PDO	3SG, F+I	3SG, PDO	4ST, F+I	4ST, PDO	4SG, F+I	4SG, PDO
Rear-end collision proportion	0.094	0.154	0.120	0.189	0.079	0.098	0.083	0.148
Angle colllision proportion	0.764	0.629	0.676	0.554	0.806	0.707	0.746	0.552
1x2 or 1x1 intersections	3ST, F+I	3ST, PDO	3SG, F+I	3SG, PDO	4ST, F+I	4ST, PDO	4SG, F+I	4SG, PDO
Rear-end collision proportion	0.100	0.100	0.111	0.143	0.047	0.065	0.030	0.059
Angle colllision proportion	0.300	0.250	0.889	0.571	0.822	0.706	0.837	0.733

Crash Modification Factors	*F+I*	*PDO*
Total-vehicle crash CMFs		
Lighting	0.911	0.911
Red-light cameras	0.850	0.850
Left-turn signal phasing	0.740	0.740
Right-turn-on-red	1.000	1.000
U-turn prohibition	0.922	0.922
Right-turn channelization	1.000	1.000
Number of lanes	1.000	1.000
Vehicle-pedestrian crash CMFs		
Bus stops	4.150	
Schools	1.000	
Alcohol sales establishments	1.000	

Safety Prediction Worksheet for Two-Way Urban and Suburban Arterial Segments

General Information

Analyst	TL
Agency	ATCS
Date	1/31/2022
Location	Montgomery County

Site Information

Street number	MD 355
Street name	Rockville Pike from Grosvenor Ln
Segment number	1
Analysis year	2045

Add to Totals worksheet | Restore equations | Reset input cells

Output Summary

Predicted crash frequency, crashes / year

	F+I	PDO	Total
Total crashes	1.167	1.530	2.698
Multiple-vehicle crashes	0.785	1.130	
Single-vehicle crashes	0.321	0.400	
Vehicle-pedestrian crashes	0.040		
Vehicle-bicycle crashes	0.021		

Combined CMF

	F+I	PDO
Multiple-vehicle crashes	0.204	0.204
Single-vehicle crashes	0.840	0.840

Severity distribution for F+I crashes

K	A	B	C
0.018	0.092	0.358	0.699

Input Data		*Value*	*Advisory Messages*
Basic Roadway Data			
Area type		Suburban	.
Segment type		6D	.
Segment length, mi		0.46	.
Annual average daily traffic (AADT), veh/day		62005	.
Number of highway-rail grade crossings present		0	.
Posted speed limit, mi/h		40	.
Automated speed enforcement present?		No	.
Access Data			
Driveway count	Major commercial	0	.
	Major industrial	0	.
	Minor	1	**2 minor driveways per mile.**
Cross Section Data			
Lane width, ft		12	.
Outside shoulder width, ft		2	.
Median width, ft		180	.
Median barrier present?		Yes	.
Roadside Data			
Roadside fixed object count		11	**24 objects per mile.**
Average roadside fixed object offset, ft		6	.

Calibration Factors	*Value*	*Default Values*
Local calibration factor (C)	1.000	1.000
Adjustment factor for pedestrians (f_{ped})	0.015	0.015
Adjustment factor for bicyclists (f_{bike})	0.008	0.008
Severity distribution calibration factor ($C_{sdf,tws}$)	1.000	1.000

Crash Modification Factors	*F+I*		*PDO*	
	Multiple	*Single*	*Multiple*	*Single*
Lane width	1.000	1.000	1.000	1.000
Outside shoulder width	0.986	0.986	0.986	0.986
Median width	0.390	0.390	0.390	0.390
Median barrier	0.600	1.967	0.600	1.967
Highway-rail grade crossing	1.000	1.000	1.000	1.000
Major commercial driveways	0.932		0.932	
Major industrial driveways	0.989		0.989	
Minor driveways	0.959		0.959	
Automated speed enforcement	1.000	1.000	1.000	1.000
Roadside fixed objects		1.109		1.109

Safety Prediction Worksheet for Urban and Suburban Arterial Intersections

General Information

Analyst	TL
Agency	ATCS
Date	1/31/2022
Location	Montgomery County

Site Information

Major street name	MD 355 Rockville Pike
Minor street name	Pooks Hill Rd
Intersection number	2
Analysis year	2045

Add to Totals worksheet | Restore equations | Reset input cells

Output Summary

Predicted crash frequency, crashes / year

	F+I	PDO	Total
Total crashes	3.555	2.804	6.359
Total-vehicle crashes	3.295	2.804	
Vehicle-pedestrian crashes	0.083		
Vehicle-bicycle crashes	0.177		

Combined CMF

	F+I	PDO
Total-vehicle crashes	0.634	0.634
Vehicle-pedestrian crashes	4.150	

Severity distribution for F+I crashes

K	A	B	C
0.020	0.192	0.965	2.378

Input Data	Value		Advisory Messages
Intersection Data			
Area type	Suburban		.
Number of legs	3		3SG intersection type
Traffic control type	Signalized		.
Lighting present?	Yes		.
Red-light cameras present?	No		.
Daily pedestrian volume crossing all legs (peds/day)	78		.
Maximum number of lanes crossed by a pedestrian	9		.
Number of bus stops within 1,000 ft of intersection	5		.
School(s) present within 1,000 ft of intersection?	No		.
Alcohol sales establishments within 1,000 ft	0		.
Street Data	*Major*	*Minor*	.
Street configuration	Two-way	Two-way	2x2 intersection configuration
Annual average daily traffic (AADT), veh/day	73422	10149	.
Number of through lanes	6	2	.
Number of approaches with left-turn lanes	1	1	.
Number of left-turn movements with protected phasing	1	1	.
Number of right-turn movements prohibited on red	1	0	.
Number of U-turn movements prohibited	1	0	.
Number of approaches with right-turn channelization	0	1	.

Calibration Factors	Value	Default Values
Local calibration factor (C)	1.000	1.000
Adjustment factor for pedestrians for stop control (f_{ped})	0.051	0.051
Adjustment factor for bicyclists (f_{bike})	0.029	0.029
Severity distribution calibration factor, 2-way ($C_{sdf,twi}$)	1.000	1.000
Severity distribution calibration factor, 1-way ($C_{sdf,owi}$)	1.000	1.000
Probability of fatality given K+A severity ($P_{K\|K+A}$)	0.094	0.094

Manner of Collision Proportions

2x2 intersections	3ST, F+I	3ST, PDO	3SG, F+I	3SG, PDO	4ST, F+I	4ST, PDO	4SG, F+I	4SG, PDO
Rear-end collision proportion	0.094	0.154	0.120	0.189	0.079	0.098	0.083	0.148
Angle colllision proportion	0.764	0.629	0.676	0.554	0.806	0.707	0.746	0.552
1x2 or 1x1 intersections	3ST, F+I	3ST, PDO	3SG, F+I	3SG, PDO	4ST, F+I	4ST, PDO	4SG, F+I	4SG, PDO
Rear-end collision proportion	0.100	0.100	0.111	0.143	0.047	0.065	0.030	0.059
Angle colllision proportion	0.300	0.250	0.889	0.571	0.822	0.706	0.837	0.733

Crash Modification Factors	F+I	PDO
Total-vehicle crash CMFs		
Lighting	0.911	0.911
Red-light cameras	1.000	1.000
Left-turn signal phasing	0.740	0.740
Right-turn-on-red	0.980	0.980
U-turn prohibition	0.960	0.960
Right-turn channelization	1.000	1.000
Number of lanes	1.000	1.000
Vehicle-pedestrian crash CMFs		
Bus stops	4.150	
Schools	1.000	
Alcohol sales establishments	1.000	

Safety Prediction Worksheet for Two-Way Urban and Suburban Arterial Segments

General Information

Analyst	TL
Agency	ATCS
Date	1/31/2022
Location	Montgomery County

Site Information

Street number	MD 355
Street name	Rockville Pike from Pooks Hill Rd
Segment number	2
Analysis year	2045

Add to Totals worksheet | Restore equations | Reset input cells

Output Summary

Predicted crash frequency, crashes / year

	F+I	PDO	Total
Total crashes	0.733	0.960	1.693
Multiple-vehicle crashes	0.631	0.880	
Single-vehicle crashes	0.064	0.080	
Vehicle-pedestrian crashes	0.025		
Vehicle-bicycle crashes	0.013		

Combined CMF

	F+I	PDO
Multiple-vehicle crashes	1.020	1.020
Single-vehicle crashes	1.191	1.191

Severity distribution for F+I crashes

K	A	B	C
0.009	0.058	0.226	0.440

Input Data		*Value*	*Advisory Messages*
Basic Roadway Data			
Area type		Suburban	.
Segment type		6D	.
Segment length, mi		0.06	.
Annual average daily traffic (AADT), veh/day		73388	.
Number of highway-rail grade crossings present		0	.
Posted speed limit, mi/h		35	.
Automated speed enforcement present?		No	.
Access Data			
Driveway count	Major commercial	0	.
	Major industrial	0	.
	Minor	1	**17 minor driveways per mile.**
Cross Section Data			
Lane width, ft		11	.
Outside shoulder width, ft		0	.
Median width, ft		15	.
Median barrier present?		No	.
Roadside Data			
Roadside fixed object count		2	**33 objects per mile.**
Average roadside fixed object offset, ft		8	.

Calibration Factors	*Value*	*Default Values*
Local calibration factor (C)	1.000	1.000
Adjustment factor for pedestrians (f_{ped})	0.015	0.015
Adjustment factor for bicyclists (f_{bike})	0.008	0.008
Severity distribution calibration factor ($C_{sdf,tws}$)	1.000	1.000

Crash Modification Factors	*F+I*		*PDO*	
	Multiple	*Single*	*Multiple*	*Single*
Lane width	1.022	1.022	1.022	1.022
Outside shoulder width	1.044	1.044	1.044	1.044
Median width	1.000	1.000	1.000	1.000
Median barrier	1.000	1.000	1.000	1.000
Highway-rail grade crossing	1.000	1.000	1.000	1.000
Major commercial driveways	0.932		0.932	
Major industrial driveways	0.989		0.989	
Minor driveways	1.037		1.037	
Automated speed enforcement	1.000	1.000	1.000	1.000
Roadside fixed objects		1.117		1.117

Safety Prediction Worksheet for Urban and Suburban Arterial Intersections

General Information

Analyst	TL
Agency	ATCS
Date	1/31/2022
Location	Montgomery County

Site Information

Major street name	MD 355 Rockville Pike
Minor street name	Bellevue Dr/Alta Vista Rd
Intersection number	3
Analysis year	2045

Add to Totals worksheet | Restore equations | Reset input cells

Output Summary

Predicted crash frequency, crashes / year

	F+I	PDO	Total
Total crashes	3.651	2.982	6.632
Total-vehicle crashes	3.441	2.982	
Vehicle-pedestrian crashes	0.088		
Vehicle-bicycle crashes	0.122		

Combined CMF

	F+I	PDO
Total-vehicle crashes	0.911	0.911
Vehicle-pedestrian crashes	4.150	

Severity distribution for F+I crashes

K	A	B	C
0.020	0.193	0.965	2.473

Input Data	*Value*		*Advisory Messages*
Intersection Data			
Area type	Suburban		.
Number of legs	4		4SG intersection type
Traffic control type	Signalized		.
Lighting present?	Yes		.
Red-light cameras present?	No		.
Daily pedestrian volume crossing all legs (peds/day)	77		.
Maximum number of lanes crossed by a pedestrian	7		.
Number of bus stops within 1,000 ft of intersection	6		.
School(s) present within 1,000 ft of intersection?	No		.
Alcohol sales establishments within 1,000 ft	0		.
Street Data	*Major*	*Minor*	.
Street configuration	Two-way	Two-way	2x2 intersection configuration
Annual average daily traffic (AADT), veh/day	69302	1352	.
Number of through lanes	6	2	.
Number of approaches with left-turn lanes	2	0	.
Number of left-turn movements with protected phasing	0	0	.
Number of right-turn movements prohibited on red	0	0	.
Number of U-turn movements prohibited	0	0	.
Number of approaches with right-turn channelization	0	0	.

Calibration Factors	*Value*	*Default Values*
Local calibration factor (C)	1.000	1.000
Adjustment factor for pedestrians for stop control (f_{ped})	0.049	0.049
Adjustment factor for bicyclists (f_{bike})	0.019	0.019
Severity distribution calibration factor, 2-way ($C_{sdf,twi}$)	1.000	1.000
Severity distribution calibration factor, 1-way ($C_{sdf,owi}$)	1.000	1.000
Probability of fatality given K+A severity ($P_{K\|K+A}$)	0.094	0.094

Manner of Collision Proportions

2x2 intersections	3ST, F+I	3ST, PDO	3SG, F+I	3SG, PDO	4ST, F+I	4ST, PDO	4SG, F+I	4SG, PDO
Rear-end collision proportion	0.094	0.154	0.120	0.189	0.079	0.098	0.083	0.148
Angle colllision proportion	0.764	0.629	0.676	0.554	0.806	0.707	0.746	0.552
1x2 or 1x1 intersections	3ST, F+I	3ST, PDO	3SG, F+I	3SG, PDO	4ST, F+I	4ST, PDO	4SG, F+I	4SG, PDO
Rear-end collision proportion	0.100	0.100	0.111	0.143	0.047	0.065	0.030	0.059
Angle colllision proportion	0.300	0.250	0.889	0.571	0.822	0.706	0.837	0.733

Crash Modification Factors	*F+I*	*PDO*
Total-vehicle crash CMFs		
Lighting	0.911	0.911
Red-light cameras	1.000	1.000
Left-turn signal phasing	1.000	1.000
Right-turn-on-red	1.000	1.000
U-turn prohibition	1.000	1.000
Right-turn channelization	1.000	1.000
Number of lanes	1.000	1.000
Vehicle-pedestrian crash CMFs		
Bus stops	4.150	
Schools	1.000	
Alcohol sales establishments	1.000	

Safety Prediction Worksheet for Urban and Suburban Arterial Intersections

General Information

Analyst	TL
Agency	ATCS
Date	1/31/2022
Location	Montgomery County

Site Information

Major street name	Sam Eig Hwy
Minor street name	MD 119 Great Senecca Hwy
Intersection number	1
Analysis year	2045

Add to Totals worksheet | Restore equations | Reset input cells

Output Summary

Predicted crash frequency, crashes / year

	F+I	PDO	Total
Total crashes	3.308	2.915	6.223
Total-vehicle crashes	3.109	2.915	
Vehicle-pedestrian crashes	0.024		
Vehicle-bicycle crashes	0.175		

Combined CMF

	F+I	PDO
Total-vehicle crashes	0.769	0.769
Vehicle-pedestrian crashes	1.000	

Severity distribution for F+I crashes

K	A	B	C
0.019	0.179	0.898	2.213

Input Data

Input Data	Value	Advisory Messages
Intersection Data		
Area type	Suburban	.
Number of legs	3	3SG intersection type
Traffic control type	Signalized	.
Lighting present?	Yes	.
Red-light cameras present?	No	.
Daily pedestrian volume crossing all legs (peds/day)	67	.
Maximum number of lanes crossed by a pedestrian	7	.
Number of bus stops within 1,000 ft of intersection	0	.
School(s) present within 1,000 ft of intersection?	No	.
Alcohol sales establishments within 1,000 ft	0	.

Street Data	*Major*	*Minor*	.
Street configuration	Two-way	Two-way	2x2 intersection configuration
Annual average daily traffic (AADT), veh/day	37892	31000	Check minor volume.
Number of through lanes	6	4	.
Number of approaches with left-turn lanes	1	1	.
Number of left-turn movements with protected phasing	1	1	.
Number of right-turn movements prohibited on red	0	1	.
Number of U-turn movements prohibited	1	0	.
Number of approaches with right-turn channelization	0	1	.

Calibration Factors

Calibration Factors	Value	Default Values
Local calibration factor (C)	1.000	1.000
Adjustment factor for pedestrians for stop control (f_{ped})	0.051	0.051
Adjustment factor for bicyclists (f_{bike})	0.029	0.029
Severity distribution calibration factor, 2-way ($C_{sdf,twi}$)	1.000	1.000
Severity distribution calibration factor, 1-way ($C_{sdf,owi}$)	1.000	1.000
Probability of fatality given K+A severity ($P_{K\|K+A}$)	0.094	0.094

Manner of Collision Proportions

2x2 intersections	3ST, F+I	3ST, PDO	3SG, F+I	3SG, PDO	4ST, F+I	4ST, PDO	4SG, F+I	4SG, PDO
Rear-end collision proportion	0.094	0.154	0.120	0.189	0.079	0.098	0.083	0.148
Angle colllision proportion	0.764	0.629	0.676	0.554	0.806	0.707	0.746	0.552

1x2 or 1x1 intersections	3ST, F+I	3ST, PDO	3SG, F+I	3SG, PDO	4ST, F+I	4ST, PDO	4SG, F+I	4SG, PDO
Rear-end collision proportion	0.100	0.100	0.111	0.143	0.047	0.065	0.030	0.059
Angle colllision proportion	0.300	0.250	0.889	0.571	0.822	0.706	0.837	0.733

Crash Modification Factors	F+I	PDO
Total-vehicle crash CMFs		
Lighting	0.911	0.911
Red-light cameras	1.000	1.000
Left-turn signal phasing	0.740	0.740
Right-turn-on-red	0.980	0.980
U-turn prohibition	0.960	0.960
Right-turn channelization	1.000	1.000
Number of lanes	1.213	1.213
Vehicle-pedestrian crash CMFs		
Bus stops	1.000	
Schools	1.000	
Alcohol sales establishments	1.000	

Safety Prediction Worksheet for Two-Way Urban and Suburban Arterial Segments

General Information

Analyst	TL
Agency	ATCS
Date	1/31/2022
Location	Montgomery County

Site Information

Street number	I-370
Street name	Sam Eig Hwy from MD 119 to Dia
Segment number	1
Analysis year	2045

Add to Totals worksheet | Restore equations | Reset input cells

Output Summary

Predicted crash frequency, crashes / year

	F+I	PDO	Total
Total crashes	1.291	1.769	3.060
Multiple-vehicle crashes	0.749	1.173	
Single-vehicle crashes	0.472	0.596	
Vehicle-pedestrian crashes	0.045		
Vehicle-bicycle crashes	0.024		

Combined CMF

	F+I	PDO
Multiple-vehicle crashes	0.517	0.517
Single-vehicle crashes	2.273	2.273

Severity distribution for F+I crashes

K	A	B	C
0.030	0.101	0.393	0.767

Input Data		*Value*	*Advisory Messages*
Basic Roadway Data			
Area type		Suburban	.
Segment type		6D	.
Segment length, mi		0.31	.
Annual average daily traffic (AADT), veh/day		38803	.
Number of highway-rail grade crossings present		0	.
Posted speed limit, mi/h		50	.
Automated speed enforcement present?		No	.
Access Data			
Driveway count	Major commercial	0	.
	Major industrial	0	.
	Minor	0	.
Cross Section Data			
Lane width, ft		12	.
Outside shoulder width, ft		1	.
Median width, ft		20	.
Median barrier present?		Yes	.
Roadside Data			
Roadside fixed object count		9	**29 objects per mile.**
Average roadside fixed object offset, ft		4	.

Calibration Factors	*Value*	*Default Values*
Local calibration factor (C)	1.000	1.000
Adjustment factor for pedestrians (f_{ped})	0.015	0.015
Adjustment factor for bicyclists (f_{bike})	0.008	0.008
Severity distribution calibration factor ($C_{sdf,tws}$)	1.000	1.000

Crash Modification Factors	*F+I*		*PDO*	
	Multiple	*Single*	*Multiple*	*Single*
Lane width	1.000	1.000	1.000	1.000
Outside shoulder width	1.014	1.014	1.014	1.014
Median width	0.972	0.972	0.972	0.972
Median barrier	0.600	1.967	0.600	1.967
Highway-rail grade crossing	1.000	1.000	1.000	1.000
Major commercial driveways	0.932		0.932	
Major industrial driveways	0.989		0.989	
Minor driveways	0.947		0.947	
Automated speed enforcement	1.000	1.000	1.000	1.000
Roadside fixed objects		1.172		1.172

Safety Prediction Worksheet for Urban and Suburban Arterial Intersections

General Information

Analyst	TL
Agency	ATCS
Date	1/31/2022
Location	Montgomery County

Site Information

Major street name	Sam Eig Hwy
Minor street name	Diamondback Dr
Intersection number	2
Analysis year	2045

Add to Totals worksheet | Restore equations | Reset input cells

Output Summary

Predicted crash frequency, crashes / year

	F+I	PDO	Total
Total crashes	6.367	5.378	11.745
Total-vehicle crashes	5.886	5.378	
Vehicle-pedestrian crashes	0.267		
Vehicle-bicycle crashes	0.214		

Combined CMF

	F+I	PDO
Total-vehicle crashes	0.937	0.937
Vehicle-pedestrian crashes	4.150	

Severity distribution for F+I crashes

K	A	B	C
0.028	0.266	1.541	4.533

Input Data	*Value*	*Advisory Messages*
Intersection Data		
Area type	Suburban	.
Number of legs	4	4SG intersection type
Traffic control type	Signalized	.
Lighting present?	Yes	.
Red-light cameras present?	No	.
Daily pedestrian volume crossing all legs (peds/day)	151	.
Maximum number of lanes crossed by a pedestrian	8	.
Number of bus stops within 1,000 ft of intersection	3	.
School(s) present within 1,000 ft of intersection?	No	.
Alcohol sales establishments within 1,000 ft	0	.

Street Data	*Major*	*Minor*	.
Street configuration	Two-way	Two-way	2x2 intersection configuration
Annual average daily traffic (AADT), veh/day	38519	19460	.
Number of through lanes	6	4	.
Number of approaches with left-turn lanes	2	1	.
Number of left-turn movements with protected phasing	2	1	.
Number of right-turn movements prohibited on red	0	1	.
Number of U-turn movements prohibited	2	0	.
Number of approaches with right-turn channelization	2	1	.

Calibration Factors	*Value*	*Default Values*
Local calibration factor (C)	1.000	1.000
Adjustment factor for pedestrians for stop control (f_{ped})	0.049	0.049
Adjustment factor for bicyclists (f_{bike})	0.019	0.019
Severity distribution calibration factor, 2-way ($C_{sdf,twi}$)	1.000	1.000
Severity distribution calibration factor, 1-way ($C_{sdf,owi}$)	1.000	1.000
Probability of fatality given K+A severity ($P_{K\|K+A}$)	0.094	0.094

Manner of Collision Proportions

2x2 intersections	3ST, F+I	3ST, PDO	3SG, F+I	3SG, PDO	4ST, F+I	4ST, PDO	4SG, F+I	4SG, PDO
Rear-end collision proportion	0.094	0.154	0.120	0.189	0.079	0.098	0.083	0.148
Angle colllision proportion	0.764	0.629	0.676	0.554	0.806	0.707	0.746	0.552

1x2 or 1x1 intersections	3ST, F+I	3ST, PDO	3SG, F+I	3SG, PDO	4ST, F+I	4ST, PDO	4SG, F+I	4SG, PDO
Rear-end collision proportion	0.100	0.100	0.111	0.143	0.047	0.065	0.030	0.059
Angle colllision proportion	0.300	0.250	0.889	0.571	0.822	0.706	0.837	0.733

Crash Modification Factors	*F+I*	*PDO*
Total-vehicle crash CMFs		
Lighting	0.911	0.911
Red-light cameras	1.000	1.000
Left-turn signal phasing	0.636	0.636
Right-turn-on-red	0.980	0.980
U-turn prohibition	0.922	0.922
Right-turn channelization	1.545	1.545
Number of lanes	1.159	1.159
Vehicle-pedestrian crash CMFs		
Bus stops	4.150	
Schools	1.000	
Alcohol sales establishments	1.000	

Safety Prediction Worksheet for Two-Way Urban and Suburban Arterial Segments

General Information

Analyst	TL
Agency	ATCS
Date	1/31/2022
Location	Montgomery County

Site Information

Street number	I-370
Street name	Sam Eig Hwy from Diamondback
Segment number	2
Analysis year	2045

Add to Totals worksheet | Restore equations | Reset input cells

Output Summary

Predicted crash frequency, crashes / year

	F+I	PDO	Total
Total crashes	0.272	0.372	0.644
Multiple-vehicle crashes	0.155	0.243	
Single-vehicle crashes	0.103	0.130	
Vehicle-pedestrian crashes	0.009		
Vehicle-bicycle crashes	0.005		

Combined CMF

	F+I	PDO
Multiple-vehicle crashes	0.557	0.557
Single-vehicle crashes	2.564	2.564

Severity distribution for F+I crashes

K	A	B	C
0.006	0.021	0.083	0.162

Input Data		*Value*	*Advisory Messages*
Basic Roadway Data			
Area type		Suburban	.
Segment type		6D	.
Segment length, mi		0.06	.
Annual average daily traffic (AADT), veh/day		38508	.
Number of highway-rail grade crossings present		0	.
Posted speed limit, mi/h		50	.
Automated speed enforcement present?		No	.
Access Data			
Driveway count	Major commercial	0	.
	Major industrial	0	.
	Minor	0	.
Cross Section Data			
Lane width, ft		12	.
Outside shoulder width, ft		1	.
Median width, ft		7	.
Median barrier present?		Yes	.
Roadside Data			
Roadside fixed object count		3	**50 objects per mile.**
Average roadside fixed object offset, ft		6	.

Calibration Factors	*Value*	*Default Values*
Local calibration factor (C)	1.000	1.000
Adjustment factor for pedestrians (f_{ped})	0.015	0.015
Adjustment factor for bicyclists (f_{bike})	0.008	0.008
Severity distribution calibration factor ($C_{sdf,tws}$)	1.000	1.000

Crash Modification Factors	*F+I*		*PDO*	
	Multiple	*Single*	*Multiple*	*Single*
Lane width	1.000	1.000	1.000	1.000
Outside shoulder width	1.014	1.014	1.014	1.014
Median width	1.047	1.047	1.047	1.047
Median barrier	0.600	1.967	0.600	1.967
Highway-rail grade crossing	1.000	1.000	1.000	1.000
Major commercial driveways	0.932		0.932	
Major industrial driveways	0.989		0.989	
Minor driveways	0.947		0.947	
Automated speed enforcement	1.000	1.000	1.000	1.000
Roadside fixed objects		1.228		1.228

Safety Prediction Worksheet for Urban and Suburban Arterial Intersections

General Information

Analyst	TL
Agency	ATCS
Date	1/31/2022
Location	Montgomery County

Site Information

Major street name	Sam Eig Hwy
Minor street name	Fields Rd
Intersection number	3
Analysis year	2045

Add to Totals worksheet | Restore equations | Reset input cells

Output Summary

Predicted crash frequency, crashes / year

	F+I	PDO	Total
Total crashes	3.531	3.044	6.575
Total-vehicle crashes	3.219	3.044	
Vehicle-pedestrian crashes	0.130		
Vehicle-bicycle crashes	0.182		

Combined CMF

	F+I	PDO
Total-vehicle crashes	0.857	0.857
Vehicle-pedestrian crashes	3.114	

Severity distribution for F+I crashes

K	A	B	C
0.020	0.191	0.958	2.362

Input Data	Value		Advisory Messages
Intersection Data			
Area type	Suburban		.
Number of legs	3		3SG intersection type
Traffic control type	Signalized		.
Lighting present?	Yes		.
Red-light cameras present?	No		.
Daily pedestrian volume crossing all legs (peds/day)	151		.
Maximum number of lanes crossed by a pedestrian	11		.
Number of bus stops within 1,000 ft of intersection	1		.
School(s) present within 1,000 ft of intersection?	No		.
Alcohol sales establishments within 1,000 ft	1		.
Street Data	*Major*	*Minor*	.
Street configuration	Two-way	Two-way	2x2 intersection configuration
Annual average daily traffic (AADT), veh/day	38177	18898	.
Number of through lanes	6	4	.
Number of approaches with left-turn lanes	1	1	.
Number of left-turn movements with protected phasing	1	1	.
Number of right-turn movements prohibited on red	1	1	.
Number of U-turn movements prohibited	1	1	.
Number of approaches with right-turn channelization	1	1	.

Calibration Factors	Value	Default Values
Local calibration factor (C)	1.000	1.000
Adjustment factor for pedestrians for stop control (f_{ped})	0.051	0.051
Adjustment factor for bicyclists (f_{bike})	0.029	0.029
Severity distribution calibration factor, 2-way ($C_{sdf,twi}$)	1.000	1.000
Severity distribution calibration factor, 1-way ($C_{sdf,owi}$)	1.000	1.000
Probability of fatality given K+A severity ($P_{K\|K+A}$)	0.094	0.094

Manner of Collision Proportions

2x2 intersections	3ST, F+I	3ST, PDO	3SG, F+I	3SG, PDO	4ST, F+I	4ST, PDO	4SG, F+I	4SG, PDO
Rear-end collision proportion	0.094	0.154	0.120	0.189	0.079	0.098	0.083	0.148
Angle colllision proportion	0.764	0.629	0.676	0.554	0.806	0.707	0.746	0.552
1x2 or 1x1 intersections	3ST, F+I	3ST, PDO	3SG, F+I	3SG, PDO	4ST, F+I	4ST, PDO	4SG, F+I	4SG, PDO
Rear-end collision proportion	0.100	0.100	0.111	0.143	0.047	0.065	0.030	0.059
Angle colllision proportion	0.300	0.250	0.889	0.571	0.822	0.706	0.837	0.733

Crash Modification Factors	F+I	PDO
Total-vehicle crash CMFs		
Lighting	0.911	0.911
Red-light cameras	1.000	1.000
Left-turn signal phasing	0.740	0.740
Right-turn-on-red	0.960	0.960
U-turn prohibition	0.922	0.922
Right-turn channelization	1.243	1.243
Number of lanes	1.157	1.157
Vehicle-pedestrian crash CMFs		
Bus stops	2.780	
Schools	1.000	
Alcohol sales establishments	1.120	

Safety Prediction Worksheet for Urban and Suburban Arterial Intersections

General Information

Analyst	TL
Agency	ATCS
Date	1/31/2022
Location	Montgomery County

Site Information

Major street name	Shady Grove Rd
Minor street name	Corporate Blvd
Intersection number	1
Analysis year	2045

Add to Totals worksheet | Restore equations | Reset input cells

Output Summary

Predicted crash frequency, crashes / year

	F+I	PDO	Total
Total crashes	3.279	2.724	6.004
Total-vehicle crashes	2.982	2.724	
Vehicle-pedestrian crashes	0.189		
Vehicle-bicycle crashes	0.108		

Combined CMF

	F+I	PDO
Total-vehicle crashes	0.674	0.674
Vehicle-pedestrian crashes	4.648	

Severity distribution for F+I crashes

K	A	B	C
0.018	0.173	0.867	2.222

Input Data	*Value*	*Advisory Messages*
Intersection Data		
Area type	Suburban	.
Number of legs	4	4SG intersection type
Traffic control type	Signalized	.
Lighting present?	Yes	.
Red-light cameras present?	No	.
Daily pedestrian volume crossing all legs (peds/day)	161	.
Maximum number of lanes crossed by a pedestrian	7	.
Number of bus stops within 1,000 ft of intersection	4	.
School(s) present within 1,000 ft of intersection?	No	.
Alcohol sales establishments within 1,000 ft	1	.

Street Data	*Major*	*Minor*	.
Street configuration	Two-way	Two-way	2x2 intersection configuration
Annual average daily traffic (AADT), veh/day	38558	5317	.
Number of through lanes	6	2	.
Number of approaches with left-turn lanes	2	1	.
Number of left-turn movements with protected phasing	0	2	.
Number of right-turn movements prohibited on red	0	0	.
Number of U-turn movements prohibited	0	0	.
Number of approaches with right-turn channelization	0	0	.

Calibration Factors	*Value*	*Default Values*
Local calibration factor (C)	1.000	1.000
Adjustment factor for pedestrians for stop control (f_{ped})	0.049	0.049
Adjustment factor for bicyclists (f_{bike})	0.019	0.019
Severity distribution calibration factor, 2-way ($C_{sdf,twi}$)	1.000	1.000
Severity distribution calibration factor, 1-way ($C_{sdf,owi}$)	1.000	1.000
Probability of fatality given K+A severity ($P_{K\|K+A}$)	0.094	0.094

Manner of Collision Proportions

2x2 intersections	3ST, F+I	3ST, PDO	3SG, F+I	3SG, PDO	4ST, F+I	4ST, PDO	4SG, F+I	4SG, PDO
Rear-end collision proportion	0.094	0.154	0.120	0.189	0.079	0.098	0.083	0.148
Angle colllision proportion	0.764	0.629	0.676	0.554	0.806	0.707	0.746	0.552

1x2 or 1x1 intersections	3ST, F+I	3ST, PDO	3SG, F+I	3SG, PDO	4ST, F+I	4ST, PDO	4SG, F+I	4SG, PDO
Rear-end collision proportion	0.100	0.100	0.111	0.143	0.047	0.065	0.030	0.059
Angle colllision proportion	0.300	0.250	0.889	0.571	0.822	0.706	0.837	0.733

Crash Modification Factors	*F+I*	*PDO*
Total-vehicle crash CMFs		
Lighting	0.911	0.911
Red-light cameras	1.000	1.000
Left-turn signal phasing	0.740	0.740
Right-turn-on-red	1.000	1.000
U-turn prohibition	1.000	1.000
Right-turn channelization	1.000	1.000
Number of lanes	1.000	1.000
Vehicle-pedestrian crash CMFs		
Bus stops	4.150	
Schools	1.000	
Alcohol sales establishments	1.120	

Safety Prediction Worksheet for Two-Way Urban and Suburban Arterial Segments

General Information

Analyst	TL
Agency	ATCS
Date	1/31/2022
Location	Montgomery County

Site Information

Street number	Shady Grove Rd
Street name	Corporate Blvd to I-270 SB Ramp
Segment number	1
Analysis year	2045

Add to Totals worksheet | Restore equations | Reset input cells

Output Summary

Predicted crash frequency, crashes / year

	F+I	PDO	Total
Total crashes	0.255	0.348	0.603
Multiple-vehicle crashes	0.143	0.224	
Single-vehicle crashes	0.098	0.124	
Vehicle-pedestrian crashes	0.009		
Vehicle-bicycle crashes	0.005		

Combined CMF

	F+I	PDO
Multiple-vehicle crashes	0.514	0.514
Single-vehicle crashes	2.446	2.446

Severity distribution for F+I crashes

K	A	B	C
0.004	0.020	0.078	0.153

Input Data		*Value*	*Advisory Messages*
Basic Roadway Data			
Area type		Suburban	.
Segment type		6D	.
Segment length, mi		0.06	.
Annual average daily traffic (AADT), veh/day		38567	.
Number of highway-rail grade crossings present		0	.
Posted speed limit, mi/h		40	.
Automated speed enforcement present?		No	.
Access Data			
Driveway count	Major commercial	0	.
	Major industrial	0	.
	Minor	0	.
Cross Section Data			
Lane width, ft		11	.
Outside shoulder width, ft		3	.
Median width, ft		15	.
Median barrier present?		Yes	.
Roadside Data			
Roadside fixed object count		6	**100 objects per mile.**
Average roadside fixed object offset, ft		10	.

Calibration Factors	*Value*	*Default Values*
Local calibration factor (C)	1.000	1.000
Adjustment factor for pedestrians (f_{ped})	0.015	0.015
Adjustment factor for bicyclists (f_{bike})	0.008	0.008
Severity distribution calibration factor ($C_{sdf,tws}$)	1.000	1.000

Crash Modification Factors	*F+I*		*PDO*	
	Multiple	*Single*	*Multiple*	*Single*
Lane width	1.022	1.022	1.022	1.022
Outside shoulder width	0.958	0.958	0.958	0.958
Median width	1.000	1.000	1.000	1.000
Median barrier	0.600	1.967	0.600	1.967
Highway-rail grade crossing	1.000	1.000	1.000	1.000
Major commercial driveways	0.932		0.932	
Major industrial driveways	0.989		0.989	
Minor driveways	0.947		0.947	
Automated speed enforcement	1.000	1.000	1.000	1.000
Roadside fixed objects		1.270		1.270

Safety Prediction Worksheet for Two-Way Urban and Suburban Arterial Segments

General Information

Analyst	TL
Agency	ATCS
Date	1/31/2022
Location	Montgomery County

Site Information

Street number	Shady Grove Rd
Street name	I-270 SB Ramps to I-270 NB Ran
Segment number	2
Analysis year	2045

Add to Totals worksheet | Restore equations | Reset input cells

Output Summary

Predicted crash frequency, crashes / year

	F+I	PDO	Total
Total crashes	0.354	0.483	0.837
Multiple-vehicle crashes	0.206	0.319	
Single-vehicle crashes	0.130	0.163	
Vehicle-pedestrian crashes	0.012		
Vehicle-bicycle crashes	0.007		

Combined CMF

	F+I	PDO
Multiple-vehicle crashes	0.514	0.514
Single-vehicle crashes	2.357	2.357

Severity distribution for F+I crashes

K	A	B	C
0.005	0.028	0.109	0.212

Input Data		*Value*	*Advisory Messages*
Basic Roadway Data			
Area type		Suburban	.
Segment type		6D	.
Segment length, mi		0.08	.
Annual average daily traffic (AADT), veh/day		41009	.
Number of highway-rail grade crossings present		0	.
Posted speed limit, mi/h		40	.
Automated speed enforcement present?		No	.
Access Data			
Driveway count	Major commercial	0	.
	Major industrial	0	.
	Minor	0	.
Cross Section Data			
Lane width, ft		12	.
Outside shoulder width, ft		4	.
Median width, ft		6	.
Median barrier present?		Yes	.
Roadside Data			
Roadside fixed object count		3	**38 objects per mile.**
Average roadside fixed object offset, ft		4	.

Calibration Factors	*Value*	*Default Values*
Local calibration factor (C)	1.000	1.000
Adjustment factor for pedestrians (f_{ped})	0.015	0.015
Adjustment factor for bicyclists (f_{bike})	0.008	0.008
Severity distribution calibration factor ($C_{sdf,tws}$)	1.000	1.000

Crash Modification Factors	*F+I*		*PDO*	
	Multiple	*Single*	*Multiple*	*Single*
Lane width	1.000	1.000	1.000	1.000
Outside shoulder width	0.931	0.931	0.931	0.931
Median width	1.053	1.053	1.053	1.053
Median barrier	0.600	1.967	0.600	1.967
Highway-rail grade crossing	1.000	1.000	1.000	1.000
Major commercial driveways	0.932		0.932	
Major industrial driveways	0.989		0.989	
Minor driveways	0.947		0.947	
Automated speed enforcement	1.000	1.000	1.000	1.000
Roadside fixed objects		1.222		1.222

Safety Prediction Worksheet for Two-Way Urban and Suburban Arterial Segments

General Information

Analyst	TL
Agency	ATCS
Date	1/31/2022
Location	Montgomery County

Site Information

Street number	Shady Grove Rd
Street name	I-270 NB Ramps to Choke Cherry
Segment number	3
Analysis year	2045

Add to Totals worksheet | Restore equations | Reset input cells

Output Summary

Predicted crash frequency, crashes / year

	F+I	PDO	Total
Total crashes	0.666	0.913	1.580
Multiple-vehicle crashes	0.444	0.678	
Single-vehicle crashes	0.187	0.235	
Vehicle-pedestrian crashes	0.023		
Vehicle-bicycle crashes	0.012		

Combined CMF

	F+I	PDO
Multiple-vehicle crashes	0.731	0.731
Single-vehicle crashes	2.387	2.387

Severity distribution for F+I crashes

K	A	B	C
0.010	0.053	0.205	0.399

Input Data		*Value*	*Advisory Messages*
Basic Roadway Data			
Area type		Suburban	.
Segment type		6D	.
Segment length, mi		0.11	.
Annual average daily traffic (AADT), veh/day		44341	.
Number of highway-rail grade crossings present		0	.
Posted speed limit, mi/h		40	.
Automated speed enforcement present?		No	.
Access Data			
Driveway count	Major commercial	1	**9 major comm. driveways per mile.**
	Major industrial	0	.
	Minor	0	.
Cross Section Data			
Lane width, ft		12	.
Outside shoulder width, ft		1	.
Median width, ft		15	.
Median barrier present?		Yes	.
Roadside Data			
Roadside fixed object count		8	**73 objects per mile.**
Average roadside fixed object offset, ft		10	.

Calibration Factors	*Value*	*Default Values*
Local calibration factor (C)	1.000	1.000
Adjustment factor for pedestrians (f_{ped})	0.015	0.015
Adjustment factor for bicyclists (f_{bike})	0.008	0.008
Severity distribution calibration factor ($C_{sdf,tws}$)	1.000	1.000

Crash Modification Factors	*F+I*		*PDO*	
	Multiple	*Single*	*Multiple*	*Single*
Lane width	1.000	1.000	1.000	1.000
Outside shoulder width	1.014	1.014	1.014	1.014
Median width	1.000	1.000	1.000	1.000
Median barrier	0.600	1.967	0.600	1.967
Highway-rail grade crossing	1.000	1.000	1.000	1.000
Major commercial driveways	1.282		1.282	
Major industrial driveways	0.989		0.989	
Minor driveways	0.947		0.947	
Automated speed enforcement	1.000	1.000	1.000	1.000
Roadside fixed objects		1.196		1.196

Safety Prediction Worksheet for Urban and Suburban Arterial Intersections

General Information

Analyst	TL
Agency	ATCS
Date	1/31/2022
Location	Montgomery County

Site Information

Major street name	Shady Grove Rd
Minor street name	Choke Cherry Rd
Intersection number	2
Analysis year	2045

Add to Totals worksheet | Restore equations | Reset input cells

Output Summary

Predicted crash frequency, crashes / year

	F+I	PDO	Total
Total crashes	4.290	3.529	7.819
Total-vehicle crashes	3.897	3.529	
Vehicle-pedestrian crashes	0.252		
Vehicle-bicycle crashes	0.141		

Combined CMF

	F+I	PDO
Total-vehicle crashes	0.731	0.731
Vehicle-pedestrian crashes	4.150	

Severity distribution for F+I crashes

K	A	B	C
0.023	0.226	1.134	2.906

Input Data	*Value*	*Advisory Messages*
Intersection Data		
Area type	Suburban	.
Number of legs	4	**4SG intersection type**
Traffic control type	Signalized	.
Lighting present?	Yes	.
Red-light cameras present?	No	.
Daily pedestrian volume crossing all legs (peds/day)	237	.
Maximum number of lanes crossed by a pedestrian	8	.
Number of bus stops within 1,000 ft of intersection	2	.
School(s) present within 1,000 ft of intersection?	No	.
Alcohol sales establishments within 1,000 ft	0	.

Street Data	*Major*	*Minor*	
Street configuration	Two-way	Two-way	**2x2 intersection configuration**
Annual average daily traffic (AADT), veh/day	42473	9303	.
Number of through lanes	6	4	.
Number of approaches with left-turn lanes	2	1	.
Number of left-turn movements with protected phasing	0	2	.
Number of right-turn movements prohibited on red	0	0	.
Number of U-turn movements prohibited	0	0	.
Number of approaches with right-turn channelization	0		.

Calibration Factors	*Value*	*Default Values*
Local calibration factor (C)	1.000	1.000
Adjustment factor for pedestrians for stop control (f_{ped})	0.049	0.049
Adjustment factor for bicyclists (f_{bike})	0.019	0.019
Severity distribution calibration factor, 2-way ($C_{sdf,twi}$)	1.000	1.000
Severity distribution calibration factor, 1-way ($C_{sdf,owi}$)	1.000	1.000
Probability of fatality given K+A severity ($P_{K\|K+A}$)	0.094	0.094

Manner of Collision Proportions

2x2 intersections	3ST, F+I	3ST, PDO	3SG, F+I	3SG, PDO	4ST, F+I	4ST, PDO	4SG, F+I	4SG, PDO
Rear-end collision proportion	0.094	0.154	0.120	0.189	0.079	0.098	0.083	0.148
Angle colllision proportion	0.764	0.629	0.676	0.554	0.806	0.707	0.746	0.552
1x2 or 1x1 intersections	3ST, F+I	3ST, PDO	3SG, F+I	3SG, PDO	4ST, F+I	4ST, PDO	4SG, F+I	4SG, PDO
Rear-end collision proportion	0.100	0.100	0.111	0.143	0.047	0.065	0.030	0.059
Angle colllision proportion	0.300	0.250	0.889	0.571	0.822	0.706	0.837	0.733

Crash Modification Factors	*F+I*	*PDO*
Total-vehicle crash CMFs		
Lighting	0.911	0.911
Red-light cameras	1.000	1.000
Left-turn signal phasing	0.740	0.740
Right-turn-on-red	1.000	1.000
U-turn prohibition	1.000	1.000
Right-turn channelization	1.000	1.000
Number of lanes	1.085	1.085
Vehicle-pedestrian crash CMFs		
Bus stops	4.150	
Schools	1.000	
Alcohol sales establishments	1.000	